



Transport  
Roads & Maritime  
Services

# CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

Whytes Lane to Pimlico Road Early  
Works – Wave 2

Woolgoolga to Ballina Pacific Highway  
Upgrade

JANUARY 2016

# Document control

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*[signed]*

*[signed]*

*[signed]*

*Name*

*Name*

*Name*

Contractor Project Manager

Contractor Environment Manager

Roads and Maritime  
Representative

## Revision history

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## Contacts

Position	Name	Phone
*24 hour community information line	NA	1800 778 900
Environmental Manager (Environmental Site Representative)	<i>Morgan Hamilton</i>	W <i>[07 5536 5869]</i> M 0410 663 676
*Environmental Officer (Environmental Site Representative)	<i>Luke Pyke</i>	W <i>[insert detail]</i> M 0428 540 565
Communications Manager	<i>Joe Pereira</i>	M 0450 285 956
*Project Manager	<i>Ryan Buckley</i>	W <i>[insert detail]</i> M <i>0407 386 956</i>
Superintendent	<i>Mick Kreutzer</i>	W <i>[insert detail]</i> M 0400 016 790
Environmental Representative	<i>Daniel Saunders</i>	W <i>02 9925 5650</i> M <i>0423 066 956</i>
Roads and Maritime Representative	<i>Michael Youngberry</i>	W <i>02 6640 1308</i> M <i>0423 844 026</i>
Roads and Maritime Environmental Services Manager, Pacific Highway	Scott Lawrence	W 02 6640 1375 M 0419 248 583
EPA pollution hotline	NA	131 555

\* to be contactable by EPA on a 24-hour basis

# Contents

1	Introduction .....	1
1.1	Background.....	1
1.2	Purpose of this CEMP.....	3
1.3	Consultation.....	9
1.4	Certification and approval .....	9
1.5	Distribution.....	9
1.6	Revision.....	10
2	Project description.....	11
2.1	General features .....	11
2.2	Wave 2 .....	11
2.3	Staging .....	12
2.4	Construction activities and sequence.....	15
2.5	Materials, plant and equipment .....	15
2.6	Compound and ancillary facilities.....	16
3	Planning.....	17
3.1	Project environmental obligations .....	17
3.2	Legal and other requirements .....	17
3.3	Approvals, permits and licences.....	17
3.4	Environmental aspects and impacts.....	18
3.5	Environmental policy.....	18
3.6	Objectives and targets .....	18
3.7	Project refinements.....	21
4	Implementation and operation .....	23
4.1	Environmental management system documentation .....	24
4.2	Resources, roles, responsibilities and authority .....	27
4.3	Sub-contractor management.....	34
4.4	CEMP availability.....	34
5	Competence, training and awareness .....	35
5.1	Environmental induction.....	35
5.2	Toolbox talks, training and awareness .....	35
5.3	Daily Pre-Start Meetings .....	36
6	Communication .....	37
6.1	Internal communication.....	37
6.2	External and government authority consultation.....	37
6.3	Stakeholder and community communication .....	37
7	Incidents and emergencies .....	39
8	Inspections, monitoring and auditing .....	41
8.1	Environmental inspections .....	41

8.2	Monitoring .....	41
8.3	Auditing and reporting .....	43
8.4	Compliance tracking program .....	45
8.5	Other reporting.....	46
8.6	Non-conformity, corrective and preventative actions .....	50
9	Review and improvement.....	51
10	Documentation .....	52
10.1	Environmental records .....	52
10.2	Document control.....	52
	Appendices .....	53

## Figures

Figure 1-1	Woolgoolga to Ballina Project .....	2
Figure 2-1	Wave 2 Works Overview .....	14
Figure 4-1	Environmental management system structure .....	23
Figure 4-2	Management structure .....	28

## Tables

Table 1-1	CoA requirements for a CEMP .....	3
Table 1-2	EIS requirement for a CEMP.....	7
Table 3-1	Environmental objectives and targets.....	18
Table 4-1	Environmental management plans and strategies .....	24
Table 8-1	Summary of environmental monitoring required by Project approval .....	41
Table 8-2	Audit requirements .....	44
Table 8-3	Compliance reporting .....	45
Table 8-4	Reporting requirements .....	47

