COMPLIANCE TRACKING PROGRAM

Woolgoolga to Ballina (section 3-11)

Pacific Highway Upgrade

Six Monthly Construction Compliance Report (April – September 2017

FEBRUARY 2018

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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).
CRO	Community Relations Officer
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.
EMS	Environmental Management System
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPA	Environment Protection Authority
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
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 (eg EPA, DPI – Fisheries Conservation and Aquaculture, NOW) and councils (Clarence Valley Council and Richmond Valley Council). The ERG meets regularly and provides proactive advice on environmental management issues and review the environmental performance of the Project.
EWMS	Environmental Work Method Statements
HPG	Hydrostatic Profile Gauge
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
Secretary	Secretary of the Department of Planning and Environment
SPIR	Submission / Preferred Infrastructure Report
RMS	Roads and Maritime Services

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 155 kilometre upgrade between Woolgoolga to Ballina is the last highway link between Hexham and the Queensland border to be upgraded to four lanes. The project will duplicate the existing highway to two lanes in each direction from about six kilometres north of Woolgoolga (north of Coffs Harbour) to about six kilometres south of Ballina.

The project bypasses the towns of Grafton, South Grafton, Ulmarra, Woodburn, Broadwater and Wardell. The project will include building new lanes and realigning the road.

Key features of the upgrade include:

- Duplicating 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
- More than 100 bridges including major crossings of the Clarence and Richmond rivers
- Bridges over and under the highway to maintain access to local roads that cross the highway
- Access roads to maintain connections to existing local roads and properties
- Structures designed to safely encourage animals over and under the upgraded highway where it crosses key animal habitat or wildlife corridors
- Rest areas conveniently located at intervals to assist with reducing driver fatigue
- Heavy vehicle checking stations near Halfway Creek and north of the Richmond River
- Connections from the project to the local road network and other sections of the Pacific Highway
- Emergency stopping facilities, and U-turn bays
- Relocation of utilities and provision of roadside furniture, fencing (including wildlife exclusion fencing) and lighting.

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 Woolgoogla 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 WSP 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).

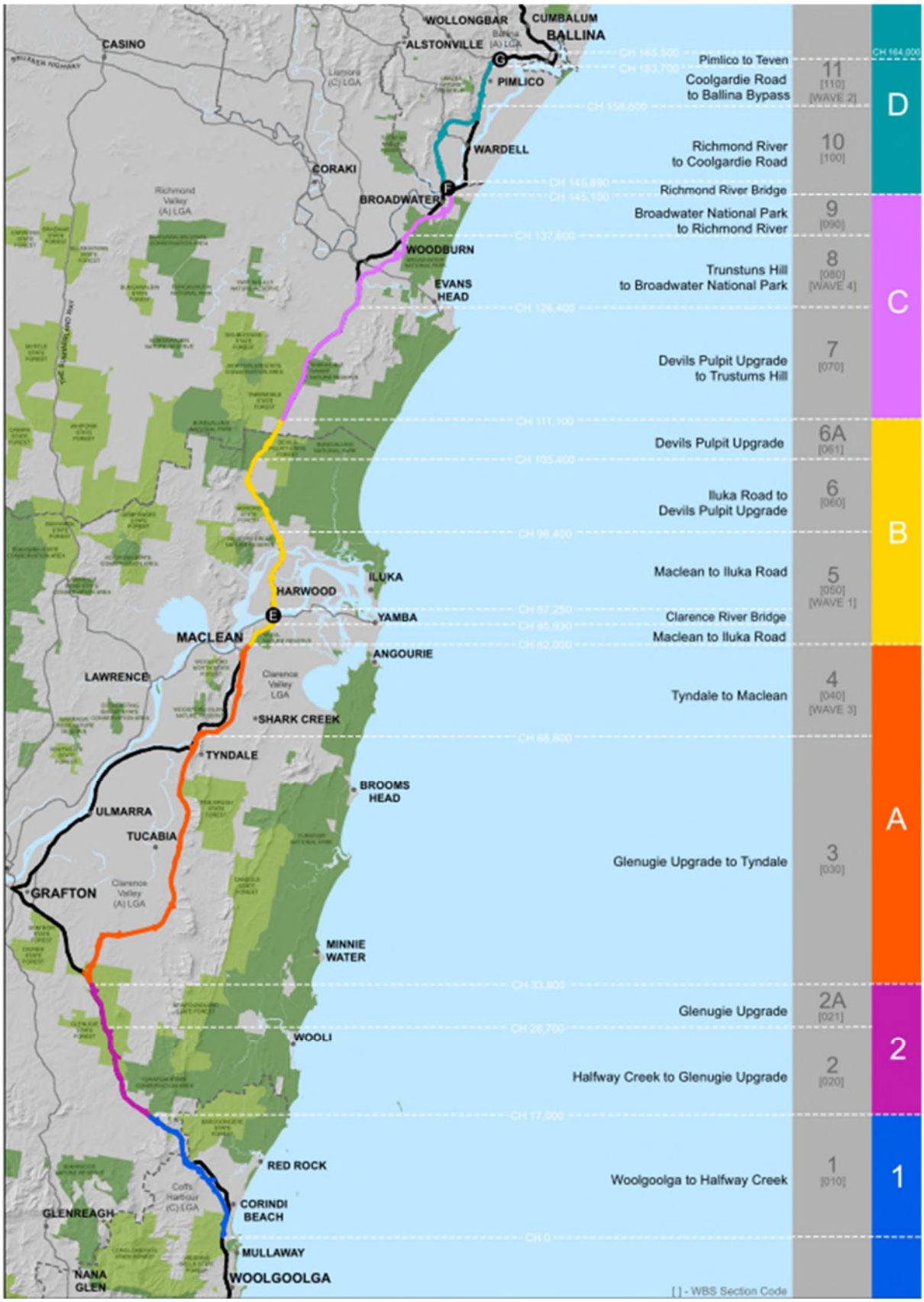

Figure 1 Woolgoolga to Ballina project

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 to the Department. An updated report – version 6 – was provided to the Department on 29 November 2016.

1.3 Purpose

This plan has been developed to address the requirements of the Ministers Conditions of Approval (MCoA) D27. The Woolgoolga to Ballina Compliance Tracking Program – Sections 3-11 was approved by the Department on 16 March 2016.

This report addresses the reporting period between 1 April and 30 September 2017.

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 Impact Statement* (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; Modification 2 dated 7 October 2015; and Modification 5 dated 27 September 2017).

2 Scope of the activities undertaken during the reporting period

The approved Construction Environmental Management Plan Section 2.3, Table 2-4 provides an overview of the construction activities across the project. Table 2-1 below provides an outline of these activities and location that were undertaken during the reporting period of 1 April 2017 to 30 September 2017.

Table 1 Scope of activities undertaken during the reporting period

Construction activities	Typical activity	Glenugie to Maclean	Maclean to Devils Pulpit	Devils Pulpit to Richmond River	Richmond River to Ballina
Enabling works	• Progressive installation of environmental controls including temporary or permanent fencing, enabling noise mitigation measures • Conduct pre-clearing vegetation fauna surveys (to allow for utility adjustments) • Clearing of vegetation and processing of materials (to allow for utility adjustments) • Demolition of existing buildings and structures.	√	√	√	√
Relocation or protection of services	• Preclearance checks • Gas • Electricity • Water • Telecommunications infrastructure.	√	√	√	√
Site establishment	• Installation of boundary fencing • Establishment of construction facilities • Establishment of stockpile sites and ancillary facilities including batch plants • Installation of environmental controls, ie, erosion and sediment controls • Pre-clearing vegetation fauna surveys • Temporary traffic management arrangements • Construction of access roads • Progressive installation of environmental controls including temporary or permanent fencing, construction and operational noise mitigation measures • Construction of diversion and catch drains along the formation and sedimentation control basins or swales (where required)	√	√	√	√

Construction activities	Typical activity	Glenugie to Maclean	Maclean to Devils Pulpit	Devils Pulpit to Richmond River	Richmond River to Ballina
	• Clearing of vegetation and processing of materials • Removal of harvestable timber • Temporary upgrade work for existing local roads and intersections. • Installation of crane pads				
Bulk earthworks	• Implementation and construction of local roadworks and any local road diversions including any construction of side roads to maintain existing traffic movement (where required) • Stripping topsoil and stockpiling it for reuse in landscaping • Embankment foundation or soft soils treatments, such as the installation of wick drains and drainage blankets • Installation of settlement plates and additional geotechnical investigations • Excavation of cuttings, including the processing, stockpiling or haulage of material; blasting activities and stabilisation of batters • Construction of embankments, including foundation drainage. • Construction of temporary rock platforms for utility relocations that require underboring; and underboring works. • Treatment of acid sulfate soils • Material extraction	√	√	√	X
Drainage and structures	• Installation of cross-drainage, including culverts and inlet and outlet work including any channel diversions and scour protection work • Construction of any retaining walls • Installation of fauna connectivity structures • Construction of subsurface drainage • Installation of longitudinal and vertical drainage in cuttings and embankments. • Temporary jetty construction • Impact and vibratory piling	√	√	√	X

Construction activities	Typical activity	Glenugie to Maclean	Maclean to Devils Pulpit	Devils Pulpit to Richmond River	Richmond River to Ballina
Bridge construction	• Establishment of bridge work compounds • Installation of rock caissons or cofferdams or temporary access roads/platforms across waterways • Construction of piling pads • Installation of bridge foundations (driven or bored piles, pile caps and footings) • Construction of bridge abutments and piers, concrete pours and placement of headstocks and sill beams • Construction of bridge superstructure including deck and pavement work • Construction of scour protection along the waterway or waterfront land. • Temporary working platform construction • Installation of fauna passages under bridge BC51 • De-fishing activities	√	√	√	√
Rest areas	• Establishment of rest area work compounds • Construction of base and select layers of materials • Construction of pavement layers • Installation of structures (wash rooms, seating, information boards, line markings) • Reuse of topsoil • Planting of native plants and seeding disturbed areas with native and cover crops species.	X	X	X	X
Pavement work	• Construction of base and select layers of materials • Construction of pavement layers • Construction of pavement drainage, including kerb and gutter (where required) • Construction of concrete barriers, wire rope fencing and guardrails.	X	√	X	X
Road furniture	• Installation of signage • Line marking • Installation of safety barriers.	X	√	X	X

Construction activities	Typical activity	Glenugie to Maclean	Maclean to Devils Pulpit	Devils Pulpit to Richmond River	Richmond River to Ballina
Landscaping and restoration	• Reuse of topsoil • Planting of native plants and seeding disturbed areas with native and cover crops species (note this will take place throughout construction as elements of the work are complete where ongoing disturbance is not anticipated). • Hard landscaping beneath existing and new bridges, native planting and native hydro-mulching. • Remediation of contaminated land sites	X	√	√	X
Open to traffic	• Electrical and signage testing • Commissioning and final check • Decommissioning of construction facilities • Remove construction environmental controls • Handover the road to the operations and maintenance team • Road open to traffic.	X	X	X	X

2.1 Environmental Approvals

The following environmental approvals were received during the reporting period:

- Lumleys Borrow Site Management Plan
- Gibsons Borrow Site Management Plan
- Jali Borrow Site Management Plan
- Modification 5 – modification to MCoA B8, B9, B13
- Richmond River Embankment investigation to satisfy MCoA B43

2.2 Ancillary Facilities

Ancillary Facilities for the project are being managed in accordance with the approved Ancillary Facilities Management Plan developed to satisfy MCoA D21 and approved by the Department on 10 Feb 2016. Table 2.1 below lists the Ancillary Facilities approved for use during the reporting period.

Table 2 Ancillary Facilities approved during the reporting period

Facility # (ID / Name	EIS Section	Type of Facility	Approval Date
Section 5, Site 2b - South West Ancillary Facility Satellite Compound #005	5	Major	4-Apr-17
D10 - Bridge over Randal's Creek (MiAF)	10	Minor	6-Apr-17
D50 & D51 - Fauna Bridges 1 & 2 (MiAF)	10	Minor	6-Apr-17
D57 - Fauna Bridge 7 (MiAF)	10	Minor	6-Apr-17
McAndrew's Lane Minor Ancillary Facility (MiAF)	11	Minor	13-Apr-17
Trailer Mounted Portable Toilets (MiAF) / Yamba Interchange to Devils Pulpit	5 & 6	Minor	13-Apr-17
Mororo West Cut (MiAF) / Acid Sulfate Material Treatment Area & Stockpile	5	Minor	22-Apr-17
Carroll's Lane to Fischer's Lane Stockpile (MiAF)	5	Minor	4-May-17
Section 10, Site 1c - Richmond River Bridge Compound	10	Major	7-May-17

Facility # (ID / Name	EIS Section	Type of Facility	Approval Date
Chatsworth South East (E5) & West (E7)Temporary Stockpile (MiAF)	5	Minor	8-May-17
Yamba Diversion Gate 5A (MiAF) / Yamba Diversion Mobile Crib Facility	5	Minor	17-May-17
Vehicle Parking Area - Convent / Harwood Bridge (MiAF) / #012	5	Minor	23-May-17
East Vehicle Parking Area - River Street / Harwood Bridge (MiAF) / Addendum River St Access Track #010	5	Minor	23-May-17
Carroll's Lane West (MiAF)	5	Minor	24-May-17
Section 10, Site 3c - Wardell Road Satellite Compound	10	Major	21-Jun-17
Portion B Access Tracks Variation (MiAF) Chatsworth Rd Access Track	6	Minor	10-Jul-17
Pimlico to Teven Stage 3 (MiAF)	11	Minor	27-Jul-17
Section 10, Site 3a - Lumleys Hill Batch Plant	10	Major	28-Jul-17
Section 5 Site 3a & 3b Addendum #2 to Main Site Compound Harwood Ancillary Facility – Access Track to Jetty	5	Addendum	2-Aug-17
OPP Soft Soils Temporary Site Office (MiAF)	8	Minor	4-Aug-17
Section 5 Site 3a & b Addendum # 3 to Main Site Compound Harwood Ancillary Facility - Carpark Extension/ Widening Existing Carpark	5	Addendum	22-Aug-17
Bridge 52 - AFS (MiAF) Mobile	5	Minor	29-Aug-17

Facility # (ID / Name	EIS Section	Type of Facility	Approval Date
Section 6, Site 3 - ASSTA (SCE) (MiAF)	6	Minor	7-Sep-17
Shark Creek Ancillary Facility (MiAF)	4	Minor	20-Sep-17
Menard Site Office (MiAF) / #016	5	Minor	24-Sep-17

3 Performance of environmental controls

The construction activities are managed in accordance with the approved Construction Environmental Management Plan (CEMP) and subplans. Key features of the environmental management during the reporting period are outlined below.

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 by construction contractors and their soil conservationists 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. These plans continue to be developed throughout the project to address progressive changes in site conditions and stages of works.

The Project Soil Conservationist continues to actively provide guidance to contractors through performing regular scheduled inspections and monitoring, provision of actions following inspections and the review and approval of ESCPs. Contractors Certified Practising in Erosion and Sediment Control (CPESC) also provides training to site personnel, including practical sessions.

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, silt curtains (nearshore works), earth, rock or mulch bunds, clean rock armouring, sand bags, mulch silt socks, clean water diversions, swale buffers, batters stabilised with soil binder and hydromulch, batter chutes and bunds to direct water, infiltration drains/areas, and clean water drains.
- Implementation and maintenance of stabilised rock or rumble grids at entry/exit points to reduce tracking of mud onto public roads.
- Staged clearing to reduce exposed areas by reviewing the need for ground disturbance on a site by site basis.
- To minimise erosion during clearing, the spreading of mulch has been successfully utilised as a ground cover, where appropriate.
- Temporary stabilisation measures have been implemented across site such as:
    - Gravel and paved areas in ancillary, lay down and disturbed areas, .
    - Temporary seeding to encourage temporary vegetation growth rather than using materials that may be source of future waste
    - Application of hydomulch
    - Use of geofrabric and synthetic products to provide structural support and stabilisation in key areas.
- Use of mulch for perimeter controls of site.
- Compound and crane pads have earth bunds placed around the permitter with rock lined spillways installed at appropriate intervals.
- Environmental work method statements (EWMS) prepared to address erosion and sediment control, such as:
    - EWMS for operation of sediment basin
    - EWMS for piling and compound construction
    - EWMS for access track works and vegetation clearing
    - EWMS for working in proximity to a watercourse
    - EWMS for temporary waterway crossings
    - EWMS for temporary rock platforms and temporary jetty
    - EWMS for operation of concrete batch plant and precast yard
    - EWMS for earthworks
    - EWMS for Acid Sulfate Materials Management
    - EWMS for Acid Sulfate Treatment

- EWMS for Local excavation of Abutments, Pour Wingwalls, Place Sill Beams and Backfill

Erosion and sediment controls are monitored regularly through:

- Daily monitoring by Contractors Construction Teams
- Pre and post rainfall inspections
- Weekly or more frequent inspections by the Pacific Complete project team
- Fortnightly inspections by Independent Certified Practising in Erosion and Sediment Control (CPESC)
- Fortnightly inspections by independent Environmental Representative and Roads and Maritime Services.
- Monthly by Pacific Complete CPESC

Key erosion and sediment control activities during reporting period

Management of construction water near Bridge 10 over Tabbimobile Floodway

Management of construction water near the sensitive Oxleyan Pygmy Perch (OPP) habitat areas near Tabbimobile Creek has required a significant amount of planning and consultation with DPI Fisheries to ensure the area is managed appropriately. At the site of Bridge 10 located over the Tabbimoble Floodway in the OPP habitat area, a unique erosion and sediment control strategy was implemented across site to capture all construction impacted water up to a rainfall event of 64mm over a 5 day period. On-site sumps were formed on the north and south side of the site. The local site management approach was to ensure that construction impacted water drains to the sumps and this water was then pumped to a nominated land irrigation basin. As outlined in the project Environmental Protection Licence, this construction water is then irrigated to adjacent land while ensuring compliance with the EPL criteria. The establishment and planning undertaken for this constrained work site included installation of subterranean drainage structures beneath temporary works platforms to manage the construction water during construction. In addition these controls were retained in place as construction activities were progressively finished and final landscaping treatments were installed ensuring the area was effectively managed until stabilised.

Management of erosion and sediment risks near OPP habitat

A number of construction activities were undertaken during the reporting period in and adjacent to OPP habitat areas on the project. These works required substantial erosion and sediment controls to cater for the temporary and permanent diversion of drainage lines and cane drains, as well as catering for construction activities such as clearing activities and earthworks.

In general the ERSD controls were identified as performing effectively across the project with good implementation of controls during the clearing phase, including the establishment of initial perimeter controls and clean water diversions, prior to progressing to full scale clearing works. Some areas of the project are subject to seasonal restrictions due to the OPP habitat and spawning season. These areas are required to be stabilised prior to this season. Feedback received from the project Environmental Review Group in September just prior to this season restriction was that the ERSD controls installed in these high risk areas were of a very high standard.

The project team worked with DPI Fisheries to review scope of works in OPP habitat areas and identify potential opportuinties to install final engineering and permanent landscape treatments as part of current construction activities, rather than cease works this season and then recommence following the OPP spawning period in May 2018. This proposal provided a number of benefits including minimising disturbance to natural creek and OPP areas, early installation and establishment of landscaping, reduce overall duration of high risk activities. This was subject to a Modification to project approval requirements (Mod 5) which was approved by Department of Planning and Environment on 27 September 2017. Notwithstanding this modification construction efforts were focussed on finishing works as soon as possible in these sensitive areas.

Some examples of the measures implemented to stabilise these key areas for the duration of the spawning season are detailed below.

Figures 2 Erosion and sediment controls implemented prior to shutdown for OPP Spawning Season (October to April)

Overall feedback from Environmental Review Group (ERG) inspections has been positive, especially in regard to mulch as perimeter control and rectification of only minor issues identified. Some issues identified on site and during ERG inspections include:

- Continual maintenance reinforced in regard to site accesses and temporary waterway crossings.
- Watering of hydro seed areas close to OPP habitat to speed stabilisation of drainage lines.
- Limit use of timber mulch to only areas assured to be clear of standing water, so this doesn't pose a tannin generation risk.
- Ensure that mulch is managed appropriately to minimise risk of tannin generation
- Reviewing choice of materials used for bunds and capping of piling pads to reduce maintenance requirements

3.2 Protection of waterways

The Woolgoolga to Ballina upgrade project includes the construction of over 100 bridges over creeks, rivers and floodplains, including major bridge crossings of the Clarence and Richmond Rivers. The construction activities 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 include but are not limited to Serpentine Channel, Edwards Creek, Shark Creek, Clarence River, Coldstream River, Tabbimoble Creek, James Creek, Tuckombil Canal, three major farm drains - Crackers, Lees and Edwards, Black Snake Creek, Pillar Valley Creek, Chaffin Creek, Champion Creek, various town drains (ie, Woodburn), Montis Creek tributary and unnamed waterways and drainage lines.

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 and implementing cut-stump clearing where appropriate to minimise disturbance and maintain root mass for structural stability.
- 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

- Regular maintenance of controls adjacent to waterways
- Ongoing maintenance of scour protection and silt curtains
- Silt curtains incorporating an oil containment boom were used nearshore during construction of a temporary jetty at Harwood Bridge.
- Barges are bunded and the hydraulic lines are sheathed in geotextile. All barges are inspected prior to mobilisation.
- Oil containment boom used during piling and pile excavation activities on marine and land.
- Spill response training for site personnel and a spill response drill which also tested the Pollution and Incident Response Management Plan (PIRMP).
- Controls implemented to reduce risk of alkaline runoff (from concrete) entering waterways.
- Procedural development for temporary waterway crossings included:
    - EWMS development in consultation with EPA and DPI Fisheries,
    - EWMS for dewatering during construction
    - toolbox talks,
    - Severe Environmental Risk checklist and,
    - a Technical Briefing/Minimum Standard Guideline.

Figure 3 – spill containment boom deployed to manage works in river

Key activities to protect local waterways during the reporting period

Management of bridge piling platforms

Key innovations to manage the bridge construction platforms have included installing geofabric on the pad platform to maintain a clean platform during excavation of a pile, ie preventing a build-up of fines and the risk of fines entering waterways. Temporary shrouds have also been used around concreting equipment for safe and efficient cleaning and management of material. These controls are installed to contain and capture any material that is generated during the process of transferring pile spoil material into adjacent spoil bins located on the platforms.

Management of local cane drains

A number of cane drains traverse the access tracks work site near Chatsworth which require a clean and free drainage passage to be maintained. Installation of temporary waterway crossings has included placing geofabric material over drain bed with pipes and clean rock to permit machinery passage. Materials have been managed to ensure drains are not obstructed particularly during rainfall events. Dedicated traffic exclusion lanes have allowed heavy vehicles and plant to move along the existing road reducing risks associated with machinery crossing road-side and adjacent to cane drains.

A number of East Coast Lows and significant rain events were experienced over the 6 month timeframe of this report which resulted in considerable flooding and over a 1m of rain falling across the project. This significantly delayed the program of works within the Woodburn town drain and required considerable management of the site during the works. Overall the site was effectively managed to complete the construction with no erosion or sedimentation incidents occurring during the program of works.

Following consultation with DPI Fisheries and DP&E, the program of works for Section 8 and 9 were conducted outside of the OPP spawning season to further mitigate any potential impacts to the threatened fish. The installed controls were effective in mitigating any sediment impacts to the waterways during construction and final stabilisation controls were applied to the completed embankment.

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.

3.3 Flora and fauna

A wide range of Endangered Ecological Communities (EEC) and threatened flora and 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: piling, clearing of vegetation near and within Coastal Emu, Flying-fox, Koala, Grey Headed Flying-Fox, Long-nosed Potoroo, Oxleyan Pygmy Perch, Coastal Petal Tail Dragonfly, microbats Little Bent-Wing and Southern *Myotis*, Wallum Sedge Frog and Green-thighed Frog habitats; and earthworks resulting in potential dust impacts to threatened flora species including the Sandstone Rough-barked Apple, Hairy Joint grass, Four Tails Grevillea, *Rotala tripartita* Singleton Mintbush and Tall Knotweed.

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

- Environmental Work Method Statements developed, approved and communicated to work teams regarding risks to flora and fauna.
- Ongoing inductions and training on the occurrence of threatened species and EECs across the project. The environmental induction include the locations of sensitive areas on Sensitive Area Plans, the importance of not entering clearing limits no-go fencing, unexpected finds procedure, etc.
- Continued training and inductions on Koala Zero Harm program, Coastal Emu Management Plan and Long-nosed Potoroo requirements, carried out for all personnel.
- Installation and monitoring of fauna fencing and escape structures, including temporary, permanent and project boundary/clearing limit fencing and delineation of protected areas.
- Collection of incidental Emu sighting data and construction of temporary and permanent Emu fencing and Emu races through construction corridor.
- Pre-clearing fauna surveys and Ecologist and spotter / catcher present during clearing operations and post-clearing surveys to check no animals were injured.
- Pre-clearing flora surveys undertaken included targeted searches for EECs and threatened flora species. These surveys have covered the entire project.
- Inspection of timber windrows from prior days clearing prior to mulching.

- Installation of erosion and sediment controls such as plastic barriers, signage to delineate the 50m exclusion zone and activities such as refuelling outside this zone to prevent disturbance to Oxleyan Pygmy Perch habitat.
- 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
- Installation of both Koala and Emu signage has been undertaken in known habitat areas.
- Continuation of the restrictions on construction traffic speed along the construction corridor, communicated project wide.
- Chytrid protocol and temporary frog fencing was implemented at locations where threatened frogs were identified in consultation with the EPA Biodiversity Unit.
- Prior to clearing all significant fauna habitat trees were clearly marked during a pre survey undertaken by the project ecologist. Prior to commencement of clearing operations 70% of the next boxes were installed to offset and provide alternative habitat resource for native fauna.
- Measures to ensure protection of koalas during clearing and grubbing of key habitat areas included:
    - Installation of temporary koala fence and associated escape structures on both sides of the existing highway.
    - Pre-dawn surveys by the project ecologist.
    - Installation of koala grids and gates into construction areas
    - Koala detection dog surveys ahead of clearing works.
    - Installation of vehicle activated signage in koala hotspots
- Long-nosed Potoroo trapping with cage traps within mapped habitat as part of pre-clearing surveys.
- 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

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

- Alternative fence opening and closing procedures for Coastal Emu chick fence monitoring and maintenance during earthworks and piling operations.
- A positive change in methodology for use of polymer for piling operations.
- Implementation of OPP mitigation measures, observed during and after successful de-watering and de-fishing activities in Section 8.
- Retention of OPP habitat pond and refuge pool near Broadwater Service Road.

Other successful management controls of interest during the reporting period include, but are not limited to:

- An Osprey Nest is located to the south west of the project, outside the project site boundary. To ensure construction activities have no impact on the Osprey, there are no lifting activities within 100m of the nest within breeding season (March-December). Other measures include the use of cover plates over mobile components at the highest part of the crane boom, pre-work survey for the presence of Ospreys, targeted EWMS and toolbox talks.
- At Harwood Bridge, over the Clarence River, designated spotters are used to observe a shut-down zone of 300m radius around the piling rig for a minimum of ten minutes before piling commences, to ensure no dolphins or turtles are within the area. If dolphins or turtles are spotted, the site is shutdown to enable the animals to move out of the area and then piling is commenced with a ‘soft start’, ie, gradual increase in hammer energy over a 3 – 5 minute period.
- An innovation to the Emu fencing was to replace the sediment fence material in certain locations with chicken wire mesh to allow waters to pass through and smaller fauna such as skinks, snakes and insects to pass through

During construction opportunistic fauna encounters/observations that are not specifically related to clearing activities are being captured on fauna registers. 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):

- A White-bellied Sea-Eagle has been recorded on two occasions between Maclean and Devils Pulpit, including flying over the general area, and attempting to eat a Northern Brown Bandicoot carcass.
- The migratory bird Rufous Fantail (*Rhipidura rufifrons*) has also been recorded in August between Maclean and Devils Pulpit, foraging in the general area. No nests have been encountered.
- A Powerful Owl was recorded during pre-dawn spotlighting surveys, roosting in a Blackbutt tree on the eastern side of the highway at approximate chainage 97100
- One confirmed record of the Squirrel Glider (*Petaurus norfolcensis*) was made by the ecology team in the vicinity of Sommervale Road .
- Records of the Rufous Bettong (*Aepyprymnus rufescens*) during ecological surveys through the project, south of Coldstream River.
- The Grey-crowned Babbler (eastern subspecies) (*Pomatostomus temporalis temporalis*) Spotted regularly in and around the site between Tyndale and the southern extent of the project. No nests were encountered during pre-clearing survey's/clearing supervision of the site.
- Coastal Petaltail Dragonfly (*Petalura litorea*) has been recorded during clearing activities around and north of Chaffin Creek.
- Two Eastern Freetail-bat (*Mormophterus norfolkensis)* were encountered by the ecology team within a hollow-bearing tree south of Mitchell Road in Portion A.
- Records of the Coastal Emu (*Dromaius novaehollandiae*) were made predominately outside the project area. Records were collected at the following locations: Tyndale – south, Mitchell Road locality, Pillar Valley floodplain.

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.

Fauna & Flora Relocations

An unexpected find of the Slender Screw fern occurred during the reporting period. The Slender Screw fern was identified in the clearing area during the surveys undertaken for the EIS. Pre-clearing ecological surveys, and inspection efforts during clearing, identified an increase in Slender Screw ferns fronds than previously mapped (approximately 8000+ more fronds than originally identified in the EIS). These plants were translocated by the project translocation specialist Dr Andrew Benwell in accordance with the approved Translocation Strategy.

Hairy Jointgrass (*Arthraxon hispidus)* was identified in between Richmond River and Ballina. A representative sample of the species was translocated to a suitable receiving site adjacent to the Project and appropriate mitigation measures were implemented during clearing and grubbing. Such measures included appropriate flagging off of the areas as no go zones and communication to site teams of the mitigation measures during construction.

One Hairy Melichrus (*Melichrus hirsutus*) was identified within the alignment near Firth Heinz Road. The plant was reported as an Unexpected Find and subsequently confirmed and translocated by botanist, Dr Andrew Benwell.

Noahs False Chickweed (*Lindernia alsinoides*) was identified during the pre-clearing surveys in the Pillar Valley. The population of this species (approximately 0.01 ha) was reported as an Unexpected Find and subsequently confirmed and translocated by botanist, Dr Andrew Benwell.

Hairy Jointgrass (*Arthraxon hispidus*), and Four-tailed Grevillea (*Grevillea quadricauda*), were confirmed within part of the alignment in the vicinity of Tucabia. Additional translocation of this species was managed by Pacific Complete prior to clearing commencing in this area.

A number of planted saplings of the Square-fruited Ironbark (*Eucalyptus tetrapleura*) were located south of the Coldstream River. These trees were reported as an Unexpected Find with a number of these saplings occurring within the clearing boundary being translocated by botanist Dr Andrew Benwell.

Native stingless bees have been identified on site in the Tyndale – Maclean area, with bee hives rescued and relocated during clearing works. Performance of these relocated bee hives has been monitored.

One Greater Glider (*Petauroides volans*) was captured and relocated by ecologists during felling of a habitat tree south of Summervale Road .

A number of Brush-tailed Phascogale (*Phascogale tapoatafa*) individuals recorded during felling of habitat trees including nine (9) animals which were captured/relocated from the works. Most of these animals were collected in Spotted Gum forest habitats south of the Coldstream River.

During de-watering of an unnamed creek near Old Six Mile Lane (Section 3, Portion A), a number of fish, eels, yabby and frogs (tadpoles) were relocated approximately 60m downstream into a larger, deeper refuge waterhole. None of the species were threatened or unexpected finds. These species were relocated in accordance with the Dam Dewatering Process.

A number of snakes have been relocated to outside the project boundary.

At the Woodburn Broadwater Service Road , clearing works were ceased on two occasions when a koala was identified within the clearing area. On one occasion the koala did not move offsite of its own accord within 48hours and a capture/relocation was undertaken by the specialist koala ecologist.

With exception of the koala record outlined in Section 3.3 above, there has been only one unexpected fauna find: Coastal Petaltail Dragonfly (*Petalura litorea*) has been recorded during clearing activities around and north of Chaffin Creek. Records were reported as an Unexpected Find although this species is discussed in the W2B Threatened Invertebrate Management Plan.

Figure 3 A Koala identified near the Woodburn Broadwater Service Road, August 2017

The positive culture on the project has seen injured animals identified by project staff on the surrounding local road network assisted and delivered to wildlife carers within the Northern NSW WIRES network.

In accordance with the approved Nest Box Strategies for the project, 55 nest boxes were installed during the reporting period, with a total of 516 nest boxes installed to date by the end of the reporting period. A further 41 nest boxes have been installed in addition to those identified in the Nest Box Management Plans, in relation to associated works such as utility and ancillary facility construction.

3.4 Heritage

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.
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 and implemented out on site.

Attended vibration monitoring was undertaken at the Harwood Brigade Hall, a non-Aboriginal heritage item, during impact piling works to ensure that piling energies were managed and that vibration criteria for heritage structures (3mm/s) was not exceeded.

10-20mm Steel plates have been installed over non-Aboriginal heritage train tracks at Harwood off-ramp for the section within the Harwood project boundary. These plates protect the tracks from any impacts from being traverse by construction vehicles, plant or equipment.

Sections of the project are located within areas that are determined under the Native Title Act. The Federal Court of Australia recognised the native title rights and interests of the Yaegl People to land and waters in their native Title Determinations Applications (Federal Court Proceedings NSD 6052/1998 and NSD 168/2011) on June 25 2015. Sites officers from the Yaegl Traditional Owners group were engaged to undertake cultural heritage monitoring for geotechnical investigations undertaken within the banks and bed of Clarence River and tributaries covered in these Determinations.

A number of potential unexpected heritage finds were identified during the reporting period. These included:

- A horse shoe was excavated during drain construction at Harwood Bridge. Following investigation, this item was considered to be of no heritage value.
- A glass bottle was also excavated during drain construction at Harwood Bridge. Following investigation, this item was considered to be of no heritage value.
- Brick foundation, loose bricks and coal pieces were uncovered during excavation of road footprint at Harwood Bridge. Following investigation, these items were considered to be of no heritage value.
- Two potential heritage survey marker trees were identified, one adjacent to Beekeepers Rest Area and another located further south of Mororo within area to be cleared as part of fencing activities. Both trees were assessed by the project heritage specialist with only the tree located south of Moroo deemed to be of local significance and will be retained.
- Potential heritage scar trees were identified south of Maclean. After appropriate Aboriginal cultural heritage assessment, it was deemed that these trees were of no cultural heritage significance and not scar trees.
- Ground edge axe was identified during topsoil works near Tyndale. Item reviewed and identified as having high cultural significance. Registered Aboriginal Parties and OEH were notified and area clearance provided after assessment of item.

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.

During September 2017, Pacific Complete invited local Aboriginal Elders to lead a number of traditional smoking ceremonies at site compounds across the project. These are an important way for personnel to learn about, celebrate and pay respect to Aboriginal culture and the land, ensuring longevity of these ancient practices.

3.5 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 (13 occurrences) including one trial blast
- Rock breaking at Tyndale south as part of drainage works
- Cut rock hammering and crushing works (associated with many cuts)
- Clearing and grubbing (including mulching)
- General earthworks
- Impact piling and subsequent vibration monitoring.
- Driven and bored piling
- Concrete pours (long pours out of hours)

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
- Review of construction activities to ensure planning of noisy works occurs during standard hours wherever possible.
- 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.
- Review of vibratory piling activities to determine tonal, impulsive or low frequency characteristics of the construction activity.
- Prepare EWMS relative to site works
- 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.
- Noise monitoring has been undertaken to check that noise mitigation measures are effective. Noise monitoring may also be carried out for the purpose of refining construction methods or techniques to minimise noise.
- To mitigate truck and heavy vehicle noise annoyance, controls implemented include speed restrictions and hours of operation.
- Plant and equipment used across the project must be maintained in sound working order, meeting manufacturer specifications.
- Noise generating works were at times managed with reduced start and finishing times, and were carried out for periods of three hours with one hour breaks.
- Building condition surveys undertaken for all piling locations.
- Piling activities were scheduled outside of School NAPLAN exam periods, held at Harwood Public School on two separate occasions during the reporting period.
- Proactive community consultation has been undertaken throughout the project in relation to noise and vibration works.
- Vibration monitoring has been carried out at nearby residents during blasting operations
- Vibration monitoring has been carried out at nearby residents during land piling, especially for piles closest to sensitive receivers.

3.6 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.
- Placement of spill kits at appropriate locations and spill response training of staff.
- Undertaking asbestos contamination audits prior to the demolition of residential buildings.
- Transporting surplus mulch material to Cape Byron Cogeneration Plant for beneficial electricity generation.
- Re-use of root balls from clearing & grubbing for creek bank stabilisation program undertaken by EPA & DPI Fisheries.
- Reuse of timber on site for fauna furniture in connectivity structures, such as culverts.
- Waste concrete and scrap steel / other metal sent offsite for recycling.
- Installation of recycling skip bins at work compounds across the project.
- Appropriate storage and handling of hazardous products (e.g. fuels and chemicals) within appropriately sized bunded areas, located away from waterways and drainage lines and including registers and safety data sheets for all stored chemicals.
- Weekly inspections of chemical and waste storage areas.

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.
- Installation of catch-grates at refuelling points to avoid potential spillage.
- Pumps are contained inside small plastic sand pits when pumping onsite

All waste disposal from the demolition of the former United Service Station and the RMS Depot near Maclean continues to be tracked, particularly hydrocarbon and asbestos contaminated wastes. During reporting period, 4.56 Tonnes of asbestos was disposed to the Whyallah Road East Lismore facility by Northern Rivers Waste, and 55.5 Tonnes of demolition waste was disposed to the Veolia Environmental Services Ti Tree facility, Queensland.

3.7 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 up to twenty (20) ASTAs in use across the project. These were established and operated in accordance with approved Acid Sulfate Soil Management Plans and EPL requirements.

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

- Minimisation of the disturbance to Acid Sulphate Soils by adopting driven steel piles and not bored piles.
- 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
- Transportation of acid sulfate material to appropriately licenced receival locations.
- Monitoring the pH of water from wick drains and preloading areas and appropriately treating (where required) prior to discharge / re-use
- 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
- Areas that are prone to Acid Sulphate Soils, temporary sediment basins have been constructed above ground. Excavated swales along the alignment have been removed from the design where possible and instead above ground swales will be constructed.
- In-situ treatment of topsoils and subsoils with organic acidity was employed in Harwood and Chatsworth area.

Current areas of work encountering and treating PASS include Section 3, 4, 5, 6, 7, 8, and 9.

3.8 Sustainability

The project approach to sustainability focuses on maximising environmental, economic and socio-economic performance in the interests of enhancing public value for the Pacific Highway stakeholders and the environment.