## **Appendices**

<i>Appendix A1</i>	<i>Legal and other requirements</i>
<i>Appendix A2</i>	<i>Environmental aspects and impacts</i>
<i>Appendix A3</i>	<i>Environmental policies</i>
<i>Appendix A4</i>	<i>Document register</i>
<i>Appendix A5</i>	<i>Sensitive area plans</i>
<i>Appendix A6</i>	<i>Environmental incident classification and reporting</i>
<i>Appendix A7</i>	<i>Other relevant management measures</i>
<i>Appendix A8</i>	<i>Compliance Tracking Program</i>
<i>Appendix B1</i>	<i>Construction traffic and access management plan</i>
<i>Appendix B2</i>	<i>Construction flora and fauna management plan</i>
<i>Appendix B3</i>	<i>Construction noise and vibration management plan</i>
<i>Appendix B4</i>	<i>Construction soil and water quality management plan</i>
<i>Appendix B5</i>	<i>Construction heritage management plan</i>
<i>Appendix B6</i>	<i>Construction air quality management plan</i>
<i>Appendix B7</i>	<i>Construction waste and energy management plan</i>
<i>Appendix B8</i>	<i>Ancillary facilities management plan</i>
<i>Appendix B9</i>	<i>Borrow sites management plan – Note: This Appendix is not applicable to the Wave 2 project and therefore has been intentionally omitted.</i>
<i>Appendix B10</i>	<i>Construction Contaminated Land Management Plan</i>
<i>Appendix B11</i>	<i>Construction Acid Sulphate Materials Management Plan</i>

## Glossary / Abbreviations

ASS	Acid sulfate soils
CEMP	Construction environmental 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).
CoA	Conditions of approval
DECC	Former Department of Environment and Climate Change (NSW) <i>now NSW Office of Environment and Heritage.</i>
DoE	Commonwealth Department of the Environment
DP&E	NSW Department of Planning and Environment
DPI	NSW Department of Primary Industries
DP or PC	Pacific Complete
Ecological sustainable development	Using, conserving and enhancing the community's resources so that the ecological processes on which life depends are maintained and the total quality of life now and in the future, can be increased (Council of Australian Governments, 1992).
EEC	Endangered Ecological Communities.
EIS	Woolgoolga to Ballina Pacific Highway Upgrade Environmental Impact Statement (December, 2012)
EMS	Environmental Management System
Environmental aspect	Defined by AS/NZS ISO 14001:2004 as an element of an organisation's activities, products or services that can interact with the environment.
Environmental impact	Defined by AS/NZS ISO 14001:2004 as any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects.
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.
Environmental objective	Defined by AS/NZS ISO 14001:2004 as an overall environmental goal, consistent with the environmental policy, that an organisation sets itself to achieve.
Environmental policy	Statement by an organisation of its intention and principles for environmental performance.
Environmental target	Defined by AS/NZS ISO 14001:2004 as a detailed performance requirement, applicable to the organisation or parts thereof, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives.
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.
EP&A Act	<i>NSW Environmental Planning and Assessment Act 1979</i>
EPA	NSW Environment Protection Authority
EPBC Act	<i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i>
EPL	NSW Environment Protection Licence under the <i>Protection of the Environment Operations Act 1997</i> .
ERG	Environmental Review Group – comprising representatives of Roads and Maritime, Environmental Representative, Project delivery team, regulatory authorities (EPA, DPI – Fisheries Conservation and Aquaculture, NOW) and local councils. The ERG will be maintained for the duration of the Project and will meet regularly and undertake environmental inspections. The role the ERG is to provide proactive advice on environmental management issues and review the environmental performance of the Project.
HDPE	High Density Polyethylene
Minister, the	NSW Minister for Planning
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.
NOW	NSW Office of Water
OEH	NSW Office of Environment and Heritage
OOHW	Out of Hours Works
SPIR	Woolgoolga to Ballina Pacific Highway Upgrade Submissions Preferred Infrastructure Report (November, 2013)
PoEO Act	<i>NSW Protection of the Environment Operations Act 1997</i>
Project, the	Whytes Lane to Pimlico Road Early Works – Wave 2
RMS, Road and Maritime Services	Roads and Maritime
Secretary	Secretary of the Department of Planning and Environment, formerly known as the Director General
SEE Civil	SEE Civil Pty Ltd
SSI	State significant infrastructure



# 1 Introduction

## 1.1 Background

On behalf of the Australian and NSW governments, NSW Roads and Maritime Services (Roads and Maritime) is progressively upgrading the Pacific Highway to dual carriageway between the Hunter and NSW/Queensland border.