During the reporting period, several sustainability initiatives have been developed, including but not limited to:

- Promotion and adoption of the Reduce, Reuse, Recycle philosophy across the project
- Waste concrete of appropriate quality is poured into formwork for a ‘kelly’ block. The kelly block has been designed to include lifting points to enable it to be reused on site as separation between plant and people and plant and plant.
- Recycling bins and signage have been placed in the site compounds and the crib sheds.
- Sediment basin construction and commissioning includes additional construction water capacity, at specific sites, ensuring dewatering into basin and adequate capacity for water to be reused for dust suppression on site.
- Re-use of water captured on site for dust suppression.
- Minimising printing and use of mobile technologies and recycling of office products (paper, printer cartridges)

- Waste timber unsuitable for reuse was mulched and sent to the Cape Byron Cogeneration Plant for beneficial electricity generation.
- Reuse of materials onsite, such as star pickets, temporary fence materials, timber pegs, spoil, permanent sediment fence, concrete and clean rock.
- Use of local businesses and companies where practicable and available.
- All quarry material sourced and imported from the closest possible source meeting the required specification.
- Innovation to minimise the handling and eventual (unnecessary) re-stripping of topsoil on batters.
- In-situ treatment of topsoils and subsoils with organic acidity was employed in Harwood and Chatsworth Island areas. This process prevented approximately 1,790 unnecessary truck movements to the ASTA at Mororo Cut West, representing both production efficiency and GHG emissions savings, estimated at over 56,000 kg CO2.
- Reducing the hazardous material content in purchases, including toxicity.
- Considering the end-of-life options, including the reuse, repair, recycle and disposal options of products.
- Visiting local schools across the project to engage students in relation to the project and potential career paths
- Best practice energy conservation and greenhouse gas reduction by adopting energy efficient work practices, including:
    - Developing and implementing procedures to minimise energy use
    - Maximise use of battery operated small tools to reduce the use of generators and air powered tools
    - Switch off computers, computer screens, heating, air conditioning and other equipment at the end of each day or when not in use.
    - Cleared timber is used for terrestrial fauna furniture and as aquatic habitat structures
    - Chipped timber not used for erosion and sediment control to be used for co-generation at sugar mill.

These initiatives have resulted in more than 90% of the waste generated at some sites diverted from landfill for beneficial reuse.

3.9 Environmental initiatives

During the reporting period the following positive environmental initiatives were implemented across the project:

- In June, an emu awareness campaign was rolled out to support implementing the project's coastal emu protection measures.

- As part of pre-clearing surveys in koala 'hot spots', a koala detection dog (and handler) is used on the mornings of scheduled clearing to check for evidence of fresh koala activity (refer to Figures 4 and 5 below).

Figure 4 Jet the Koala Detection Dog Figure 5 Jet waiting for his handler after locating koala activity

Jet wears a GPS collar so his movements can be tracked and downloaded to report the search parameters and fresh koala activity locations. A dog is able to detect a scent 1000 times better than humans and cover more land more efficiently to determine recent koala activity. When Jet finds a koala he sits, helping his handler locate the koala that maybe present in the area.

- A koala was recently detected at Broadwater during pre-clearing surveys. The koala detection dog identified fresh koala scats in a nearby feed tree. A buffer zone was then established around the tree so the koala could safely relocate in its own time.
- Positive feedback has been received from the Environmental Review Group in regard to the rootball strategy implementation. The rootball strategy assists local community groups and organisations in rehabilitating river systems for bank stabilisation and fish habitat. To date,

approximately 204 rootballs have been salvaged across the project, contributing to river restoration projects between Tweed Heads and Grafton.

- During the reporting period , approximately 45,000 koala food trees have been planted, 44.8km and 5.6km of temporary and permanent exclusion fencing respectively installed
- A pond within the clearing limits of the Woodburn Broadwater Service Road that provides habitat for Oxleyan Pygmy Perch and Wallum Sedge Frogs was originally designed to be infilled, however the contractor and Pacific Complete collaborated to refine the design and retain the habitat value of the pond. This area was well protected throughout the works with substantial lined bunds and no-go zones. A drought refuge pool was also excavated at the northern extent of this pond to provide better habitat opportunities during extended dry periods. This pool was designed and constructed in close consultation with the Project Aquatic Ecologist.

The Project Ecologist commended the clearing in the Woodburn Broadwater Service Road due to the careful and considered approach by the contractor, especially where koala activity was identified.

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 3 MCoA requirements for the Compliance Tracking Program

MCoA No.	Requirement	Reference
D27	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:	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 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;	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 second six months of the period 1 April to 30 September 2017. 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 end of the period April – September 2017.for 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 - as recorded in the compliance tracking tables.
- Non-compliances during the reporting period.
- Detail of all environmental 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.

Audits carried out during the reporting period have been summarised in the table below.

Table 4 Summary of Audits Conducted

DATE	AUDIT TYPE	LOCATION	OUTCOMES
May 17	RMS Independent Integrated Audit	Overall	Observation of Concern - 1
May 17	RMS Independent Integrated Audit	Contractor – Section 3 & 4	Observations of Concern - 1 Notable Practice - 1
May 17	RMS Independent Integrated Audit	Contractor Section 8 & 9	Observations of Concern - 3 Notable Practice - 1
May17	Pacific Complete Internal System Audit	Contractor - Section 8 & 9	No environmental non-conformances or Corrective Actions issues
May 17	Pacific Complete Internal Integrated Implementation	Contractor Section 7,8,9	Notable Practices – 1 Observations of Concern - 1

DATE	AUDIT TYPE	LOCATION	OUTCOMES
June 17	Independent Internal Implementation	Contractor – Section 5	Observations of Concern - 3 Corrective Action Requests - 4
June / July 17	Pacific Complete Internal Integrated Implementation	Contractor Section 7,8,9	Notable Practices – 5 Conformances – 200 Corrective Action Requests – 3 Observations of Concern - 45
June & July 17	Pacific Complete Systems Audit - Environmental Management	Contractor – Section 3 & 4	Conformances – 32 Notable Practices – 2 Corrective Action Requests – 3 Observations of Concern - 11
July 17	Pacific Complete Internal Integrated Implementation	Contractor Sections 5 & 6	Conformances – 213 Notable Practices – 3 Observations of Concern – 33 Corrective Action Requests - 17
August 17	RMS/PC Integrated Management Systems	Contractor – Section 3 & 4	No environmental non-conformances or Corrective Actions issues
August 17	Pacific Complete internal Integrated Implementation	Site Wide	Notable Practices – 5 Conformances – 136 Corrective Action Requests – 26 Observations of Concern - 29
September	Internal RMS Specifications	Contractor – Section 3 & 4	Opportunities for Improvement - 4

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, Department of Planning and Environment (DP&E) and the project Environmental Representative (ER).

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

- 18 – 21 April 2017
- 23 – 26 May 2017
- 20 – 23 June 2017
- 25 – 28 July 2017
- 22 – 25 August 2017
- 19 – 22 September 2017

Issues raised and discussed at these meeting includes, but is not limited to:

- Update of construction activities across the project
- Presentations from project Contractors about upcoming high-risk environmental activities and management of these activities.
- Discussion on environmental management measures including erosion and sediment controls, dust and air quality, biodiversity issues across the project.
- Site inspection of individual locations and Contractors across the W2B project length.

Weekly/ Fortnightly Environment Inspections

Contractors, Soil Conservationists, Pacific Complete, the Environmental Representative and Roads and Maritime all carry out regular environmental inspections throughout the project. Observations requiring action are recorded by the individual contractors that are managed by their environment site representative.

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"

In accordance with the approved Construction Environmental Management Plan, Roads and Maritime's *Environmental Incident Classification and Reporting Procedure* is being 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.

In accordance with Roads and Maritime's *Environmental Incident Classification and Reporting Procedure* environmental incidents for the reporting period are summarised below in Figure 6 and Appendix D.

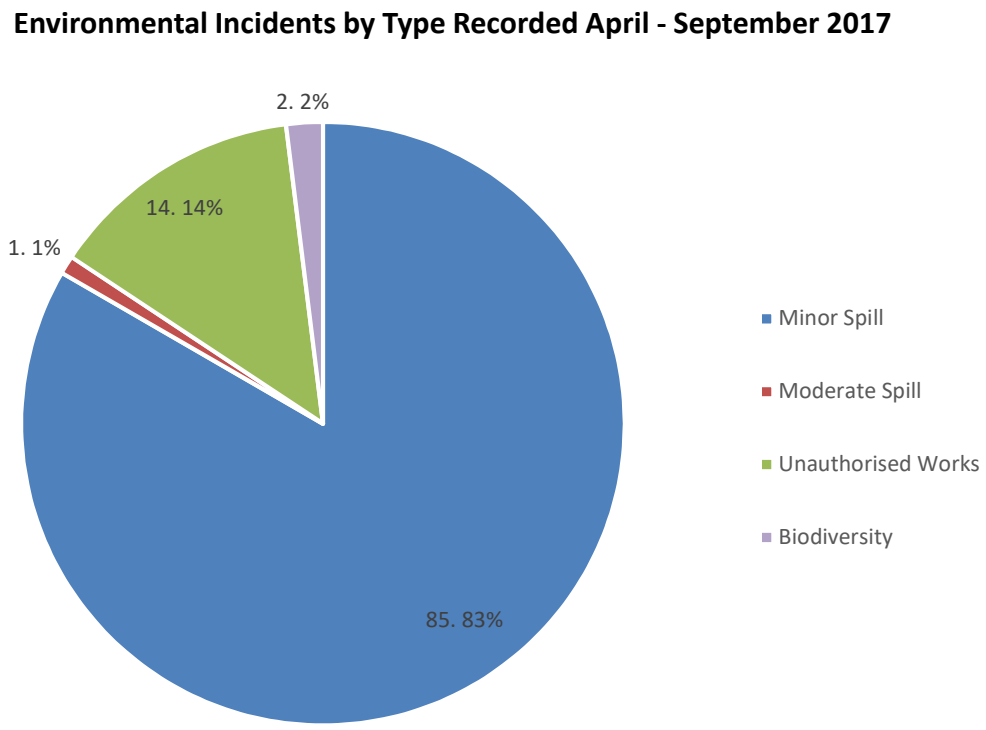

Figure 6 Environmental Incidents by Type Recorded during the reporting period

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.

There were no non-compliances with the conditions of approval identified in this reporting period.

4.8 Employee inductions

MCoA D27 (h) requirement:

"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 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 including the Koala Zero Harm program
- 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.
- Site specific additional mitigation measures relating to the Coastal Emu and Long-nosed Potoroo

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 such as approved threatened species or environmental management plans. Monitoring result are provided in Appendix B. Further details on monitoring are outlined below.

5.1 Water Quality

The Project has engaged a contractor to undertake project wide water quality monitoring in accordance with the approved W2B Water Quality Monitoring Plan, this includes both surface and groundwater monitoring. This monitoring includes taking water quality samples throughout each month during construction and analysis of data. In accordance with the approved plan, the results of the Project Water Quality Monitoring Program (Sec 3-11) for the reporting period will be provided in the Annual Monitoring Report for Year 1 – Construction phase.

In addition to the monitoring undertaken for the approved WQMP, additional monitoring is undertaken as outlined in the approved Threatened Fish Management Plan, in areas of construction adjacent to the identified threatened fish habitat. These details are captured in the annual threatened fish monitoring reports.

Sediment basin monitoring

There are a number of licenced sediment basins associated with the Environmental Protection Licence (EPL) for the project. Details of these basin discharges are captured in the monthly EPL reports provided to the EPA.

5.2 Noise Monitoring

Noise monitoring was carried out throughout the reporting period. There were some exceedances of the noise management levels recorded during the reporting period, however, the majority of these can be contributed to background noise such as local road and highway traffic. Local road, traffic highway and other construction (ie, sandblasting bridge works, agricultural machinery, animals) noise have been found to be the dominant noise source at monitoring locations. Examples of Out of hours works (OOHW) noise monitoring undertaken during the reporting period are:

- Shark Creek Road, Tyndale. There were exceedances recorded, however, the exceedance above the Noise Management Level ranges (maximum level) between 10 and 16dB for any given 15 minute period. The noise measured from unattended monitoring includes not only construction works, but contributing extraneous noise such as road traffic noise. One complaint was received during these out of hours works.
- Bridge over the Clarence River at Harwood / Yamba Interchange during the reporting period with no exceedances or complaints recorded.
- Bridges BC51 and BC52 for concrete deck pours. The deck pour was finished within the normal construction hours and only site clean-up works extended into after-hours. No exceedances or complaints recorded.
- Yamba Road to verify the acoustic level, which was elevated slightly due to traffic on the road and the Harwood Bridge. No complaints were received.
- Shark Creek Road, Tyndale on another three occasions with no exceedances nor any complaints received.
- Pimlico Road - twice monitored during out of hours works, with no exceedances recorded nor complaints received.
- Yamba Road, - monitored noise out of hours twice in September to verify acoustic level prior to works commencing. A slight exceedance was recorded during the verification monitoring; however, nil exceedances were recorded during the actual works.

- Iluka Road - monitored noise out of hours twice in September to verify acoustic level prior to works commencing. A slight exceedance was recorded during the verification monitoring; however, nil exceedances were recorded during the actual works.

Refer to Appendix B1 for the noise monitoring results.

5.2.1 Blasting

During the reporting period 13 blasts were carried out across the project, including one test blast on 15 May 2017 in between Glenugie and Maclean. The test blast recorded nil overpressure level.

No exceedances of the EPL overpressure limits occurred during blasting activities within the reporting period across the project, nor were any complaints received in relation to blasting.

Refer to Appendix B2 for the results of 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 have been established. There were twenty-three (23) exceedances above the air quality monitoring goals outlined in the CEMP (maximum total deposited dust level 4 g/m2/month) recorded during the reporting period. These exceedances recorded have mostly been attributed adjacent agricultural activities (cane fires, slashing), unrelated construction activities (local road and bridge works) and adjacent unsealed roads, within the local road network.

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

- Regular use of water carts to dampen exposed areas of land
- Crushing set up at Tyndale Cut now has sprayers built into the crusher plant, or has had a dedicated water cart present where the crushing unit has not located near a suitable water source. This has resulted in no recorded exceedances during this reporting period.
- 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.

Full air quality monitoring results are detailed in Appendix B3.

5.4 Flora and Fauna

Biodiversity monitoring for threatened species, populations and communities identified within the approved Threatened Species Management Plans during the construction and operation phases of the project is ongoing.

Annual monitoring reports for each Plan will continue to be submitted to EPA, DP&E and DoEE in accordance with reporting schedule.

5.4.1 Additional fauna monitoring

The following fauna monitoring occurred during this reporting period:

- **Serpentine Channel Flying-Fox Monitoring**

Monitoring of the temporary roost site at Serpentine Channel has been undertaken at least monthly since September 2015. An extract from the September 2017 monitoring report states:

"No flying-foxes were recorded at the site during the September monthly monitoring event. This is consistent with the August monthly survey results where no flying foxes were observed. The last recording of flying-foxes at the site was during the December 2016 fortnightly monitoring event, where approximately 70 Black Flying-foxes (including females with dependant young) were recorded. Prior to that, a period of absence was observed between July and November 2016.

The data collected to date indicates that the site is used periodically as a temporary stopover site for small numbers of predominantly male Black flying-foxes. No significant Grey-headed Flying-fox occurrences or breeding activity has been recorded. Only two individual Grey-headed Flying-foxes have ever been recorded at the site, indicating that the site to date does not comprise a significant roost for this species. Breeding female flying-foxes have been recorded only once at the site. No obvious correlation between the number of flying-foxes at Maclean and the presence/ number of flying-foxes at the site has been recorded, indicating the site is not a 'spill over' roost from the Maclean camp.

In consideration of the above results and with clearing of vegetation in the W2B construction footprint now complete, the monitoring report has recommended revising the monitoring frequency to:

- Monthly monitoring from September to March.
- Two-monthly monitoring from April to August (i.e. with monitoring in May and July).
- Pre-construction monitoring prior to commencement of high disturbance risk activities (e.g. bulk earthworks, pile driving etc to be determined in consultation with the project ecologist).

- **Koala Monitoring**

Monitoring in accordance with the Approved Koala Management Plans has occurred in known Koala hot spots across the project and includes:

- Pre-dawn surveys
- Fulltime supervision by an Ecologist during clearing activities, including constant visual monitoring of trees within the days clearing footprint.
- Koala detection dog surveys

- **Osprey Monitoring**

Mitigation measures to deter Ospreys perching or nesting on top of piling rigs and cranes in place at the Bridge over the Clarence River at Harwood were described in the last 6 Monthly Construction Compliance Report (October 2016 to March 2017).

During this reporting period, the project Ecologist undertook weekly monitoring in the early stages of the breeding season (March – December). The Ecologist undertakes site inspections and assessments regularly in line with the adopted adaptive management approach. To date no Ospreys have been seen attempting to perch or nest on top of the piling rigs or cranes.

- **Dolphin & Turtle Monitoring**

Mitigation measures for piling activities at the Bridge over the Clarence River at Harwood were described in the last 6 Monthly Construction Compliance Report (October 2016 to March 2017).

Piling has commenced for the Harwood Bridge and the agreed mitigation measures are outlined within the Marine Piling EWMS.

During this reporting period no dolphins or marine turtles have been observed within the shutdown zone prior to, or during piling activities. Sightings of dolphins and turtles has occurred occasionally within the river when piling was not being undertaken.

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5.4.2 Flora Monitoring

Flora monitoring is conducted as part of the weekly monitoring undertaken by the Contractors. This is a visual inspection of adjacent flora to ensure no impacts outside the approved clearing limits are occurring. Works are managed within through signage and flagging and delineation to reduce to the potential for impacts on flora outside the approved clearing limits.

Flora monitoring is conducted as part of pre-clearing surveys and reported by the contracted ecologist in pre-clearing and post-clearing reports. Clearing is minimised to that necessary to carry out the required works.

The following flora monitoring occurred during this reporting period:

- Tall Knotweed (*Persicaria elatior*)
- Sandstone Rough Barked Apple (*Angophora robur*)
- Green-leaved Rose Walnut (*Endiandra muelleri*)
- EEC inclusive of Subtropical Coastal Floodplain Forest, Swamp Sclerophyll Forest, Swamp Oak Floodplain Forest and Freshwater Wetlands on Coastal floodplains

Myrtle Rust (*Puccinia psidii*) has been recorded on some Broad-leaved Paperbark (*Melaleuca quinquenervia*) plants (mainly saplings) between Tyndale and Maclean interchange. The locations have been incorporated into a Myrtle Rust Management Procedure.

Unexpected Flora Finds

The following unexpected flora finds were recorded during the reporting period:

- As detailed in Section 3.3, an unexpected find of the Slender Screw fern occurred in the project area. Approximately 8,000 or more Slender Screw ferns fronds were identified and translocated.
- Hairy Joint Grass (*Arthraxon hispidus)* was identified between Richmond River and Ballina. A representative sample of the species was translocated to a receiving site adjacent , as outlined in Section 3.3 above.
- One Hairy Melichrus (*Melichrus hirsutus*) was identified within the alignment near Firth Heinz Road . The plant was reported as an Unexpected Find and subsequently confirmed and translocated by botanist, Dr Andrew Benwell.
- Noahs False Chickweed (*Lindernia alsinoides*) was identified during the pre-clearing surveys in the Pillar Valley. The population of this species (approximately 0.01 ha) was reported as an Unexpected Find and subsequently confirmed and translocated by botanist, Dr Andrew Benwell.
- Maundia (*Maundia triglochinoides*) was confirmed on the southern bank of the Coldstream River during the preliminary ecological surveys. This species was not detected as an unexpected find on any other part of the Coldstream River site.
- A number of planted saplings of the Square-fruited Ironbark (*Eucalyptus tetrapleura*) were located south of the Coldstream River. These trees were reported as an Unexpected Find with a number of these saplings occurring within the clearing boundary being translocated by botanist Dr Andrew Benwell.

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. All works are managed in accordance with the commitments outlined in the approved Construction Environmental Management Plan, and Construction Flora and Fauna Management Plan.

6 Community engagement and complaints management

6.1 Community consultation activities

Community consultation activities carried out during the reporting period are detailed in Figure 6.1 and Table 6.1 below:

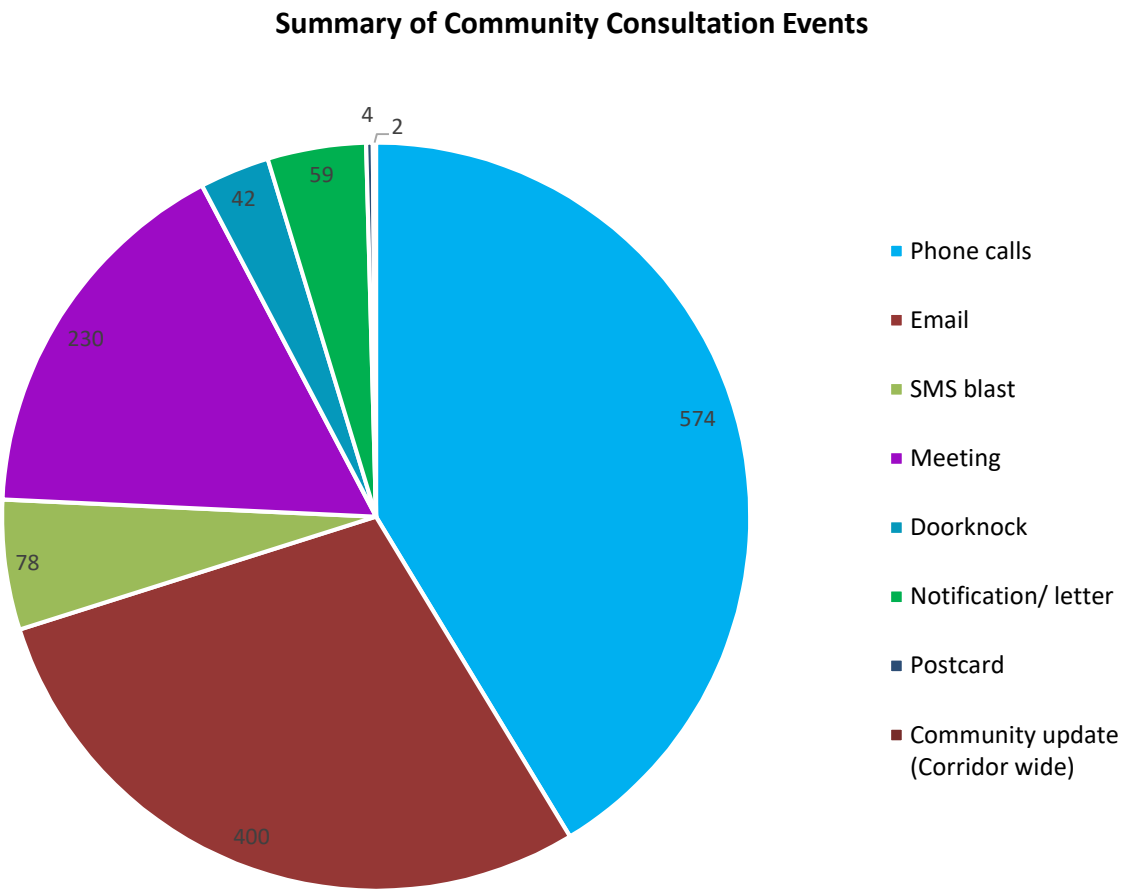

Figure 7 Breakdown of the number of community consultation activities during reporting period.

Table 5 Community consultation activities

Activity	Number of Events	Stakeholders Reached
Phone calls	574	571
Email	400	7644
SMS blast	78	3240
Meeting	230	310
Doorknock	42	156
Notification/ letter	59	13505
Postcard	4	19050
Community update	2	4576

Community consultation sessions carried out during the reporting period are summarised below:

Table 6 Community Consultation Sessions

Date	Type	Location
12-May	Drop-in session	Woodburn Visitor Information Session, Woodburn
25-May	Drop-in session	Broadwater Community Hall, Broadwater
26-Aug	Drop-in session	Evans Head Market, Evans Head
30-Aug	Drop-in session	Broadwater Community Hall, Broadwater
3-Sep	Staffed display	Iluka Markets, Iluka
9-Sep	Staffed display	Maclean Markets, Maclean
13-Sep	Staffed display	Yamba Farmers Market, Yamba
17-Sep	Staffed display	Ashby Market, Ashby
24-Sep	Staffed display	Yamba River Community Markets

6.2 Community complaints

During the reporting period there were a total of 190 complaints received, of which 84 are related to environmental aspects or issues. All complaints received by Roads and Maritime, Pacific Complete and contractors are entered into the project consultation management system 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:

- Access
- Damage to/condition of local roads
- Drainage
- Dust
- Fencing
- Flooding
- Noise
- Property damage/maintenance
- Traffic safety

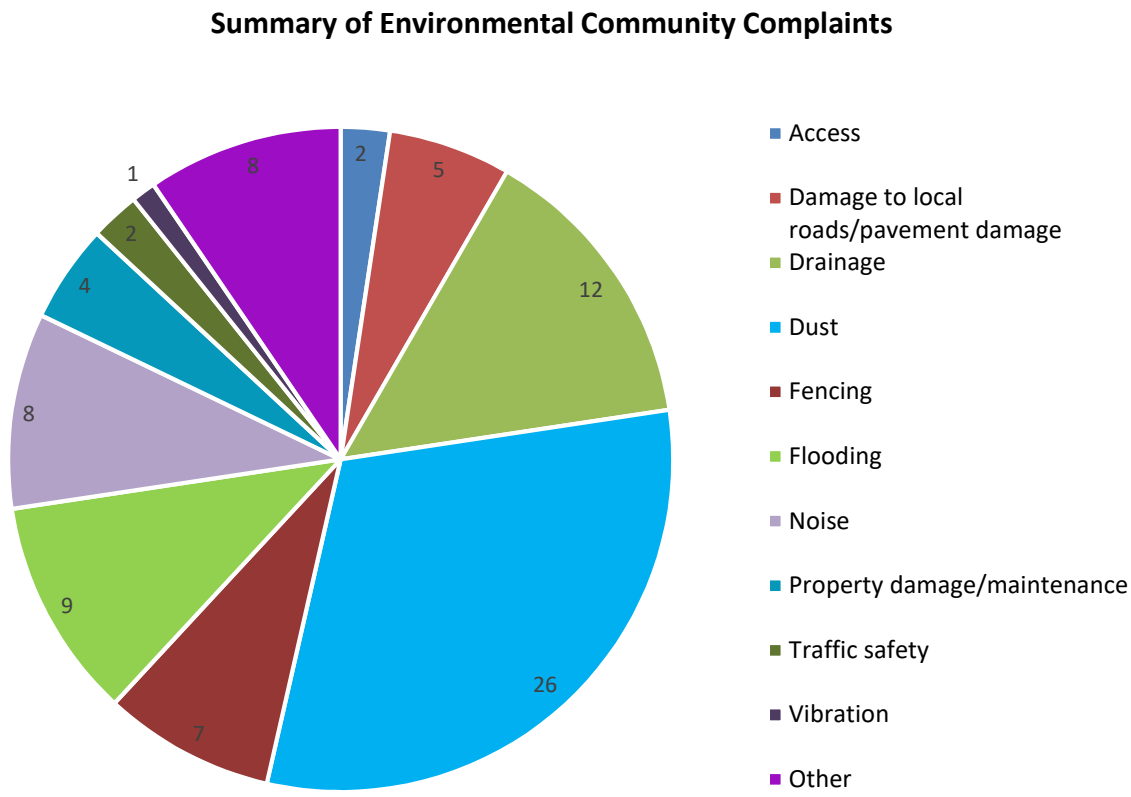

Figure 8 Summary of environmental community complaints during reporting period.

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

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
OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT							
	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.
TERMS OF APPROVAL							
	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 2014; (f) Pacific Highway Upgrade Woolgoolga to Ballina: Utilities impact native vegetation (D00395_0102_Utilities 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.
LIMITS OF APPROVAL							
	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.
STATUTORY REQUIREMENTS							
	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). In addition, a Water Extraction Licence - Lewis Lane, Mororo (DPI Licence 30BL207354) has been directly procured by RMS. Other licences, permits and approvals will be obtained as required by law during the course of the project.
STAGING							
	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 requested an updated Staging Report (and Compliance Report) which was submitted to the Secretary on 29/11/2016, (Version 6).
SUBMISSION OF ANY STRATEGY, PLAN OR PROGRAM							
	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.

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
COMPLIANCE							
	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.
	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.
INCIDENT REPORTING							
	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 OEH, the incident report prepared for the purposes of notifying the EPA and/or OEH 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).
	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.

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
BIODIVERSITY							
	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 (Phascolarctos cinereus) 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.
	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, captured and tracked on the Clearing Register.
	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) have been submitted to the Department for approval, with exception of UDLP for Richmond River Bridge. An extension to the submission of the Urban Design and Landscape Plan for the Richmond River Bridge was approved on 6/7/17, for submission by 30/11/2017. It is anticipated this UDLP will be submitted in next reporting period (October 2017 to March 2018).
	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 has been captured as part of detailed design for the project.
PRE CLEARING							
	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. 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 (approved 20 October 2015). Clearing of Koala habitat trees will be undertaken in the presence of a Koala spotter as detailed in the Koala Management Plan (approved 4 August 2016), Chapter 4.3 Mitigation & Monitoring details that pre-clearing surveys require an Ecologist / Koala spotter to be engaged prior to pre-clearing activities. As an additional measure, Pacific Complete has engaged the use of Koala Detection Dogs for pre-clearing surveys, as detailed in the 6 Monthly Compliance Report April - September 2017. Pacific Complete will apply RMS/PC specs to ensure compliance with this CoA.
	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. 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 to September 2017) for details of unexpected finds of threatened flora and fauna during the reporting period.
OXLEYAN PYGMY PERCH HABITAT							

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	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. The OPP spawning period as outlined in MCoA is October to April. Therefore the spawning period did not occur during this reporting period (April to September 2017). High risk activities were carried out in this area prior to the end of September 2017. Works were not undertaken on days where the relevant BoM site predicted >90% chance of 10mm. Works undertaken from April to September 2017 were performed in accordance with approved EWMS for Working within 50m of a waterway (EWMS0003); Temporary WaterWay Crossings (EWMS0004); and Working over Water (EWMS0007), including the implementation of suitable mitigation measures and controls (including exclusion zones) for OPP. In September 2017,the site was prepared for shutdown (OPP spawning season) with best practice erosion and sediment controls measures in place, refer to Section 3.1 of the 6 Monthly Compliance Report (April - September 2017).
	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, 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. This was also considered as part of detailed design for 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, 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 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. 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. A temporary bridge structure has been established at BC52 for the construction activities. All works have been undertaken in consultation with NSW DPI Fisheries.
CONNECTIVITY							
	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	Closed	This has been undertaken during detailed design and incorporated into the development of the project Connectivity Strategy for Sections 3 to 11.
	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	Closed	This has been undertaken during detailed design and incorporated into the development of the project Connectivity Strategy for Sections 3 to 11.
	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	Closed	This has been undertaken during detailed design and incorporated into the development of the project Connectivity Strategy for Sections 3 to 11.

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	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, unless otherwise agreed by DPI (Fisheries).	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. 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, commencing October 2017. Refer to Section 3.1 of the 6 Monthly Compliance Report (April - September 2017).
CONSTRUCTION NOISE							
	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.
	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.
	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). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. 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).
	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. 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).

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	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).
	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.
CONSTRUCTION VIBRATION							
	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.
	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.
	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. There were no airblast overpressure exceedances recorded during this 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. Refer to Section 5.2 of the 6 monthly construction compliance report (April - September 2017), where there were no notable peak particle velocity (PPV) vibrations recorded during this reporting period.

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	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 will approve Contractor EMPs and EWMSs to ensure compliance with this CoA. Some agreements have been reached as part of the Wave 3 works.
	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). Piling carried out at the Bridge over the Clarence River at Harwood within the report period (April - September 2017) used bored piling methods.
	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. Vibration assessments and modelling have been carried out where construction activities require dynamic compaction construction methods and additional mitigation measures have been included within the approved Piling EWMS and implemented as 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. Consultation with Harwood Public School commenced in 2016, continuing during this reporting period (April - September 2017) in relation to the construction of Harwood Bridge over the Clarence River. Piling activites were scheduled outside of the schools NAPLAN exam periods on two separate occasions during this period.
OPERATIONAL NOISE							
	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 has been captured during detailed design and development of the operational noise design for the project.
	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	Operational noise mitigation measures are proposed to be installed as soon as reasonable and feasible following completion and submission of the Operational Noise Design Reports developed during detailed design. It is anticipated these will commence in the next reporting period.
WATER QUALITY							
	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, 23 June 2017).
HYDROLOGY AND FLOODING							

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	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) have been developed as part of detailed design. The Hydrological Mitigation Report for Glenugie to Devils Pulpit (Sections 3, 4, 5 & 6) was submitted to DPE on 17 March 2017. This report represents the design at December 2016 stage of the program and includes the road alignment, channel earthworks, cross drainage and bridege designs at various levels of design development and reflects the substantial detailed design stage for infrastructure within the Clarence Regional floodplain. The flood model will be updated once the final detailed design is complete. The Hydrological Mitigation Report for Devils Pulpit (Sections 7, 8, 9, 10 & 11) has been submitted to DPE. This report represents the design at the April 2017 stage of the program and includes the road alignment, channel earthworks, cross drainage and bridge designs at various levels of design development. Generally, this point in the program reflects the substantial detailed design stage for infrastructure within the Richmond regional floodplain. The flood model will be updated once the final detailed design is complete.
	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, this is detailed in Sections 4 and 5 of the Hydrological Mitigation Report (Glenugie to Devils Pulpit), submitted to DPE on 17 March 2017.
	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 is addressed in Section 6 of the Hydrological Mitigation Report for Glenugie to Devils Pulpit (Sections 3, 4, 5 and 6), submitted to DPE on 17 March 2017 and the Hydrological Mitigation Report for Devils Pulpit to Ballina (Sections 7, 8, 9, 10 and 11), submitted to DPE.
CONSTRUCTION SOIL AND WATER MANAGEMENT							
	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. 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. Captured water onsite is reused where possible. Water does not leave the project boundary unless it has passed through a sediment basin / treated and/or similar management control.
LAND CONTAMINATION							

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	B37	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. 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. 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. Note • Terms used in this condition have the same meaning as in the Contaminated Land Management Act 1997.	All	Pre-construction and Construction	RMS and Contractor	Open	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. 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. Additional contamination report has been prepared to identify asbestos prior to demolition of buildings.
WATERCOURSE CROSSINGS							
	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	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. Demonstration of maintained habitat connectivity shall: (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 (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. 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.	NA	Pre-construction	RMS	Closed	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 has been considered as part of detailed design based on information in the Threatened Fish Management Plan. 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	This has been considered as part of detailed design. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. 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
	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 has been considered as part of detailed design. 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	Closed	An investigation into this embankment and its removal was provided to the Department on 26/7/2017. Confirmation of the receipt of the Richmond River bridge investigation was received on 15/9/2017, with the Department concluding that the proposed detailed design of the bridge without an embankment provides an improvement and reduces impacts to the concept design.
ABORIGINAL HERITAGE							
	B44	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: (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 (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: (i) consideration of measures to avoid or minimise disturbance to Aboriginal objects where objects of moderate to high significance are found to be present; (ii) recommendations for further investigations under condition B45 where impacts cannot be avoided; and (iii) details of management and mitigation measures to ensure there are no additional impacts due to pre-construction and construction activities; and (c) submit the report to the Registered Aboriginal Parties, the ~~OEH~~ EPA (Aboriginal heritage) and the Secretary.	4, 7, 10, 11	Pre-construction	RMS	Open	– PAD site **WWC Dirty Creek 1** does not occur within sections 3 to 11, however has been salvaged and clearance letter issued. – **Section 4, Site 1** – Assessed and mitigations advised/incorporated. - **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. – **Section 7, Site 1** – Assessed. – **Section 10, Site 1a** – has not been assessed, will be carried out as part of an ancillary facility. – **Section 11, Site 1a**, heritage assessment prepared including test pitting. Recommended management measures have been implemented in Ancillary Facility Checklist for this site.

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	B45	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: (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 (b) undertake any further archaeological excavation works recommended by the results of the detailed salvage strategy. 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. The report shall be submitted to the Registered Aboriginal Parties, the ~~OEH~~ EPA (Aboriginal heritage) and the Secretary. Note: • 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.	3, 4, 7, 8, 9, 10, 11	Pre-construction	RMS	Closed	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: **WWC39**–not in Section 3 to 11. Site clearance letter has been done. **WWC46–**not part of Section 3 to 11. Site clearance letter done. **Tyndale 2** – Site clearance letter done. Section 3 (SPIR CH69,550). **IR2W4**–Site clearance letter done. (SPIR CH128,550 - Section 8). **Site 11** – Site clearance letter done. **E2/2** – Site clearance letter done. Associated with Site 11 , separate clearance letter. **WWC37** – not in Section 3 to 11. **Dubalijeen Site (New Italy 1**) – Site clearance letter done. **The 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 affected if ancillary site is used. **WX2I Site 8** – 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. **Site 1** – Salvage done. Site clearance letter done. Section 10 CH156,000. **Site 2 –**Site clearance letter done. Section 10 CH150,750. **Site 3** – South of Site 2 CH 150,500 Section 10. Site clearance letter done. **Site 4** – CH152,500 site clearance letter done.
	B46	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.	3, 8, 9, 10, 11	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). 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). 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. Where impacts are unavoidable in construction, works would be undertaken in accordance with the strategy outlined in the Construction Heritage Management Plan.
	B47	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.	4, 7, 8, 9, 10, 11	Pre-construction and Construction	RMS and 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. **WWC5, WWC7, WWC92, WWC115, WWC139, Tyndale 1 –** exclusion fencing installed, **WWC26**- salvage done, fencing installed, **Scarred tree in Section 7** = Outside the project corridor. Exclusion fencing to be installed, **C3/2/2** = Outside the project corridor, **Gittoes Jali 2** – ongoing, **Cooks Hill** = Outside of the project boundary, **Broadwater** – ongoing, **Law PAD** = To be fencing on vacant possession of the adjacent block, **MST 3** = Exclusion fencing is to be re-installed on vacant possession of the block, **C21** = Exclusion fencing is to be re-installed on vacant possession of the block, **Melino Scarred Tree 4** = Exclusion fencing is to be re-installed on vacant possession of the block, **MST2** = Exclusion fencing is to be re-installed on vacant possession of the block, **MST1** – ongoing, **Rudgley scarred tree** - Fencing to be established, **Saezza 1** = Exclusion fencing installed, awaiting site clearance letter.
NON - ABORIGINAL HERITAGE							

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	B48	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.	5	Pre-construction	RMS	Closed	Further historical research and investigation has been carried out for options to relocate the convent building. Community and agency consultation has been carried out. A tender called for its removal, with no compliant tenders 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. Additional information was requested and provided to OEH and OEH concurrence with demolition was advised on 5/12/2016. Secretarial / DPE provided approval for the demolition of the convent building, dated 5 December 2016. The convent was subsequently demolished in December 2016.
	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	Closed	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 was considered as part of detailed design. 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. One non-Aboriginal Heritage Item - the Harwood Convent - Item 21 was demolished in December 2016 as per approved process and with DPE approval. 10-20mm steel plates have been installed over non-Aboriginal heritage train tracks at Harwood off-ramp, for the section within the Harwood project boundary.
HERITAGE - GENERAL							
	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	Closed	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.
	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.
	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.
	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).

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
TRANSPORT AND ACCESS							
	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 was considered as part of detailed design. 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.
	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. 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 has been considered as part of detailed design. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
PROPERTY AND LANDUSE							
	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	Closed	This was considered throughout the acquisition and detailed design phase of the project.
	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. Access to private property has been maintained throughout construction of all current works and shall continue throughout the duration of construction.
	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. 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. 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.
FORESTRY IMPACTS							
	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. Consultation with NSW Forestry regarding access to forestry areas has been ongoing. Access to Tabbimoble forest is maintained via Glencoe Road during the works.
AIR QUALITY							
	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. Dust mitigation measures such as the use of watercarts and temporary stabilisation 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.