The Woolgoolga to Ballina Project was declared critical State significant infrastructure under section 115V of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and was assessed under Part 5.1 of the EP&A Act.

An Environmental Impact Statement (EIS) was prepared for the Woolgoolga to Ballina Project and placed on public exhibition for 60 days between December 2012 and February 2013. A Submissions/Preferred Infrastructure Report (SPIR) was prepared for the Woolgoolga to Ballina Project to address key revisions and updates from the EIS following public exhibition of the EIS. A total of 145 submissions were received in response to the exhibition of the EIS. The SPIR was published in November 2013. Approval was granted by the Minister for Planning on 24 June 2014. Modification 1 to SSI-4963 was approved on the 15 January 2015.

The Woolgoolga to Ballina Project has also been subject to approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Woolgoolga to Ballina Project was declared by the Commonwealth Minister for the Environment to be a controlled action under this Act on 20 June 2012. Approval was granted on 14 August 2014. The Conditions of Approval directly related to the CEMP are included within Table 1-1.

The Woolgoolga to Ballina Project comprises approximately 155 kilometres of four-lane dual carriageway motorway that bypasses the towns of Grafton, South Grafton, Ulmarra, Woodburn, Broadwater and Wardell (Figure 1-1). The project does not include the Pacific Highway upgrades at Glenugie and Devils Pulpit as these are separate projects and now complete however, the tie-ins to these projects are included within the Minister's approval.

As described in the Woolgoolga to Ballina Pacific Highway Upgrade Environmental Impact Statement, Roads and Maritime is considering a range of different packaging and procurement options for all 11 sections of 155 kilometre project. . Current staging report submitted for stage 1 includes Sections 1, 2 and soft soil preload construction undertaken in three waves of construction packaging to suit Wave 1 soft soil works at Harwood, Wave 2 soft soil works at Whytes Lane to Pimlico Road and Wave 3 soft soil works between Tyndale and Iluka Road and at Tuckombil Canal, Woodburn. As per Stage 1 report works on Sections 1, 2 and Waves 1, 2 already commenced.

However due to the change in procurement model, Roads and Maritime has appointed Pacific Complete as Delivery Partner for the whole Woolgoolga to Ballina project. Pacific Complete is now looking for different options to deliver the whole project and future staging would be proposed by Pacific Complete accordingly.

Further detail of the proposed staging of the project would be provided in the Staging Report as required by Condition of Approval (CoA A7).

Whytes Lane to Pimlico Road Early Works - Wave 2 (the Project) is located within Section 11 of the Woolgoolga to Ballina Pacific Highway Upgrade (Fig. 1-1). The Project is required to enable the future upgrade of the section of HW10 Pacific Highway, Woolgoolga to Ballina. The Project specifically covers the following soft soil site as detailed below:

- Soft Soil Sites in Section 11 – between Whytes Lane and Pimlico Road (W2P) (STN 159,900 to STN 163,800).

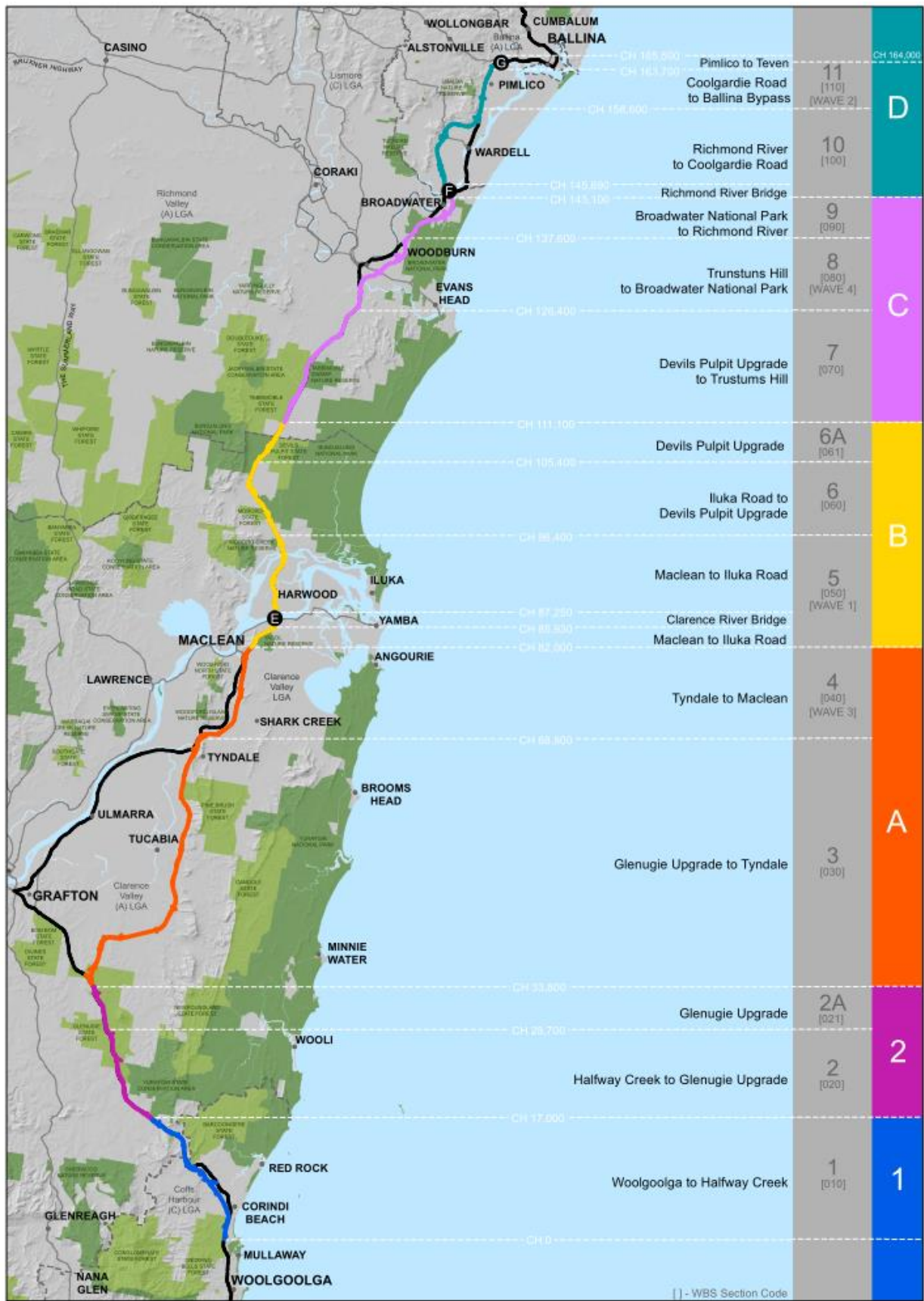


Figure 1-1 Woolgoolga to Ballina Project

## 1.2 Purpose of this CEMP

This Construction Environmental Management Plan (CEMP) and its associated plans have been prepared to comply with the Minister's Conditions of Approval for the Woolgoolga to Ballina Project. A detailed description of the project is provided in Chapter 2.

The CEMP has been prepared in accordance with Roads and Maritime QA Specification G36 and the Guideline for the Preparation of Environmental Management Plans (DIPNR, 2004). It is also consistent with AS/NZS ISO 14001.

The purpose of this CEMP is to provide a structured approach to the management of environmental issues during construction of the project. Implementing this CEMP effectively will ensure that the project team meets regulatory and policy requirements in a systematic manner and continually improves its performance. The CEMP is to ensure that the requirements of Roads and Maritime and the Minister's conditions of approval are met (see Appendix A1 and Compliance Tracking Program).

In particular, this CEMP:

- Describes the project in detail including activities to be undertaken and relative timing.
- Provides specific mitigation measures and controls that can be applied on-site to avoid or minimise negative environmental impacts.
- Provides specific mechanisms for compliance with applicable policies, approvals, licences, permits, consultation agreements and legislation.
- Describes the environmental management related roles and responsibilities of personnel.
- States objectives and targets for issues that are important to the environmental performance of the project.
- Outlines a monitoring regime to check the adequacy of controls as they are implemented during construction.

This CEMP meets the requirements of CoA D25 and D26 relating to a Construction Environmental Management Plan. The requirements of these conditions and where they are met in this CEMP are shown in Table 1-1. CoA D21 relating to the Ancillary Facilities Management Plan is proposed to be included within the broader CEMP, and so are included within Table 1-1. CoA D27 relating to Compliance Monitoring and Tracking is discussed in Chapter 8-4 of this CEMP.