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
HAZARDS AND RISK							
	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.
WASTE MANAGEMENT							
	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. 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. 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. 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.
UTILITIES AND SERVICES							
	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 was considered as part of detailed design. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. Utilities have been relocated in areas where construction has commenced.
ANCILLARY FACILITIES							
	B73	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: (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); (b) not impact on connectivity structures or vegetation leading to a connectivity structure; (c) be located within or adjacent to the SSI boundary; (d) have ready access to the road network; (e) be located in areas of low ecological significance and require no clearing of native vegetation; (f) be located more than 50 metres from threatened species and endangered ecological communities and their habitats; (g) be located on relatively level land; (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; (i) be above the 20 year ARI flood level unless a contingency plan to manage flooding is prepared and implemented; (j) have minor impacts on flood storage and not result in obstruction of floodplain flow or blockage of culverts and drains; (k) not unreasonably affect the land use of adjacent properties; (l) operate in accordance with the construction hours set out in conditions B15 and B16; (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 (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. 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.	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 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 required the plan will be submitted to the Secretary for approval. Refer to Section 2.1 of the six monthly compliance report (April - September 2017) for a list of ancillary facilities approved for use during this reporting period.
	B74	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: (a) details on the site location and access arrangements; (b) a description of the activities to be undertaken; (c) outcomes of the assessment of the site against the locational criteria set out in condition B73; (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; (e) details of the mitigation, monitoring and management procedures specific to the ancillary facility that would be implemented to minimise environmental impacts; and (f) demonstrated overall consistency with the approved SSI (including impacts identified in the documents listed in condition A2). A copy of the report shall be included in the Ancillary Facilities Management Plan.	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 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. Refer to Section 2.1 of the six monthly compliance report (April - September 2017) for a list of ancillary facilities approved for use during the reporting period.

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	B75	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.	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 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 required the plan will be submitted to the Secretary for approval. Refer to Section 2.1 of the six monthly compliance report (April - September 2017) for a list of ancillary facilities approved for use during the reporting period.
	B76	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.	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 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). Urban Design and Landscape Plans (UDLP) have been prepared for the project and outline rehabilitation commitments and principles for ancillary facilities.
	B77	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: (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 (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. The relevant approval shall be obtained prior to the establishment of the ancillary facility.	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 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 required the plan will be submitted to the Secretary for approval. Refer to Section 2.1 of the six monthly compliance report (April - September 2017) for a list of ancillary facilities approved for use during the reporting period.
	~~B78~~	DELETED ~~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:~~ ~~(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 be described in the assessment of the ancillary facility required under conditions B74 and B75.~~	~~P~~	~~Construction~~	~~Contractor~~		~~Noted.~~
BORROW SITES							
	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. 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. The Lumleys Hill Borrow Site Management Plan (Portion D) was approved on 8 September 2017. The Gibsons Borrow Site Management Plan and the Jali Borrow Site Management Plan (Portion D) were approved on 11 September 2017. An associated Haulage Strategy was prepared for Portion D and endorsed on 28 September 2017. Any future approvals will be reported in next reporting period, ie, October 2017 to March 2018.
CONSTRUCTION ACTIVITIES							
	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.
OPERATIONAL PERFORMANCE							
	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 has been considered as part of detailed design and has been developed in consultation with Rous Water. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.

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PART C - Community Information and Reporting

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
COMMUNITY INFORMATION, CONSULTATION AND INVOLVEMENT							
	C1	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: (a) identification of stakeholders to be consulted as part of the Strategy, including affected and adjoining landowners; (b) procedures and mechanisms for the regular distribution of information to community stakeholders on construction progress and matters associated with environmental management; (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; (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; (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 (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. Issues that shall be addressed through the Community Communication Strategy include (but are not necessarily limited to): (i) traffic management (including property access, pedestrian access); (ii) heritage matters; (iii) landscaping and urban design matters; (iv) construction staging, hours and activities; (v) noise and vibration mitigation and management; (vi) air quality and dust; (vii) water quality, hydrology and flooding matters; and (viii) biodiversity matters. The Applicant shall maintain and implement the Strategy throughout construction of the SSI.	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.
COMPLAINTS AND ENQUIRIES PROCEDURE							
	C2	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: (a) a 24 hour telephone number(s) on which complaints and enquiries about the SSI may be registered; (b) a postal address to which written complaints and enquires may be sent; (c) an email address to which electronic complaints and enquiries may be transmitted; and (d) a mediation system for complaints unable to be resolved. 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.	All	Pre-construction and Construction	RMS and Contractor	Open	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. While there were no non-compliances with the conditions of approval, Roads & Maritime did write to the Department of Planning and Environment on 17 January 2017 to inform the Department that we did not meet our obligations in the approved Communications and Engagement Strategy relating to and inadvertent administrative mistake in which the 1800 project number was diverted to a phone number that was not actively managed during the Christmas shut down period (2016/17).
	C3	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.	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 Enquires Procedure. Pacific Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA.
PROVISION OF ELECTRONIC INFORMATION							
	C4	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: (a) information on the current implementation status of the SSI; (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; (c) a copy of this approval and any future modification to this approval; (d) a copy of each relevant environmental approval, licence or permit required and obtained in relation to the SSI; (e) a copy of each current strategy, plan, program or other document required under this approval; (f) the outcomes of compliance tracking in accordance with condition D27 of this approval; and (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.	All	Pre-construction and Construction	RMS and Contractor	Open	The website for the project is http://www.rms.nsw.gov.au/projects/northern-nsw/woolgoolga-to-ballina/index.html. Community & Stakeholder Engagement Stragtegy (approved 13/5/15) Section 6, Table 6.1 & Section 7 Enquiries & Complaints - Phone: 1800 778 900 - maintained by Pacific Complete. Copies of the project approval and management plans are available on the project website. The website is regularly updated.

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PART D - Environmental Management, Reporting and Auditing

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	D1	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: (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; (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); (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; (d) provision for updating the relevant Threatened Species Management Plans required under condition D8; and (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.	All	Pre-construction	RMS	Closed	Mitigation Framework approved by DPE on 8 May 2015.
	D2 (a)-(g)	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: (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; (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); (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: (i) maintain or improve connectivity and movement pathways; (ii) reduce the risk of mortality for threatened species; (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; (d) the results of surveys undertaken to determine the habitat, species movement patterns, distribution of species to confirm the design and location; (e) consideration of connectivity under the existing highway, service roads and local roads (servicing over 100 vehicles per day); (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; (g) commitment to implement the landscaping of vegetation leading to connectivity structures;	All	Pre-construction	RMS	Closed	The Connectivity Strategy (Sections 3-11) was submitted to Department of Planning & Environment and the Department of Environment and Energy on 14 December 2016 (this reporting period - October 2016 to March 2017). Approval of this plan was received during this reporting period (April 2017 to September 2017), by Department of Planning and Environment on 27 April 2017 and Department of the Environment and Energy on 16 May 2017.
	D2 (h)-(m)	(h) a fencing strategy, describing the location, design and length of fencing, which must extend beyond the edges of habitat for threatened species; (i) the maintenance of connectivity measures and fencing for the life of the impact of the action, including the timing and frequency; (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; (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; (l) detailed consideration of the effects of connectivity structures on the maintenance or improvement of population viability and gene flow; and (m) incorporate the outcomes of the Mitigation Framework required under condition D1. 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. 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. The Applicant shall demonstrate to the satisfaction of the Secretary how public authority comments on the Strategy have been addressed. The Strategy may be submitted in stages to suit the staging of the SSI.	All	Pre-construction	RMS	Closed	The Connectivity Strategy (Sections 3-11) was submitted to Department of Planning & Environment and the Department of Environment and Energy on 14 December 2016 (this reporting period - October 2016 to March 2017). Approval of this plan was received during this reporting period (April 2017 to September 2017), by Department of Planning and Environment on 27 April 2017 and Department of the Environment and Energy on 16 May 2017.
BIODIVERSITY OFFSET STRATEGY							

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	D3	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. 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. The Strategy shall include, but not necessarily be limited to: (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; (b) confirmation of the vegetation type/habitat (in hectares) to be cleared and their condition, and the size of offsets required (in hectares); (c) details of the 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; (d) consideration of contingency measures for offsets to address potential changes to impacted areas as a result of detailed design changes; (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: (i) changes to the SSI footprint due to detailed design; (ii) changes to predicted impacts as a result of changes to mitigation measures; (iii) the identification of additional species/habitat through pre-clearance surveys and construction; and (iv) additional impact associated with the establishment of ancillary facilities; (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 (g) options for securing and management of biodiversity offsets in perpetuity. 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. 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.	All	Pre-construction and Construction	RMS	Closed	Biodiversity Offset Strategy Approved (DPE 6 January 2016 and DoE 7 January 2016), meeting the Conditions of Approval: D3 - This report & Section 5.3 D3(a) - Sections 1.2, 1.3 & 2.3.3 D3(b) Sections 3 & 5 D3(c) Section 6 D3(d) Section 7.4 D3(e) Section 7.4 D3(f) Section 7 D3(g) Sections 6 & 7
	D4	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: (a) details of offset sites to compensate the impacts on: (i) Koala populations in Coolgardie/Bagotville, Broadwater and Woombah/Iluka; (ii) Moonee Quassia (Quassia sp. Moonee Creek); (iii) Sandstone Rough–Barked Apple (Angophora robur); (iv) Singleton Mint Bush (Prostanthera cineolifera); and (v) Lowland Rainforest in Sub-tropical Australia; (b) a map that defines the locations and boundaries of the sites; (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; (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 (e) details of how the offset sites would be secured and managed in perpetuity.	3, 4, 6, 9, 10, 11	Pre-construction and Construction	RMS	Open	Threatened Biodiversity Offset Status Report, update 3 was approved by DPE on 30 June 2016 and DOEE on 18 July 2016.
BIODIVERSITY OFFSET STRATEGY							
	D5 (a)-(g)	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: (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; (b) the objectives and biodiversity outcomes to be achieved; (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; (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; (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: (i) the monitoring of the condition of species and ecological communities at offset locations; (ii) the methodology for the monitoring program(s), including the number and location of offset monitoring sites, and the sampling frequency at these sites; (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 (iv) the monitoring and reporting on the effectiveness of these measures, and progress against the performance and completion criteria; (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; (g) a description of the current quality (prior to any management activities) of the offset area(s);	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)	(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; (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; (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; (k) timing and responsibilities for the implementation of the provisions of the Biodiversity Offset Package and achieving performance objectives; (l) details of who would be responsible for monitoring, reviewing, and implementing the Biodiversity Offset Package; and (m) a description of funding arrangements or agreements including work programs and responsible entities. 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. The Biodiversity Offset Package shall include details of the offset sites approved under condition D4, and timeframe for the delivery of the offset sites. 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. 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. Note: • 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).	All	Pre-construction and Construction	RMS	Open	A Biodiversity Offset Package will be prepared. Program currently being prepared.
	D6	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.	All	Pre-construction and Construction	RMS and Contractor	Closed	Nest Box Plan approved (DPE approval 17 February 2015). Nest Box Management Plans for sections have been developed & approved by NSW Department of Planning & Environment: Nest Box MP Section 1 & 2: approved 16/1/15 Nest Box MP Section 3: approved 23/2/15 Nest Box MP Sections 4 & 5: approved 16/1/15 Nest Box MP Section 6: approved 23/2/15 Nest Box MP Section 7: approved 23/2/15 Nest Box MP Sections 8 & 9: approved 16/1/15 Nest Box MP SEction 10 & 11: approved 16/1/15 These plans were informed by the results of detailed supplementary targeted surveys and the Nest Box Plans provide maintenance protocols, timing & duration
BIODIVERSITY TRANSLOCATION STRATEGY							
	D7	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: (a) a feasibility assessment of timeframe and staging requirements, availability of expertise, risk effectiveness analysis and availability/suitability of translocation sites; (b) detail of species specific information on the proposed methods of, and discussion of results of past recorded responses to, translocations; (c) a framework for the translocation process applicable to each affected species; and (d) consideration of appropriate compensatory habitat in the Biodiversity Offsets Package required under condition D5 where translocation is not reasonable or feasible.	All	Pre-construction	RMS	Closed	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.
BIODIVERSITY THREATENED SPECIES MANAGEMENT PLANS							
	D8 (a)-(h)	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: (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; (b) identification of potential impacts on each species; (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; (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; (e) monitoring methodology for threatened flora and fauna adjacent to the SSI footprint, (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; (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; (h) provision for the assessment of monitoring data to identify changes to habitat usage and whether this can be attributed to the SSI;	All	Pre-construction and Construction	RMS and Contractor	Closed	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, DoE Approval 11 August 2016.
	D8 (i)-(l)	(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; (j) mechanisms for the monitoring, review and amendment of these plans; (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 (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. 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. 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.	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	Closed	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	Closed	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	Closed	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	Closed	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.
NOISE AND VIBRATION LAND USE SURVEY							
	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.
NOISE AND VIBRATION OPERATIONAL NOISE REVIEW							

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	These reports are been developed as part of the detailed design process. Secretarial approval was granted on 2/3/2017 for an extension of time to the submission date for the Operational Noise Review Report until 1 July 2017. Further approval was received to extension of date to 31 October 2017.
WATER QUALITY MONITORING PROGRAM							
	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).
HYDROLOGICAL MITIGATION REPORT							
	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	The Hydrological Mitigation Report for Glenugie to Devils Pulpit (Sections 3, 4, 5 & 6) was submitted to DPE on 17 March 2017 with these conditions addressed in the report as follows: (a) Section 5; (b) Section 6; (c) Sections 5.2.2 and 6.4; (d) Sections 6.2 and 6.3; (e) Sections 6.5 (f) Section 5.2; (g) Noted. The Hydrological Mitigation Report for Devils Pulpit to Ballina (Sections 7, 8, 9, 10 and 11) has been submitted to DPE with these conditions addressed in this report, as follows: (a) Section 5; (b) Section 6; (c) Sections 5.2.2 and 6.4; (d) Sections 6.2 and 6.3; (e) Section 6.5; (f) Section 5.2; (g) Noted.
	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. The Hydrological Mitigation Report for Glenugie to Devils Pulpit (Sections 3, 4, 5 & 6) was submitted to DPE on 17 March 2017 and Table 6.2 addresses this condition. The Hydrological Mitigation Report for Devils Pulpit to Ballina (Sections 7, 8, 9, 10 and 11) has been submitted to DPE and Table 6.3 addresses this condition.
	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	Closed	Mark Babister from WMA Water has been appointed as the suitably qualified independent hydrological expert for the project. This is detailed in Sections 1.6 and 2.5 of the Hydrological Mitigation Reports.
	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	Closed	Noted. This is detailed in Section 6.3 of both of the Hydrological Mitigation Reports.
TRANSPORT AND ACCESS.							
	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.
ROAD DILAPIDATION							
	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. Reports received have been submitted to local Councils and will continue to be.
URBAN DESIGN AND LANDSCAPING							

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	D20 (a)-(d)	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: (a) identification of design principles and standards based on: (i) local environmental values, (ii) heritage values; (iii) urban design context; (iv) sustainable design and maintenance; (v) community amenity and privacy; (vi) relevant design standards and guidelines; and (vii) the urban design objectives outlined in Section 4.2 of the EIS Working Paper—Urban Design Landscape Character and Visual Impact; (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; (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; (d) take into account appropriate roadside plantings and landscaping in the vicinity of heritage items and ensure no additional heritage impacts;	All	Pre-construction and Construction	RMS and Contractor	Closed	Urban Design and Landscape Plans have been prepared during detailed design. An extension to the submission of the Urban Design and Landscape Plan for Sections 3-11 was approved by DPE on 20/12/2016 with new submission date end June 2016. The Urban Design and Landscape Plans were submitted to DPE 29 June 2017.
	D20 (e)-(k)	(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; (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; (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; (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; (i) strategies for progressive landscaping and other environmental controls such as erosion and sedimentation controls, drainage and noise mitigation; (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 (k) evidence of consultation with the relevant council and community on the proposed urban design and landscape measures prior to its finalisation. The Plan may be submitted in stages to suit the staged construction program of the SSI.	All	Pre-construction and Construction	RMS and Contractor	Closed	Urban Design and Landscape Plans have been prepared during detailed design. An extension to the submission of the Urban Design and Landscape Plan for Sections 3-11 was approved by DPE on 20/12/2016 with new submission date end June 2016. The Urban Design and Landscape Plans were submitted to DPE 29 June 2017. Approval is anticipated in the following reporting period, ie, October 2017 to March 2018.
ANCILLARY FACILITIES							
	D21	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: (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; (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; (c) a description of the plant, equipment and materials to be used and/or stored on the site, including dangerous and hazardous goods; (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; (e) a summary of the potential environmental impacts associated with the construction and operation of the facility; (f) demonstrate compliance with the locational and environmental criteria in condition B73(a)—B73(n); (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; (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; (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; (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; (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 (l) mechanisms for the monitoring, review and amendment of this plan. 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. The Applicant may prepare a separate plan for the facility or include multiple sites within a single or multiple management plans.	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 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 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 required the plan will be submitted to the Secretary for approval.
BORROW SITES							
	D22	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: (a) details of construction/extraction methods and activities carried out at the borrow site; (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; (c) consultation with sensitive receivers; and (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. 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.	3, 8, 10	Construction	Contractor	Open	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. The Lumleys Hill Borrow Site Management Plan (Portion D) was approved on 8 September 2017. The Gibsons Borrow Site Management Plan and the Jali Borrow Site Management Plan (Portion D) were approved on 11 September 2017.
ENVIRONMENTAL REPRESENTATIVE							

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	D23	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 Environment Representative(s) shall: (a) be the principal point of advice in relation to the environmental performance of the SSI; (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; (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; (d) ensure that environmental auditing is undertaken in accordance with the Applicant's Environmental Management System(s); (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; (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); (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; (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 (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	All	Pre-construction	RMS	Closed	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.
CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN							
	D25 (a)-(c)	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: (a) a description of activities to be undertaken during construction of the SSI (including staging and scheduling); (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; (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;	All	Pre-construction and Construction	Contractor	Open	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, EWWSs and ESCPs to ensure compliance with the Pacific Complete CEMP, relevant RMS/PC environmental specifications and the requirements of this CoA.
	D25 (d)	(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: (i) measures to monitor and manage dust emissions including dust from stockpiles, blasting, traffic on unsealed public roads and materials tracking from construction sites onto public roads; (ii) measures to minimise hydrology impacts, including measures to stabilise bed and bank structures as required; (iii) measures for the handling, treatment and management of contaminated materials; (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); (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); (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; (vii) the issues identified in condition D26; (viii) details of community involvement and complaints handling procedures during construction, consistent with the requirement of conditions C1 to C4; (ix) details of compliance and incident management consistent with the requirements of condition D27; and (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). 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. 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.	All	Pre-construction and Construction	Contractor	Open	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, EWWSs and ESCPs to ensure compliance with the Pacific Complete CEMP, relevant RMS/PC environmental specifications and the requirements of this CoA.

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	D26 (a)	As part of the Construction Environmental Management Plan for the SSI, the Applicant shall prepare and implement: (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: (i) identification of sensitive receivers and relevant construction noise and vibration goals applicable to the SSI stipulated in this approval; (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; (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); (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 (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; (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; (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; (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 (viii) mechanisms for the monitoring, review and amendment of this plan.	All	Pre-construction and Construction	Contractor	Open	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.
	D26 (b)	(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: (i) identification of construction traffic routes and construction traffic volumes (including heavy vehicle/spoil haulage) on these routes; (ii) details of vehicle movements for construction sites and site compounds including parking, dedicated vehicle turning areas, and ingress and egress points; (iii) 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; (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; (v) details of measures to manage traffic movements, parking, loading and unloading at ancillary facilities during out-of-hours work; (vi) a response plan which sets out a proposed response to any traffic, construction or other incident; and (vii) mechanisms for the monitoring, review and amendment of this plan.	All	Pre-construction and Construction	Contractor	Open	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.
	D26 (c)	(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: (i) details of construction activities and their locations, which have the potential to impact on water courses, storage facilities, stormwater flows, and groundwater; (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; (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; (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; (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; (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; (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; (viii) management measures for contaminated material and a contingency plan to be implemented in the case of unanticipated discovery of contaminated material during construction; (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.	All	Pre-construction and Construction	Contractor	Open	This requirement is a 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.
	D26 (d)	(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: (i) in relation to Aboriginal Heritage: (A) details of further investigation and identification of Aboriginal cultural heritage sites within the SSI boundary; (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; (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; (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; (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 (F) procedures for ongoing Aboriginal consultation and involvement for the duration of the SSI; and (ii) in relation to non-Aboriginal Heritage: (A) identification of heritage Items directly and indirectly affected by the SSI; (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); (C) details of monitoring and reporting requirements for impacts on heritage items; (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 (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 (iii) mechanisms for the monitoring, review and amendment of this plan.	All	Pre-construction and Construction	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 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.

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	D26 (e)	(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: (i) details of pre-construction surveys undertaken by a suitably qualified and experienced ecologist to verify the SSI footprint based on detailed design; (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; (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; (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; (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 Phytophthora cinnamomi and myrtle rust (Puccinia psidii s.l.); erosion and sediment control, including measures to at least maintain habitat values downstream; and progressive re-vegetation; (vi) rehabilitation details, including identification of flora species and sources, and measures for the management and maintenance of rehabilitated areas; (vii) weed management measures focusing on early identification, suppression and control of invasive weeds and effective management controls; (viii) a protocol for managing aquatic and terrestrial pest animal/invasive species and plant species, and pathogens; (ix) consideration of the Threatened Species Management Plans; (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; (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 (xii) mechanisms for the monitoring, review and amendment of this plan.	All	Pre-construction and Construction	Contractor	Open	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.
COMPLIANCE MONITORING AND TRACKING							
	D27	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: (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); (b) provisions for periodic review of the compliance status of the SSI against the requirements of this approval; (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; (d) a program for independent environmental auditing in accordance with ISO 19011:2003 - Guidelines for Quality and/or Environmental Management Systems Auditing; (e) mechanisms for recording environmental incidents during construction and actions taken in response to those incidents; (f) provisions for reporting environmental incidents to the Secretary and relevant public authorities during construction; (g) procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management; and (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.	All	Pre-construction and Construction	RMS and Contractor	Open	The Compliance Tracking Program & Pre-Construction Compliance Report for Early Works (Wave 1 and part Wave 3) Soft Soils and the 6 Monthly Compliance Tracking Reports (October 2015 to March 2016 & November 2015 to April 2016) were submitted on 29 August 2016. The 6 Monthly Compliance Tracking Report for Wave 2 Early Works (November 2015 to April 2016) was submitted on 29 August 2016. The Compliance Tracking Program & Pre-Construction Compliance Report, Stage 2 Sections 3 to 11 was submitted to the Secretary on 4 March 2016 and approved on 16 March 2016. The 6 Monthly Compliance Tracking Report (Stage 2) Construction Sections 3 to 11 was submitted to the Secretary DPE for approval on 14/12/2016 (D27 & D27(b)). The 2nd 6 Monthly Compliance Tracking Report (Stage 2) Construction for Sections 3 to 11 (October 2016 to March 2017) of the Woolgoolga to Ballina Pacific Highway Upgrade Project was submitted to the Secretary on 28 August 2017. This submission is the 3rd 6 Monthly Construction Compliance Report (April - September 2017) for Sections 3 to 11 of the Woolgoolga to Ballina Pacific Highway Upgrade Project.
OPERATIONAL NOISE AND VIBRATION COMPLIANCE							
	D28	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. The Applicant shall subsequently prepare an Operational Noise Compliance Report to document this monitoring. The Report shall include, but not necessarily be limited to: (a) noise monitoring to assess compliance with the operational noise levels predicted in the review of operational noise mitigation measures required under condition D11 and documents listed in condition A2; (b) a review of the operational noise levels in terms of criteria and noise goals established in the NSW Road Noise Policy 2011; (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; (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; (e) any required recalibrations of the noise model taking into consideration factors such as noise monitoring and actual traffic numbers and proportions; (f) an assessment of the performance and effectiveness of applied noise mitigation measures together with a review and if necessary, reassessment of feasible and reasonable mitigation measures; and (g) identification of additional feasible and reasonable measures to those identified in the review of noise mitigation measures required by condition 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. 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. Note: • The audit may be staged to suit the staged operation of the SSI.	All	Operation	RMS	Open	Noted. The requirements of this CoA relate to the operational phase of the project.
ENVIRONMENTAL MANAGEMENT SYSTEMS							
	D29	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. 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.	All	Construction and Operation	RMS	Open	Noted. The requirements of this CoA relate to the operational phase of the project.
INDEPENDENT ENVIRONMENTAL AUDIT							
	D30	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: (a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary; (b) include consultation with the relevant agencies; (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); (d) review the adequacy of any approved strategy, plan or program required under the abovementioned approvals; and (e) recommend measures or actions to improve the environmental performance of the SSI, and/or any strategy, plan or program required under these approvals. Note: • 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. • The audit may be staged to suit the staged operation of the SSI.	All	Operation	RMS	Open	Noted. The requirements of this CoA relate to the operational phase of the project.

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	D31	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.	All	Operation	RMS	Open	Noted. The requirements of this CoA relate to the operational phase of the project.

COMPLIANCE TRACKING - MITIGATION MEASURES
Woolgoolga to Ballina SSI-4963

Note: only includes wave 1,2,3 & 4

Transport Roads & Maritime Services

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
HYDROLOGY AND FLOODING									
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	NA	Pre-construction	RMS	Closed	Flood modelling (final models) have been developed as part of detailed design and addressed during prepartion of Hydrological Mitigation Reports.
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	NA	Pre-construction	RMS	Closed	Pacific Complete has ensured that bathymetric data at the Clarence River crossing was obtained as part of detailed design, as described in Section 4.1 and Fibure 4.1 of the Hydrological Mitigation Report for Glenugie to Devils Pulpit (Sections 3, 4, 5 and 6), submitted to DPE on 17 March 2017. The updated Clarence River model included input of additional topographic and bathymetric survey information, refined bridge loss coefficients, re-calibration of the model to the January 2013 flood event and validation against the March 2001 flood event. The re-calibrated Clarence River flood model has been adopted as the basis for the hydraulic assessments for the detailed design phase of the project.
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	All	Pre-construction and construction	RMS	Closed	This has been considered during detailed design and in consultation with land acquisition processes. 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. During construction relevant stakeholders have been consulted as required. The Hydrological Mitigation Report for Glenugie to Devils Pulpit (Sections 3, 4, 5 & 6) was submitted to DPE on 17 March 2017. This report represents the design at December 2016 stage of the program and includes the road alignment, channel earthworks, cross drainage and bridge designs at various levels of design development and reflects the substantial detailed design stage for infrastructure within the Clarence Regional floodplain. The flood model will be updated once the final detailed design is complete. The Hydrological Mitigation Report for Devils Pulpit (Sections 7, 8, 9, 10 & 11) has been submitted to DPE. This report represents the design at the April 2017 stage of the program and includes the road alignment, channel earthworks, cross drainage and bridge designs at various levels of design development. Generally, this point in the program reflects the substantial detailed design stage for infrastructure within the Richmond regional floodplain. The flood model will be updated once the final detailed design is complete.
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	NA	Pre-construction	RMS	Closed	This has been considered during detailed design.
HF5	Hydrology and Flooding	Permanent road fencing	Detailed design for permanent road fencing will consider hydrology and flooding impacts.	All	NA	Pre-construction	RMS	Closed	This has been considered during detailed design.
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	All	Pre-construction.	RMS	Open	Scour and erosion protection meaures are addressed in Section 5.2.2 of the Hydrological Mitigation Report for Glenugie to Devils Pulpit. Section 6.1.3 of the Hydrological Mitigation Report for Devils Pulpit to Ballina. All works in OPP waterways have been developed in consultation with DPI Fisheries.
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	All	Pre-construction and Construction	RMS	Open	This has been addressed during detailed design in consultation with agencies. During construction EWMS for waterway diversions/crossings have been developed in consultation with the relevant agencies.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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	All	Construction	RMS and Contractor	Open	This has been addressed within the approved landscape designs and managed during construction by the 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.
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	NA	Pre-construction	RMS	Closed	This has been addressed during detailed design in consultation with DPI Fisheries.
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	NA	Pre-construction	RMS	Closed	This has been addressed during detailed design.
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 *Land Acquisition (Just Terms Compensation) Act 1991* .	All	All	Pre-construction	RMS	Closed	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	All	Pre-construction	RMS	Closed	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	All	Pre-construction	RMS	Closed	This has been addressed during the property acquisition process and detailed design to ensure flood access and evacuation is maintained.
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	NA	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.
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: • Maintain conveyance characteristics of existing cane drains. • Provide adequate capacity in temporary drainage to prevent blockages.	4, 5, 6, 8,9,10,11	All	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. Pacific Complete has been successful in minimising overall flooding impacts in the Clarence regional and local floodplains as outlined in the Hydrological Mitigation Reports for Clarence and Richmond River floodplains. These reports have been developed in consultation with relevant stakeholders.
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	3	Pre-construction	RMS and Contractor	Open	This has been addressed during detailed design and is being managed during construction as outlined in the Hydrological Mitigation Report for Clarence River.
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	NA	Construction	Contractor	Open	Noted. This requirement is addressed in Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan) and relevant Flood Action and Warning Plans for constractors workin gin these areas. These plans identify the risks and appropriate mitigation measures to minimise the potential for material and equipment to contaminate land and waters downstream and to ensure the safety of its project staff in the event of a flood warning or flood watch issued.
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	NA	Pre-construction	RMS	Closed	This was addressed as part of detailed design.
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	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. 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	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. During construction relevant stakeholders have been consulted where required.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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	NA	Pre-construction and operation	RMS	Closed	This has been considered as part of detailed design. Section 4.2.5 of the Hydrological Mitigation Reports discusses sensitivity analyses, which includes consideration and modelling of climate change impacts. The EIS also considered the projects potential impacts under future climiate scenarios and the results are included as appendices in these reports.
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	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. All ancillary facility assessments consider potential impacts on hydrology and flooding.
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: • Achieve compliance thorough modified embankment or drainage design. • Achieve an acceptable level of mitigation of impacts through alternative design measures (e.g. raised access tracks) in consultation with the affected land owner.	All	All	Pre-construction	RMS	Closed	This has been addressed during detailed design and is discussed in the Hydrological Mitigation Reports for Clarence and Richmond River floodplains. The HMR details where flood immunity objectives have not been met and consultation within individual stakeholders and investigations are ongoing.
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	NA	Pre-construction	RMS	Closed	This has been considered during detailed design.
HF25	Hydrology and Flooding	Drainage structures	Maintenance regime of drainage structures will be considered during detailed design.	All	NA	Pre-construction	RMS	Closed	This has been addressed during detailed design. Section 6.5 of the Hydrological Mitigation Reports address the future of drainage regimes for drainage structures following commisioning of the project.
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	NA	Pre-construction	RMS	Closed	The Chaffin Creek local catchment has been hydraulically modelled and these models used to size cross drainage structures, to test impact of the upgrade on flooding in adjacent land for local catchments. Refer to Section 4.2.3.2 of the Hydrological Mitigation Report (Glenugie to Devils Pupit), submitted to DPE on 17 March 2017.
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	All	Pre-construction	RMS	Closed	Pacifc Complete is consulting with Clarence Valley Council on flood impacts and mitigation measures, which are detailed in the Hydrological Mitigation Reports.
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	NA	Pre-construction	RMS	Closed	This has been addressed during detailed design and developed of Connectivity Strategy for project.
HF 29	Hydrology and Flooding	Drainage structures	Detailed design will investigate viable options to maintain the existing flood behaviour in James Creek.	5	NA	Pre-construction	RMS	Closed	This has been addressed during detailed design and is discussed in the Hydrological Mitigation Reports for Clarence and Richmond River floodplains. The HMR details where flood immunity objectives have not been met and consultation within individual stakeholders and investigations are ongoing.
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	All	Pre-construction and construction	RMS	Closed	This has been addressed during detailed design and is discussed in the Hydrological Mitigation Reports for Clarence and Richmond River floodplains. The HMR details where flood immunity objectives have not been met and consultation within individual stakeholders and investigations are ongoing.
SOILS, SEDIMENT AND WATER									
SSW1	Soils, sediment and water	Design of cut-and-fill batters	Batter slope gradients will be designed to minimise erosion of select topsoil.	All	All	Pre-construction	RMS	Closed	This has beeen addressed during detailed design and incorporated into landscape design packages.
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	All	Pre-construction	RMS	Closed	This has beeen addressed during detailed design and incorporated into landscape design packages.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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): • Erosion and sediment control plans for all stages of construction. • Consideration of soil erodibility. • At-source erosion controls (e.g. check dams). • Sedimentation basin construction and management. • Protection of waterways. • Acid sulfate soil sub-plan issues (including from groundwater drawdown). • Management of stockpiles. • Tannin leachate management control. • Batch plant/ chemical storage controls. • Water quality monitoring and checklists. • Detailed consideration of measures to prevent, where possible, or minimise any water quality impacts.	All	All	Pre-construction	RMS and 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.
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	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. Erosion & Sediment Control Plans are progressively designed to align with the current works program. These are designed and approved in conjuction with qualified Soil Consveration ist/s and in line with RMS specifications.
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	All	Pre-construction	RMS	Closed	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	All	Pre-construction and construction	RMS	Open	This has been addressed during detailed design and 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. All sediment basins design sizes and volumes have been carried out by Soil Conservationist in accordance with RMS Specs G36, G38 and EIS working Paper (Water Quality) and Bluebook guidelines, and in accordance with project EPL requirements.
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	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.
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	All	Construction	Contractor	Open	Noted. 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.
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	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.
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	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.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
SSW11	Soils, sediment and water	Stockpile management	Where reasonable and feasible, stockpiles will: • Not require removal of areas of native vegetation. • Be located outside of known areas of weed infestation. • Be located such that waterways and drainage lines are not directly or indirectly impacted.	All	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. Pacific Complete has developed Environmental Toolbox talks for Mulch Stockpiles and Managing Stockpiles, which incorporate these conditions.
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	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. This requirement is represented in the Stockpile Toolbox talks.
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	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.
SSW14	Soils, sediment and water	Stockpile management	All construction stockpiles will comply with the requirements of the *Protection of the Environment Operations Act 1997* 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	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. This condition is further reinforced in Pacific Complete's Stockpile Toolbox talks.
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	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.
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	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. The RMS Direction has been incorporated in the Management of Mulch Stockpiles Toolbox talk.
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	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. 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.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
SSW18	Soils, sediment and water	Management of contamination	If necessary, a Stage 2 Detailed Site Investigation will be undertaken to: • Provide information on the type, nature, extent and concentrations of contamination present, and the corresponding risks to human health and the environment. • Examine pathways of contaminant dispersal and exposure, the potential for off-site impacts and the management requirements and options.	All	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. 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	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. 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	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.
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	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. 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	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.
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	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.
SSW24	Soils, sediment and water	Acid sulfate soils	Strategies to remove / reduce risks associated with acid sulfate soils will be identified.	All	All	Pre-construction and Construction	RMS and Contractor	Open	This is being considered as part of detailed design and during construction. 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.
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	All	Construction	Contractor	Open	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.
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	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.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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	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.
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	All	Pre-construction	RMS	Open	This has been addressed during detailed design. All discharge points from sediment basins are designed and approved by the CPESC and PC.
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	All	Pre-construction	RMS	Open	This has been considered as part of detailed design.
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	NA	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	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Sediment basins are inspected regularly by environmental inspectors and Soil Conservationists. Sediment basins are also inspected pre and post rainfall events across the project.
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	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Inspections and records are kept of flocculant use in sedimentation basins, according to licence requirements in the Environment Protection Licence, issued by the Environment Protection Authority.
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	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). This requirement is incorporated into EWMS for removal of sediment from sediment basins.
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	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Water from sedimentation basins is regularly used across the project for dust suppression during construction. This condition is included in Sustainability Action Plans and relevant EWMS.
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	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan) and further detailed in EWMS relevant to sedimentation basin dewatering pump outs.
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	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Water quality monitoring and erosion and sediment control inspection records are kept on site and / or electronically and are provided in monthly progress overview reports. This includes pre and post rainfall inspections, flocculant use, dewatering activities and sediment removal. These records are compiled for monthly EPL (Environment Protection Licence) reporting.
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: • Use of appropriately bunded storage facilities for chemicals and fuels. • Use of appropriately bunded areas for refuelling and washdown. • Availability of effective spill kits at all construction sites.	All	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. Chemical storage and physical controls are detailed in EWMS such as 'Maintenance Refuelling and Chemical Storage' and 'Site Establishment'.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
SSW38	Soils, sediment and water	Ancillary facility management	At ancillary facilities, management of runoff and spills will include: • Restricting vehicle movements to designated pathways where feasible. • Paving areas that will be exposed for extended periods, such as car parks and main access roads, where reasonable and feasible. • Diverting off-site runoff around sites where required. • 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.	All	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan) and Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP).
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	NA	Construction	Contractor	Open	This requirement is addressed in the approved Borrow Site Management Plans - 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. The Lumleys Hill Borrow Site Management Plan (Portion D) was approved 8 September 2017 by DPE. The Jali Borrow Site and Gibsons Borrow Site Management Plans (Portion D) were approved 11 September 2017. A subsequent Haulage Strategy was developed during this reporting period (April to September 2017) for Sections 10 and 11 of the project and published on the RMS website for community consultation and feedback.
SSW40	Soils, sediment and water	Management of groundwater intersection	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	All	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). 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	All	Pre-construction	Contractor	Open	Ongoing water quality monitoring is being undertaken in accordance with the approved Water Quality Monitoring Program for project.
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	All	Construction	Contractor	Open	This has been addressed during detailed design.
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	All	Pre-construction	RMS	Open	This has been addressed during detailed design.
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	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.
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	NA	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).
SSW46	Soils, sediment and water	Prevention of groundwater impacts	The proposed management strategy to address potential impacts at type A cuttings includes: • 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. • 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. • 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. • Mitigation – implement environmental and engineering management measures where predictions and/or modelling and monitoring suggest that these are required to minimise impacts on groundwater.	All	All	Pre-construction and construction	RMS	Open	This has been considered as part of detailed design.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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	All	Pre-construction, construction	RMS	Open	Ongoing water quality monitoring is being undertaken in accordance with the approved Water Quality Monitoring Program for project.
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: • 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. • Engineering impact mitigation measures that transfer the seepage water (where present) into the groundwater ecosystem immediately downslope of the cutting or embankments.	All	All	Pre-construction and construction	RMS and Contractor	Open	This has been considered as part of detailed design.
SSW49	Soils, sediment and water	Prevention of groundwater impacts	Major embankments will be designed to enable distributed flow of surface waters.	All	All	Pre-construction and construction	RMS and Contractor	Open	This has been considered as part of detailed design.
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	All	Pre-construction	RMS	Open	This has been considered as part of detailed design.
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	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). and approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP).
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	4	Construction	Contractor	Open	Drainage requirements in the Rous borefield were developed during detailed design in consultation with Rous Water.
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	4	Construction	RMS and Contractor	Open	This has been addressed during detailed design in consultation with Rous Water.
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: • Refuelling. • Washdown. • Storage of chemicals or other hazardous substances. • Installation of concrete batch plants.	8	4	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.
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	4	Pre-construction	RMS	Open	This has been addressed during detailed design in consultation with Rous Water.
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	4	Pre-construction	RMS	Open	This has been addressed during detailed design in consultation with Rous Water.
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	4	Pre-construction	RMS	Open	This has been addressed during detailed design in consultation with Rous Water.
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	4	Pre-construction	RMS	Open	This has been addressed during detailed design in consultation with Rous Water.
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	All	Operation	RMS	Open	This has been addressed during detailed design of operational water quality controls.
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	All	Pre-construction	RMS	Open	This has been addressed during detailed design of operational water quality controls.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
SSW61	Soils, sediment and water	Protection of water quality	Appropriate scour protection for drainage measures will be determined during detailed design.	All	All	Operation	RMS	Open	This has been addressed during detailed design of operational water quality controls.
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	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.
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	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.
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	NA	Pre-construction	RMS	Open	This has been undertaken during detailed design and site establishment, and is ongoing as required during cosntruction.
BIODIVERSITY									
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	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.
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	All	Pre-construction	RMS	Closed	The Connectivity Strategy (Sections 3-11) was apaproved by DPE on 27 April 2017 and DPEE on 16 May 2017.
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	All	Pre-construction	RMS	Closed	The Connectivity Strategy (Sections 3-11) was apaproved by DPE on 27 April 2017 and DPEE on 16 May 2017.
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	NA	Pre-construction	RMS	Closed	This has been developed as part of detailed design with specific connectivity goals for the Long-nosed Potoroo and Koala identified in the Connectivity Strategy for Sections 3-11. The Connectivity Strategy (Sections 3-11) was apaproved by DPE on 27 April 2017 and DPEE on 16 May 2017.
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	All	Pre-construction and construction	RMS	Closed	This has been considered as part of detailed design and incorporated into Connectivity Strategy. The Connectivity Strategy (Sections 3-11) was apaproved by DPE on 27 April 2017 and DPEE on 16 May 2017.
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	3	Construction	Contractor	Closed	This has been considered as part of detailed design and incorporated into Connectivity Strategy. The Connectivity Strategy (Sections 3-11) was apaproved by DPE on 27 April 2017 and DPEE on 16 May 2017.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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	All	Pre- construction	RMS	Closed	This has been considered as part of detailed design and incorporated into Connectivity Strategy. The Connectivity Strategy (Sections 3-11) was apaproved by DPE on 27 April 2017 and DPEE on 16 May 2017.
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	NA	Pre-construction and construction	RMS and Contractor	Closed	This has been considered as part of detailed design and incorporated into Connectivity Strategy. The Connectivity Strategy (Sections 3-11) was apaproved by DPE on 27 April 2017 and DPEE on 16 May 2017.
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	NA	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.
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	All	Pre- construction	RMS	Closed	This requirement is addressed by the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). The Flora and Fauna Management Plan was approved on 23 October 2015 by DPE and is continually updated as required. Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA.
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: • Recommendations from expert review undertaken as part of the Submissions / Preferred Infrastructure Report (and detailed in section 1.4 of the management plans). • Any conditions of approval. • Results from baseline monitoring undertaken. The threatened species management plans will be finalised in consultation with the relevant State and Federal government agencies.	All	All	Pre- construction	RMS	Closed	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.
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	All	Pre-construction	RMS	Closed	This has been developed as part of detailed design and the Urban Design and Landscape Plans for the project.
B13	Biodiversity	Minimising loss of vegetation and habitat	Disturbance and clearing of vegetation will be minimised, particularly: • Avoiding and minimising vegetation removal wherever possible through the detailed design process. • 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.	All	All	Pre-construction and construction	RMS	Closed	This has been addressed during detailed design.
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	All	Pre-construction	RMS	Closed	This has been addressed during detailed design in consultation with DPI Fisheries.
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: • Unnamed waterway station 114.0 • Oaky Creek station 122.5 • Nortons Gully station 123.6 • Unnamed waterway station 133.4 • Unnamed waterway at station 134.7 • Tributary of Macdonalds Creek at station 135.5 • Montis Gully tributary at station 141.8 • Eversons Creek station 143.6	7 and 8	NA	Pre-construction	RMS	Closed	This has been addressed during detailed design in consultation with DPI Fisheries.
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	NA	Pre-construction	RMS	Closed	This has been addressed during detailed design in consultation with DPI Fisheries.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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: • The natural stream flow and velocity are maintained as closely as possible. • Surface level of any causeway is the same or lower than the natural stream bed to reduce interference with flow. • Habitat within a culvert is as natural as possible (e.g. allow rock and bed materials to infill the culvert base). • There is the maximum light penetration. • 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. • 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.	All	All	Pre-construction	RMS	Closed	This has been addressed during detailed design in consultation with DPI Fisheries.
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: • Bridge piers to be located outside the main channel. • 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). • Construction not alter or reduce flow where there are existing or potential Oxleyan Pygmy Perch populations (primarily within Sections 7, 8 and 9).	All	All	Pre-construction	RMS	Closed	This has been addressed during detailed design in consultation with DPI Fisheries.
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	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. Temporary crossing designs have been developed in consultation / approved by PC in accordance with the CEMP and consultation with agencies.
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	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. 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: • 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. • Temporary crossings will be constructed from clean fill using pipe or box culvert cells to carry flows. • 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. • The preferred temporary structure for crossing waterways will be consistent with Witheridge (2002). • Scour protection works will be established at temporary crossings as required. • At the completion of construction, the temporary crossings will be removed and rehabilitated.	All	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. Temporary Crossings have been designed and implemented in accordance with the Blue Book and in consultation with ERG, including these provisions.
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	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. Appropriately qualified aquatic ecologists have been used to capture and translocate fish 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: • 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. • Mapping the location of any threatened flora and/or fauna species, Threatened Ecological Communities and habitat. • Construction traffic will be restricted to defined access tracks, fenced prior to the start of construction and maintained until construction is complete.	All	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. 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.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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	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. All exclusion zones created to date have been delineated in accordance with the Pacific Complete Flagging Protocol and verified during inspections.
B25	Biodiversity	Staged removal process	A staged habitat removal process will be implemented consistent with the Roads and Maritime Biodiversity Guidelines (RTA, 2011a).	All	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.
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	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.
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	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.
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	4	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.
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	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.
B30	Biodiversity	Pathogen management	If pathogens are identified on site: • Testing may be required to confirm the presence of pathogens. • Advice from government departments will be sought on practical hygiene management measures. • Fenced exclusion zones will be identified to restrict access into contaminated areas.	All	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.
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: • The number and type of nest boxes required based on the number, quality and size of the hollows that be removed. • Specifications for nest box dimensions, installation requirements, locations of nest boxes and ongoing monitoring and maintenance. • Installation timeframes, including the installation of 70 % of nest boxes prior to the removal of any vegetation in the vicinity of the hollows.	All	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). To date (ie, 30 September 2017), 516 Nest Boxes have been installed across Sections 3 to 11.
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	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. An ecologist is present during all clearing works.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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	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. 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	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	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. 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	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. Clean rock is used for the installation of permanent water crossings which is free of fines.
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	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.
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	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.
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	NA	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.
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	NA	Construction	RMS and Contractor	Closed	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. During detailed design, Urban Design and Landscape Plans have been prepared in accordance with MCoA D20.
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	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. During this reporting period (Apri to September 2017) silt curtains incorporating an oil containment boom were used nearshore during construction of a temporary jetty at Harwood Bridge.
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	All	Construction	Contractor	Open	Pacific Complete has obtained an Environment Protection Licence (EPL) for Sections 3 to 11 (No. 20173, 29 January 2016). 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. All discharges to waterways were undertaken in accordance with relevant EPL conditions.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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	NA	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. Required in-stream work in known OPP habitat was carried out in consultation with DPI Fisheries and relevant MCoAs.
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	All	Operation	RMS and Contractor	Open	This has been addressed during detailed design of operational water quality controls.
B45	Biodiversity	Water quality	Chemicals and fuels will be appropriately stored and bunded, away from waterways and drainage lines.	All	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.
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: • Spraying onto adjacent open grass areas or used for construction purposes such as dust. • 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.	1,2,7,8, and 9	NA	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.
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	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).
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	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan) and approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA.
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	NA	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	NA	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan) and approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this requirement.
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	All	Pre-construction and construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan) and approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this requirement.
B52a	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 2 site 1a: • Flag and avoid hollow bearing trees • Revegetation of the section of the site in the road reserve or the entire site (if practicable).	2	NA	Construction	Contractor	N/A	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: • Avoid isolated trees and flag and avoid hollow bearing trees where possible. Site to remain cleared to benefit emus.	2	NA	Construction	Contractor	N/A	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: • Site to remain clear (not vegetated) to benefit emus.	2	NA	Construction	Contractor	N/A	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)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
B52d	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 3 Site 1: • 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. • Avoid mature trees. • Revegetation of the section of the site in the road reserve or the entire site (if practicable).	3	NA	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 Section 3 - Site 1 Ancillary facility has not yet been assessed and approved for use.
B52e	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 3 Site 2: • Provide a buffer of 50 metres minimum from creek and sediment fencing where required. • Avoid mature trees. • Revegetation of the section of the site in the road reserve or the entire site (if practicable).	3	NA	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. 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: • Ancillary site to be restricted to the western parts of the site adjoining Wooli Road. • Vegetation in the road reserve along Wooli Road to be protected from disturbance. • The population of the Slender Screw Fern plants is to be avoided. • Existing trails or disturbed areas to be used for access to site. Bostock Road not to be used for access.	3	NA	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. 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: • Identify and mark Angophora robur during pre-clearing and provide exclusion fencing.	3	NA	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. This Ancillary facility has not been assessed and approved for use.
B52i	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 3 Site 9: • Provide buffer to the surrounding forest. • Identify and mark Angophora robur during pre-clearing and provide exclusion fencing • Provide sediment fencing on eastern boundary where required. • 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.	3	NA	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. 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: • 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 • Flag and buffer habitat patch on southern boundary.	5	1	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. Ancillary facility is proposed for use and the Ancillary Facility Management Plan was approved on 31 August 2016.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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	1	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. 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: • Mark and avoid small dam in north-west corner of site and buffer activities from a large remnant patch adjoining to the north. • Avoid scattered mature trees where possible.	6	NA	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. Ancillary facility has not been assessed and approved for use.
B52m	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 6 site 5: • 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. • A site inspection and survey is required prior to construction to confirm the suitability of the site. • Site to be rehabilitated post- construction.	6	NA	Pre-construction, 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 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: • To be used for only low risk activities, no chemical or fuel storage on site.	7	NA	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. Ancillary facility assessment/management plan is currently being prepared for this site, approval pending.
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	NA	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. 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	NA	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. 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	NA	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. Ancillary facility assessment/management plan is currently being prepared for this site, approval pending.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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	4	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. 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	4	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. Ancillary facility management plan/checklist has been completed and approved (September 2016) and an impermeable sediment fence was used for this ancillary 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	NA	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. Ancillary facility management plan/checklist has been prepared and was approved on 15 February 2017.
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	NA	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. Ancillary facility has not been assessed and approved for use.
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	NA	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. Ancillary facility assessment/management plan has been prepared and was approved by the Environmental Representative on 30 November 2016.
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	NA	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. Ancillary facility has not been assessed and approved for use.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
B52x	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 10 site 3b: • Map and avoid strip of trees along northern boundary	10	NA	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. 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	NA	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. Assessment/management plan/checklist has not been finalised for this site. A Stockpile Assessment/Checklist has been prepared for this site and was approved on 25 August 2017.
B53	Biodiversity	Slender Screw Fern	The project footprint in section 1 will to be reviewed to identify any opportunities to avoid significant impacts to the existing population.	1	NA	Pre-construction	RMS	N/A	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	NA	Pre-construction	RMS	Closed	This has been addressed during detailed design.
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	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	NA	Pre-construction	RMS	Closed	This lighting requirement has been addressed during during detailed design.
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	2	Pre-construction	RMS	Closed	This has been addressed during detailed design of operational water quality controls.
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	NA	Construction	Contractor	Open	This revegetation is being considered further noting that land bridge no longer forms part of design. UDLP and Connectivity Strategy for this area captures revegetation requirements in vicinity of connectivity structures.
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	NA	Pre-construction and construction	RMS and Contractor	Closed	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 and was developed in consultation with DPI Fishieries, agencies and RAPs.
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	NA	Construction and operation	Contractor	Closed	The Lang Hill Borrow Site Management Plan (Portion C) was approved 23 November 2016 by DPE and incorporates this requirement.
B61	Biodiversity	*Maundia triglochinoides*	Detailed design will investigate measures to reduce impacts to Maundia triglochinoides: • Near Redbank Creek (population 14). • Near North of New Italy (population 12).	1 and 7	NA	Pre-construction	RMS	Closed	This has been considered during detailed design. Redbank Ck not in Sections 3-11.
URBAN DESIGN AND LANDSCAPE									
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	All	Pre-construction	RMS	Open	This is being considered as part of detailed design and operational noise assessment.
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	NA	Pre-construction	RMS	Closed	This has been considered as part of detailed design and development of Urban Design and Landscape Plans.
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	All	Pre-construction	RMS	Closed	This has been considered as part of detailed design and development of Urban Design and Landscape Plans.
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: • Bridges. • Retaining walls. • Cuttings and embankments. • Road barriers. • Signage. • Fences. • Clear zones. • Topsoil management. • Water quality control ponds. • Fauna crossing. • Place marking and cultural plantings. 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	All	Pre-construction	RMS	Closed	This has been considered as part of detailed design and development of Urban Design and Landscape Plans.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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	NA	Pre-construction	RMS	Closed	This has been considered as part of detailed design and development of Urban Design and Landscape Plans.
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	All	Construction	Contractor	Closed	This has been considered as part of detailed design and development of Urban Design and Landscape Plans.
UD7	Urban Design and Landscape	Construction visual impacts	Disturbed areas will be progressively revegetated throughout the construction period.	All	All	Construction	Contractor	Open	This requirement forms part of the CEMP and Urban Design and Landscaping for the project.
UD8	Urban Design and Landscape	Visual impacts of ancillary facilities	Where required, typical landscape treatments for ancillary facilities in forest areas will include: • Providing screen planting. • Considering reinstatement of disturbed forest in heavily forested. • 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. • Negotiating with private landowners, as applicable, to determine future treatments for other non-forested ancillary facility locations. • Re-grading disturbed areas to achieve a sustainable and functional landform. • Stabilising all surfaces in accordance with good engineering and environmental practice.	All	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. Specific mitigation measures are captured in individual Ancillary Facility approvals.
UD9	Urban Design and Landscape	Visual impacts of ancillary facilities	Typical landscape treatments for ancillary facilities in agricultural areas will include: • Considering returning remnant agricultural land to agricultural uses. • Providing screen planting. • Reinstating riparian vegetation through ancillary facilities, where practicable, in the open landscape. • 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. • Re-grading disturbed areas to achieve a sustainable and functional landform. • Stabilising all surfaces in accordance with good engineering and environmental practice.	All	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. Specific mitigation measures are captured in individual Ancillary Facility approvals.
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	NA	Pre-construction	RMS and Contractor	Closed	Pacific Complete has prepared site specific Borrow Site Management Plans as required by the project approval that incorporate specific revegetation requirements. 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. The Lumleys Hill Borrow Site Management Plan (Portion D) was approved 8 September 2017 by DPE. The Jali Borrow Site and Gibsons Borrow Site Management Plans (Portion D) were approved 11 September 2017.
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	NA	Construction	Contractor	Open	Pacific Complete has prepared site specific Borrow Site Management Plans as required by the project approval that incorporate specific revegetation requirements. 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. The Lumleys Hill Borrow Site Management Plan (Portion D) was approved 8 September 2017 by DPE. The Jali Borrow Site and Gibsons Borrow Site Management Plans (Portion D) were approved 11 September 2017.
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	NA	Construction	Contractor	Open	Pacific Complete has prepared site specific Borrow Site Management Plans as required by the project approval that incorporate specific revegetation requirements. 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. The Lumleys Hill Borrow Site Management Plan (Portion D) was approved 8 September 2017 by DPE. The Jali Borrow Site and Gibsons Borrow Site Management Plans (Portion D) were approved 11 September 2017.
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	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	All	Construction	Contractor	Open	Noted. Principles for earth mounds are outlined in the UDLP developed for the project.
ABORIGINAL HERITAGE									
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	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. The methodologies approved for use on the Project incorporate actions to take, if substantially rich deposits of artefacts are located.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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	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. 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	All	Pre-construction	RMS and Contractor	Open	This requirement is addressed in the Pacific Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. 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. Due diligence heritage assessments have been carried out prior to any works outside the SSI project boundary in accordance with MCoA requirements.
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	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.
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	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.
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	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.
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	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.
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	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.
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	All	Construction	Contractor	Closed	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.
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	All	Pre-construction and construction	RMS and Contractor	Open	RMS has an established AFG meeting schedule in place.
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	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 also submitted 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.
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	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 EWMS and RMS/PC specifications are used to ensure compliance with this MCoA.
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	All	Construction	Contractor	Open	This requirement is addressed by 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. Integrated audits are completed according to the Audit Schedule and ongoing across the project.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
AH14a	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 1, Site 1a (at Taylors Run 2): • 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. • If the Aboriginal archaeological site is not to be impacted, an exclusion zone will be established as per management measure AH2. Ancillary facility - Section 1, Site 1a (at Taylors Run 3): • Exclusion zones will be established as per management measure AH2. Ancillary facility - Section 1, Site 1a (at Taylors Run 1): • 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. • 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. • Any portions of the Aboriginal archaeological site not to be impacted will be protected by exclusion zones as per management measure AH2. Ancillary facility - Section 1, Site 1a (at WWC37 (22-1-0344)): • 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: • The salvage to be excavated by machine is 30 % of the Aboriginal archaeological site. • 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. • 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. • All cultural material recovered will be subject to detailed analysis, which will be included in a technical report, including detailed discussion and interpretation. • Any portions of the Aboriginal archaeological site that are not to be impacted will be protected by exclusion zones as per management measure AH2.	1	NA	Pre-construction and construction	Contractor	N/A	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
AH14b	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 1, Site 1a, 1b (at WWC39 (22-1-0343)): • 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. • 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. • Where ground disturbance is not necessary, geotextile fabric and crushed rock or similar will be used to protect the ground from compaction. • The area of the Aboriginal archaeological site not to be impacted will be protected by an exclusion zone as per management measure AH2.	1	NA	Pre-construction	Contractor	N/A	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: • 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.	1	NA	Pre-construction	Contractor	N/A	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): • An exclusion zone will be established around this Aboriginal site as per management measure AH2.	2	NA	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)): • 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. • Any portions of the Aboriginal archaeological site that are not to be impacted will be protected by exclusion zones as per management measure AH2.	2	NA	Pre-construction and construction	Contractor	N/A	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): • 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.	2	NA	Pre-construction	Contractor	N/A	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)): • The Aboriginal archaeological site that is not to be impacted will be protected by exclusion zones as per management measure AH2.	2	NA	Construction	Contractor	N/A	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)): • All previously recorded artefacts will be recovered and removed off-site before construction, subject to a care agreement being established. • All cultural material recovered will be subject to detailed analysis, which will be included in a technical report, including detailed discussion and interpretation.	3	NA	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. 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)): • 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.	3	NA	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. 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): • All previously recorded artefacts will be recovered and removed off-site, subject to a care agreement being established. • Any portions of the Aboriginal archaeological site not to be impacted will be protected by exclusion zones as per management measure AH2.	3	NA	Pre-construction and 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. 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. The Ancillary Facility Assessment was approved on 19 October 2016.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
AH14k	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 4, Site 1: • 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.	4	3	Pre-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. An ancillary facility management plan/checklist has been prepared and was approved on 16 August 2016.
AH14l	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 4, Site 3: • 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.	4	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. 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): • 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. • 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.	4	3	Pre-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. Section 4, Site 5 Stockpile Checklist/Plan has been approved for use on 16 August 2016. 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)): • 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.	5	NA	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. Section 5, Site 7 has been approved for use on 6 December 2016. During the reporting period (October 2016 to March 2017) Mororo Creek 1 has been fenced by establishment of an exclusion zone of at least five metres outside the boundary of the Aboriginal archaeological site, prior to the establishment of the site in accordance with management meansure AH2.
AH14o	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 5, Site 5 and Site 7 (at Mororo Creek 2 (13-1-0193): • 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.	5	NA	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. Section 5, Site 7 has been approved for use on 6 December 2016. Mororo Creek 1 has been fenced during the establishment of the site in accordance with this condition and the ancillary facility management plan. An Ancillary Facility Checklist/Assessment has not yet been prepapred for this site.
AH14p	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 7, Site 1: • 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.	7	NA	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. Section 7, Site 1 is proposed for use. During the preparation of the ancillary facility management plan a site walkover will be carried out. The Ancillary Facility Management Plan/Checklist is pending approval.
AH14q	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 7, Site 3 (Dubaijeen Site (New Italy 1): • 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. • Any portions of the Aboriginal archaeological site that are not to be impacted will be protected by exclusion zones as per management measure AH2.	7	NA	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. An ancillary facility management plan/checklist has not been prepared for this site. Salvage complete, Site Clearance Letter received.
AH14r	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 7, Site 4 (The Gap Rd 1(13-1-0194)): • 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. • 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.	7	NA	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. An ancillary facility management plan/checklist has been prepared for this site and is pending approval. 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 affected if ancillary site is used.
AH14s	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 10, Site 1a: • 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.	10	NA	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. 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): • This Aboriginal archaeological site will be avoided, where practical, using an exclusion zone as per management measure AH2. • 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. • Any portions of the Aboriginal archaeological site that are not to be impacted will be protected by exclusion zones as per management measure AH2.	10	NA	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. 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)): • 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. • Any portions of the Aboriginal archaeological site that are not to be impacted will be protected by exclusion zones as per management measure AH2.	10	NA	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. An ancillary facility management plan/checklist has not been prepared for this site.
AH14v	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 11, Site 1a: • 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.	11	2	Pre-construction and 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. Section 11, Site 1a was inspected for Aboriginal archaeological material, salvaged, recorded, excavation and test pitting completed. Recommended management measures have been implemented in the Ancillary Facility Checklist for this site, which was approved on 5 December 2016.
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	NA	Pre-construction	RMS	N/A	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)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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	NA	Pre-construction	RMS	N/A	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	NA	Pre-construction	RMS	N/A	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	3	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): • 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.	3	NA	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	4	Pre-construction	RMS	Closed	Salvage completed. Additional mitigations outlined in the site clearance letter received.
AH21	Aboriginal Heritage	Impacts on Gittoes Jali	For the Gittoes Jali (09-1-0204, 09-1-0205, 09-1-0203) site: • 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). • 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. Paint wells and grinding rock: • Residue analysis will be undertaken to determine if any pigment is found within the wells. This will be undertaken by a suitably qualified consultant. • The location of these paint wells will be accurately plotted and drawn. • If the paint wells cannot be avoided, they will be relocated; this requires consultation with the registered Aboriginal stakeholders. Geomorphology assessment: • A geomorphology assessment will be undertaken. The assessment will be non-invasive, but could use observations of the machine salvage excavation. Borrow site: • 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.	8	NA	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: • 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. • 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. Shell Midden: • A sequence of dates (radiocarbon or AMS) will be collected from the hand excavation. • 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. Overburden: • All overburden will be removed and sieved for cultural materials. Geomorphology assessment: • A geomorphology assessment will be undertaken. The assessment will be non-invasive, but could use observations of the machine salvage excavation.	9	NA	Pre-construction and construction	RMS and Contractor	Open	Salvage completed. Additional mitigations outlined in the site clearance letter received: site fencing to be installed between CH 144100 and 145000 (both eastern and western side of project boundary) prior to commencement of construction and in consultation with Aboriginal community. Site fencing is yet to be installed (April - September 2017) as construction has not yet commenced.
AH23	Aboriginal Heritage	Impacts on Aboriginal heritage Site 11	For Site 11 (13-1-0189): • 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. • 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. Geomorphology assessment: • A geomorphology assessment will be undertaken. The assessment will be non-invasive, but could use observations of the machine salvage excavation.	9	NA	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: • 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. • 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. Shell Midden: • Salvage excavations as detailed in the Working paper Aboriginal Cultural Heritage (Woodburn to Ballina) and in consultation with RAPs. • A sequence of dates (radiocarbon or AMS) will be collected from the hand excavation. • 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. Area surrounding the shell midden: • Salvage excavations will be undertaken as detailed in the Working paper Aboriginal Cultural Heritage (Woodburn to Ballina) and in consultation with RAPs. Geomorphology assessment: • A geomorphology assessment will be undertaken. The assessment will be non-invasive, but could use observations of the machine salvage excavation.	10	NA	Pre-construction and construction	RMS and Contractor	Closed	Salvage completed. Additional mitigations outlined in the site clearance letter received. All geomorphological investigations were undertaken within the Phase 1 and 2 excavation areas. Site fencing has been installed along project boundary, and around four scarred trees (MST2, MST3, MST4 & C21). Sign has been posted indicating exclusion zone. Construction may commence subject to Unanticipated Discovery Protocols.
AH25	Aboriginal Heritage	Impacts on Site 1	For Site 1 (04-4-0179): • Further salvage excavations will be undertaken as detailed in the Working paper Aboriginal Cultural Heritage (Woodburn to Ballina) and in consultation with RAPs. • Any sediment to one metre depth from the site proposed to be used outside the site will be sieved to remove any cultural material.	10	NA	Pre-construction and construction	RMS and Contractor	Open	Salvage complete. Additional mitigations outlined in the site clearance letter received 4 November 2016 - site fencing to be installed.
AH26	Aboriginal Heritage	Impacts on Site 2	For Site 2 (04-4-0178): • Salvage excavation will be undertaken as detailed in the Working paper Aboriginal Cultural Heritage (Woodburn to Ballina) and in consultation with RAPs. • 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. • 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.	10	NA	Pre-construction and construction	RMS and Contractor	Closed	Salvage completed. Additional mitigations outlined in the site clearance letter received - construction may commence subject to protocol in the event of discovery of human remains.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
AH27	Aboriginal Heritage	Impacts on Site 3	For Site 3 (04-4-0175): • Further salvage excavations will be undertaken as detailed in the Working paper Aboriginal Cultural Heritage (Woodburn to Ballina) and in consultation with RAPs. • 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. • 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.	10	NA	Pre-construction and construction	RMS and Contractor	Open	Salvage completed. Additional mitigations outlined in the site clearance letter received - site fencing.
AH28	Aboriginal Heritage	Impacts on Site 4	For Site 4 (04-04-0132): • Further salvage excavations will be undertaken as detailed in the Working paper Aboriginal Cultural Heritage (Woodburn to Ballina) and in consultation with RAPs. • 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.	10	NA	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): • 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.	10, 11	NA	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): • 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. • The final tree location will be visually protected with culturally sensitive plantings or by existing vegetation. • 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.	10	NA	Pre-construction and construction	RMS and Contractor	Closed	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 with stakeholders was finalised in June 2017 with scar tree removal was complete in August 2017
AH31	Aboriginal Heritage	Impacts on the Melino Scarred Tree	For the Melino Scarred Tree 4 (04-4-0166) site: • Prior to construction a 15 metre exclusion zone will be established around the scarred tree as per management measure AH2. • An arborist will be consulted to develop an ongoing management strategy to ensure the preservation and health of the tree.	10	NA	Pre-construction and construction	RMS and Contractor	Closed	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. Site fencing has been installed along the project boundary and around the scarred trees.
AH32	Aboriginal Heritage	Impacts on the MST3 Scarred Tree	For the MST3 (04-4-0131) site: • Prior to construction a 15 metre exclusion zone will be established around the scarred trees as per management measure AH2. • An arborist will be consulted to develop an ongoing management strategy to ensure the preservation and health of the tree.	10	NA	Pre-construction and construction	RMS and Contractor	Closed	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. Site fencing has been installed along the project boundary where the project boundary corssed the Melino site boundary. Site fencing has been installed around the scar tree MST3. Arborist report has been prepared.
AH33	Aboriginal Heritage	Impacts on the C21 Scarred Tree	For the C21 (04-4-0107) site: • Prior to construction a 15 metre exclusion zone will be established around the scarred trees as per management measure AH2. • An arborist will be consulted to develop an ongoing management strategy to ensure the preservation and health of the tree.	10	NA	Pre-construction and construction	RMS and Contractor	Closed	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. Site fencing has been installed along the project boundary where the project boundary corssed the Melino site boundary. Site fencing has been installed around the scar tree C21. Arborist report has been prepared.
AH34	Aboriginal Heritage	Impacts on the MSRT2 Scarred Tree	For the MSRT2 (04-4-0130) site: • Prior to construction a 15 metre exclusion zone will be established around the scarred trees as per management measure AH2. • An arborist will be consulted to develop an ongoing management strategy to ensure the preservation and health of the tree.	10	NA	Pre-construction and construction	RMS and Contractor	Closed	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. Site fencing has been installed along the project boundary where the project boundary corssed the Melino site boundary. Site fencing has been installed around the scar tree MST2. Arborist report has been prepared.
AH35	Aboriginal Heritage	Impacts on the Rudgley Scarred Tree	For the Rudgley Scarred Tree (04-4-0170) site: • Prior to construction a 15 metre exclusion zone will be established around the scarred trees as per management measure AH2. • An arborist will be consulted to develop an ongoing management strategy to ensure the preservation and health of the tree.	10	NA	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. Site clearance received 4/11/2016 with fencing required to be installed prior to commencement of works around two scarred trees. An Aborist report has been prepared.
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	NA	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	NA	Pre-construction	RMS and Contractor	Closed	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	NA	Pre-construction and construction	RMS and Contractor	N/A	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: • 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.	3	NA	Pre-construction and construction	RMS and Contractor	Closed	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: • 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.	3	NA	Pre-construction and construction	RMS and Contractor	Closed	This has been covered during detailed design. 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.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
AH41	Aboriginal Heritage	Direct impact on culturally significant places	Place B: • 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. • 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.	9, 10	NA	Pre-construction and construction	RMS and Contractor	Closed	This has been addressed during detailed design. 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: • 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.	9, 10	NA	Pre-construction and construction	RMS and Contractor	Open	This is being reviewed as part of signage strategy for project. This requirement is also addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan).
AH43	Aboriginal Heritage	Direct impact on culturally significant places	Place K: • 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. • A report will be produced by a geomorphologist in conjunction with an archaeologist / anthropologist.	11	2	Pre-construction and construction	RMS	Open	Work is ongoing following RMS salvage program of works.
AH44	Aboriginal Heritage	Indirect impact on culturally significant places	Place E: • This place will be fenced prior to and during construction to avoid incidental impact. • 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.	9	NA	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: • 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. • Caution will be undertaken in and around the project in this area with regard to potential human remains.	9, 10	NA	Pre-construction and construction	RMS and Contractor	Open	RMS carrying out consultation at AFGs.
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	NA	Pre-construction	RMS	Closed	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	NA	Pre-construction	RMS	Closed	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	NA	Pre-construction	RMS	Open	Works were 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. Redesign was proposed in this reporting period (April to September 2017) in August 2017, to minimise impacts, yet to be finalised. Fencing is to be installed.
NON-ABORIGINAL (HISTORICAL HERITAGE)									
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	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.
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	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. All staff inducted onto the project have received Aboriginal and non-Aboriginal cultural heritage 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	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.
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	All	Pre- construction	RMS and Contractor	Closed	This was considered during detailed design.
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	NA	Construction	Contractor	N/A	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	NA	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. An ancillary facility management plan/checklist has been prepared for this Stockpile site, approved 25 August 2017. The mitigation measures detailed in the assessment incorporate this condition.
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	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.
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	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. Appropriate management measures such as barrier fencing and exclusion fencing have been put in place as required.
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	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.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
HH10	Non-Aboriginal (Historical) heritage	Impacts on item 2: House, sheds and stockyards, Milleara	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	NA	Pre- construction and construction	Contractor	N/A	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
HH11	Non-Aboriginal (Historical) heritage	Impacts on item 2: House, sheds and stockyards, Milleara	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	NA	Pre- construction	Contractor	N/A	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	NA	Pre- construction and construction	RMS and Contractor	N/A	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	NA	Construction	Contractor	N/A	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	NA	Pre- construction and construction	Contractor	N/A	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	NA	Pre- construction and construction	RMS and Contractor	N/A	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	NA	Pre- construction	RMS	N/A	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	NA	Pre- construction	RMS	N/A	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	NA	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 received for the Tyndale Residence. Protective fencing is to be installed.
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	NA	Pre- construction	RMS and Contractor	Open	To be addressed during detailed operational noise design and at house treatment program.
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	3	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.
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	3	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.
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	NA	Pre- construction and construction	RMS and Contractor	Closed	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. During the reporting period October 2016 to March 2017, the Petticoat Lane Tram Tracks have been covered with 100mm-200mm steel plates for protection. This will remain in place until the end of construction.
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	NA	Pre- construction	RMS and Contractor	Closed	This guideline was considered as part of detailed design and development of UDLP for the bridge.
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	NA	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	NA	Pre- construction	RMS and Contractor	Closed	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 and the Harwood Convent was demolished in December 2016 (in this reporting period - October 2016 to March 2017).
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	NA	Pre- construction	RMS and Contractor	Open	To be addressed following approval of the Operational Noise Design Report

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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	NA	Pre- construction and construction	RMS and Contractor	Closed	A photographic archival record has been completed of Item 23, within the reporting period - October 2016 to March 2017.
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	NA	Pre- construction and construction	Contractor	Open	Pacific Complete proposed to established 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	NA	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.
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	NA	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.
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	NA	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.
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	NA	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.
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	NA	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	NA	Pre- construction and construction	RMS and Contractor	Closed	Arborist survey of the mango orchard has been completed. Report received.
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	NA	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.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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	NA	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	NA	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	NA	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	NA	Pre- construction	RMS and Contractor	Open	This is being considered as part of operational noise and at house treatment program
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	NA	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: Meerschaum Vale brickworks, Wardell	If brick material or any other historical heritage remains are discovered during works, management measure HH1 will be applied.	10	NA	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	NA	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	NA	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	NA	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: • Construction of temporary or permanent supports or shoring within the brick-lined well. • Stabilisation of the brick-lined well. • Installation of vibration monitoring devices.	9	NA	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.
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	NA	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.
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	NA	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	NA	Pre- construction	RMS and Contractor	Closed	Archaeological investigation report has been prepared. Report has been received. Archival photographic records have been completed and issued as required.
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	NA	Pre- construction	RMS and Contractor	Open	To be addressed following approval of the Operational Noise Design Report
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: • Immediately south of the cemetery reserve. • Where it crosses the south east corner of the cemetery reserve. • Where it follows the east boundary of the cemetery reserve.	9	NA	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.
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	NA	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.
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	NA	Construction	Contractor	Closed	This has been addressed during detailed design.
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	NA	Pre-construction	RMS and Contractor	Closed	Archaeological investigation report has been prepared. Report has been received. Archival photographic records have been completed.
TRAFFIC AND TRANSPORT									

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
T&T1	Traffic and Transport	Construction traffic management	Construction traffic management plans will be prepared and implemented for work sites. They will include: • Identification of all public roads to be used by construction traffic. • Management methods to direct construction traffic to use identified roads. • Identification of all public roads that may be partially or completely closed during construction, and the expected timing and duration of closures. • Details on likely impacts on existing traffic (including pedestrians, vehicles, cyclists and disabled persons). • Temporary traffic arrangement measures, including property access. • Details on access to construction sites, including entry and exit locations, and measures to prevent construction vehicles queuing on public roads. • A response plan for any incident involving construction traffic. • Mechanisms for monitoring, reviewing and amending the success of the plans	All	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). Construction Traffic Management Plans are included in Audit Checklists for construction sites.
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	NA	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). During this reporting period (April to September 2017) a Haulage Strategy was prepared for Sections 10 and 11 (Portion D), endorsed on 28 September 2017.
T&T3	Traffic and Transport	Inspection of roadwork traffic schemes	Traffic control schemes will be inspected as follows: • Pre-start and pre-closedown inspections of short-term traffic controls. • Weekly inspections of long-term traffic controls. • Night-time inspections of long-term traffic controls.	All	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.
T&T4	Traffic and Transport	Vehicle movement	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.	All	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.
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	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.
T&T6	Traffic and Transport	Road damage	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.	All	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.
T&T7	Traffic and Transport	Property and road access	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.	All	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.
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	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.
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	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.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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	NA	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.
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	NA	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.
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	NA	Pre-construction and construction	RMS and Contractor	Open	This is being considered as part of ongoing consultation with State Forests.
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	NA	Pre-construction	RMS and Contractor	Closed	This has been reviewed and updated during detailed design and consulatation with industry and community.
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	NA	Pre-construction	RMS and Contractor	Closed	This has been reviewed and updated during detailed design and consulatation with industry and community. Future M class upgrades may still be undertaken subject to need and funding.
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	NA	Pre-construction	RMS and Contractor	Closed	This has been reviewed and updated during detailed design and consulatation with industry and community.
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	NA	Pre-construction	RMS and Contractor	Closed	This has been reviewed and updated during detailed design and consulatation with industry and community.
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	NA	Pre-construction	RMS and Contractor	Closed	This has been reviewed and updated during detailed design and consulatation with industry and community.
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	NA	Pre-construction	RMS and Contractor	Closed	This has been reviewed and updated during detailed design and consulatation with industry and community.
CONSTRUCTION NOISE AND VIBRATION									
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	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.
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	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.
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	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. Traffic Control Plans are prepared prior to commencement of works and these are assessed for suitability of haulage routes and their proximity to sensitive receivers.
CNV4	Construction Noise and Vibration	Noise	To be addressed following approval of the Operational Noise Design Report	All	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. Pre-start checklists for Plant & Equipment are performed prior to commencement of daily works.
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	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.
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	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.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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	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.
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	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.
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	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.
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	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.
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	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.
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	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.
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	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.
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	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.
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	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.
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	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.
CNV17	Construction Noise and Vibration	Vibration	Appropriately sized equipment will be selected to minimise vibration emissions, where required.	All	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.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
CNV18	Construction Noise and Vibration	Blasting (controlled)	A blast management plan will be prepared prior to the start of blasting activities.	All	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.
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	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.
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	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.
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	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.
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	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.
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	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. 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	4	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.
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	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.
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	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.
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	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.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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	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.
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	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.
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	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.
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 receiver 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	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. The Out of Hours Work Approval Procedure implements the Conditions of MCoA B16 and EPL 20713, in particular B16 (d) and (e) and EPL L5.2 and L5.3.
OPERATION NOISE AND VIBRATION									
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	All	Pre-operation	RMS and Contractor	Open	This is being considered as part of detailed design and operational noise design reports prepared to satisfy MCoA D11.
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	NA	Pre-operation	RMS and Contractor	Open	This has been included as part of detailed design and operational noise assessment.
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	NA	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.
LAND USE AND PROPERTY									
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 *Land Acquisition (Just Terms Compensation) Act 1991* and Roads and Maritime' Land Acquisition Policy (RTA, 1999).	All	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	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	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	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.
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	All	Pre-construction	RMS	Open	This has been considered during property acquisition process and consultation with landowners.
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 *Forestry Act* 2012. Revocation of land dedicated or reserved as national parks or nature reserves will be in accordance with the *National Parks and Wildlife Act 1974*. Acquisition of land owned by Local Aboriginal Land Councils will be in accordance with the provisions of the *Aboriginal Land Rights Act 1983*.	All	All	Pre-construction	RMS	Open	This has been considered during property acquisition process and consultation with landowners.
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	All	Pre-construction	RMS	Open	Remnant Land Strategy is being prepared to outline the status following property acquisition process.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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	NA	Pre-construction	RMS	Closed	This was considered detailed design.
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	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.
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	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.
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	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. During the reporting period notification letters have been sent out to residents as 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	All	Construction	Contractor	Open	This is managed in accordance with 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.
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	All	Pre-construction	RMS	Open	This is managed in accordance with 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.
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	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. Forestry Corporation have been given opportunities to harvest timber, of which the harvest of millable timber is 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	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).
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	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. Herbicides are only applied by appropriately qualified personnel.
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	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	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	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	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	All	Operation	RMS	Open	Noted. Operational phase requirement.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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	NA	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	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 *Forestry Act* 2012.	All	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	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	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	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	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.
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	NA	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.
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	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	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	4	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	NA	Pre-construction	RMS	Open	This has been undertaken during detailed design in consultation with stakeholders.
SOCIAL AND ECONOMIC									
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	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.
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	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.
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	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. 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	NA	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	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	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	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.
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	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. 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	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.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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	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	NA	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	NA	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.
GREENHOUSE GAS EMISSIONS									
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	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. 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	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. 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	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. 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	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.
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	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. 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	All	Pre-construction	RMS	Open	This is being considered as part of detailed design in consultation with RMS
GHG7	Greenhouse gas emissions	Education	An education program will be developed and delivered to the construction personnel to promote energy-efficient work practices.	All	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.
AIR QUALITY									
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: • Covering materials transported to and from construction sites. • Covering or spraying water on stockpiles of soil or other potential dust generating materials, particularly during dry or windy conditions. • Temporarily seed and stabilise temporary stockpiles that are planned to be in place for long periods. • Imposing speed limits for vehicles and equipment travelling on unsealed surfaces. • 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. • Progressively rehabilitating disturbed areas as soon as practicable. • Suppressing dust on unsealed surfaces, temporary roadways, stockpiles and other exposed areas using water trucks, hand held hoses, temporary vegetation and other practices. • Modifying or stopping dust generating activities during very windy conditions. • Installing wheel wash facilities at appropriate locations to reduce tracking of mud and soil off-site. • Monitoring air quality, both visually, using instrumentation and/or depositional dust gauges, near representative sensitive receptors to verify the effectiveness of controls. • 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.	All	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.
WASTE MANAGEMENT									
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	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.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Soft soil waves	Timing	Responsibility	Status	Reference / Comment
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: • 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. • Project sections with a deficit in material import surplus material from other project sections in preference to external sources. • Where possible, the distances that earthworks materials are moved across the project as a whole be minimised, notwithstanding the above two requirements. • Contractors will reduce the amount of unsuitable waste generated during excavations, where feasible (e.g. treatment at source). • The generation and management of unsuitable material during project earthworks will be monitored to ensure appropriate management of the issue. The resource management strategy will also identify: • Details on materials that be sourced from the project (including location and type). • Viable material suppliers (including water) near the project. • Proposed sustainable material sources practices (such as use of recycled materials or wastewater). • Materials that could be recycled and re-used on-site or transferred to other project sections.	All	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.
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	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. 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	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. 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 *Environment Operations Act 1997* and Waste Classification Guidelines Part 1: Classifying Waste (DECCW, 2009).	All	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.
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: • Excavated Natural Material Exemption (EPA, 2008)). • Excavated Public Road Material Exemption (EPA, 2012)). • Raw Mulch Exemption (EPA, 2008). • Reclaimed Asphalt Pavement Exemption (EPA, 2012). • Recovered Aggregate Exemption (EPA, 2010). • Stormwater Exemption (EPA, 2008). • Treated Drilling Mud Exemption (EPA, 2011). Measures seek to avoid, minimise, re-use, recycle, treat or dispose of waste streams during construction and address transport and disposal arrangements	All	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.
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	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.
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	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. 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	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. 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	All	Construction	Contractor	Open	Requirements for site environmental inductions are addressed in the approved Pacific Complete CEMP (main document). Pacific Complete conducts site environmental inductions for all personnel undertaking activities at project work sites and the Environmental Induction includes sustainability and waste reduction principles.
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	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. Recycling bins are provided at Ancillary Facilities and Site Compounds, as appropriate.
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	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. Site housekeeping is regularly discussed at daily toolboxes, induction, pre-starts and continually enforced by Pacific Complete. Appropriate waste segregationand waste storage are inspected as part of weekly inspections and facilities maintenance.