**Table 1-1 CoA requirements for a CEMP**

CoA no.	Requirement	Reference
<b>ANCILLARY FACILITIES</b>		
D21	The Applicant shall prepare and implement an <b>Ancillary Facilities Management Plan</b> to detail the management of ancillary facilities associated with the SSI. The Plan shall be developed in consultation with the EPA, OEH, DPI (Fisheries) and the relevant council, and to the satisfaction of the Environmental Representative, and shall include, but not necessarily be limited to: <ul style="list-style-type: none"> <li>(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;</li> <li>(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;</li> </ul>	Appendix B8

CoA no.	Requirement	Reference
	<ul style="list-style-type: none"> <li>(c) a description of the plant, equipment and materials to be used and/or stored on the site, including dangerous and hazardous goods;</li> <li>(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;</li> <li>(e) a summary of the potential environmental impacts associated with the construction and operation of the facility;</li> <li>(f) demonstrate compliance with the locational and environmental criteria in condition B73(a) — B73(n);</li> <li>(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;</li> <li>(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;</li> <li>(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;</li> <li>(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;</li> <li>(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</li> <li>(l) mechanisms for the monitoring, review and amendment of this plan.</li> </ul>	

CoA no.	Requirement	Reference
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The plan shall be approved by the Environmental Representative prior to the establishment of the facility. In considering the approval of the plan, the Environmental Representative shall take into account the Proponent's response to public authority and council comments on the plan.

The Applicant may prepare a separate plan for each facility or include multiple sites within a single or multiple management plans.

**CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN**

D25	The Applicant shall prepare and implement (following approval) a <b>Construction Environmental Management Plan</b> 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 <i>Guideline for the Preparation of Environmental Management Plans</i> (Department of Infrastructure, Planning and Natural Resources, 2004). The Plan shall include, but not necessarily be limited to:	This plan
D25 (a)	A description of activities to be undertaken during construction of the SSI (including staging and scheduling).	Chapter 2
D25 (b)	Statutory and other obligations that the Proponent is required to fulfil during construction, including approvals, consultations and agreements required from authorities and other stakeholders under key legislation and policies.	Chapter 3 and Appendix A1
D25 (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 the conditions of approval.	Chapter 4 and Chapter 5
D25 (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	Section 3.4 and Appendix A2

CoA no.	Requirement	Reference
	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;	Appendix B6
	ii. measures to minimise hydrology impacts, including measures to stabilise bed and bank structures as required;	Appendix B4
	iii. measures for the handling, treatment and management of contaminated materials;	Appendix B10
	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);	Appendix B7
	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);	Appendix B4
	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;	Not applicable to the Project
	vii. the issues identified in condition D26;	Appendices B1-B11
	viii. details of community involvement and complaints handling procedures during construction, consistent with the requirement of conditions C1 to C4;	Section 6
	ix. details of compliance and incident management consistent with the requirements of condition D27; and	Section 7

CoA no.	Requirement	Reference
	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).	Sections 1.6, 9 & 10
	The Plan shall be submitted for the approval of the Director General no later than one month prior to the commencement of construction, or as otherwise agreed by the Director General. 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 Director General.  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 prevail.	Section 1.4
D26	As part of the Construction Environmental Management Plan for the SSI, the Applicant shall prepare and implement:	
D26 (a)	a <b>Construction Noise and Vibration Management Plan</b>	Appendix B3
D26 (b)	a <b>Construction Traffic and Access Management Plan</b>	Appendix B1
D26 (c)	a <b>Construction Soil and Water Quality Management Plan</b>	Appendix B4
D26 (d)	a <b>Construction Heritage Management Plan</b>	Appendix B5
D26 (e)	a <b>Construction Flora and Fauna Management Plan</b>	Appendix B2
<i>Full details of CoA D25 are provided in the Appendices of this CEMP relating to each of plans listed above.</i>		

The CEMP is also to meet the requirements of the revised Environmental Impact Statement (EIS) mitigation measures for the project as presented in the Submissions / Preferred Infrastructure Report (November 2013), presented in Table 1-2.