Appendix B1 Noise Monitoring Results

Apr-17										
Wave / Portion	Date of noise monitoring	Time of Noise Monitoring	Location	Noise Monitoring Results						Comments
				Laeq	Lafmax	Lzpk	Lafmin	Laf10	Laf90	
Wave 3	21/03/2017 to 04/04/2017	Continuous		48-53 to 64-67	-	-	-	-	-	From continuous noise monitoring Noise Report Wilkinson Murray (2017) "The noise measured from the unattended monitoring includes not only construction noise but also contribution from extraneous noise source in the area such as road traffic noise and live fowl. As such, a conservative approach has been taken assuming that the total LAeq (15min) measured noise level is due to construction activity associated with Tyndale South Works only. On this basis, the exceedance above the Noise Management Level ranges (maximum levels) between 10 and 16dB for any given 15-mintue period. The levels measured and exceedances found are considered similar to other construction sites, including road projects along the Pacific Highway upgrade. It is further noted that the data collected on Sundays (during which time no works occurred) ranged from 48-65dBA, which is not inconsistent with the data collected during which works occurred." Note: More recent data is currently being analysed and will be provided in the next monthly report.
Wave 3	05/04/2017 to 22/04/2017	Continuous		49-56 to 64-67	-	-	-	-	-	As above.
Wave 3	During April	-	DW1530	n/a	n/a	n/a	n/a	n/a	n/a	Noise and vibration monitoring undertaken at DW1530 during April. The results of monitoring were not available at the time of this report (reviewed data is expected from 10 May 2017).
Portion E	26/04/2017	14:15	1 Petticoat Lane (R1331)	59.3	61.4		61.4	61.3	61.3	Above NML 55dB(A). Highway and existing harwood bridge were the dominant noise source. Windy monitoring conditions during monitoring. Closest construction activity occuring during monitoring was B2/B3 culvert installation and running generator. Local traffic and pets in petticoat lane were also dominant noise sources.
Portion E	26/04/2017	14:45	8 Martin Road (R1283)	57.9	80.1		45.9	56.4	48.8	Above NML 55dB(A). Unable to hear any construction activities occuring from monitoring location. Dominant Noise source was Highway and local traffic and sanblasting by RMS Bridge Maintenance works.
Portion E	26/04/2017	15:00	40 Morpeth Street (R1396)	77.5	101.8		34.4	66	50.8	Above NML 55dB(A). Dominant Noise source was the Pacific Highway traffic and local traffic in Morpeth Street. Roads were wet due to recent rain. A tractor was being used by a local resident within Morpeth St which largely contributed to noise levels. Construction activities occuring during monitoring included B3 culvert installation, dumping of rock for access track and sed basin construction. Most construction noise could not be heard over highway traffic except for reversing alarms.
Portion E	26/04/2017	15:30	19 James Creek Road (R1256)	58.9	87.2		47.7	54.6	50.6	Above NML 55dB(A). Dominant noise source was the Pacific Highway traffic and local traffic along James Ck rd. Roads were wet from recent rain. Construction activities occuring during monitoring was installation of soil wicks at B1 and construction of SW Compound.
Wave 5a	23/04/2017	10:34	813	55.3	84.9		42.2	53.8	47.7	

May-17										
Wave / Portion	**Date of noise monitoring**	**Time of Noise Monitoring**	**Location**	**Noise Monitoring Results**						**Comments**
				Laeq	**Lafmax**	**Lzpk**	**Lafmin**	**Laf10**	**Laf90**	
Portion E	17/05/2017	14:04	1 Petticoat Lane (R1331)	62.3	75.1		49.7	66.5	52.5	Above NML 55dB(A) however below predicted cumulative Laeq 15 min of 66dB(A) during temporary jetty piling within MaCR noise assessment. Piling was dominant nose source.
Portion E	17/05/2017	10:48	8 Martin Road (R1283)	62	78.7		47.9	65.7	53.6	Above NML 55dB(A) and predicted cumulative Laeq 15 min of 61dB(A) during temporary jetty piling within MaCR noise assessment. However, local traffic and highway were also dominant noise sources.
Portion E	17/05/2017	13:07	40 Morpeth Street (R1396)	59.8	76.1		50.7	62.4	54.1	Above NML 55dB(A), however below cumulative Laeq 15 min of 63dB(A) during temporary jetty piling within MaCR noise assessment. However, local traffic and highway were also dominant noise sources. Tractor also operating at agricultural store adjacent to monitoring location. Some construction activities also occuring at Main Site Compound associated with the construction of piling pad and set up of crane.
Portion E	17/05/2017	14:34	19 James Creek Road (R1256)	51	69.9		45	51.6	46.4	Below NML 55dB(A) and cumulative Laeq 15 min of 57dB(A) during temporary jetty piling within MaCR noise assessment. However, local traffic and highway were also dominant noise sources. Construction activities occuring during monitoring was operation of grader at B4/5 works
Wave 3	Throughout May 2017	12:00	DW1530	TBA	TBA	TBA	TBA	TBA	TBA	Noise and vibration monitoring undertaken at DW1530 during May will be reported in June Report, with results pending from noise consultant.
Portion B	23/05/2017	08:00	9 Old Pacific Highway, Woombah, NSW	63.6	93.2		78.7			Noise monitoring following complaint. While noise monitoring results showed that the activity was above the noise management level, results were within the range predicted for the construction activity. Mitigation measures were in place in accordance with the environmental work method statement the works were being undertaken under.
Portion B	25/05/2017	18:08	Adjacent to Yamba Interchange (northbound on/off ramp)	57.9	70		50.5			Noise monitoring during extended hours work. Noise agreements were in place with nearby receivers to undertake these works.
Portion B	26/05/2017	07:43	40 Serpentine Channel North Bank Road, Chatsworth Island, NSW	51.8	72.1		43.7			Noise monitoring following complaint. While noise monitoring results showed that the activity was above the noise management level, results were within the range predicted for the construction activity. Mitigation measures were in place in accordance with the environmental work method statement the works were being undertaken under and BMD are considering additional noise mitigation measures for future works that may affect this receiver.
Wave 5a	17/05/2017	13:12	2 Cakora St Tucabia	58.2	76.3		29.4	41.2	33.1	

Jun-17										
Wave / Portion	Date of noise monitoring	Time of Noise Monitoring	Location	Noise Monitoring Results						Comments
				Laeq	Lafmax	Lzpk	Lafmin	Laf10	Laf90	
Portion B	2/06/2017	18:00	Sensitive Receiver #1, Jacky Bulbin Road	52.3	58.9	81.7	43.2	54.7	48.9	Significant noise from Pacific Highway audible
Portion B	2/06/2017	18:19	Sensitive Receiver #1, Jacky Bulbin Road	54.1	78.3	93.1	39.9	55.7	47.6	As above. Concrete pour finished at 18:00, only cleanup of site occuring.
Portion B	18/06/2017	11:50	Sensitive Receiver #1, Jacky Bulbin Road	53.7	80.8	100	41.7	52.4	45.2	Significant noise from Pacific Highway audible. Pile hammering ceased.
Portion B	18/06/2017	13:12	Sensitive Receiver #1, Jacky Bulbin Road	52	86	100.3	45.6	54.7	48.6	As above. Pile hammering ceased.
Wave 5a	5/06/2017	14:51	2860 Pacific Highway, Tyndale	57.2	70.1		50.7	56.2	54.1	15 mins. As reponse to complaint
Wave 5a	8/06/2017	10:33	2860 Pacific Highway, Tyndale	57.8	84.3		40.3	57	53.8	8hrs. On going noise logging undertaken as response to complaint
Wave 5a	9/06/2017	07:26	2860 Pacific Highway, Tyndale	59	86.8		43.1	58.2	53.8	6hrs 27min. On going noise logging undertaken as response to complaint
Wave 5a	15/06/2017	09:56	2860 Pacific Highway, Tyndale	55.5	72.5		38	53.8	48.3	8hrs. On going noise logging undertaken as response to complaint
Wave 5a	16/06/2017	06:12	2860 Pacific Highway, Tyndale	57.3	83.5		41.1	56.5	52.6	10hrs. On going noise logging undertaken as response to complaint
Wave 5a	28/06/2017	08:47	2860 Pacific Highway, Tyndale	57.5	86.7		48.2	56.5	53.4	8hrs. On going noise logging undertaken as response to complaint
Portion E	15/06/2017	14:03	1 Petticoat Lane (R1331)	83.1	97.7		49.9	88.1	54.5	Dominant during monitoring was marine impact piling. Above NML 55dB(A) and above predicted cumulative Laeq 15min of 73 dB(A) for bridge pile driving modelled within approved CCNVMP. Other noise sources included dog, wipper snipper which were at the start of the reading. Note: Respite periods are implemented for all impact piling works on project.
Portion E	15/06/2017	14:25	8 Martin Road (R1283)	68.8	85.1		54.7	73.5	57.7	Construction noise being monitored was marine impact piling, however dominant noise source was Highway traffic and sanblasting by RMS Bridge Maintenance works (59dB). Above NML 55dB(A) however below above predicted cumulative Laeq 15min of 58 dB(A) for bridge pile driving modelled within approved CCNVMP.
Portion E	20/06/2017	09:17	40 Morpeth Street (R1396)	74.1	86.3		52.2	78.5	62	Construction noise being monitored was marine impact piling, other dominant sources of noise was the Pacific Highway traffic and Shannon Bros - Agriculture. Above NML 55dB(A) and above predicted cumulative Laeq 15min of 64 dB(A) for bridge pile driving modelled within approved CCNVMP. Note: Respite periods are implemented for all impact piling works on project.
Portion E	16/06/2017	14:16	91 James Creek Road (R1256)	59.2	82.4		44.3	62.6	48.4	Construction noise being monitored was marine impact piling, other dominant sources of noise was the Pacific Highway traffic and local traffic along Yamba Road. Paused monitoring for passing traffic passing (88dB). Above NML 55dB(A) and predicted cumulative Laeq 15min of 58 dB(A) for bridge pile driving modelled within approved CCNVMP.
Portion B	26/06/2017	18:25	Lot 19 DP1095472 (Yamba Road)	58.6				59.2	57.5	Undertaken to verify accoustic level inaccordance with EPL Condition L5.2(d). Background noise was elevated due to traffic on road and Harwood Bridge. This adjacent traffic noise was the main influence throughout the noise monitoring period.
Wave 3	7/06/2017	20:53	DW1551 Tyndale	46.1	70.6	89.7	31	41.5	34	During Construction Evening noise monitoring at DW1551. Evening OOHW works for de-watering SB69620. activity noise not audible. Dominant noise source is Pacific Highway traffic
Wave 3	15/06/2017	20:58	DW1624 Shark Creek Road	50.2	72.2	98.3	35	47.5	37.5	Evening OOHW activity of 2 x lighting towers to Shark Creek Rd. Lighting towers set up at CH75150 on Shark Creek RD either side of alignment width. Monitoring location is at nearest Sensitive Receiver - DW1624. "Nosie of activity (lighting tower) not audible at sample monitoring location (resident DW1624). Dominant noise source is Pacific Highway traffic. This DW1624 is in catchment NCA-C. Pre-set Night OOHW NML (RBL + 5) = 38db(A)."
Portion E	15/06/2017	14:03	1 Petticoat Lane (R1331)	83	98.6		51	88.1	54.7	Above NML 55dB(A) and above predicted cumulative LAeq 15 min of 73dB(A) during bridge pile driving within NVMP. Land impact piling was dominant noise source. Respite periods are in place.

Jun-17										
Wave / Portion	**Date of noise monitoring**	**Time of Noise Monitoring**	**Location**	**Noise Monitoring Results**						**Comments**
				Laeq	**Lafmax**	**Lzpk**	**Lafmin**	**Laf10**	**Laf90**	
Portion E	15/06/2017	14:25	8 Martin Road (R1283)	53.1	71.07		43	55.5	48.2	Below NML 55dB(A) and predicted cumulative LAeq 15 min of 58dB(A) during bridge impact pile driving within NVMP. However, local traffic and highway were also dominant noise sources.
Portion E	20/06/2017	09:17	40 Morpeth Street (R1396)	81.3	95.9		54.7	86.6	59.3	Above NML 55dB(A), and predicted cumulative LAeq 15 min of 64dB(A) during bridge impact pile driving within NVMP. Dominant noise source during piling was land piling. Respite periods are in place.
Portion E	16/06/2017	14:26	91 James Creek Road (R1256)	50.1	72.6		41.8	52.5	45.2	Below NML 55dB(A) and predicted cumulative LAeq 15 min of 58dB(A) during bridge impact pile driving within NVMP. However, local traffic, Golding works and highway were also dominant noise sources. No marine piling occurred at time of monitoring.
Wave 3	20/06/2017	20:00	DW1624 Shark Creek Road	39.5	70	93.9	26.5	38	28.5	Night OOHW activity of 2 x lighting towers to Shark Creek Rd. Lighting towers set up at CH75150 on Shark Creek Rd either side of alignment. Monitoring location is at nearest Sensitive Receiver - DW1624. "Nosie of activity (lighting tower) not audible at sample monitoring location (resident DW1624). Dominant noise source is Pacific Highway traffic. This DW1624 is in catchment NCA-C. Pre-set Night OOHW NML (RBL + 5) = 38db(A)."

Jul-17										
Wave / Portion	Date of noise monitoring	Time of Noise Monitoring	Location	Noise Monitoring Results						Comments
				Laeq	Lafmax	Lzpk	Lafmin	Laf10	Laf90	
Portion B	2/07/2017	10.49	Sensitive Receiver #2, Jacky Bulbin Road	43.5	79.2	92.9	31.8	45	38	Cockrels and Birds dominant
Portion B	2/07/2017	13.06	Sensitive Receiver #2, Jacky Bulbin Road	44.9	77.9	93.6	37.5	47.6	40.7	Cockrels and Birds dominant
Portion B	9/07/2017	11.26	Sensitive Receiver #2, Jacky Bulbin Road	41.5	78.2	94.1	29.7	44.9	37.6	Birds, Cockrels and M1 dominant
Portion B	9/07/2017	12.44	Sensitive Receiver #2, Jacky Bulbin Road	45.8	57.6	80.8	35.6	48	40.8	Birds, Cockrels and M1 dominant, Piling audible
Portion B	16/07/2017	11.11	Sensitive Receiver #2, Jacky Bulbin Road	43.2	84.9	97.9	34.8	49.1	38.8	Cockrels, Dogs, Maintenance Works at resident #1. Davbridge Works at B10 not audible
Portion B	16/07/2017	15.13	Sensitive Receiver #2, Jacky Bulbin Road	49.7	84.1	105.2	39.9	52.9	46.7	Cockrels, Dogs, M1 significantly louder. Davbridge Works at B10 not audible
Portion B	30/07/2017	11.28	Sensitive Receiver #2, Jacky Bulbin Road	41.2	85.2	98.5	28.8	45.1	36.1	Birds, crickets, horses and cockrels
Portion B	30/07/2017	14.39	Sensitive Receiver #2, Jacky Bulbin Road	37.7	76.3	101.8	27.9	47.4	32.8	Birds, crickets, horses and cockrels
Wave 3	19/07/2017	15:20	Ferry Park	65	85	108	52.7	NR	NR	Busy Highway traffic, light traffic Cameron Street, construction activities occurring adjacent (behind) sensitive receptor - compactor, tipper truck and trailers, reverse beacons very audible compactor machine very audible, tail gate slamming on tipper when emptying load very loud, one cane train observed travelling past residence on Cameron Street.
Wave 3	18/07/2017	09:14	Ferry Park	64.1	75.5	96.4	55.9	NR	NR	Record taken by J. Grundy (FKG). Grader, pad foot roller, excavator, tipper trucks working adjacent to residence, reverse beacons/beepers on machines audible, busy Highway traffic, steady traffic on Cameron Street, three cane trains observed travelling past residence.
Wave 3	18/07/2017	12:07	Ferry Park	64	81.6	99.8	52.5	NR	NR	Record taken by J. Grundy (FKG). Busy Highway traffic, Cameron Street traffic busy, some bird whistling, construction activities occurring adjacent to sensitive receiver - semi tipper and trailer, excavator, crew trucks whipped sniper, roller.
Wave 3	17/07/2017	15:09	Ferry Park	68.2	83	101	53.3	NR	NR	Record taken by J. Grundy (FKG). Grader working adjacent to residence, reversing continually. Busy why traffic and busy traffic on side road past residence. Two cane train/trucks observed travelling past residence.
Wave 3	17/07/2017	12:02	Ferry Park	65.5	84.2	97.4	45.3	NR	NR	Record taken by J. Grundy (FKG). Busy Highway traffic, grader working behind house reverse beacon very audible multiple times, no cane trains/trucks observed passing residence.
Wave 3	17/07/2017	09:14	Ferry Park	61.4	77.4	97.5	48	NR	NR	Record taken by J. Grundy (FKG). One cane train observed travelling past residence and one light truck, busy hey traffic, steady side road traffic, reversing beacons and machine noise audible from eastern side of existing works.
Wave 3	17/07/2017	11:56	Ferry Park	61.8	75.2	96.7	44.5	NR	NR	Record taken by J. Grundy (FKG). Steady Highway traffic, two cane trucks observed travelling past residence.
Wave 3	16/07/2017	10:01	Greenhills Cut 4-4 (representative)	46.6	68.3	98.6	38.2	NR	NR	Record taken by J. Grundy (FKG). Slight wind gusts carrying noise (otherwise plant was not audiable), no line of sight to machines.
Wave 3	16/07/2017	09:02	Ferry Park	61	75.5	98.8	45.6	NR	NR	Light traffic on Highway and light traffic up-hill past the residence towards Maclean.
Wave 3	16/07/2017	09:42	Ferry Park	44.5	66	97.2	35.9	NR	NR	Record taken by J. Grundy (FKG). Plant was not audiable, no line of sight to machines.
Wave 3	16/07/2017	14:58	Ferry Park	61.4	74.5	97	49.3	NR	NR	Steady hwy traffic, coach cane truck and light vehicles down side road.
Wave 3	11/07/2017	16:03	DW1624 Shark Creek	52	76.9	94.8	34.6	NR	NR	Some vehicle traffic noise (three light vechiles) public vehicles travelling on Shark Creek Road adjacent to sampling location in addition to a site concrete truck departing site. The vehicle noise from the road was the source of the max and peak noise measurements (contributing to the LAeq). The work location was audiable vechicles. No reversing or other alarms were recorded.

Jul-17										
Wave / Portion	Date of noise monitoring	Time of Noise Monitoring	Location	Noise Monitoring Results						Comments
				Laeq	Lafmax	Lzpk	Lafmin	Laf10	Laf90	
Wave 5a	3/07/2017	07:10	#813	57.8	75.3		39.8	56.9	52.6	On going noise logging undertaken as response to complaint
Wave 5a	4/07/2017	06:56	#813	57.2	84.9		42.5	55.7	52.1	On going noise logging undertaken as response to complaint
Wave 5a	5/07/2017	07:16	#813	56.9	76.8		44.2	55.6	51.6	On going noise logging undertaken as response to complaint
Wave 5a	25/07/2017	10:36	#831	58.3	75.2		46.5	56	51.9	Birds chirping continuously. Serviceman working nearby on service pit. Traffic on existing highway (med to high volume). Culvert & gate access works ongoing as well as cut 30. Highway under traffic management
Wave 5a	25/07/2017	13:44	#696	55.6	78		33.7	44.5	39.5	Traffic on Old Six Mile Lane. Planes flying around airport. Birds and frogs could be heard. Residents dog barked a few times. Excavator heard walking back and forth as part of the culvert upgrades on Avenue Road. Batch plant running and was quite loud at certain times. There is no predicted noise level during earthworks available for this receiver
Wave 5a	25/07/2017	14:22	#701	42.1	59.7		27.3	35.7	32.4	Could hear rollers working in the distance . Planes utilising nearby airspace. Heaps of birds chirping. Traffic using local road (med volume). As per Table 7-4 in NVMP predicted nosy levels at this receiver is 56
Wave 5a	25/07/2017	15:34	#742	48.1	57.1		41	47.3	45.6	Construction noise dominant noise source. Rollers and tracked machines. Squawkers quite loud. Resident home. As per Table 7-4 in NVMP predicted nosy levels at this receiver is 65
Portion B	21/07/2017	08:05	9 Old Pacific Highway, Woombah	56.1				57.1	55	
Portion B	31/07/2017	06:18	Chatsworth Road	52.7				56.9	42.2	
Portion B	31/07/2017	10:05	Chatsworth Road	52.9				43.7	41.6	

Aug-17										
Wave / Portion	Date of noise monitoring	Time of Noise Monitoring	Location	Noise Monitoring Results						Comments
				Laeq	Lafmax	Lzpk	Lafmin	Laf10	Laf90	
Portion B	14/08/2017	09:50	James Creek Road	68.7	105.9		43.3	55.5	46.9	Background sounds include pilling of harwood bridge
Portion B	14/08/2017	10:05	Yamba Road	54.7	64.9		45.3	60.5	48.6	Background sounds inlcude Highway traffic
Portion B	14/08/2017	10:30	Morpeth Street	68				57.3	49.2	Background sounds include hwy traffic and birds
Portion B	14/08/2017	10:50	Martins point road	55.9	77.1		50.1	57.4	53.3	Background sounds include hwy traffic boat and barges used in bridge construction
Portion B	21/08/2017	12:00	Chatsworth Road	65.8	90.3		27.9	64.9	35.7	Several heavy vehicle passing, usually quiet road
Portion B	21/08/2017	09:30	Old pacific Hwy	54.1	65.4		43.9	57.7	50.2	Background sounds Heavy vehicles working on nearby site
Portion B	21/08/2017	11:00	Petticoat Lane	59.8	70.1		52.9	61.5	57.3	Background sounds include hwy traffic and bridge construction (no Piling)
Portion B	21/08/2017	09:00	Mororo Road	71.1	86.5		54.8	7.3	60	Background sounds include Heavy traffic exiting haul road
Wave 3	31/08/2017	12:20	DW1663	46.7	75.4	96.9	37.6	48	41.5	Highway noise, birds and insects were the dominant noise sources. At 6:15 minute mark was some noise from construction and a silenced reversing alarm. A pad foot roller was noticeable at times at about 58 LAf. A pieced of paper contacted the Noise meter at the 8:47 minute mark.
Wave 3	31/08/2017	11:47	DW1706	59.9	73.1	100.2	43	63.5	47	Dominant highway noise 60 to 63 LAf cars and 72 LAf for trucks travelling at 100 km/hr. Bird noise was also recorded. Construction noise was not perceptible where traffic was passing (the majority of the monitoring period). Occasional squawker alarm, horn/alarm was heard.
Portion B	27/08/2017	11.07	Sensitive Receiver #2, Jackybulbin Road	40.2	75.8	92.3	27	49.3	31.9	Birds overhead and background M1 noise
Portion B	27/08/2017	13.09	Sensitive Receiver #2, Jackybulbin Road	37.8	70.1	93.6	27.4	48.6	31.8	Bird noise

As of September 2017, the Noise Monitoring register was updated to include an extra column, detailing the RBL for OOHW works											
Sep-17											
Contractor	**Date of noise monitoring**	**Time of Noise Monitoring**	**Location**	**RBL**	**Noise Monitoring Results**						**Comments**
					Laeq	**Lafmax**	**Lzpk**	**Lafmin**	**Laf10**	**Laf90**	
Portion B	4/09/2017	11:50	Old Pacific Highway	NCA F **RBL (Day) - 37** RBL (Evening) - 39 RBL (Night) - 35	55.6	93.5		43.2	61.0	47.7	Background influence; Highway traffic , birds
Portion B	7/09/2017	15:05	10 Martin's Point Road	NCA E **RBL (Day) - 45** RBL (Evening) - 44 RBL (Night) - 39	60.1	88.2		49.4	60.2	53.0	Background influence; highway traffic, bridge construction & birds
Portion B	7/09/2017	15:24	Petticoat Lane	NCA E **RBL (Day) - 45** RBL (Evening) - 44 RBL (Night) - 39	59.0	79.7		49.0	60.9	51.8	Background sounds; bridge construction & highway traffic
Portion B	7/09/2017	15:52	Chatsworth Road	NCA F **RBL (Day) - 37** RBL (Evening) - 39 RBL (Night) - 35	66.6	88.4		39.6	61.9	45.7	Background sounds; highway traffic & construction
Portion B	7/09/2017	16:10	Chatswoth Road	NCA F **RBL (Day) - 37** RBL (Evening) - 39 RBL (Night) - 35	62.8	92.4		42.9	54.8	47.8	Background sounds; highway traffic & construction
Portion B	11/09/2017	13:30	Yamba Road	NCA E **RBL (Day) - 45** RBL (Evening) - 44 RBL (Night) - 39	66.0	90.3		54.0	69.8	58.5	OOHW verification (prior to work comencing)
Portion B	11/09/2017	22:10	Yamba Road	NCA E RBL (Day) - 45 RBL (Evening) - 44 **RBL (Night) - 39**	54.7	86.7		32.1	55.2	40.0	OOHW verification (during works)
Portion B	18/09/2017	05:45	Iluka Road (LOT 5 DP263404)	NCA F RBL (Day) - 37 RBL (Evening) - 39 **RBL (Night) - 35**	70.2	92.9		41.0	77.6	44.5	OOHW verification (prior to work comencing)
Portion B	18/09/2017	19:30	Iluka Road (LOT 5 DP263404)	NCA F RBL (Day) - 37 **RBL (Evening) - 39** RBL (Night) - 35	54.7	81.4		44.6	58.6	46.5	OOHW verification (during works)
AFHJV	11/09/2017	14:03	1 Petticoat Lane (R1331)		51.6	75.2		41.2	52.9	44.8	Below NML 55dB(A) and below predicted cumulative LAeq 15 min of 66dB(A) during abutment works within NVMP. Rainbow lorikeets during monitoring was the dominant noise source.
AFHJV	11/09/2017	14:25	8 Martin Road (R1283)		48.1	66.9		39.3	50.7	43.5	Below NML 55dB(A) and below predicted cumulative LAeq 15 min of 52dB(A) during southern abutment works within NVMP. However, highway, local traffic and dog barking were also dominant noise sources.
AFHJV	11/09/2017	9:17	40 Morpeth Street (R1396)		49.5	65		41.1	52.3	45.3	Below NML 55dB(A), and predicted cumulative LAeq 15 min of 57dB(A) during southern abutment works. Dominant noise source Pacific Highway, local traffic and birds were dominant noise sources.
AFHJV	11/09/2017	2:16	91 James Creek Road (R1256)		48.8	67.8		41.6	51.1	45.3	Below NML 55dB(A) and predicted cumulative LAeq 15 min of 51dB(A) during southern abutment works. However, local traffic, B4/5 works and highway were dominant noise sources.

Appendix B2 Blast Monitoring Results

PACIFIC COMPLETE

Blast Monitoring - April 2017 to September 2017

Wave / Portion	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 120dBL 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)	
Apr-17					
Wave 5a	27/04/2017	Wave 5a - Cut 30	115.4	4.265	
		Wave 5a - Cut 30	111.5	2.304	
		Wave 5a - Cut 30	No trigger	No trigger	
		Wave 5a - Cut 30	No trigger	No trigger	
		Wave 5a - Cut 30	No trigger	No trigger	
May-17					
Wave / Portion	**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 120dBL 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)	
Wave 3	15/05/2017	Cut C4-4, Wave 3	0	0	Trial blast
Wave 5a	17/05/2017	Cut 30	107.2	3.833	
		Cut 30	107.8	1.571	
		Cut 30	105.5	3.725	
		Cut 30	104.7	0.813	
	24/05/2017	Cut 30	109.6	2.433	
		Cut 30	105.5	2.575	
		Cut 30	108	2.02	
		Cut 30	106.5	2.071	
	31/05/2017	Cut 28	103.7	1.768	
Jun-17					
Wave / Portion	**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 120dBL 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)	
Wave 5a	9/06/2017	Cut 30	107.1	2.99	
		Cut 30	<88	2.744	
		Cut 30	no trigger	no trigger	
		Cut 30	no trigger	no trigger	
	30/06/2017	Cut 30	112.3	4.974	
			104.6	2.274	
			101.9	2.087	
			112.6	1.823	
			107.3	0.712	

Jul-17					
Wave / Portion	**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 120dBL 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)**	
Wave 3	17/07/2017	Tyndale Cut C4-2 - A – 2991 PHWY	109.3	4.028	
		Tyndale Cut C4-2 - C – 130 Fitz	106.5	1.651	
		Tyndale Cut C4-2 - D – 2963 PHWY	107.7	0.883	
		Tyndale Cut C4-2 - F – 2860 PHWY	No Trigger	No Trigger	
		Tyndale Cut C4-2 - H – 3152 PHWY	105.5	3.302	
		Tyndale Cut C4-2 - J – 2919 PHWY	No Trigger	No Trigger	
	31/07/2017	Tyndale Cut C4-2 - A – 2991 PHWY	113.8	5.334	
		Tyndale Cut C4-2 - C – 130 Fitz	114.6	1.651	
		Tyndale Cut C4-2 - D – 2963 PHWY	114.4	3.81	
		Tyndale Cut C4-2 - H – 3152 PHWY	91.48	2.54	
		Tyndale Cut C4-2 - J – 2919 PHWY	No Trigger	No Trigger	
Wave 5a	5/07/2017	Cut 30	Power Pole 119.6dB(L)	Power Pole 9.407mm/s	
		Cut 30	Close House 117.9dB(L)	Close House 1.943mm/s	
		Cut 30	Duck Pond House 113.5dB(L)	Duck Pond House 2.989mm/s	
		Cut 30	Sheehys Lane 114.4dB(L)	Sheehys Lane 2.545mm/s	
		Cut 30	Office 117.6dB(L)	Office 0.381mm/s	
	12/07/2017	Cut 28	Closest House 91.48dB(L)	Closest 3.218mm/s	
	13/07/2017	Cut 30	Power Pole 119.6dB(L)	Power Pole 14.4mm/s	
		Cut 30	Close House 111.7dB(L)	Close House 4.829mm/s	
		Cut 30	Duck Pond House 108.8dB(L)	Duck Pond House 3.635mm/s	
		Cut 30	Sheehys Lane >88dB(L)	Sheehys Lane 2.874mm/s	
		Cut 30	Near Office >88dB(L)	Near Office 2.345mm/s	
	25/07/2017	Cut 30	Power Pole 113.5dB(L)	Power Pole 4.887mm/s	
		Cut 30	Close House 109.9dB(L)	Close House 1.276mm/s	
		Cut 30	Duck Pond House No Trigger	Duck Pond House No Trigger	
		Cut 30	Sheehys Lane No Trigger	Sheehys Lane No Trigger	
		Cut 30	Near Office No Trigger	Near Office No Trigger	
		Cut 28	Closest House 114dB(L)	Closest House 2.265mm/s	

Appendix B3 Air Quality Monitoring Results

PACIFIC COMPLETE

Dust Monitoring - April 2017 to March 2017

Wave / Portion	Sample Name	Sample Number	Sample Comments	Sampling Days	Sample Volume (L)	Target Total Suspended Solids (g/m2/month)	Total Suspended Solids (g/m2/month)
Apr-17							
Portion E	DDG1	DDG1	Clean, Samples collected early for April monitoring due to rainfall before bottles overtopped.	21	4.550	≤ 4	**0.41**
Portion E	DDG2	DDG2	Broken in transit. Samples collected early for April monitoring due to rainfall before bottles overtopped.	21	N/A	≤ 4	**N/A**
Portion E	DDG3	DDG3	Clean, few ants. Samples collected early for April monitoring due to rainfall before bottles overtopped.	21	4.850	≤ 4	**0.83**
Portion E	DDG4	DDG4	Clean, few ants. Samples collected early for April monitoring due to rainfall before bottles overtopped.	21	4.600	≤ 4	**0.50**
Portion E	DDG5	DDG5	Clean, few ants. Samples collected early for April monitoring due to rainfall before bottles overtopped.	21	4.550	≤ 4	**0.63**
Portion B	Woombah Woods Caravan Park	Woombah Woods		29	5.6	≤ 4	**0.1**
Portion B	Iluka Road site SCE IRAF W01	SCE IRAF W01		29	5.6	≤ 4	**0.2**
Portion B	Messer property control - Pac Hwy NE of site	Messer		29	5.3	≤ 4	**0.1**
Portion B	Leslie property control - Old Pac Hwy Woombah	Leslie control		29	5.2	≤ 4	**0.3**
Portion D	McAndrews Lane NW	W2DDG2		29	2.1	≤ 4	**2.5**
Portion D	McAndrews Lane SW	McAndrew Lane McL SW SCE		29	4.4	≤ 4	**0.2**
Wave 5a	1	F8952/1	beetles, organic matter	28	2.55	≤ 4	**1.0**
Wave 5a	2	F8952/2	yellowish, organic matter	28.000	1.850	≤ 4	**2.6**

Wave / Portion	Sample Name	Sample Number	Sample Comments	Sampling Days	Sample Volume (L)	Target Total Suspended Solids (g/m2/month)	Total Suspended Solids (g/m2/month)
Apr-17							
Wave 5a	3	F8952/3	yellowish, organic matter	28.000	2.200	≤ 4	**0.4**
Wave 5a	4	F8952/4	..	28	2.3	≤ 4	**0.4**
Wave 5a	5	F8952/5	brown, organic matter	28.000	2.100	≤ 4	**1.3**
Wave 5a	6	F8952/6	brown, organic matter	28.000	1.900	≤ 4	**2.6**
Wave 5a	7	F8952/7	brown, organic matter	28	1.9	≤ 4	**11.5**
Wave 5a	8	F8952/8	Beetles	28.000	1.600	≤ 4	**2.2**
Wave 5a	9	F8952/9	yellowish, organic matter	28	1.95	≤ 4	**0.9**
Wave 5a	10	F8952/10	..	28.000	1.900	≤ 4	**0.9**
Wave 5a	11	F8952/11	..	28.000	2.250	≤ 4	**0.4**
Wave 5a	12	F8952/12	..	28	2	≤ 4	**0.5**
Wave 5a	13	F8952/13	yellowish, organic matter	28.000	1.750	≤ 4	**0.9**
Wave 5a	14	F8952/14	yellowish, organic matter, mosquitos	28.000	2.000	≤ 4	**1.3**
Wave 5a	15	F8952/15	..	28	2.3	≤ 4	**0.3**
Wave 5a	16	F8952/16	flies, organic matter	28.000	1.900	≤ 4	**0.6**
Wave 5a	17	F8952/17	brown, organic matter	28	1.73	≤ 4	**2.7**
Wave 5a	18	F8952/18	brown, organic matter, leaves	28.000	1.650	≤ 4	**1.9**
Wave 5a	19	F8952/19	..	28.000	1.600	≤ 4	**1.1**
Wave 5a	20	F8952/20	brown, organic matter	28	1.65	≤ 4	**5.9**

Wave / Portion	Sample Name	Sample Number	Sample Comments	Sampling Days	Sample Volume (L)	Target Total Suspended Solids (g/m2/month)	Total Suspended Solids (g/m2/month)
Apr-17							
Wave 5a	21	F8952/21	..	28	1.950	≤ 4	**1.0**
Wave 5a	22	F8952/22	..	28.000	2.050	≤ 4	**0.7**
Wave 5a	23	F8952/23	flies	28.000	1.25	≤ 4	**0.5**
Wave 5a	24	F8952/24	..	28	2.200	≤ 4	**0.8**
Wave 5a	25	F8952/25	brown, organic matter	28.000	2.15	≤ 4	**1.0**
Wave 5a	26	F8952/26	..	28.000	2.400	≤ 4	**0.3**
Wave 5a	27	F8952/27	..	28	2.300	≤ 4	**0.4**
Wave 5a	28	F8952/28	..	28.000	2.3	≤ 4	**0.4**
Wave 5c	W5CA1	F8850/1	Organic matter present	39	0.85	≤ 4	**5.6**
Wave 5c	W5C A2	F8850/2		39	5.3	≤ 4	**0.3**
Wave 5c	W5C A4	F8850/3	Yellowish organic matter present	39	5.35	≤ 4	**12.9**
Wave 5c	W5C A5	F8850/4	Yellowish with ants	39	5.4	≤ 4	**1.6**
Wave 5c	W5C A6	F8850/5		39	5.3	≤ 4	**0.4**
Portion C / Woodburn Service Rd	WBSR DDG 1	F8850/6		39	5.3	≤ 4	**0.6**
Portion C / Woodburn Service Rd	WBSR DDG 2	F8850/7		39	5.3	≤ 4	**0.5**
Portion C / Woodburn Service Rd	WBSR DDG 3	F8850/8		39	0.07	≤ 4	**0.2**
Portion C / Woodburn Service Rd	WBSR DDG 4	F8850/9		39	5.3	≤ 4	**0.3**
Wave 4	W4 DDG 1	F8850/10		39	5.4	≤ 4	**1**
Wave 4	W4 DDG 2	F8850/11	ants	39	5.4	≤ 4	**1.1**
Wave 4	W4 DDG 3	F8850/12		39	5.3	≤ 4	**0.9**

Wave / Portion	Sample Name	Sample Number	Sample Comments	Sampling Days	Sample Volume (L)	Target Total Suspended Solids (g/m2/month)	Total Suspended Solids (g/m2/month)
Apr-17							
Wave 2	W2 DDG 1	F8850/13	Organic matter present	39	5.4	≤ 4	**12.5**
Wave 2	W2 DDG 2	F8850/14	cloudy, crickets	39	2.1	≤ 4	**2.5**
Wave 2	W2 DDG 3	F8850/15	very cloudy, organic matter	39	5.25	≤ 4	**51.4**
Wave 2	W2 DDG 4	F8850/16		39	5.3	≤ 4	**0.5**
Wave 2	W2 DDG 5	F8850/17	Organic matter present	39	5.4	≤ 4	**1.9**
Portion B	B11a	1		32	2.45	≤ 4	**3**
Portion B	B10a	2		32	2.45	≤ 4	**1.7**
Portion B	Control A	3		10	2.7	≤ 4	**1.4**
Portion B	Comtrol B	4		22	0.45	≤ 4	**0.6**
Wave 3	DG-01	FKG002-SW-F9126	Organic matter present, cloudy	29	0.35	≤ 4	**2.5**
Wave 3	DG-02	FKG002-SW-F9126	None	29	0.4	≤ 4	**0.3**
Wave 3	DG-03	FKG002-SW-F9126	None	29	0.35	≤ 4	**0.3**
Wave 3	DG-04	FKG002-SW-F9126	None	29	0.25	≤ 4	**1**
Wave 3	DG-05	FKG002-SW-F9126	None	29	0.5	≤ 4	**1.1**
Wave 3	DG-07	FKG002-SW-F9126	None	29	0.7	≤ 4	**0.8**
Wave 3	DG-08	FKG002-SW-F9126	None	29	0.6	≤ 4	**0.5**
Wave 3	DG-09	FKG002-SW-F9126	Organic matter present, green	29	0.45	≤ 4	**1.8**
Wave 3	DG-10	FKG002-SW-F9126	None	29	0.55	≤ 4	**1**

Wave / Portion	Sample Name	Sample Number	Sample Comments	Sampling Days	Sample Volume (L)	Target Total Suspended Solids (g/m2/month)	Total Suspended Solids (g/m2/month)
Apr-17							
Wave 3	DG-11	FKG002-SW-F9126	None	29	0.55	≤ 4	**0.6**
Wave 3	DG-12	FKG002-SW-F9126	None	29	0.38	≤ 4	**0.1**
Wave 3	DG-13	FKG002-SW-F9126	None	29	0.2	≤ 4	**0.4**
Wave 3	DG-14	FKG002-SW-F9126	None	29	0.35	≤ 4	**0.5**
Wave 3	DG-15	FKG002-SW-F9126	Organic matter present	29	0.3	≤ 4	**0.7**
Portion B	Mororo Cut (south end)	DDG16	n/a	31	1.15	≤ 4	**0.2**
Portion B	Carrols Lane East Chatsworth	DDG 8	n/a	31	1.15	≤ 4	**1.5**
Portion B	Serpentine Rd (south)	DDG 6	Dirty funnel, spider webs and bird droppings present	31	1.17	≤ 4	**3.9**
Portion B	Chatsworth Road North - Mororo Bridge	DDG10	No funnel present, just plastic sleeve (100mm wide)	31	0.04	≤ 4	**0.3**
Portion B	Watt's Lane (West)	DDG 3	Rain water accumulation	31	1.00	≤ 4	**3.7**
Portion B	Watts Lane (East - Wave 1)	DDG 2	No funnel present, just plastic sleeve (100mm wide)	31	0.20	≤ 4	**1.3**
Portion B	Ryan's Lane	DDG 4	Dirty funnel, spider webs and bird droppings present	31	0.85	≤ 4	**2.8**
Portion B	Mororo Cut (north west)	DDG17	n/a	31	1.00	≤ 4	**0.4**
Portion B	Garrett's Lane West - Mororo Bridge	DDG11	n/a	31	1.12	≤ 4	**0.2**
Portion B	Serpentine Rd (south)	DDG 5	n/a	31	0.90	≤ 4	**0.7**
Portion B	Carrols Lane West Chatsworth	DDG 7	Funnel fallen off. Area around DDG has been slashed since last collection. Bird droppings present in jar. Dark brown, dirt, 0.2mL milli-q added.	31	0.22	≤ 4	**8.3**
Portion B	Fischers Lane (east)	DDG 9	n/a	30	0.98	≤ 4	**0.6**

May-17							
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)**
Portion E	DDG1	DDG1		31	1.15	≤ 4	**0.4**
Portion E	DDG2	DDG2		31	1.00	≤ 4	**1.0**
Portion E	DDG3	DDG3		31	1.00	≤ 4	**0.4**
Portion E	DDG4	DDG4		31	0.95	≤ 4	**0.4**
Portion E	DDG5	DDG5	Landowner placed dirt stockpile around dust gauge	31	1.00	≤ 4	**0.6**
Portion B	SCE IRAF W01		Dark colour, cloudy, lots of organic matter, Eastern Sedge-frog was observed trapped in the bottle upon collection	32	1.04	≤ 4	**38.6**
Portion D	McAndrew Lane McL SW SCE			32	2.16	≤ 4	**0.5**
Portion D	W2DDG2		Cloudy, crickets	39	2.1	≤ 4	**2.5**
Portion B	Watts Lane East - Golding)	DDG2	No funnel, grassed area adjacent to DDG has been slashed since last service	25	0.2	≤ 4	**1.0**
Portion B	Watt's Lane	DDG3	Next to dirt road & regularly mowed lawn	25	1.45	≤ 4	**2.5**
Portion B	Ryan's Lane	DDG4	Next to dirt road	25	0.9	≤ 4	**5.7**
Portion B		DDG5	Rainwater accumulation, DDG next to slashed cane headland	25	1.05	≤ 4	**0.9**
Portion B	Serpentine Rd North	DDG6	Rainwater accumulation, DDG next to dirt road & regularly mowed lawn / cloudy	25	1.1	≤ 4	**3.1**
Portion B		DDG7	Rainwater accumulation, DDG next to regularly slashed cane headland / brown, organic matter	25	0.9	≤ 4	**7.7**
Portion B	Carrols Lane East Chatsworth	DDG8	Rainwater accumulation, next to regularly slashed cane headland	25	1.1	≤ 4	**2.2**
Portion B	Chatsworth Road North - Mororo bridge	DDG10	No funnel, plastic sleeve only, some rainwater accumulation, next to recently & regularly mowed lawn	25	0.15	≤ 4	**1.0**

May-17							
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)**
Portion B	Garrett's Lane West	DDG11	Adjacent garden bed has been ripped out since last service - potential dust source / cloudy	25	1.15	≤ 4	**2.1**
Portion B	Leslie Control	Leslie Control	Some rain water accumulation	15	0.6	≤ 4	**0.5**
Portion B	Woombah Woods	Woombah Woods	Some rain water accumulation, positioned in regularly mowed lawn area	15	0.6	≤ 4	**0.5**
Portion B	Mororo Cut South end	DDG16		25	0.95	≤ 4	**0.5**
Portion B	Mororo Cut North West	DDG17		25	0.9	≤ 4	**0.7**
Portion B	Iluka	Iluka	Rainwater accumulation	16	0.45	≤ 4	**0.3**
Wave 5A	1	F9880/1	..	33	1.200	≤ 4	**0.6**
Wave 5A	2	F9880/2	Organic matter present	33	1.500	≤ 4	**0.3**
Wave 5A	3	F9880/3	Yellow colour	33	0.800	≤ 4	**1.1**
Wave 5A	4	F9880/4	..	33	1.050	≤ 4	**0.4**
Wave 5A	5	F9880/5	Brown, leaves, organic matter	33	0.880	≤ 4	**1.2**
Wave 5A	6	F9880/6	Yellow colour	33	0.880	≤ 4	**0.5**
Wave 5A	7	F9880/7	Organic matter present	33	1.100	≤ 4	**1.2**
Wave 5A	8	F9880/8	..	33	0.950	≤ 4	**0.3**
Wave 5A	9	F9880/9	Mosquitos	33	1.000	≤ 4	**0.6**
Wave 5A	10	F9880/10	..	33	1.000	≤ 4	**0.4**
Wave 5A	11	F9880/11	..	33	1.250	≤ 4	**0.7**
Wave 5A	12	F9880/12	..	33	1.250	≤ 4	**0.3**
Wave 5A	13	F9880/13	yellow, organic matter	33	1.300	≤ 4	**2.5**
Wave 5A	14	F9880/14	ants, pine needles	33	1.300	≤ 4	**1.0**

May-17							
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 5A	15	F9880/15	..	33	1.380	≤ 4	**0.3**
Wave 5A	16	F9880/16	Yellow colour	33	1.350	≤ 4	**0.2**
Wave 5A	17	F9880/17	Yellow colour	33	1.130	≤ 4	**0.6**
Wave 5A	18	F9880/18	ants	33	1.000	≤ 4	**1.0**
Wave 5A	19	F9880/19	Yellow colour	33	1.150	≤ 4	**0.3**
Wave 5A	20	F9880/20	brown, organic matter	33	1.450	≤ 4	**3.3**
Wave 5A	21	F9880/21	..	33	1.350	≤ 4	**0.5**
Wave 5A	22	F9880/22	..	33	1.350	≤ 4	**0.6**
Wave 5A	23	F9880/23	..	33	1.350	≤ 4	**0.7**
Wave 5A	24	F9880/24	..	33	1.400	≤ 4	**0.8**
Wave 5A	25	F9880/25	Yellow colour	33	1.300	≤ 4	**0.6**
Wave 5A	26	F9880/26	cloudy	33	1.100	≤ 4	**1.2**
Wave 5A	27	F9880/27	..	33	1.200	≤ 4	**0.4**
Wave 5A	28	F9880/28	..	33	1.250	≤ 4	**0.7**
Wave 2	W2 DDG1	F9737/13	organic matter present - baseline dust monitoring location for pre-construction	31	0.800	≤ 4	**2.8**
Wave 2	W2 DDG2	F9737/14	organic matter present - baseline dust monitoring location for pre-construction	31	1.800	≤ 4	**2.2**
Wave 2	W2 DDG3	F9737/15	cloudy/org. matter present -	31	2.300	≤ 4	**11.6**
Wave 2	W2 DDG4	F9737/16	organic matter present - baseline dust monitoring location for pre-construction	31	2.000	≤ 4	**0.7**

May-17							
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	W2 DDG5	F9737/17	organic matter present - baseline dust monitoring location for pre-construction	31	1.550	≤ 4	**1.6**
Wave 5C	W5C A1	F9737/1	ants	30	1.6	≤ 4	**0.5**
Wave 5C	W5C A2	F9737/2	organic matter present	30	1.3	≤ 4	**0.9**
Wave 5C	W5C A4	F9737/3		30	1.35	≤ 4	**0.4**
Wave 5C	W5C A5	F9737/4	organic matter present	30	1.55	≤ 4	**1**
Wave 5C	W5C A6	F9737/5		30	1.85	≤ 4	**0.3**
Portion C / Woodburn Service Rd	WB5R DDG1	F9737/6	cloudy	30	1.83	≤ 4	**2**
Portion C / Woodburn Service Rd	WB5R DDG2	F9737/7		30	2	≤ 4	**0.3**
Portion C / Woodburn Service Rd	WB5R DDG3	F9737/8		30	1.8	≤ 4	**0.2**
Portion C / Woodburn Service Rd	WB5R DDG4	F9737/9	organic matter present	30	1.8	≤ 4	**2**
Wave 4	W4 DDG1	F9737/10		30	1.1	≤ 4	**0.6**
Wave 4	W4 DDG2	F9737/11	organic matter present	30	1.2	≤ 4	**1.5**
Wave 4	W4 DDG3	F9737/12		30	1.25	≤ 4	**0.4**
Portion B	B11	1		28	0.93	≤ 4	**2.6**
Portion B	B10	2		28	0.95	≤ 4	**0.1**
Portion B	Control	3		28	1	≤ 4	**0.1**
Wave 3	DG-01	FKG002-SW-F9126	Organic matter present, cloudy	37	1.25	≤ 4	**2.2**
Wave 3	DG-02	FKG002-SW-F9126	None	37	1.25	≤ 4	**0.4**
Wave 3	DG-03	FKG002-SW-F9126	None	37	1.2	≤ 4	**0.3**
Wave 3	DG-04	FKG002-SW-F9126	None	37	1.4	≤ 4	**2**

May-17							
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 3	DG-05	FKG002-SW-F9126	None	37	1.32	≤ 4	**0.1**
Wave 3	DG-06						
Wave 3	DG-07	FKG002-SW-F9126	None	37	1.05	≤ 4	**4.4**
Wave 3	DG-08	FKG002-SW-F9126	None	37	1.05	≤ 4	**0.5**
Wave 3	DG-09	FKG002-SW-F9126	Organic matter present, green	37	0.73	≤ 4	**2**
Wave 3	DG-10	FKG002-SW-F9126	None	37	1.2	≤ 4	**1.4**
Wave 3	DG-11	FKG002-SW-F9126	None	37	1.28	≤ 4	**0.6**
Wave 3	DG-12	FKG002-SW-F9126	None	37	1.45	≤ 4	**0.2**
Wave 3	DG-13	FKG002-SW-F9126	None	37	1.13	≤ 4	**2.3**
Wave 3	DG-14	FKG002-SW-F9126	None	37	1.2	≤ 4	**0.9**
Wave 3	DG-15	FKG002-SW-F9126	Organic matter present	37	0.93	≤ 4	**1.5**

Jun-17							
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	McAndrew Lane McL SW SCE		Slightly cloudy, organic matter	32	2.16	≤ 4	**0.5**
Wave 2	W2DDG2			31	1.8	≤ 4	**2.2**
Wave 5a	1	G0794/1	..	28	4.050	≤ 4	**1.2**
Wave 5a	2	G0794/2	..	28	1.520	≤ 4	**0.9**
Wave 5a	3	G0794/3	yellow	28	3.350	≤ 4	**1.6**
Wave 5a	4	G0794/4	..	28	4.000	≤ 4	**1.4**
Wave 5a	5	G0794/5	yellow/org.matter present	28	3.900	≤ 4	**9.8**
Wave 5a	6	G0794/6	..	28	3.450	≤ 4	**1.3**
Wave 5a	7	G0794/7	org.matter present	28	3.650	≤ 4	**4.5**
Wave 5a	8	G0794/8	org.matter present	28	3.150	≤ 4	**1.1**
Wave 5a	9	G0794/9	..	28	3.600	≤ 4	**0.7**
Wave 5a	10	G0794/10	..	28	3.500	≤ 4	**1.1**
Wave 5a	11	G0794/11	..	28	3.970	≤ 4	**0.5**
Wave 5a	12	G0794/12	..	28	3.970	≤ 4	**0.6**
Wave 5a	13	G0794/13	yellow	28	3.550	≤ 4	**1.5**
Wave 5a	14	G0794/14	..	28	3.900	≤ 4	**0.7**
Wave 5a	15	G0794/15	..	28	4.100	≤ 4	**0.6**
Wave 5a	16	G0794/16	..	28	3.650	≤ 4	**0.5**

Jun-17							
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 5a	17	G0794/17	..	28	3.100	≤ 4	**1.0**
Wave 5a	18	G0794/18	..	28	2.500	≤ 4	**1.1**
Wave 5a	19	G0794/19	..	28	3.600	≤ 4	**1.0**
Wave 5a	20	G0794/20	yellow	28	4.200	≤ 4	**14.8**
Wave 5a	21	G0794/21	..	28	3.800	≤ 4	**0.9**
Wave 5a	22	G0794/22	..	28	3.700	≤ 4	**2.1**
Wave 5a	23	G0794/23	ants	28	3.550	≤ 4	**1.7**
Wave 5a	24	G0794/24	..	28	3.500	≤ 4	**1.6**
Wave 5a	25	G0794/25	yellow	28	3.600	≤ 4	**1.4**
Wave 5a	26	G0794/26	..	28	2.800	≤ 4	**1.1**
Wave 5a	27	G0794/27	..	28	3.350	≤ 4	**0.9**
Wave 5a	28	G0794/28	..	28	3.300	≤ 4	**2.6**
Portion E	DDG1	DDG1		31	1.55	≤ 4	**0.39**
Portion E	DDG2	DDG2		31	1.40	≤ 4	**0.96**
Portion E	DDG3	DDG3	Dust Deposition gauge was found knocked over - sample invalidated			≤ 4	**N/A**
Portion E	DDG4	DDG4		31	1.20	≤ 4	**0.60**
Portion E	DDG5	DDG5		31	1.30	≤ 4	**2.20**
Portion B	Watts Lane East - Golding)	DDG2	Goldings working nearby	29	1.100	≤ 4	**1.5**
Portion B	Watt's Lane	DDG3	Dirt road nearby, regularly mowed lawn. Insects in sample	29	5.450	≤ 4	**1.8**
Portion B	Ryan's Lane	DDG4	Dirt road adjacent, bird droppings present	29	5.400	≤ 4	**3.2**

Jun-17							
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)**
Portion B		DDG5	Dirt road, next to regularly slashed headland track	29	5.350	≤ 4	**1.3**
Portion B	Serpentine Rd North	DDG6	Dirt road and ash present	29	5.400	≤ 4	**1.9**
Portion B		DDG7	Bird droppings present, regularly slashed area	29	5.450	≤ 4	**6.9**
Portion B	Carrols Lane East Chatsworth	DDG8	Next to regularly slashed headland track.	29	5.350	≤ 4	**4.8**
Portion B	Chatsworth Road North - Mororo bridge	DDG10	Next to recently mowed lawn	29	1.500	≤ 4	**0.3**
Portion B	Garrett's Lane West	DDG11	Next to dirt road	29	5.400	≤ 4	**0.6**
Portion B		DDG12		29	5.200	≤ 4	**1.8**
Portion B	Woombah Woods	DDG14	Caravan park. Ash evident in sample	29	5.300	≤ 4	**0.3**
Portion B	Mororo Cut South end	DDG16		29	5.300	≤ 4	**1.2**
Portion B	Mororo Cut North West	DDG17		29	5.400	≤ 4	**0.7**
Portion B		DDG15	Close proximity to trees	29	5.450	≤ 4	**1.0**
Wave 2	W2 DDG01	G0662/5		30	5.400	≤ 4	**5.0**
Wave 2	W2 DDG02	G0662/6		30	4.550	≤ 4	**2.1**
Wave 2	W2 DDG03	G0662/7	Brown/ organic matter present	30	5.380	≤ 4	**77.6**
Wave 2	W2 DDG04	G0662/8		30	5.45	≤ 4	**1.3**
Wave 2	W2 DDG05	G0662/9	Organic matter present	30	5.15	≤ 4	**3.7**
Portion C / Woodburn Service Rd	DDG01	G0662/1	Org. matter present	30	5.37	≤ 4	**8.20**
Portion C / Woodburn Service Rd	DDG02	G0662/2	-	30	5.45	≤ 4	**4.20**
Portion C / Woodburn Service Rd	DDG03	G0662/3	Org. matter present	30	1.82	≤ 4	**0.60**

Jun-17							
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)**
Portion C / Woodburn Service Rd	DDG04	G0662/4	Org. matter present	30	5.40	≤ 4	**3.00**
Wave 5C	A1	G0662/10	-	30	5.20	≤ 4	**0.90**
Wave 5C	A2	G0662/11	-	30	5.35	≤ 4	**0.40**
Wave 5C	A4	G0662/12	-	30	5.15	≤ 4	**1.20**
Wave 5C	A5	G0662/13	-	30	5.20	≤ 4	**0.60**
Wave 5C	A6	G0662/14	-	30	5.30	≤ 4	**0.70**
Wave 4	DDG01	G0662/15	-	30	5.40	≤ 4	**1.00**
Wave 4	DDG02	G0662/16	-	30	5.40	≤ 4	**0.90**
Wave 4	DDG03	G0662/17	-	30	5.40	≤ 4	**0.90**
Portion B	B11	1	Organic matter in sample	30	2.45	≤ 4	**4.70**
Portion B	B10	2	Sample has yellow coloration	30	2.45	≤ 4	**3.30**
Portion B	Control	3	No comments	30	2.67	≤ 4	**0.20**
Wave 1	Wave 1 / IWP1	DDG1		7/6/17 - 28/6/17	N/A	≤ 4	**0.92**
Wave 2	Wave 1 / IWP1	DDG2	Moth in bottle	7/6/17 - 28/6/17	N/A	≤ 4	**1.63**
Wave 3	Wave 1 / IWP1	DDG3	Insects observed within bottle	7/6/17 - 28/6/17	N/A	≤ 4	**0.86**
Wave 4	Wave 1 / IWP1	DDG5		7/6/17 - 28/6/17	N/A	≤ 4	**0.92**
Wave 5	Wave 1 / IWP1	DDG6		7/6/17 - 28/6/17	N/A	≤ 4	**1.85**
Wave 3	DG-03	FKG002-SW-F9126	None	31	2.80	≤ 4	**0.04**
Wave 3	DG-04	FKG002-SW-F9126	None	31	2.80	≤ 4	**0.86**
Wave 3	DG-05	FKG002-SW-F9126	Organic matter present	31	2.80	≤ 4	**1.77**
Wave 3	DG-06					≤ 4	
Wave 3	DG-07	FKG002-SW-F9126	Organic matter present	31	2.80	≤ 4	**5.32**

Jun-17								
Contractor	**Location**	**Sample Name**	**Sample Number**	**Sample Comments**	**Exposure period**	**Sample Volume (L)**	**Target Total Suspended Solids (g/m2/month)**	**Comments**
FKG	Wave 3	DG-08	FKG002-SW-F9126	None		2.80	≤ 4	
FKG	Wave 3	DG-09	FKG002-SW-F9126	Limited sample		0.09	≤ 4	
FKG	Wave 3	DG-10	FKG002-SW-F9126	None		0.77	≤ 4	
FKG	Wave 3	DG-11	FKG002-SW-F9126	None		2.80	≤ 4	
FKG	Wave 3	DG-12	FKG002-SW-F9126	None		2.80	≤ 4	
FKG	Wave 3	DG-13	FKG002-SW-F9126	None		4.20	≤ 4	
FKG	Wave 3	DG-14	FKG002-SW-F9126	None		2.80	≤ 4	
FKG	Wave 3	DG-15	FKG002-SW-F9126	None		2.80	≤ 4	

Jul-17							
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)**
Portion B	B11	1	Cloudy	29	0.38	≤ 4	**0.7**
Portion B	B10	2		29	0.44	≤ 4	**0.4**
Portion B	Control	3		29	0.43	≤ 4	**0.1**
Wave 1	Fill 5-1 A	DDG1		29	0.290	≤ 4	**0.5**
Wave 1	Fill 5-1	DDG2		29	0.380	≤ 4	**0.7**
Wave 1	Gate 100.6	DDG3		29	0.420	≤ 4	**0.4**
Wave 1	Rainbow gate	DDG4		29	0.220	≤ 4	**0.6**
Wave 1	Gate 104.5	DDG5		29	0.200	≤ 4	**0.5**
Wave 1	Control	DDG6		29	0.300	≤ 4	**0.6**
Portion C / Woodburn Service Rd	WBSR DD1	G1416/1	Cloudy, organic matter present	27	0.300	≤ 4	**2.8**
Portion C / Woodburn Service Rd	WBSR DD2	G1416/2		27	0.380	≤ 4	**0.4**
Portion C / Woodburn Service Rd	WBSR DD3	G1416/3		27	0.340	≤ 4	**0.7**
Portion C / Woodburn Service Rd	WBSR DD4	G1416/4		27	0.390	≤ 4	**0.3**
Wave 2	W2 MP1	G1416/5	dry, 0.5mL MilliQ added	27	0.500	≤ 4	**0.2**
Wave 2	W2 MP2	G1416/6	cloudy, insects	27	0.210	≤ 4	**1.0**
Wave 2	W2 MP3	G1416/7	brown colour, organic matter present	27	0.060	≤ 4	**12.6**
Wave 2	W2 MP4	G1416/8		27	0.210	≤ 4	**0.4**
Wave 2	W2 MP5	G1416/9	Cloudy, organic matter present	27	0.180	≤ 4	**2.6**
Wave 5C	W5C A1	G1416/10		27	0.280	≤ 4	**0.2**
Wave 5C	W5C A2	G1416/11		27	0.26	≤ 4	**0.3**
Wave 5C	W5C A4	G1416/12		27	0.23	≤ 4	**0.40**
Wave 5C	W5C A5	G1416/13	brown, organic matter present	27	0.17	≤ 4	**6.50**
Wave 5C	W5C A	G1416/14		27	0.28	≤ 4	**0.90**
Wave 4	W4 DDG1	G1416/15		27	0.11	≤ 4	**0.90**
Wave 4	W4 DDG2	G1416/16		27	0.240	≤ 4	**0.30**

Jul-17							
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 4	W4 DDG3	G1416/17	organic matter present	27	0.280	≤ 4	**0.60**
Wave 3	DG-01	FKG002-SW-F9126	Organic matter present	30	2.80	≤ 4	**0.56**
Wave 3	DG-02	FKG002-SW-F9126	None	30	2.80	≤ 4	**0.31**
Wave 3	DG-03	FKG002-SW-F9126	None	31	2.80	≤ 4	**0.04**
Wave 3	DG-04	FKG002-SW-F9126	None	31	2.80	≤ 4	**0.86**
Wave 3	DG-05	FKG002-SW-F9126	Organic matter present	31	2.80	≤ 4	**1.77**
Wave 3	DG-06					≤ 4	
Wave 3	DG-07	FKG002-SW-F9126	Organic matter present	31	2.80	≤ 4	**5.32**
Wave 3	DG-08	FKG002-SW-F9126	None	31	2.80	≤ 4	**0.22**
Wave 3	DG-09	FKG002-SW-F9126	Limited sample	31	0.09	≤ 4	**0.06**
Wave 3	DG-10	FKG002-SW-F9126	None	31	0.77	≤ 4	**0.21**
Wave 3	DG-11	FKG002-SW-F9126	None	31	2.80	≤ 4	**0.11**
Wave 3	DG-12	FKG002-SW-F9126	None	31	2.80	≤ 4	**0.35**
Wave 3	DG-13	FKG002-SW-F9126	None	31	4.20	≤ 4	**0.69**

Jul-17							
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)**
Portion E	DDG1	DDG1		32	5.00	≤ 4	**2.00**
Portion E	DDG2	DDG2		32	5.30	≤ 4	**1.10**
Portion E	DDG3	DDG3	Piece of glass removed	32	5.00	≤ 4	**2.70**
Portion E	DDG4	DDG4		32	4.75	≤ 4	**0.30**
Portion E	DDG5	DDG5		32	4.90	≤ 4	**0.60**
Wave 5A	1	G1602/1	..	27	0.350	≤ 4	**0.3**
Wave 5A	2	G1602/2	..	27	0.500	≤ 4	**0.4**
Wave 5A	3	G1602/3	..	27	0.230	≤ 4	**0.3**
Wave 5A	4	G1602/4	..	27	0.460	≤ 4	**0.4**
Wave 5A	5	G1602/5	Light Brown	27	0.460	≤ 4	**0.4**
Wave 5A	6	G1602/6	..	27	0.400	≤ 4	**0.2**
Wave 5A	7	G1602/7	Cloudy	27	0.200	≤ 4	**1.2**
Wave 5A	8	G1602/8	..	27	0.250	≤ 4	**0.3**
Wave 5A	9	G1602/9	..	27	0.260	≤ 4	**0.2**
Wave 5A	10	G1602/10	..	27	0.270	≤ 4	**0.4**
Wave 5A	11	G1602/11	..	27	0.340	≤ 4	**0.2**
Wave 5A	12	G1602/12	Smelly. Beetles	27	0.320	≤ 4	**1.2**
Wave 5A	13	G1602/13	Light Brown	27	0.260	≤ 4	**0.8**
Wave 5A	14	G1602/14	..	27	0.270	≤ 4	**0.4**
Wave 5A	15	G1602/15	..	27	0.310	≤ 4	**0.8**

Jul-17							
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 5A	16	G1602/16	..	27	0.230	≤ 4	**0.3**
Wave 5A	17	G1602/17	Light Brown	27	0.145	≤ 4	**0.5**
Wave 5A	18	G1602/18	..	27	0.100	≤ 4	**0.5**
Wave 5A	19	G1602/19	..	27	0.140	≤ 4	**0.6**
Wave 5A	20	G1602/20	Light Brown	27	0.120	≤ 4	**1.4**
Wave 5A	21	G1602/21	..	27	0.250	≤ 4	**0.5**
Wave 5A	22	G1602/22	..	27	0.230	≤ 4	**0.3**
Wave 5A	23	G1602/23	..	27	0.265	≤ 4	**0.2**
Wave 5A	24	G1602/24	..	27	0.300	≤ 4	**0.2**
Wave 5A	25	G1602/25	Brown	27	0.240	≤ 4	**0.7**
Wave 5A	26	G1602/26	..	27	0.290	≤ 4	**0.9**
Wave 5A	27	G1602/27	..	27	0.270	≤ 4	**0.3**
Wave 5A	28	G1602/28	..	27	0.190	≤ 4	**0.6**
Portion B	Control	DDG1	Located 1.7km east of any highway construction (Control)	30	0.620	≤ 4	**0.3**
Portion B	Watts Lane East - Golding)	DDG2	Contractors working nearby	28	0.200	≤ 4	**0.5**
Portion B	Watt's Lane	DDG3	Dirt road nearby, regularly mowed lawn. Insects in sample	28	0.500	≤ 4	**1.1**
Portion B	Ryan's Lane	DDG4	Dirt road adjacent, bird droppings present	28	0.610	≤ 4	**3.5**
Portion B		DDG5	Dirt road, next to regularly slashed headland track	28	0.650	≤ 4	**1.4**

Jul-17							
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)**
Portion B	Serpentine Rd North	DDG6	Dirt road and ash present	28	0.730	≤ 4	**2.6**
Portion B		DDG7	Bird droppings present, regularly slashed area	28	0.110	≤ 4	**1.8**
Portion B	Carrols Lane East Chatsworth	DDG8	Next to regularly slashed headland track.	28	0.670	≤ 4	**0.9**
Portion B	Chatsworth Road North - Mororo bridge	DDG9	Contractors working nearby	30	0.680	≤ 4	**4.1**
Portion B	Garrett's Lane West	DDG10	Next to recently mowed lawn	28	0.640	≤ 4	**0.3**
Portion B		DDG11	Next to dirt road	28	0.720	≤ 4	**0.2**
Portion B		DDG12	Control	28	0.320	≤ 4	**2.8**
Portion B	Woombah Woods	DDG14	Caravan park. Ash evident in sample	28	0.730	≤ 4	**0.2**
Portion B	Mororo Cut South end	DDG16	Contractors working nearby	28	0.640	≤ 4	**0.3**
Portion B	Mororo Cut North West	DDG17	Contractors working nearby	28	0.530	≤ 4	**2.7**
Portion B		DDG15	Close proximity to trees	28	0.670	≤ 4	**1.6**
Portion D	McAndrews Lane SW	McAndrew Lane McL SW SCE		26	0.97	≤ 4	**0.4**

Aug-17							
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 5a	DDG1	1	dry/0.5L milli Q added	28	0.5	≤ 4	**0.3**
Wave 5a	DDG2	2	dry/0.5L milli Q added	28	0.5	≤ 4	**0.3**
Wave 5a	DDG3	3	dry/0.5L milli Q added	28	0.5	≤ 4	**0.2**
Wave 5a	DDG4	4	dry/0.5L milli Q added	28	0.5	≤ 4	**0.1**
Wave 5a	DDG5	5	dry/0.5L milli Q added	28	0.5	≤ 4	**0.5**
Wave 5a	DDG6	6	dry/0.5L milli Q added	28	0.5	≤ 4	**0.3**
Wave 5a	DDG7	7	dry/0.5L milli Q added	28	0.5	≤ 4	**0.3**
Wave 5a	DDG8	8	dry/0.5L milli Q added	28	0.5	≤ 4	**0.1**
Wave 5a	DDG9	9	dry/0.5L milli Q added	28	0.5	≤ 4	**0.1**
Wave 5a	DDG10	10	dry/0.5L milli Q added	28	0.5	≤ 4	**0.4**
Wave 5a	DDG11	11	dry/0.5L milli Q added	28	0.5	≤ 4	**0.1**
Wave 5a	DDG12	12	dry/0.5L milli Q added	28	0.5	≤ 4	**0.1**
Wave 5a	DDG13	13	dry/0.5L milli Q added	28	0.5	≤ 4	**0.1**
Wave 5a	DDG14	14	dry/0.5L milli Q added	28	0.5	≤ 4	**0.5**
Wave 5a	DDG15	15	dry/0.5L milli Q added	28	0.5	≤ 4	**0.5**
Wave 5a	DDG16	16	dry/0.5L milli Q added	28	0.5	≤ 4	**0.2**
Wave 5a	DDG17	17	dry/0.5L milli Q added	28	0.5	≤ 4	**0.5**
Wave 5a	DDG18	18	dry/0.5L milli Q added	28	0.5	≤ 4	**0.2**

Aug-17							
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 5a	DDG19	19	dry/0.5L milli Q added	28	0.5	≤ 4	**0.3**
Wave 5a	DDG20	20	dry/0.5L milli Q added	28	0.5	≤ 4	**6**
Wave 5a	DDG21	21	dry/0.5L milli Q added	28	0.5	≤ 4	**0.3**
Wave 5a	DDG22	22	dry/0.5L milli Q added	28	0.5	≤ 4	**0.6**
Wave 5a	DDG23	23	dry/0.5L milli Q added	28	0.5	≤ 4	**0.5**
Wave 5a	DDG24	24	dry/0.5L milli Q added	28	0.5	≤ 4	**0.4**
Wave 5a	DDG25	25	dry/0.5L milli Q added	28	0.03	≤ 4	**0.5**
Wave 5a	DDG26	26	dry/0.5L milli Q added	28	0.5	≤ 4	**0.3**
Wave 5a	DDG27	27	dry/0.5L milli Q added	28	0.5	≤ 4	**0.4**
Wave 5a	DDG28	28	dry/0.5L milli Q added	28	0.5	≤ 4	**0.4**
Portion E	DDG1	DDG1	organic matter present	30	0.25	≤ 4	**0.5**
Portion E	DDG2	DDG2	organic matter present	30	0.44	≤ 4	**1.3**
Portion E	DDG3	DDG3	limited sample	30	0.06	≤ 4	**0.7**
Portion E	DDG4	DDG4	cloudy-organic matter present	30	0.24	≤ 4	**2.2**
Portion E	DDG5	DDG5		30	0.24	≤ 4	**0.9**
Portion B	Fischers Lane	DDG 1	Grass mowed around dust receptical	34	0.03	≤ 4	**0.26**
Portion B		DDG 2				≤ 4	**1.73**
Portion B	Watts Lane	DDG 3	Neart batch polant ran by other contractors, dust access	29	0.5	≤ 4	**0.66**
Portion B	Palm Lane	DDG 4	Close to Pacific Highway and works being undertaken by other contractors	29	0.5	≤ 4	**0.41**
Portion B	Ryans Lane	DDG 5	Organic matter present - cane fields cleared	29	0.5	≤ 4	**1.01**
Portion B	Serpentine Rd North	DDG 6	Next to dirt access track	29	0.5	≤ 4	**0.42**
Portion B	Chatsworth Rd	DDG 7	Organic matter present - cane fields cleared	29	0.5	≤ 4	**0.98**

Aug-17							
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)**
Portion B	Carrols Lane West Chatsworth	DDG 8		29	0.5	≤ 4	**0.64**
Portion B	Carrols Lane East Chatsworth	DDG 9	Organic Matter present	34	0.5	≤ 4	**0.62**
Portion B	Fischers Lane	DDG 10		29	0.5	≤ 4	**0.38**
Portion B	Lewis Lane	DDG 11	Slashing had taken place recently	29	0.5	≤ 4	**0.23**
Portion B	Woombah (old Pacific Hwy)	DDG 12	Lawn around dust gauge recently mowed	29	0.5	≤ 4	**0.35**
Portion B	Woombah caravan park	DDG 14		29	0.5	≤ 4	**0.25**
Portion B	Pacific Hwy	DDG 15	Organic matter present	29	0.5	≤ 4	**0.33**
Portion B	Mororo Cut	DDG 16	Organic matter present	29	0.5	≤ 4	**1.59**
Portion B	Mororo Cut	DDG 17	Works being undertaken by other contractors nearby	29	0.5	≤ 4	**1.21**
Wave 3	DG-01	DG-01		30	0.16	≤ 4	**2**
Wave 3	DG-02	DG-02		30	1.15	≤ 4	**0.3**
Wave 3	DG-03	DG-03		29	0.1	≤ 4	**0.5**
Wave 3	DG-04	DG-04		29	0.04	≤ 4	**0.6**
Wave 3	DG-05	DG-05		29	0.11	≤ 4	**2.6**
Wave 3	DG-07	DG-07		29	0.08	≤ 4	**1.4**
Wave 3	DG-08	DG-08		29	0.1	≤ 4	**1.4**
Wave 3	DG-09	DG-09		29	0.5	≤ 4	**0.3**
Wave 3	DG-10	DG-10		29	0.5	≤ 4	**0.3**
Wave 3	DG-11	DG-11		29	0.23	≤ 4	**1.2**
Wave 3	DG-12	DG-12		29	0.13	≤ 4	**0.2**
Wave 3	DG-13	DG-13		29	0.5	≤ 4	**0.5**
Wave 3	DG-14	DG-14		29	0.16	≤ 4	**0.4**
Wave 3	DG-15	DG-15		29	0.9	≤ 4	**0.4**
Wave 1	Fill 5-1 A	DDG1		30	0.52	≤ 4	**0.4**
Wave 1	Fill 5-1 Farlows	DDG2		30	0.55	≤ 4	**0.37**
Wave 1	Gate 100.6	DDG3		30	0.52	≤ 4	**0.33**
Wave 1	Rainbow Gate	DDG4		30	0.27	≤ 4	**1.11**
Wave 1	Gate 104.9	DDG5		30	0.1	≤ 4	**0.48**
Wave 1	Control	DDG6		30	0.14	≤ 4	**0.46**
Portion C / Woodburn Service Rd	WBSR DDG1	G2370/1	dry/0.2L Milli Q added	29	0.2	≤ 4	**0.2**