**Table 1-2 EIS requirement for a CEMP**

Issue	Requirement	Reference
Construction Environmental Management Plan	A construction environmental management plan is to be prepared by each contractor and will identify measures to be implemented to minimise environmental impacts. The construction environmental management plan will be required to include any conditions of approval for the project and construction measures identified in the EIS. The CEMP will be required to include: - Roles and responsibilities for planning, approval,	W2B EIS S19.1

	<p>implementation, assessment and monitoring of environmental controls.</p> <ul style="list-style-type: none"> <li>- Required licences, approvals and permits.</li> <li>- Environmental legislation that will be required to be complied with.</li> <li>- Potential environmental impacts resulting from construction of the proposed upgrade and the control and mitigation measures to be implemented.</li> <li>- Objectives and targets for environmental performance.</li> <li>- Environmental monitoring programs and a mechanism for evaluating environmental performance.</li> <li>- Communication procedures.</li> <li>- Document control procedures.</li> <li>- Emergency response procedures to mitigate potential environmental damage.</li> <li>- Training, competence and awareness assessment procedures and programs.</li> <li>- An environmental auditing program and a mechanism for control and management of non-conformances.</li> </ul> <p>The Construction Environmental Management Plan would provide specific information in particular areas of environmental management, either by way of direct reference or by environmental management sub-plans.</p>	
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Relevant management measures and requirements for the project are included within the attached plans to this CEMP (Appendix B):

- Appendix B1 - Construction traffic and access management plan
- Appendix B2 - Construction flora and fauna management plan
- Appendix B3 - Construction noise and vibration management plan
- Appendix B4 - Construction soil and water quality management plan
- Appendix B5 - Construction heritage management plan
- Appendix B6 - Construction air quality management plan
- Appendix B7 - Construction waste and energy management plan
- Appendix B8 – Ancillary facilities management plan
- Appendix B9 – Borrow sites management plan – Note: This Appendix is not applicable to the Wave 2 project and therefore has been intentionally omitted.
- Appendix B10 – Construction contaminated land management plan
- Appendix B11 – Construction acid sulphate materials management plan

Other relevant management measures to be addressed in construction (visual, urban design and landscape, Traffic and transport, Land use and property and Social and economic) which have not been captured by specific plans are described in Appendix A7.

This CEMP is the overarching document in the environmental management system for the Project that includes a number of management documents. These are described in



Section 4.1. It is applicable to all staff and sub-contractors associated with the construction of the Project.

### **1.3 Consultation**

Extensive consultation for the entire Woolgoolga to Ballina Pacific Highway Upgrade commenced during the route selection phase and continued during the environmental impact assessment of the concept design. The primary objective of consultation was to keep stakeholders well informed and involved during each stage of Project development.

Further consultation with relevant stakeholders and government authorities has continued through the development of this CEMP and associated plans. Those consulted include:

- NSW Environment Protection Authority
- NSW Department of Primary Industries – Fisheries Conservation and Aquaculture
- NSW Office of Environment and Heritage
- Rous Water
- Ballina Shire Council
- NSW Office of Water
- Commonwealth Department of the Environment.

Consultation will continue throughout the Project with relevant stakeholders and government authorities. The outcomes of this consultation will be documented where relevant in subsequent revisions of the CEMP and the management review.

### **1.4 Certification and approval**

This CEMP must be approved by the Roads and Maritime Project Manager and Roads and Maritime Environmental Manager prior to submission to DP&E. Submission to DP&E is required no later than one month prior to commencement of construction or as otherwise agreed.

The CEMP must be approved by the Secretary of the Department of Planning and Environment prior to the commencement of construction.

The plans prepared under CoA D26 also require approval by the Secretary prior to commencement of construction. Further explanation and details of these documents are provided in Section 4.1.

### **1.5 Distribution**

This CEMP is available to all personnel and sub-contractors via the Project document control management system. An electronic copy can be found on the Project website.

The document is uncontrolled when printed. One controlled hard copy of the CEMP and supporting documentation will be maintained by the Quality Manager at the Project office.

Registered copies will be distributed to:

- Project Manager
- Environmental Representative
- Construction Manager
- Environmental Manager
- Communications Manager
- Roads and Maritime Representative

- Roads and Maritime Environmental Services Manager, Pacific Highway Grafton, Northern Office

## **1.6 Revision**

A document review process ensures that environmental documentation including this CEMP is updated as appropriate for the specific works that are occurring on-site. This includes the management review process described in Chapter 9.