Aug-17							
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)**
Portion C / Woodburn Service Rd	WBSR DDG2	G2370/2	dry/0.2L Milli Q added	29	0.2	≤ 4	**0.1**
Portion C / Woodburn Service Rd	WBSR DDG3	G2370/3	dry/black ash/0.2L Milli Q added	29	0.2	≤ 4	**1.5**
Portion C / Woodburn Service Rd	WBSR DDG4	G2370/4	dry/0.2L Milli Q added	29	0.2	≤ 4	**0.2**
Wave 2	W2 MP1	G2370/5	dry/0.2L Milli Q added	29	0.2	≤ 4	**0.6**
Wave 2	W2 MP2	G2370/6	dry/cockroach/0.2L Milli Q added dry/bird droppings/0.2L Milli Q	29	0.2	≤ 4	**0.3**
Wave 2	W2 MP3	G2370/7	added/cloudy	29	0.2	≤ 4	**115.6**
Wave 2	W2 MP4	G2370/8	dry/0.2L Milli Q added	29	0.2	≤ 4	**0.2**
Wave 2	W2 MP5	G2370/9	dry/0.2L Milli Q added	29	0.2	≤ 4	**0.1**
Wave 5C	W5CA1	G2370/10	dry/0.2L Milli Q added	29	0.2	≤ 4	**0.1**
Wave 5C	W5CA2	G2370/11	dry/0.2L Milli Q added	29	0.2	≤ 4	**0.1**
Wave 5C	W5CA4	G2370/12	dry/0.2L Milli Q added	29	0.2	≤ 4	**0.3**
Wave 5C	W5CA5	G2370/13	dry/0.2L Milli Q added	29	0.2	≤ 4	**0.1**
Wave 5C	W5CA6	G2370/14	dry/0.2L Milli Q added	29	0.2	≤ 4	**0.3**
Wave 4	W4DDG1	G2370/15	dry/0.2L Milli Q added	29	0.2	≤ 4	**0.4**
Wave 4	W4DDG2	G2370/16	dry/0.2L Milli Q added	29	0.2	≤ 4	**0.1**
Wave 4	W4DDG3	G2370/17	dry/0.2L Milli Q added	29	0.2	≤ 4	**0.2**
Portion B	B11	1	Cloudy/org. matter present/limited sample	34	0.08	≤ 4	**1.1**
Portion B	B10	2	Cloudy	34	0.06	≤ 4	**1.6**
Portion B	Control	3		34	0.09	≤ 4	**0.3**

Sep-17							
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)**
Portion B	B11	1	Limited sample	29	0.03	≤ 4	**0.5**
Portion B	B10	2	Limited sample	29	0.025	≤ 4	**0.5**
Portion B	Control	3	Limited sample	29	0.035	≤ 4	**0.1**
Wave 1	Fill 5-1 A	DDG1	Limited sample	29	0.04	≤ 4	**0.39**
Wave 1	Fill 5-1 Farlow's	DGG2	brown - organic matter present	29	0.06	≤ 4	**63.8**
Wave 1	Gate 100.6	DDG2	dry - 0.5L milli G added	29	0.5	≤ 4	**0.18**
Wave 1	Rainbow Gate	DGG3	dry - 0.5L milli G added	29	0.5	≤ 4	**0.34**
Wave 1	Gate 104.9	DDG3	dry - 0.5L milli G added	29	0.5	≤ 4	**0.23**
Wave 1	Control	DGG4	dry - 0.5L milli G added	29	0.5	≤ 4	**0.22**
Wave 3	DG-01	DG-01		30	0.51	≤ 4	**0**
Wave 3	DG-02	DG-02		30	0.05	≤ 4	**1**
Wave 3	DG-03	DG-03		30	0.05	≤ 4	**1.2**
Wave 3	DG-04	DG-04		30	0.5	≤ 4	**0.6**
Wave 3	DG-05	DG-05		30	0.04	≤ 4	**1.8**
Wave 3	DG-07	DG-07		30	0.51	≤ 4	**2.6**
Wave 3	DG-08	DG-08		30	0.04	≤ 4	**1.3**
Wave 3	DG-09	DG-09		30	0.5	≤ 4	**0.6**
Wave 3	DG-10	DG-10		30	0.51	≤ 4	**0.4**
Wave 3	DG-11	DG-11		30	0.08	≤ 4	**1**
Wave 3	DG-12	DG-12		30	0.05	≤ 4	**0.5**
Wave 3	DG-13	DG-13		30	0.5	≤ 4	**0.8**
Wave 3	DG-14	DG-14		30	0.04	≤ 4	**0.8**
Wave 3	DG-15	DG-15		30	0.03	≤ 4	**1.2**
Portion C / Woodburn Service Rd	DDG1	1		32	0.03	≤ 4	**3.4**
Portion C / Woodburn Service Rd	DDG2	2		32	0.27	≤ 4	**0.6**

Sep-17							
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)**
Portion C / Woodburn Service Rd	DDG3	3		32	0.05	≤ 4	**1.4**
Portion C / Woodburn Service Rd	DDG4	4		32	0.3	≤ 4	**0.8**
Wave 5a	DDG1	1	dry/0.5L milli Q added	30	0.5	≤ 4	**0.5**
Wave 5a	DDG2	2	dry/0.5L milli Q added	30	0.5	≤ 4	**1**
Wave 5a	DDG3	3	dry/0.5L milli Q added	30	0.5	≤ 4	**0.6**
Wave 5a	DDG4	4	dry/0.5L milli Q added	30	0.5	≤ 4	**0.7**
Wave 5a	DDG5	5	dry/0.5L milli Q added leaves and sticks	30	0.5	≤ 4	**2**
Wave 5a	DDG6	6	dry/0.5L milli Q added	30	0.5	≤ 4	**0.1**
Wave 5a	DDG7	7	dry/0.5L milli Q added	30	0.5	≤ 4	**0.7**
Wave 5a	DDG8	8	dry/0.5L milli Q added	30	0.5	≤ 4	**0.2**
Wave 5a	DDG9	9	dry/0.5L milli Q added	30	0.5	≤ 4	**0.6**
Wave 5a	DDG10	10	dry/0.5L milli Q added	30	0.5	≤ 4	**1**
Wave 5a	DDG11	11	dry/0.5L milli Q added	30	0.5	≤ 4	**0.4**
Wave 5a	DDG12	12	dry/0.5L milli Q added	30	0.5	≤ 4	**0.3**
Wave 5a	DDG13	13	dry/0.5L milli Q added	30	0.5	≤ 4	**0.3**
Wave 5a	DDG14	14	dry/0.5L milli Q added pine needles	30	0.5	≤ 4	**0.7**
Wave 5a	DDG15	15	dry/0.5L milli Q added	30	0.5	≤ 4	**0.7**
Wave 5a	DDG16	16	dry/0.5L milli Q added	30	0.5	≤ 4	**0.5**
Wave 5a	DDG17	17	dry/0.5L milli Q added	30	0.5	≤ 4	**1.4**
Wave 5a	DDG18	18	dry/0.5L milli Q added	30	0.5	≤ 4	**1.8**
Wave 5a	DDG19	19	dry/0.5L milli Q added	30	0.5	≤ 4	**1**
Wave 5a	DDG20	20	dry/0.5L milli Q added	30	0.5	≤ 4	**1.2**

Sep-17							
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 5a	DDG21	21	dry/0.5L milli Q added	30	0.5	≤ 4	**1.2**
Wave 5a	DDG22	22	dry/0.5L milli Q added	30	0.5	≤ 4	**1.8**
Wave 5a	DDG23	23	dry/0.5L milli Q added	30	0.5	≤ 4	**1.7**
Wave 5a	DDG24	24	dry/0.5L milli Q added	30	0.5	≤ 4	**1.4**
Wave 5a	DDG25	25	dry/0.5L milli Q added	30	0.5	≤ 4	**0.7**
Wave 5a	DDG26	26	dry/0.5L milli Q added	30	0.5	≤ 4	**0.8**
Wave 5a	DDG27	27	dry/0.5L milli Q added	30	0.5	≤ 4	**0.8**
Wave 5a	DDG28	28	dry/0.5L milli Q added	30	0.5	≤ 4	**0.7**
Portion B	Fischers Lane	DDG1	dry/0.5L milli Q added	32	0.5	≤ 4	**0.5**
Portion B	Watt's Lane	DDG2	dry/0.5L milli Q added	31	0.5	≤ 4	**0.8**
Portion B	Palm Lane	DDG3	dry/0.5L milli Q added	31	0.5	≤ 4	**2.6**
Portion B	Ryans Lane	DDG4	dry/0.5L milli Q added	31	0.5	≤ 4	**0.9**
Portion B	Serpentine Rd North	DDG5	dry/0.5L milli Q added	31	0.5	≤ 4	**1.2**
Portion B	Chatsworth Road	DDG6	dry/0.5L milli Q added	31	0.5	≤ 4	**1.2**
Portion B	Carrols Lane West Chatsworth	DDG7	dry/0.5L milli Q added	31	0.5	≤ 4	**0.8**
Portion B	Carrols Lane East Chatsworth	DDG8	dry/0.5L milli Q added	31	0.5	≤ 4	**1**
Portion B	Fischers Lane	DDG9	dry/0.5L milli Q added	32	0.5	≤ 4	**0.7**
Portion B	Crematorium	DDG10	dry/0.5L milli Q added	31	0.5	≤ 4	**0.7**
Portion B	Lewis Lane	DDG11	dry/0.5L milli Q added	31	0.5	≤ 4	**0.3**
Portion B	Woombah (Old Pacific Hwy)	DDG12	dry/0.5L milli Q added	31	0.5	≤ 4	**1.3**
Portion B	Woombah Caravan Park	DDG14	dry/0.5L milli Q added	31	0.5	≤ 4	**0.4**
Portion B	Pacific Hwy	DDG15	dry/0.5L milli Q added	31	0.5	≤ 4	**2.5**
Portion B	Mororo Cut	DDG16	dry/0.5L milli Q added	31	0.5	≤ 4	**1.1**
Portion B	Mororo Cut	DDG17	dry/0.5L milli Q added	31	0.5	≤ 4	**0.6**
Portion E	DDG1	DDG1		33	0.36	≤ 4	**1.2**
Portion E	DDG2	DDG2	Cloudy/org matter present	33	0.41	≤ 4	**2.5**
Portion E	DDG3	DDG3		33	0.08	≤ 4	**1.8**
Portion E	DDG4	DDG4		33	0.17	≤ 4	**1.2**
Portion E	DDG5	DDG5	Cloudy/org matter present	33	0.19	≤ 4	**2.3**

Appendix C Community Complaints

Event Type	Event Date	Summary	Issues	Complaint details	Response	Status	Action	Location
Call out	27/04/2017	Access issues	04- Complaint, Traffic and transport: Traffic safety	Trucks and other general vehicles block access to Palm Lane.	KL advised the project team will toolbox all drivers and has advised the quarry to do the same to their drivers, asking them not to queue across the access to Palm Lane.	Closed	Nil	Portion E
Call out	18/08/2017	Adjacent land property access	Property and land use: adjacent land use	Complaint regarding access to move bees when needed and access for harvesting on land leased from Forestry NSW and National Parks. Also requires notification when blasting.	Stakeholder contacted and agreed to notify requirements from CM and follow up with Forestry NSW and PC environmental team.	Open	RMS/Forestry and National Parks will take over this issue. Regular contact is continuing.	Portion A
SMS	19/07/2017	Dam assessment	Biodiversity: aquatic environment; Socio-economic: Business Impact	Complaint about water interruptions and lack of prior warning.	Stakeholder advised of upcoming works and finalisation of a report regarding their dam issue.	Closed.		Portion A
Call in (1800 778 900)	28/04/2017	Damage to local roads	04- Complaint Noise and Vibration: Vibration - construction	Damage to Cakora St	Followed up	Closed		Section A
Call in (specify team member)	26/06/2017	Drainage	04- Complaint, Water: Flooding, Water: Drainage	Complaint about damaged pipe/drainage	Contractor advised that he would raise a complaint	Closed		Portion A Section 4
Email	11/04/2017	Drainage	04- Complaint, Water: Drainage, Design: Alignment	Drainage issues due to construction works	Advised stakeholder site supervisor would investigate	Closed	Site supervisor alerted and arranged required repair works	Portion A Section 4
Email	11/04/2017	Drainage	04- Complaint, Water: Drainage, Design: Alignment	Drainage issues due to construction works	Advised stakeholder site supervisor would investigate	Closed	Site supervisor alerted and arranged required repair works	Portion A Section 4
Call out	7/08/2017	Drainage	Water: Drainage	Complaint about drainage and waterlogging in paddock	PC to confirm final design drainage and if driveway could be realigned.	Open	Design finalised and stakeholder consulted.	Portion B
Call in (specify team member)	21/07/2017	Drainage	Water: Drainage	Complaint that water was not draining from cane paddock. Believed to be result of sandbags in drains around the entry to site.	Stakeholder advised project team would investigate.	Closed	Sandbags removed and landowner advised.	Portion B
Email	5/04/2017	Drainage	04- Complaint, Water: Drainage	Complaint around drainage to James Creek	Stakeholder was advised out of scope of W2B works, but would forward to relevant organisation.	Closed	Pacifico forwarded email to CVC for action	Portion B
Meeting	6/04/2017	Drainage	04- Complaint, Water: Flooding, Water: Drainage,		Met with owner to discuss and obtain property adjustment sign-off on the redesign of drainage in driveway and dirt mound to be installed to the front of the property as per RMS direction.	Closed	Scheduled additional meeting with RMS representative.	Residents property address
Meeting	6/04/2017	Drainage	04- Complaint, Water: Flooding, Water: Drainage,	Complaint regarding drainage issues	Met with owner to discuss and obtain property adjustment sign-off on the redesign of drainage in driveway and dirt mound to be installed to the front of the property as per RMS direction.	Closed	Scheduled additional meeting with RMS representative.	Residents property address
Meeting	6/07/2017	Drainage		Complaint about water not draining from property. Stakeholder showed project team water continuing to pool on his land adjacent to coldstream 3	Team to get Seymour Whyte to design drainage options. PC delivered letter explaining why culvert being installed in area cannot be enlarged to accommodate cattle movements.	Closed	Arrange follow up meeting to discuss temporary flooding.	Portion A, Section 3
Property access	27/04/2017	Drainage	04- Complaint, Water: Drainage	Complaint about basin drainage route.	Issue raised during dust gauge collection visit.	Closed	Follow up with PC	Portion A Section 4
Property access	27/04/2017	Drainage	04- Complaint, Water: Drainage	Complaint about basin drainage route.	Issue raised during dust gauge collection visit.	Closed	Follow up with PC	Portion A Section 4
Call in (specify team member)	1/05/2017	Drainage	Water: Drainage	Complaint about drainage on property	Stakeholder was advised that a culvert would be completed. Stakeholder called when work was finished and was satisfied.	Closed	Culvert installed.	Portion B
Call in (specify team member)	28/09/2017	Dust	Air Quality: Dust	Complaint about dust	Stakeholder was advised that a water cart would be sent to the site	Closed	Water cart arranged	Portion A
Call in (1800 778 900)	26/09/2017	Dust	Air Quality: Dust	Complaint about dust / management	Attempted to call stakeholder and left message, yet to hear back.	Closed	Water cart deployed	Portion A
Call in (specify team member)	21/09/2017	Dust	Air Quality: Dust	Complaint about dust	Stakeholder was advised a water cart would be sent to the area	Closed	Water cart deployed	Portion A

Event Type	Event Date	Summary	Issues	Complaint details	Response	Status	Action	Location
Call in (specify team member)	18/09/2017	Dust	Air Quality: Dust	Complaint about dust	Stakeholder was advised water cart frequency would be increased in this area	Closed	Increase frequency of water cart schedules	Portion A
Call in (specify team member)	17/09/2017	Dust	Air Quality: Dust	Complaint about dust	Stakeholder was advised a water cart would be sent to the area	Closed	Water cart deployed	Portion A
Call in (specify team member)	7/09/2017	Dust	Air Quality: Dust	Complaint about dust	Stakeholder was advised that this would be followed up with site personnel	Closed	Water cart deployed	Portion A
Call in (specify team member)	31/08/2017	Dust	Air Quality: Dust	Complaint about dust	Stakeholder was informed water cart would be deployed to area immediately	Closed	Water cart deployed	Portion A
Call out	17/08/2017	Dust	Air Quality: Dust	Complaint about dust	Stakeholder was advised water carts would be directed to service road more frequently	Closed	Frequency of water carts on local road increased	Portion A
Call in (specify team member)	14/08/2017	Dust	Air Quality: Dust	Complaint about dust	Stakeholder was advised water cart would be deployed to area.	Closed	Water cart deployed.	Portion A
Call out	9/08/2017	Dust	Air Quality: Dust	Complaint about dust	Stakeholder was advised details to be forwarded to contractor	Closed	Contractor to advise of action taken.	Portion A
Call out	9/08/2017	Dust	Air quality: dust	Complaint about dust	Stakeholder was visited to discuss issues.	Closed	Water truck located permanently onsite. Road sweeper to complete a pass morning and afternoon each day.	Portion B
Call in (1800 778 900)	7/08/2017	Dust	Air Quality: Dust	Complaint about dust	Stakeholder advised of additional dust mitigation measures to be put in place in repsonse to stakeholder concerns	Closed	Concrete supplier yard watered down by contractor in addition to water carts and sweeper active in the area	Portion B and E
Call in (1800 778 900)	16/08/2017	Dust	Air Quality: Dust	Complaint about dust: Boral batch plant Yamba Road; High vehicle underpass Yamba Road; Light vehicle movements at Yamba intersection	Stakeholder was informed Boral has advised they will have a sweeper more suited to heavy dust areas in operation by 17/08/17 and Boral will continue to monitor the area. Requested stakeholder advise of vehicle numbers (if possible) to confirm if they are project vehicles, informed stakeholder high vehicles are required to use this underpass. Stakeholder was advised contractor vehicles had not been instructed to carry out this movement.	Open	Boral batch plant: nil. Managed by Boral High vehicle underpass: nil. Light vehicle movements: Maintain current measures, water truck (on south side working within the project boundary and a road sweeper twice daily)	Portion B&E
Email	26/09/2017	Dust	Air Quality: Dust	Complaint about dust	Stakeholder was advised that information would be passed on for monitoring and management	Closed	Water cart deployed	Portion D
Email	13/09/2017	Dust	Air Quality: Dust	Complaint about the dust and safety on Yamba Road underneath old bridge	Stakeholder was advised that a water cart will continue to service the area. Concerns would be followed up with HVU and would update as soon as we receive the information.	Closed	Water cart deployed	Portion E
Call in (1800 778 900)	19/09/2017	Dust	Air Quality: Dust	Complaint about dust	Stakeholder was informed a water cart was on site daily and the team would look at additional dust mitigation measures to address concerns. It was agreed the team would follow-up with stakeholder.	Closed	Discussed mitigation measures for managing dust at the onsite meeting with the stakeholder.	Portion F
Email	7/08/2017	Dust	Air Quality: Dust	Complaint about dust	Stakeholder was informed water cart would be deployed to area immediately	Closed	Water cart deployed to site	Portion F
Call in (specify team member)	28/06/2017	Dust	04- Complaint, Air Quality: Dust	Reported white site vehicles and some branded heavy vehicle movements that were going above the 25km/h construction speed limit in front of his property, creating dust issues.	Stakeholder advised that contractors operating in the area would be contacted immediately to rectify their behaviour. Assured the stakeholder that driver behaviour was being closely monitored and that his concerns have been mentioned to Council as a longer term network management issue that needs to be considered. Arranged a call back to provide an update.	Closed	Followed up with contractors and arranged water cart.	Portion D
Call out	29/06/2017	Dust	04- Complaint, Air Quality: Dust	Complaint about vehicles speeding through the area and creating dust in his house.	Stakeholder advised work would be finishing in the area and would have little need to access that area for a few months. Vehicles were being fitted with In Vehicle Monitoring Systems that allowed us to identify speed and location.	Closed		Portion F

Event Type	Event Date	Summary	Issues	Complaint details	Response	Status	Action	Location
Email	14/08/2017	Dust	Traffic and transport: Traffic safety, Air Quality: Dust	Complaint about speed limit on local roads stakeholder would like them further reduced Complaint about dust	Stakeholder advised reduced speed limits now in place on local roads and project is working collaboratively with local police. Stakeholder was informed project access point was south of location. Requested stakeholder advise of vehicle numbers if possible.	Closed	Nil.	Portion A
Call in (specify team member)	28/08/2017	Dust	Air Quality: Dust	Complaint about dust	Stakeholder was informed water cart would be deployed to area immediately	Closed	Water cart deployed	Portion A
Letter Received (in)	14/09/2017	Dust and Noise - construction	Air Quality: Dust Noise - Construction	Complaint about dust / management, noise - construction from the night works behind his property.	Stakeholder was advised that concerns would forwarded to contractors for water cart frequency and noise monitoring.	Closed	Additional controls implemented during hot, dry and windy conditions. Including dust monitoring, increased water cart movements, reduced speed of equipment on unsealed access and temporary halt of work in strong winds.	Portion B
Email	25/08/2017	Dust and personnel behaviour	Project components: Project personnel – behaviour Air Quality: Dust	Complaint about dust and traffic staff stopped rubbish from being collected	Stakeholder advised rubbish would be collected on 28/08/17. Stakeholder informed there would be increased use of water carts in the area	Closed	Contractor tool boxed staff about appropriate parking locations Rubbish collected on 28/08/17 Increased water cart usage in area	Portion B
Call in (specify team member)	8/08/2017	Dust and personnel behaviour	Air Quality: Dust Project components: Project personnel – behaviour	Complaint about dust due to driver behaviour	Stakeholder informed the road would be sealed and project vehcile speed limits would be toolboxed with contractors	Closed	Dust seal of road to be scheduled. Speed limits to manage dust to be tool boxed with subcontractors	Portion D
Email	28/08/2017	Dust and traffic management	Traffic and transport: Traffic management – local roads Air Quality: Dust	Complaint about dust and traffic management	Stakeholder advised there would be increased water cart usage in the area and contractor was briefing staff about dust mitigation.	Closed	Increased water cart usage in area Toolbox talk re dust mitigation	Portion B
Call in (specify team member)	21/09/2017	Dust, Noise - construction	Air Quality: Dust; Noise : Construction	Complaint about dust and noise from vehicles, and believes noise is louder than allowed. Complaint also about length of work, was advised it would be completed in August.	Stakeholder was advised of the metigation measures including reduced speed limits and vechile tracking.	Closed	Nil	Portion A
Call in (1800 778 900)	21/04/2017	Fencing	04- Complaint, Construction: Clearing, Property and land use: Fencing	Stakeholder called to make complaint about fencing being removed	Advised relevant project team member would be notified and stakeholder updated accordingly.	Closed		Portion A
Email	5/04/2017	Fencing	Property and land use: Property adjustment, 04- Complaint	Complaint regarding fencing materials/design		Closed		Portion A Section 4
Call in (specify team member)	18/04/2017	Fencing	04- Complaint Personnel behaviour	Stakeholder complained that a calf had pushed its way through an unlocked gate and would no longer leave gates unlocked for contractors	SEE Civil has not been there since before the floods. Enquiry passed on to relevant team.	Closed		Portion D
Call in (specify team member)	6/04/2017	Fencing	04- Complaint, Property and land use: Fencing	Cattle had entered the project area and then onto Wardell Road.	Stakeholder was advised that project boundary fencing was scheduled to be completed prior to the recent rain events.	Closed	Followed up with Environmental Health team at Ballina Shire Council who was aware of the matter. Ranger to be contacted in future incidents.	Portion D
Call in (specify team member)	31/07/2017	Fencing	Property and land use: Fencing	Complaint new fencing installed would result in neighbour's stock roaming onto stakeholder's property rather than the project alignment	Stakeholder was informed fencing would be upgraded to address stakeholder's concerns.	Closed	Fencing upgraded between project alignment as well as neighbouring properties to address stock control.	Portion D

Event Type	Event Date	Summary	Issues	Complaint details	Response	Status	Action	Location
Call in (specify team member)	24/04/2017	Fencing and traffic safety	04- Complaint, Traffic and transport: Traffic safety	Complaint regarding fencing obscuring vision	Advised: - fencing was temporary only and was required for koalas during clearing - had moved the south side back - would be moving the north side back - once the clearing was completed the fencing would be removed - once the area had been cleared would have significantly increased sighting distances	Closed	Stakeholder contacted to advise when the work would be carried out	Portion B
Call in (specify team member)	24/04/2017	Fencing and traffic safety	04- Complaint, Traffic and transport: Traffic safety	Complaint regarding fencing obscuring vision	Advised: - fencing was temporary only and was required for koalas during clearing - had moved the south side back - would be moving the north side back - once the clearing was completed the fencing would be removed - once the area had been cleared would have significantly increased sighting distances	Closed	Stakeholder contacted to advise when the work would be carried out	Portion B
Meeting	13/06/2017	Flooding	04- Complaint, Water: Flooding, Water: Drainage	Complaint about flooding on land near Coldstream. Believes piling pads are damming the creeks.	Stakeholder advised PC modelling the temp impacts of construction in area and will ensure June events are modelled.	Closed	Booked meeting to discuss modelling when complete.	Portion A
Email	26/05/2017	Flooding	Water: Flooding	Complaint about flooding on property	Stakeholder was adivsed that the issue was being investigated and discussed the work that was being undertaken and when this was to be completed.	Closed	Nil	Portion A
Drop in - PHO	21/08/2017	Flooding	Water: Flooding	complaint about water inundation from Edwards Creek	Meeting was held at stakeholder's property to understand water inundation concerns. Stakeholder was advised a review of the flooding would be carried out. Stakeholder was informed initial review into source of water had not identified a source coming from the project.	Closed	Initial review of inundation carried out. Situation to be monitored.	Portion A
Call in (specify team member)	12/06/2017	Flooding	04- Complaint, Water: Flooding	Believed project was resulting in flooding at property in banana rd	Advised would pass his concern on, however, requested he contact the community information line.	Closed	Site inspection undertaken and changed erosion and sediment controls to allow water to disperse more evenly.	Portion B
Email	9/06/2017	Flooding	04- Complaint, Water: Flooding	Flooding on property since construction started	Requested meeting to discuss concerns	Closed	Stakeholder has not returned call for meeting.	Portion B
Meeting	13/07/2017	Flooding	Water: Flooding Property and land use: Fencing, Property and land use: Maintenance	Complaint about flood modelling criteria and potential impact tp property	Meeting held at stakeholder's property to understand flooding concerns and explain flood criteria.	Closed	Provide copy of bridge cross-section Somervale Road intersection to be widened	Portion A
Call in (specify team member)	14/06/2017	Flooding and drainage	04- Complaint, Water: Flooding	Complaint about flooding issue on property as this had not occurred previously. Stakeholder also requested that flagging be removed from property as this could be eaten by livestock.	PC advised that flooding would be referred to appropriate team who would contact stakeholder. PC advised stakeholder that flagging had probably blown over/washed over into paddock as a result of the recent weather events and that any flagging would be removed straight away.	Closed	Meeting held with stakeholder and PC. Flagging removed.	Portion A Section 3
Call in (specify team member)	16/06/2017	Flooding and drainage	04- Complaint, Water: Flooding, Water: Drainage	Western side of Carrols Lane. South side of Carrols Lane, work/haul road built over existing drain with no pipe. Resulted in water backing up onto property and no longer draining.	Arranged to meet on site for inspection.	Closed	BHD rectified issues.	Portion B

Event Type	Event Date	Summary	Issues	Complaint details	Response	Status	Action	Location
Call in (1800 778 900)	3/04/2017	Flooding and erosion	04- Complaint, Traffic and transport: Traffic safety, Water: Flooding	Complaint regarding flooding possibility near new driveway and signage blocking oncoming traffic	Stakeholder advised a member of the project team would contact him to discuss	Closed	Site inspected and meeting conducted.	Portion B
Call out	5/04/2017	Increase in heavy vehicles	04- Complaint, Traffic and transport: Increase in heavy vehicles	Complaint regarding heavy vehicle usage.	Stakeholder was advised trucks and crane belong to Pacifico's contractor.	Closed	Forwarded to Pacifico to follow up.	Portion E
SMS	6/04/2017	L+C55:C57ocal road condition	03- Positive feedback, 04- Complaint, Traffic and transport: Damage to local roads	Complaint about the state of Avenue Road following the heavy rains	Roads repaired in response to feedback.	Closed	Road edges repaired	Portion A
Call in (specify team member)	26/04/2017	Local road condition	04- Complaint, Traffic and transport: Damage to local roads, Water: Drainage	Complaint about condition of Gimberts Lane	Contacted site supervisor who agreed to rectify.	Closed	Site supervisor to rectify	Portion A Section 4
Call in (specify team member)	26/04/2017	Local road condition	04- Complaint, Traffic and transport: Damage to local roads, Water: Drainage	Complaint about condition of Gimberts Lane	Contacted site supervisor who agreed to rectify.	Closed	Site supervisor to rectify	Portion A Section 4
Meeting	27/07/2017	Noise	Biodiversity: weed control; Noise and Vibration: Noise - construction; Noise and Vibration: noise mitigation/treatments	Stakeholder was unhappy with the results of the monitoring but accepts explanation. Explained where contractors could collect remaining lantana.	Advised noise and vibration monitoring showed no exceedances. Explained the two soil stock piles behind property would act as noise supressors. Contractor to remove all remaining machinery with beepers away from the work site.	Closed	Nil	Portion A
Email	28/06/2017	Noise	04- Complaint, Noise and Vibration: Noise – construction,	Complaint about constant noise	Stakeholder met with and agreed to do background noise level monitoring.	Closed	Background noise level monitoring conducted	Portion A Section 4
Email	19/04/2017	Noise	04- Complaint, Project components: Construction hours, Noise and Vibration: Noise – construction	After hours noise complaint	Stakeholder was advised that PC would follow up with contractor.	Closed	Contacted contractor and advised stakeholder of process if occurs again.	Portion B
Call in (1800 778 900)	12/08/2017	Noise	Noise and Vibration: Vibration - construction Health concerns	Complaint about construction impacts	Meeting arranged with stakeholder to discuss concerns raised	Closed	Recorded interest for dust and vibration monitoring. Sent Hydrological Mitigation Report.	Portion C
SMS	20/09/2017	Noise	Noise and Vibration: Noise – construction	Complaint about construction noise	Stakeholder was informed plant had a broken squawker alarm and when the wires were reconnected this resulted in beeper sound.	Closed	Electrician called to site to repair plant	Portion A
Call in (specify team member)	22/09/2017	Noise - construction	Noise and Vibration: Noise – construction	Complaint about truck noise - construction	Stakeholder was advised that staff will be toolboxed about road safety and not to use copmpression brakes. Stakeholder also raised concerns about dust.	Closed	Toolbox talk reagrding road safety and breaking, water cart deployed	Portion A
Meeting	23/05/2017	Noise and Traffic	Traffic and transport: Traffic management – local roads, Noise and Vibration: Noise – construction, Noise and Vibration: Vibration - construction, Construction: Clearing	Complaint about local traffic, noise and vibration, and clearing.	Stakeholder was advised that noise and vibration monitoring would be arranged for the property, advised about clearing and what was required. Traffic controll had been notified.	Closed	Noise and Vibration monitoring conducted and showed that results came back within the guidelines. Stakeholder was advised that traffic control would be working on the diversions.	Portion B
Meeting_	11/08/2017	Noise, dust and personnel behaviour	Air Quality: Dust Project components: Project personnel – behaviour Noise and Vibration: Noise – construction	Complaint about dust, construction noise and personnel behaviour	Stakeholder was advised vehicles operating in the area would be required to use squawkers rather than beepers and was advised of dust mitigation activities. It was agreed with stakeholder to reassess any further measures required at the property once work being carried out in front of the residence was complete. Stakeholder was advised project personnel would be spoken to about language used.	Closed	Vehicles with reverse beepers to use squawkers. Traffic controllers apologised to stakeholder	Portion A
Meeting	3/04/2017	Pavement damage and Truck Movement	04- Complaint, Construction: Heavy vehicles, Construction: Damage (to property/environment)	Complaint about pavement Damage/Truck Movement	Stakeholder advised a member of the project team would contact him to discuss	Closed	Referred to Pacific Complete to investigate.	Portion A Section 3

Event Type	Event Date	Summary	Issues	Complaint details	Response	Status	Action	Location
Meeting	31/07/2017	Property adjustment work	Property and land use: Property adjustment	Complaint about timeframe for work to be carried out on flood gates and drainage	Meeting held at stakeholder's property to discuss concerns about floodgates and timeframe for finalising drainage. All concerns were discussed and actions agreed with stakeholder.	Closed	Supply culvert sizes to landowner and provide timing about work on flood gates and drainage	Portion A
Staffed display	3/09/2017	Property damage	Noise and Vibration: Noise – construction	Complaint about damage to house	Confirmed with stakeholder a property condition survey was carried out on the house. Stakeholder was advised a meeting would be arranged to review property.	Closed	Site inspection conducted.	Portion A
Call in (specify team member)	17/07/2017	Property maintenance	Water: Drainage Property and land use: Fencing, Property and land use: Maintenance	Complaint about maintenece of leased property including fencing, weeds and drainage	Stakeholder was advised fencing repairs, slashing and weeding will be completed and water pipeline removed. Meeting onsite arranged with stakeholder following completion of work.	Closed	Fencing repaired. Property slashed and weeded. Water pipeline removed.	Portion C
Call in (specify team member)	4/04/2017	Traffic management	04- Complaint, Traffic and transport: Traffic management – local roads	Complaint about Traffic Control	Stakeholder advised FKG Compound entrance to the north of his home could be used by the visitors to turn around and enter his property	Closed		Portion A Section 3
Call in (1800 778 900)	22/04/2017	Traffic safety	04- Complaint, Traffic and transport: Traffic safety	Complaint regarding safety as a result of decreased lines of sight	Stakeholder advised would investigate and confirm.	Closed		Portion B
Letter	19/04/2017	Traffic safety	04- Complaint Traffic and transport: Traffic safety,	Stakeholder complained about contractor truck traffic safety.	PC investigated the matter with the project team to confirm that the truck was not engaged on the project.	Closed	Contacted the stakeholder to confirm the investigation outcomes, and to reiterate the induction process and safety procedures that are in place to ensure professional driver behaviour.	Portion D
Call in (1800 778 900)	24/04/2017	Vibration	04- Complaint, Noise and Vibration: Vibration - construction	Stakeholder called to express concerns about vibration of property during piling works.	Relevant project team member will be in touch to discuss and further investigate.	Closed		Portion E
Call out	1/09/2017	Waste	Waste: Removal of spoil	Complaint about project vehicles dumping materials outside project	Stakeholder was informed project has strict environmental conditions and the issue would be investigated	Closed	Internal investigation concluded material had been left by project team.Toolboxes carried out (SY to confirm dates)Collective Insight held with all parties about the event . Reported to EPA	Portion B
Email	31/08/2017	Water extraction	Water: Water licence	Complaint about water extraction - Lewis quarry	Stakeholder was advised the project is not currently extracting water from this source.	Closed	Nil	Portion B
Meeting	18/05/2017	Water Levels	Biodiversity: Aquatic environment	Complaint about water levels	Stakeholder was advised that water levels would be monitored and tested. Hydro Geologist would inspect	Closed	Water levels tested and Geologist visited.	Portion A
Call in (1800 778 900)	29/04/2017	Damage to property	04- Complaint, Construction: Damage (to property/environment), Construction: Clearing	Water main service strike by subcontractor BMD Constructions effecting stakeholders on Banana Road west and east.	Pacific Complete site engineer liaised with sub contractor at the time of the incident and reinstated water connection for effected stakeholders immediately.	Closed	Pacific Complete established stakeholder concerns and will arrange property inspections and pre clearing walk through prior to any further works.	Portion B
Call in (1800 778 900)	29/04/2017	Damage to property	04- Complaint, Construction: Damage (to property/environment), Construction: Clearing	Water main service strike by subcontractor BMD Constructions effecting stakeholders on Banana Road west and east.	Pacific Complete site engineer liaised with sub contractor at the time of the incident and reinstated water connection for effected stakeholders immediately.	Closed	Pacific Complete established stakeholder concerns and will arrange property inspections and pre clearing walk through prior to any further works.	Portion B
Call in (specify team member)	20/07/2017	Weed control	Biodiversity: Weed control	Complaint about lantana	Stakeholder was advised the lantana would be cut then poisned to resolved stakeholder's complaint.	Closed	Weed cut and poisoned	Portion A

Appendix D Environmental incident summary

Date of Event	RMS Incident Category	Event Details	Corrective Actions	Event Status
3-Apr-17	2	Minor spill - A hydraulic oil spill of 15L occurred whilst setting up an impact hammer for piling. The spill occurred approx. 10m from a cane drain and 500m from the Clarence River.	Contractor personnel cleaned up the spill using absorbent pads from the spill kit. As part of commissioning and prestart check, hydraulic lines on impact hammer were inspected and oil within hammer removed..	Closed
5-Apr-17	2	Minor spill - During clearing of dense vegetation, a branch hooked underneath the hose on the 4-in-1 bucket attachment of the skid steer resulting in approx. 2L of hydraulic oil leaking to the ground. No harm or residual environmental impact was caused. The spill occurred approx. 400m from Tabbimoble Creek.	Skid steer operator stopped work and isolated the machine via the control button for the attachment, which prevented further oil from being spilled to the ground. The machine was tracked back to the wash down bay to be cleaned. Contaminated material was bagged and stored at the compound temporarily for later removal to a lawful facility.	Closed
13-Apr-17	2	Minor spill - hydraulic hose for the tail gate on a scraper blew releasing 25L of hydraulic oil to the ground. The spill occurred 40m from the nearest clean water channel.	Spill was cleaned up and placed into the hydrocarbons bin. Crews to be toolboxed on the importance of reporting all spills immediately,.	Closed
14-Apr-17	2	Minor spill - Whilst loading haul trucks, a power take off unit failed releasing 1 L of fluid to the ground. The spill occurred 75m from the nearest waterway.	Spill was bunded and contaminated soil was disposed of in bins. Maintenance of machines to be included in prestart.	Closed
19-Apr-17	1	An excavator was loaded onto a float at the Iluka East works area, outside of standard construction works hours. A complaint regarding noise generated outside of standard working hours was made by a resident (noise at 4am).	. Responsible subcontractor notified of breach of approved work hours and requirements pertaining to the project's approved construction hours. Toolbox talk to be given to all personnel highlighting the importance of all works to be confined to standard construction hours.	Closed
29-Apr-17	2	Minor spill - a diesel spill of approx. 4 L was identified on the Banana Road/Iluka Compound turn off. The spill was immediately contained and cleaned up appropriately.	Spill was appropriately cleaned up immediately using spill kit and material was disposed of appropriately. Plant checked for leaking diesel. Toolbox talk to be given on vehicle fuel line checks as part of pre-starts and spill kit inventory check undertaken.	Closed
3-May-17	2	Minor spill - During plant set up, a drive hose on a piling rig blew. This resulted in approx. 3L of biodegradable oil (Panolin) being spilt on the piling rig and some leakage onto the ground (hardstand). The spill occurred 65m north of Tabbimoble Creek Overflow and 8m East of drain	Piling rig stopped immediately which resulted in the leak stopping. Machine was isolated and cleaned of oil. Contaminated soil was removed and bagged, to be disposed of at a licensed facility.	Closed
3-May-17	1	Three nursery shade structures were demolished prior to internal approval for works outside the project boundary.	Work ceased. Startup procedures reviewed to ensure hold points captured appropriately.	Closed
3-May-17	2	Minor spill - Whilst moving rolls of geo fabric, a hose blew on a back hoe, releasing 1-2L of oil to the ground. The spill occurred 26m from the nearest clean water drain.	The backhoe was immediately shut down and the spill kit used to contain the spill and clean the machine. Revise spill kit poster and distribute. Toolbox crews again about onsite spills and commend the team for the recent spill.	Closed
5-May-17	2	Minor spill - Whilst undertaking bulk earthworks, the cylinder apron arm hose blew on a scraper during cut to fill operations. Approx. 30 L of oil was released to the ground, 15m from a clean water channel.	Machine was shut down immediately and spill kit used to contain the spill. Hose was replaced by the end of the shift. Contaminated waste bags were placed into the Hydrocarbons bin at the Tyndale compound to be taken to Grafton licensed landfill facility. Toolbox on the spill to be held with crews, to remind everyone about the importance of daily pre-starts and being prompt on the containment and notification of spills on site.	Closed
5-May-17	2	Minor spill - Whilst vibratory piling for a temporary jetty, 25-30mL of Panolin (biodegradable) oil leaked from the fitting on the barge. The spill entered the river and was contained within a previously installed oil containment boom. Leak was observed by spotter and works immediately shut down. All oil was contained and clean up immediately using absorbent pads.	Replaced damaged fitting. Stop vibratory piling at a higher set to stop vibration. If extended drive times or above average vibrations are experienced, stop at intervals to check all fittings on pile leader. Contractor to document visual inspections of hydraulic hoses and fittings prior to commencing works.	Closed
6-May-17	2	Minor spill - approximately 0.2L of Panolin (biodegradable oil) leaked onto the ground (hardstand) and vibrator. The spill occurred approx. 20m north of Tabbimoble Creek overflow.	As soon as the operator/site personnel identified the hose was leaking, the vibrator was stopped. A procedure for catching oil from hoses was implemented. Machine isolated and clean of oil.	Closed
8-May-17	1	Unauthorised use of land outside approved project boundary whilst unloading of plant and storage materials.	Installation of physical barrier where unloaded plant accessed site from out of bounds area. Project wide assessment for safe and authorized access and turn around points for heavy vehicles.	Closed

			Project incident reset meeting held on 10/05/2017 with all Contractor staff and sub contractors which identified various options to prevent reoccurrence.	
10-May-17	2	Minor spill – evidence of minor spill and hydrocarbon staining to the ground, adjacent to the Ancillary Facility Compound area. Based on the size of the stain on the ground, approx. 50mL of hydrocarbon had been spilt to the ground.	Spill was cleaned up as soon as identified. 1 - Hydrocarbon staining was removed from the ground using hydrocarbon spill pad 2 - Hydrocarbon spill pad (used) was bagged and will be disposed of lawfully at an off-site disposal facility.	Closed
11-May-17	2	Minor spill - oil leak from the drum of a roller caused a 5L oil spill to the ground. The spill occurred 530m from the nearestsensitive receiver.	The works were halted and the operator put the roller on the edge so that the oil would be contained within the drum of the roller. The spill kit was used to clean up the spill.	Closed
15-May-17	2	Following a >5 day rain event, dewatering from the turkeys nest commenced into the irrigation line. The coupling connecting the 2 inch pump hose and the poly pipe irrigation line came away resulting in approximately 10kL of water running directly from the hose into an adjacent Telstra line track.	On observation of the de-coupled pipes, the pump was immediately switched off and the pipes reconnected. The pump was switched on and the pipe connection observed to ensure the coupling held in place.	Closed
15-May-17	2	The ESCP (Erosion and Sediment Control Plan) Hold Point for site delivery of rock had not been released by Pacific Complete prior to the delivery of the material.	The works were halted at this location and an incident report raised. The Hold Point for this area was released on the morning of 16/05/2017. Site work packs have been implemented across the Contractors work sites which include site checklists to be signed off prior to works commencing. These checklists include all relevant hold points required for new work areas/activities.	Closed
18-May-17	2	Minor spill - During the driving of piling liners, a hydraulic oil leak was noticed at the top of the hydraulic impact hammer. This resulted in approx. 50mL of Panolin (biodegradable oil) being spilt onto the temporary work platform (rock piling pad). The spill occurred 15m south of the Tabbimoble Creek Overflow.	As soon as the operator / site personnel identified the connection to the logic switch at the top of the impact hammer had been compromised and hydraulic oil was leaking, the hammer was stopped. The machine was isolated and cleaned of hydraulic oils. Contaminated rocks on the hard stand area were wiped clean. Absorbent pads were placed on the ground to catch Panolin dripping from the hammer. All absorbent materials used for clean up with be disposed of to a licensed and lawful facility.	Closed
18-May-17	2	Minor spill - Whilst rolling fill material at Byron's Lane, a roller had a hose failure resulting in minor hydraulic fluid spill (<5L) to ground.	The roller machine was put out of service and a bund was put in place around the spill area. Absorbent vermiculite was used to absorb spill. The mechanic was called in to replace the broken hose and to check condition of the rest of the plant hoses.	Closed
22-May-17	2	Minor spill - Whilst undertaking drainage works, a digger blew a hydraulic hose releasing approx. 5L of oil to the ground. The spill occurred 15 m from the nearest clean water drain..	A spill kit was used to contain the spill. The hose was replaced shortly afterward. The spill was cleaned up and placed into the hydrocarbons bin at Avenue Rd. Prestart was checked and no issues had been raised. Team to be toolboxed on procedure for onsite spills.	Closed
23-May-17	1	Heavy machinery (grader) operated outside of the allowable working hours (7am-6pm) at 6:45am..	Once identified, the operator was briefed by Project Supervisor that no machines are allowed to be turned on prior to 7am Mon-Fri and 8am Saturday. Contractor toolboxed staff on the allowed working hours for the ancillary sites.	Closed
23-May-17	2	Minor spill - Hydraulic line burst on the underside of a bobcat when moving fill material at roundabout surcharge mound. Approx. 2-3L of hydraulic fluid was spilt onto imported fill material and cleaned up immediately with spill absorbent. The spill occurred approx. 190m west of James Creek. RMS cat 2.	Site foreman instructed works to stop within area. Contractor cleaned up spill using absorbent pads and kitty litter from spill kit. Potentially impacted soil was collected and disposed of within regulated waste bag along with used spill kit material. Bobcat was taken off site to be repaired.	Closed
23-May-17	2	Minor spill - Whilst undertaking drainage works, a hydraulic hose burst releasing approx. 1L of oil to the ground. The spill occurred 5m from the nearest sensitive receiver.	The operator observed the hose blow and immediately moved the machine around to put extra distance from the clean water drain. The split in the hose caused a fine spray over the ground. The hose was not under any further pressure and only dripped occasionally, which was captured with absorbent pads. The hose was replaced and the contaminated materials were placed into the hydrocarbons bin at Avenue Rd. The pre-start record was checked and no issues had been raised prior.	Closed
24-May-17	2	Minor spill - A scraper blew a hydraulic hose during cut to fill operations. The spill was approx. 3-5L and occurred 70m from the nearest sensitive receiver.	The prestart record was inspected and no prior issues were identified. Operator immediately shut down machine and contained spill to prevent it entering the waterway. The hose was replaced and the spill cleaned up. All materials were placed into the hydrocarbons bin at Tyndale.	Closed

			To remind crews to undertaken proper prestart checks and raise any issues immediately. Spill kit to be restocked.	
24-May-17	2	Minor spill - Whilst undertaking erosion and sediment controls, a fitting failed on a hydraulic hose of an excavator, releasing 500ml of oil. The spill occurred 22m from the nearest waterway. RMS cat 2.	The prestart record was inspected and no prior issues had been identified. Operator noticed oil dripping from hose and immediately shut down machine. Spill did not enter waterways. Fitting was repaired and refitted. The spill was cleaned up using the spill kit. All materials disposed of in Tyndale hydrocarbon bin. Toolbox crews to ensure all plant is fully serviced and operational.	Closed
25-May-17	2	Clearing was undertaken in an area which had not received a pre-dawn survey by the ecologist. The pre-dawn survey was completed to CH101,830 (50m buffer on the original approved clearing limit at CH 101,780). A pre-clearing ecological survey had been completed and a spotter catcher was on site at the time..	Clearing in area was ceased immediately and PC notified. Further investigation is ongoing to determine the root cause of the incident. will be forwarded through one the investigation is complete.	Open
27-May-17	2	Minor spill - oil fill cap of plant became loose. Approx. 5L of oil spilt into the piling pad. The spill occurred 100m from Watts Lane Table drain and 670m from the Clarence River.	The spill was controlled, contained and cleaned up using spill absorbent material. Potentially impacted rock was collected and disposed of within a hazardous waste bag.	Closed
29-May-17	2	Minor spill - Whilst Parking up machinery, Approximately 70L of Hydraulic Fluid was released to ground from failed machinery hose (775 truck), 800m North of Edwards Water Way.	The failed hose and fittings of the 775 truck will be changed out by mechanic, before being put back into service. Ongoing daily pre-starts to be completed.	Closed
29-May-17	2	Minor spill - hydraulic seal leak on plant was found when parked up after delivering rock for Pier 24 Less than 1L of hydraulic oil leaked onto the rock platform and was cleaned up immediately using spill absorbent material.	The spill was cleaned up using spill absorbent pads from the spill kit. Potentially impacted rock was collected and disposed of. The source of the spill from the hydraulic seal was controlled and the truck was sent offsite for repair. Continue maintenance inspection on delivery trucks.	Closed
29-May-17	2	Minor spill - Hose on a scraper blew as last of material was pushed from the bowl, releasing 20L of oil to the ground. The spill occurred 43 m from the nearest sensitive receiver.	Prestart record was inspected and no prior issues had been raised. Waste docket to be provided. The operator immediately shut down the machine the supervisor on the two way. The fitters were called and removed the hose. A skip bin was ordered the next morning. The hose was replaced and the contaminated material was loaded into skip and removed from site. Toolbox crews about recording details and taking photos of the incident.	Closed
30-May-17	2	Minor spill - hydraulic hose burst on an excavator spilling approximately 15 litres of oil onto the natural ground being excavated at the time. A small amount of oil (estimated < 0.25 litres) entered the isolated sump area.	The machine was immediately stopped and an earth bund constructed by a second excavator. Spill kit materials deployed. Hose was replaced. A hydrocarbon boom was deployed around the spill and absorbent pads were used to soak up the oil sheen in the sump. Contaminated material was removed to a skip bin. The site crew were toolboxed on hydraulic equipment maintenance and management. The machine prestart was checked. Updated service records for the machine have been requested from the contractor.	Open
30-May-17	2	Minor spill - Oil spill to ground (15L) when operator approached the machine in the morning prior to undertaking the daily prestart check. The spill occurred 27m from the nearest clean water channel.	Machine prestart checked and no prior issues had been raised. Operator immediately notified the supervisor and a nearby spill kit was used to contain the spill. The hose was wrapped to prevent further oil leaking. Fitter was called to attend site. Once machine was repaired, the contaminated material was removed and disposed of.	Closed
31-May-17	2	Minor spill - After completing a concrete pour, the concrete truck driver washed out the truck's concrete chute onto the ground in the middle of the alignment. The incident occurred approx. 19.5m to the nearest sensitive receiver. Approx. 100L of fluid was washed out of the concrete chute.	The spill was contained and cleaned up The concrete truck driver was informed of the correct concrete wash out procedure that is required on site. A toolbox to be conducted on the requirements around concrete on site.	Closed
1-Jun-17	2	Minor spill - a hydraulic hose broke on a 13 tonne excavator due to general wear and tear. Approximately 0.5L of hydraulic oil spilt to the ground. The spill did not enter any waterways or drainage lines.	Once identified, the operator immediately turned off the machine and notified supervisor. Spill kit was implemented. Black plastic was placed beside the spill and up to 1m3 of contaminated material was shovelled up and placed into the plastic and wrapped. The wrapped material was bunded with sandbags.	Closed
3-Jun-17	2	Minor spill - small leak (approx. 1L) of hydraulic oil during vibratory piling, in one section of the hydraulic hose connection between the hammer and the power pack. The spill occurred approx. 150m from the nearest sensitive receiver.	The leak was contained and cleaned up immediately. Contaminated material placed in designated waste bin for hydrocarbon contaminated waste..	Closed
5-Jun-17	2	Minor spill - a hydraulic hose broke on a 13 tonne excavator due to general wear and tear. Approx. 0.2L of fluid was spilt to the ground. The spill occurred 40m from the nearest sensitive receiver. No hydraulic fluid entered the clean water diversion culvert	Operator immediately turned off the machine and the supervisor alerted. Spill kit used to absorb hydraulic material, which was placed with material from spill on site 1/6/2017. This material was wrapped in black plastic and rebunded with sandbags. Material taken offsite appropriately.	Closed

6-Jun-17	2	Minor spill - vehicle fuel tank was pierced by a star picket during reversing activity on site. The driver, initially unaware of the incident, made corrections to his trucks position to continue reversing, and in doing so leaked diesel from the site entrance into the roadway adjacent to the rumble grid. The incident spill was approx. 5L to an area of 2m x 10m. The spill occurred 20m from the nearest table drain.	- truck was turned off - immediate temporary controls placed to contain leak and soak diesel spilt on roadway (kitty litter) - Hole in the diesel tank was plugged and truck was removed from site for repair - Spent kitty litter swept up on 6/06/2017, diesel	Closed
6-Jun-17	2	Minor spill - a scraper blew a hydraulic hose during cut to fill operations. The spill of 60L of oil occurred approx. 200m from the closest sensitive receiver.	The scraper was immediately shut down and the spill contained. The spill was cleaned up using the spill kit materials. Contaminated material placed into a 2m3 skip bin. The skip will be collected by JR Richards and disposed of at a licenced landfill facility at Grafton. Reinforced at prestart that daily prestart checks must continue to be undertaken and that any issues identified on machines need to be reported to the supervisor straight away.	Closed
7-Jun-17	2	Minor spill - a scraper blew a hose when returning to go line for the day, resulting in a 5L spill of oil. The spill occurred 235m from the basin and 328m from the nearest waterway.	Operator shut down machine and a spill kit was used to contain the spill. Fitters attended site straight away. Hose was removed and replaced the following morning after prestart. The contaminated materials were taken to the hydrocarbons bin at the Tyndale compound. Crews to be toolboxed about reporting to enviro team immediately. Posters with Environmental Team contacts to be distributed to the team.	Closed
17-Jun-17	1	Deliver of quarry materials identified outside of project construction hours. Quarry driver not aware of requirement to wait in relevant lay down area prior to approach to site.	Once Contractor became aware of the incident, they communicated with the quarry to prevent a reoccurrence. In consultation with Contractor, the relevant quarry will undertake an internal communication exercise to ensure the incident does not occur again. Davbridge will provide a formal communication to all suppliers relevant to the Tabbimoble Projects of the sites delivery requirements, making reference to relevant EPL requirements and Davbridge's request to always report to Bee Keepers / Mororo (depending on whether north/south bound) and radio ahead prior to arriving at sites B10 and B11.	Open
20-Jun-17	2	Minor spill - Less than 1L of diesel was spilled onto the Pacific Highway southbound carriageway All plant and machinery inspected and spill cleaned up. The source of the spill was not identified despite all plant and machinery being inspected. The closest waterway was approximately 15m from the spill.	Contractor to deliver spill prevention and management toolbox to the site team.	Closed
22-Jun-17	2	Minor spill - Whilst undertaking bulk earthworks, a 65T excavator blew a hose on main lift ram resulting in a spill of <3L of oil. The spill occurred 137m from the nearest clean water drain. .	. Operator immediately shut down machine and notified supervisor. A spill kit was taken to machine and spill contained. Hose was replaced. Contaminated material taken to hydrocarbons bin at Tyndale compound.	Closed
22-Jun-17	2	Minor spill - a hydraulic hose blew on scraper resulting in a spill of approx. 5L. The spill occurred approx./ 124m from the nearest clean water drain.	Operator immediately shut down the machine and called the supervisor. A bund was placed around the machine and the hose replaced. Spill and machine cleaned up and the contaminated material placed into the hydrocarbons bin at the Tyndale compound.	Closed
23-Jun-17	2	Minor spill - Approx. 1L of hydraulic oil was spilt onto the main site compound platform at the precast areaThe spill occurred 800m from the Clarence River and 50m from Watts Lane Table drain.	The leak was contained within a portable bund and cleaned up immediately with spill absorbent material. Crews to be toolboxed on inspecting ramps prior to lowering when loading/unloading plant.	Closed
23-Jun-17	2	Insufficient erosion and sediment controls identified during routine site environment inspection. Material contained within site.	. EWMS to be revised and updated as required and workers to sign on.	Closed
23-Jun-17	2	Septic tanks for compound toilet block overflowed to ground (approx.100L). Did not leave site or enter waterway. The spill occurred approx. 40m from the closest waterway.	The septic truck was called to attend site. Once the septic truck arrived all waste water was pumped including the pooled grey water which was contained on the ground, then lime was spread over the tank and raked. Septic tank pump outs regime increased and alarm is to be fitted to the tanks to trigger 75% to prevent a reoccurrence.	Closed
23-Jun-17	2	Minor spill - Hydraulic hose on a street sweeper burst resulting in less than 5 litres of hydraulic oil being spilt to ground. Closest waterway is the roadside drain approx. 15m away	The spill was cleaned up and the hydraulic hose repaired. Contractor to deliver raise spill awareness with the site team at prestart.	Closed

25-Jun-17	2	Sediment basin capacity was not restored within 5 days following a rain event. Did not result in any unplanned discharge of water. Basins	Review of resources for sediment basin management and discussion and review of sediment basin dewatering practices to ensure basins can be managed within the 5 day post cessation of rain event. Additional pre-treatment of basins and basin inlets with gypsum.	Closed
27-Jun-17	1	During install of the project boundary fence, the fence sub-contractors removed flagging and tracked outside of the project boundary to install concrete into the fence posts hole and erect the posts. Extent of impact was tracking of grass within private property owners paddock with minor ground disturbance.	An environmental re-start will occur to reiterate the environmental requirements of the site. The sub-contractor is to be re-inducted prior to any further fencing works occurring.	Closed
27-Jun-17	2	Minor spill - Hydraulic hose burst on a 20T excavator resulting in a 5L spill of hydraulic fluid. The spill occurred approx. 7m from a paperbark swamp coastal lowland EEC, being cleared. Spill contained on area of sheeted rock platform.	Excavator operator stopped work immediately. Second excavator in area utilized to contain spill. Spill kit material was deployed and contaminated material removed to covered bunded areas for future removal to licensed facility. Daily prestarts of vehicles ongoing. Spill kit restocked. Spill response and management toolbox delivered at prestart.	Closed
30-Jun-17	2	Minor spill – small hydrocarbon spill was observed (less than 2L) in Iluka compound car park. The spill occurred approx. 200m to the nearest waterway and 80m from the nearest drain.	. Applied absorbent materials from spill kits, once soaked up, removed materials and placed into the hydrocarbons bin.	Closed
3-Jul-17	2	Minor spill – leak identified from power pack unit during operation. Minor spill of hydraulic oil (biodegradable Panolin).	The power pack was inspected for fault and items replaced. Additional barrier installed to reduce potential for spray leaks off plant.	Closed
4-Jul-17	2	Minor spill - A hydraulic hose failure on excavator resulted in a minor hydraulic oil spill of 5L to the ground. The spill occurred 50m from a cane drain. RMS cat 2.	The excavator was stopped and put out of service. A bund was put in place around the spill area. Absorbent spill kit materials were used to absorb the spill. Materials and soil contaminated by the spill were bagged, removed and disposed of as contaminated waste. The mechanic was called in to replace the broken hose and to check condition of other hoses.	Closed
6-Jul-17	2	Minor spill - <5L of oil to the ground from a Articulated Dump Truck (moxy) whilst hauling fill.	The truck was stopped and put out of service. A bund was put in place around the spill area. Absorbent spill kit materials were used to absorb the spill. Materials and soil contaminated by the spill were bagged, removed and disposed of as contaminated waste. The mechanic was called in to repair the truck	Closed
6-Jul-17	2	Minor spill - A routine inspection revealed a hydraulic oil leak that was noticed on the ground. This resulted in approx. 20L of Panolin (biodegradable oil) being spilt onto the rear of the north abutment work platform. The spill occurred 50m north of the closest waterway.	Machine stopped. Contaminated rocks on the hard stand area were wiped clean. Absorbent peat was placed on the ground to contain and prevent any potential Panolin from migrating to the creek. All absorbent materials used for clean up will be disposed to a licensed and lawful facility. Tightened fitting inside the inspection hatch and checked all remaining fittings on the machine.	Closed
7-Jul-17	2	Vegetation material temporarily stockpiled outside clearing boundary during clearing activities for the permanent Koala fence along Wardell rd	The stockpiled material was relocated and flagging re-established to demarcated project clearing limit. Contractors Project Ecologist to assess the impacted area. Tool box to be undertaken with all PC project staff and sub-contractors regarding the vegetation clearing and project boundaries.	Closed
7-Jul-17	2	Minor spill – less than 5 litres noticed under parked vehicle. The spill occurred approx. 100m from the nearest waterway.	Vehicle immediately turned off, spill contained and cleaned up. Materials bagged to be disposed of at a licenced landfill facility.	Closed
8-Jul-17	2	Minor spill - Scraper blew a hose whilst unloading material resulting in a 10L spill of oil the ground. Spill did not leave site or enter waterway. Spill occurred 80m from Champions Creek.	Operator shut down machine and asked for spill kit. Spill was contained and disposed of at licenced facility	Closed
12-Jul-17	2	Minor spill - Less than 1 L of coolant was spilt at the batch plant area. The operator noticed a small leak and pulled up to inspect. Operator attempted to repair the hose which resulted in less than 1L of coolant spilling to the batch plant platform.	Leak was contained within a portable bund and cleaned up immediately. Contaminated material placed in designated waste bin for hydrocarbon contaminated waste. Toolbox to be held with operators to ensure spill trays are used when maintaining plant.	Closed
12-Jul-17	2	Minor spill - hydraulic hose blew resulting in a spill of 1 L of oil to the ground. The spill occurred approx. 150m from the nearest sensitive receiver.	Vehicle immediately turned off and the spill contained and cleaned up with spill kit materials. The used material was bagged and will be disposed of at a licensed landfill facility.	Closed
12-Jul-17	2	Minor spill - hydraulic hose blew, resulting in approx. 20L of oil leaking to the ground. The spill occurred approx. 150m from the nearest sensitive receiver.	Vehicle immediately turned off, the spill contained with an earth bund and later cleaned up using spill kit materials. The contaminated fill was moved to a skip bin and disposed of at a licensed contaminated waste facility.	Closed
12-Jul-17	2	Minor spill - Backhoe blew a hose whilst working on lifting the settlement pads on the soft soils area, resulting in a 10L spill to the ground. The spill occurred 60m from Champions Creek.	The operator shut down the machine and contained spill using spill kit. The hose was repaired and contaminated material cleaned up and placed into the skip bin.	Closed

		area, resulting in a 10L spill to the ground. The spill occurred 68m from Champions Creek.	Spill kits to be restocked and the crew to be toolboxed on site spill procedures.	
13-Jul-17	2	Minor spill - hydraulic spill (approx. 10ml). Panolin (Biodegradable Oil). Other spill material contained within machine.	Machine was isolated and cleaned of any hydraulic oils with absorbent pads applied to prevent any further oil leaks. Contaminated soil on the abutment area was wiped clean. Absorbent pads and peat placed on the ground to contain and prevent any Panolin migrating to the creek. All absorbent materials to be disposed to a licensed landfill facility. All remaining fittings were checked on the truck. Driver instructed in future to inspect hydraulic hose fittings regularly when truck has stopped.	Closed
13-Jul-17	2	Minor spill – hydraulic hose blew on plantresulting in a spill of approx.. 60L of oil to the ground. The spill occurred 273m from an un-named waterway.	Machine shut down and spill cleaned up. Fitters replaced hose that afternoon. Site spill procedures to be re-toolboxed. Spill kits to be restocked and surplus material for kits to be ordered.	Closed
13-Jul-17	2	Incorrect use of lime materials during pH adjustment of site waters in cane drain resulting in high pH values.	Works were halted and the impacted cane drain de-fished to relocate aquatic fauna prior to dewatering. A bund was installed to block the area upstream of the defished area. High pH water was pumped into the swale buffer to allow fresh water to inflow into the site, which returned water to pH ~7.5. All pH affected water was contained on site and did not leave site, boundary or EPL limit. EWMS updated and approved. Updated EWMS and toolbox site crews.	Closed
14-Jul-17	2	Minor spill – hydraulic ram unexpectedly began leaking hydraulic oil Panolin (biodegradable oil). Majority contained within machine however approximately 100ml of Panolin was spilt to the ground.	Machine isolated and cleaned of any hydraulic oils with absorbent pads applied to prevent any further oil leaks. Contaminated soil on the abutment area was wiped clean. All absorbent materials used for clean-up disposed of at a licenced landfill facility. Machinery maintained prior to use.	Closed
14-Jul-17	2	Minor spill – hydraulic hose blown on machine resulting in a spill of approx. 1L. The spill occurred 3m from a clean water drain.	Machine shut down and spill kit used to contain the spill. Hose was replaced and materials placed into hydrocarbons bin.	Closed
18-Jul-17	2	Minor spill – Machinery operator noticed minor spill approx.. 1 litre on sealed asphalt surface.	Operator immediately turned off the machine, notified the supervisor and used absorbent pads in the spill kit to absorb all the hydraulic fluid. The used absorbent pads disposed of at a licensed facility.	Closed
19-Jul-17	2	Minor spill - A truck sustained a ruptured fuel tank, resulting in a diesel leak (25-30L) approx. 20m inside Mororo Cut construction gate. All diesel fuel was contained on the compacted haul road.	The diesel affected sections were contained and collected by a backhoe and taken to a covered bunded area for future disposal to a licensed facility.	Closed
19-Jul-17	1	Area of native vegetation clearing undertaken outside clearing boundary. All clearing works occurred within the Approved Project Boundary and the Environment Protection Licence Premise Boundary No Endangered Ecological Communities, Threatened Flora or Threatened Fauna species were impacted by the clearing activities	Clearing activities suspended. Process reviewed to ensure design and hold points accurately reflect design boundaries and is inspected prior to works commencing.	Closed
21-Jul-17	2	Minor spill – spill of approximately 1 litre in compound car park. The spill occurred more than 100m from the nearest sensitive receiver.	The spill was contained and cleaned up using spill kit materials. Contaminated material to be taken to a licensed landfill facility. The Hiab was repaired on site after prestart. Continue to undertaken plant prestart checklists.	Closed
26-Jul-17	2	Minor spill – During commissioning of machinery minor oil leak Detected. Approx. 50mL of biodegradable hydraulic oil leaked onto the top of the pile casing, approx. 18m above the water level. No visible oil entered the river.	Operations were ceased. The spill cleaned up. A broken O-ring was identified as the cause. Ongoing checks and inspections of consumables such as O-rings Document checks within prestart and inspections.	Closed
29-Jul-17	1	Work commenced prior to approved standard hours. No complaints or comments were recorded by the Community Relations Manager regarding work commencement at 7:00am on Saturday.	Toolbox talk scheduled for 3rd August on Working Hours. Training with the superintendent on working hours to be held.	Closed
2-Aug-17	2	Minor spill - Up to 10 litres of hydraulic fluid leaked from a vehicle located south of Shark Creek.	The truck was stopped and put out of service. A boom was put in place around the spill area. Absorbent spill kit was used to absorb the spill. Materials and soil contaminated by the spill was bagged, removed and disposed of as contaminated waste.	Closed
2-Aug-17	2	Minor spill - Hydraulic hose burst spilling 3L of hydraulic oil onto the haul road. The spill occurred 25m east of sensitive area	Spill kit deployed.	Closed

		occurred 20m east of sensitive area	Tool box on spill response and clean up, as well as prestart checks on machinery.	
7-Aug-17	2	Minor spill - Drilling fluid spill of approximately 30L occurred during disconnection of a fitting connected to the pile casing. All material was contained on site. Coldstream Creek is located 230m from the site. No material entered Coldstream Creek or other waterways.	Equipment was shut down immediately The spilt material was then removed from piling platformAdditional portable bunding to be sourced for use in fitting disconnection process.	Closed
7-Aug-17	2	Minor spill - Hydrocarbon spill of 200-500mL identified. Location of spill was 100m from the nearest waterway.	Spill was promptly cleaned up after it was discovered. Pre start and toolbox are planned.	Closed
8-Aug-17	2	Minor spill - Hydraulic oil leak occurred releasing approx.. 50mL of oil to the ground. The spill occurred 15m from the nearest sensitive receiver.	Spill was cleaned up and absorbent material placed around hose at bottom of leak. Machine to be serviced and hose fitting fixed.	Closed
8-Aug-17	2	Minor spill - Mechanical failure of a machine resulting in a 20 litre hydrocarbon spill to soil within site..	Machinery was stopped and put out of service. A boom was put in place around the spill area. Absorbent spill kit materials were used to absorb the spill. Materials and soil contaminated by the spill were bagged, removed and disposed of as contaminated waste.	Closed
9-Aug-17	2	Spill – during piling activities, the stability of the piling plant was compromised resulting in the loss of 2000L of liquid to ground. The liquid comprised ground water, polymer and grout, which began seeping through the rock platform to the geofabric fence. No spilt material entered the waterway.	Work ceased immediately and actions were taken to contain the spill with sand bags and plastic fencing. Additional containment controls were installed to stop the migration of liquid to local waterways. The piling hole was made safe to prevent further loss of material. Liquid material was pumped / removed. Adjacent waterways visually inspected for evidence of piling liquids. Platform material reviewed to ensure stability.	Closed
9-Aug-17	2	Spill - During bored piling operations a drilling fluid spill of approximately 100L occurred All material was contained on site.	Work ceased immediately and actions were taken to contain the spill with sand bags and plastic fencing. Additional containment controls were installed to stop the migration of liquid to local waterways. The piling hole was made safe to prevent further loss of material. Liquid material was pumped / removed. Adjacent waterways visually inspected for evidence of piling liquids.	Closed
9-Aug-17	2	Spill - During bored piling operations a drilling fluid spill of approximately 150L occurred within and adjacent to the bunded polymer tank setup. The spill was caused by leaking fittings on the holding tank and lines. The spill was contained to the immediate area and did not enter any waterway.	Pumping equipment was shut down immediately and line isolated to prevent further fluid loss. The spilt material was cleaned up with spill kit material and impacted soil removed by excavator for appropriate legal disposal. Faulty components were removed from service for repair or replacement and all other fittings check for leaks and faults. Field crews were re-toolboxed on work method statement procedures. Additional portable bunding has been ordered for use on site in suitable areas.	Closed
11-Aug-17	2	Minor spill - Hydrocarbon spill of approx. 250mL occurred whilst refuelling a welder. The spill occurred more than 50m from the nearest waterway	Spill was cleaned up immediately and reported. Employee instructed on how to refuel without spilling.	Closed
14-Aug-17	2	Minor spill - a hydraulic hose broke on machine due to general wear and tear, spilling 5L of hydraulic fluid to the ground. The spill occurred 200m from the nearest cane drain.	Machine was switched off and spill contained. Waste materials disposed of at a licenced facility..	Closed
16-Aug-17	2	Minor spill - During bored piling operations a drilling fluid spill of approximately 5-10L of polymer occurred on the southern abutment platform. 30m south of Pillar Valley 5 Creek.	Work ceased immediately and actions were taken to contain the spill The spilt material was contained to the immediate area and recovered for appropriate disposal. Adjacent waterways visually inspected for evidence of piling liquids. The crew are to receive additional toolbox and spill response training	Closed
18-Aug-17	2	Spill - During bored piling a drilling fluid spill of approx. 100L occurred as a result of an ineffective pile casing seal. All spilled material was contained and recovered within the project boundary, including impacted standing water within controls adjacent to the works. The spill occurred 5m from nearest drainage line (not flowing), 2km to Coldstream Creek 3 main flow path.	Works ceased immediately and controls were installed to isolate the piling area and contain the spill. Spill material pumped to holding tanks. Methodology of casing installation to be revised to mitigate casing seal issues that have been identified.	Closed
24-Aug-17	2	Minor spill - Hydrocarbon spill (petrol) of less than 500mL occurred while refuelling. The spill occurred more than 50m from the nearest waterway at C51.	Generator was within a bund and the spout on the jerry can broke whilst refuelling. The spill was cleaned up immediately and reported.	Closed

			Raise awareness during prestart of refuelling practices and refuel within bund.	
24-Aug-17	1	Unauthorised works undertaken at proposed piling pad and minor ancillary facility. Works commenced prior to internal hold point released .	Works were stopped immediately. Worked with contractor to explain reasons for ceasing works and work through hold point releases.	Closed
25-Aug-17	2	Minor spill - A hydrocarbon spill of less than 250mL was identified at bridge work zone approximately 45m from the waterway.	Spill was cleaned up after it was discovered. Prestart and toolbox are planned.	Closed
31-Aug-17	2	Minor spill - hydraulic leak from hose Identified, approximately 4 litres of hydraulic oil escaped to ground contaminating approximately 10kg of fill material.	Operator stopped machine and called supervisor who provided spill kit to contain spill and collect contaminated material for appropriate disposal. Pre-start and regular inspection of plant to continue	Closed
31-Aug-17	1	Complaint regarding potentially unauthorised works adjacent to alignment. After loading truck and dog, excavator operator noticed the tailgate was open when exiting site. When the driver stopped the vehicle to perform rock check, the open tailgate was noticed. The driver then drove to the cane pad adjacent the exit from the site to investigate. The tailgate was closed and a small amount of material was dropped onto the cane pad.	Project team attended site to determine Arrangements to remove the material made following the identification of the vehicle/operator and once contact could be made with the landholder to confirm access. Material removed and disposed of appropriately.	Closed
4-Sep-17	2	Minor spill - Hose carrying oil burst resulting in approximately 5L of oil spilt. ~300m south from Clarence River.	Spill kit was deployed with absorbent pads being placed on the location of the leak absorbing the fresh oil coming from the excavator and floor sweep spread out to absorb spilt oil. Contaminated materials were placed in plastic for appropriate disposal off-site. Mechanic arrived and replaced burst hose. Toolbox talk to workforce regarding spill prevention and response protocol with importance of pre-start checks on plant and equipment.	Closed
7-Sep-17	2	Minor spill - During environmental inspection, a hydraulic spill (biodegradable Panolin) was observed in the controlled working platform in the light parking bay. The spill was approx. 200-250mL, located 20-30m SE of the sensitive area.	Hydraulic waste was absorbed and scraped up and placed into plastic spill bag and disposed of appropriately.	closed
7-Sep-17	2	Minor spill - Approx. 15L of diesel spilt onto ground on the dirt access track. Nozzle failed whilst fuelling from the high flow tank. All fuelling was attended. The spill occurred 50m from the nearest drain (dry).	Spill kit deployed to prevent spill from spreading. Soil and contaminated spill kit material bagged and taken to contaminated materials skip bin. Fuel nozzle auto-shut off failed. Nozzle replaced.	Closed
19-Sep-17	2	Minor spill – Machine operator identified minor oil leak in equipment. Approx. 20L of fluid leaked from the machine, with only 2L being spilled onto clean rock. The rest of the spill was captured in the spill kit/bin. The spill occurred 50m from the nearest cane drain.	Spill kit was deployed with absorbent pads being placed on the location of the leak to absorb fresh oil coming from the vehicle. Contaminated material was placed in plastic bags for appropriate disposal off site. Plastic container placed under leak until mechanic arrived to repair leak. Toolbox talk to work crew, regarding appropriate spill response has been undertaken recently. Toolbox talk on incident reporting and associated timeframe to be presented to work crew.	Closed
25-Sep-17	2	Minor spill - Mechanical failure of a street sweeper resulting in a 10 L hydrocarbon spill onto the bitumen. The spill occurred 10m from the nearest table drain.	The street sweeper was stopped and put out of service. Absorbent spill kit materials were used to absorb the spill. Materials and soil contaminated by the spill were bagged, removed and disposed of as contaminated waste. .	Closed
25-Sep-17	2	Minor spill - Approximately 8L of hydraulic fluid was released to the asphalt pavement when the main o ring on the hydraulic oil filter failed. The spill occurred 600m from the nearest cane drain.	Operator detected pressure drop and shut the machine down. Supervisor notified and spill kit deployed. Spill contained to existing pavement. The 8L of fluid removed with 15kg of absorbent material. Contaminated material removed for appropriate disposal. The fitter attended site on the day of the incident to repair backhoe.	Closed
27-Sep-17	2	Minor spill - Effluent leak from failed plumbing joint resulting in a 25L spill of effluent. The spill was contained within the bunding. Spill occurred approx. 50m from the nearest stormwater	Deployed spill kit to affected area. Contacted plumbing company to rectify fault. Fault rectified by licenced plumber. Spill kit re replenished. Contaminated spill kit materials placed into the hydrocarbons bin for disposal at a licensed landfill facility.	Closed

27-Sep-17	2	was contained within the bunding. Spill occurred approx. 50m from the nearest stormwater drain.	Ongoing Daily Inspections checklist to include inspection of plumbing joints/fittings to establish if any leaks are present.	Closed
27-Sep-17	1	Unauthorised works – during Telstra works an under bore pit to capture drilling mud was excavated outside the approved project boundary. A 2m x 2m pit was excavated 1m deep. The incident occurred approximately 15m to the adjacent swale drain.	All under bore works were ceased and the site was attended by Contractor and Project environmental representatives. Boundary flagging and approved work areas were re-toolboxed with communications subcontractor personnel.	Closed
27-Sep-17	2	Minor spill - Biodegradable hydraulic oil was observed to have spilt on the ground Approx. 15L was spilt to the ground. The spill occurred 30m from the nearest cane drain and 300m from Shark Creek.	Hydraulic fluid spill (biodegradable Panolin) waste was absorbed with peat and scraped up and placed into a plastic spill bag for appropriate disposal. Communicate to site staff during toolbox the next day any laydown of plant or equipment is required to have trays. Also notify and clean up of spills is to occur immediately and report to ESR.	Closed
28-Sep-17	2	Minor spill - During an environmental site inspection, a hydraulic spill was observed in the controlled working platform. The spill was approx. 200-250ml and occurred 20-30m South East of the sensitive area.	Hydraulic fluid spill (biodegradable Panolin) waste was scraped up and place into a plastic spill bag and disposed of appropriately.	Closed