Should the document review process identify any issues or items within the documents that are either redundant or in need of updating, it is the responsibility of the Environmental Manager or Environmental Officers to prepare the revised documents.

The revised document will then be issued to the Project Manager and the Environmental Representative for certification of the changes. The Environmental Representative can approve minor changes to the CEMP. Minor changes would typically include those that:

- Are editorial in nature eg staff and agency/authority name changes.
- Do not increase the magnitude of impacts on the environment when considered individually or cumulatively.
- Do not compromise the ability of the Project to meet approval or legislative requirements.

Where the Environmental Representative deems it necessary, the amended CEMP will be forwarded to the Secretary for approval.

Revised versions of the CEMP will be made available through the processes described in Section 1.5.

## 2 Project description

### 2.1 General features

The general features of the entire Woolgoolga to Ballina Pacific Highway Upgrade project are:

- Around 155 kilometres of motorway standard highway, comprising a four-lane divided carriageway (two lanes in each direction) that can be upgraded to a six-lane divided carriageway in the future, if required. A six-lane divided carriageway is not included as part of the approved project.
- Bypasses of Grafton, South Grafton, Ulmarra, Woodburn, Broadwater and Wardell
- The following interchanges to provide access to and from the upgraded highway at:
  - Corindi (Range Road)
  - Glenugie (Glenugie / Eight Mile Lane)
  - Tyndale (Sheeys Lane / Bensons Lane)
  - Maclean (Goodwood Street)
  - Harwood (Yamba Road / Watts Lane)
  - Woombah (Iluka Road)
  - Woodburn (Trustums Hill Road)
  - Broadwater (Evans Head Road)
  - Wardell (Coolgardie Road).
- Forty bridge crossings of waterways or floodplains, including major bridges over the Clarence and Richmond rivers.
- Fifty-five bridges and underpasses to maintain access along local roads crossed by the project.
- Viaducts located where the project would cross low-lying or flood-prone areas.
- Service roads and access roads to maintain connections to existing local roads and properties.
- Structures to help wildlife cross above or below the project, including three median crossings for arboreal mammals, eight dedicated culverts and four land bridges.
- Rest areas located at around 50-kilometre intervals at:
  - Arrawarra Beach Road
  - Pine Brush, Tyndale (for northbound and southbound traffic).
  - North of Mororo Road (for southbound traffic).
  - Richmond River (for northbound and southbound traffic).
- Heavy vehicle inspection stations near Halfway Creek and within the proposed Richmond River rest area.
- Connectivity structures to help wildlife cross above or below the project.

### 2.2 Wave 2

The Project is a 3.8km section of geotechnical soft soil works located off the main alignment within Section 11 of the W2B Project (Figure 2-1). The works are from Whytes Lane to Pimlico Road (STN 159,900 to STN 163,800). The construction period is anticipated to take about 15 months starting in September 2015. The construction works extend for a 65 week program. The works are constrained by the Pimlico to Teven project to the North. The works include two intersection upgrades.

The Project involves ground treatment and preparatory earthworks for the future duplication of the Pacific Highway, specifically the construction of embankments (both with and without wick drains), surcharges, stability berms and associated temporary works.

No construction sediment basins are proposed within the Project and therefore erosion and sediment controls would be locally managed using a range of mitigation and controls. Soil Conservation Service is advising SEE Civil regarding erosion and sediment control management.

There is not expected to be a surplus of materials. Fill material is proposed to be brought on site from Boral/Holcim. Approximately one hundred and fifty thousand cubic meters of fill and about seventy thousand cubic metres of rock is proposed to be imported to site.

## **2.3 Staging**

The CEMP reflects the construction programme, which delivers detailed time-frames and sequencing for environmental management measures. The Project is divided into five major areas of work. Areas 1, 2 and 3 can commence once all environmental approvals are attained. The expected commencement date for Area 4 and 5 is February 2016, and the commencement date for the culvert and flood earthbund at STN163800 is April 2016.

Non Construction Activities (as per the definition in the Approval Instrument SSI-4963 Modification 1) may commence prior to approval of the CEMP, provided a Consistency Review/Early Works Permit and EWMSs have been prepared by SEE Civil and approved by Roads and Maritime and conditions have been met.

The Project works will be staged in the following manner, as outlined below and shown on Figure 2-1, which also matches the construction programme

### **2.3.1 Non Construction Activities – Planned commencement: August 2015**

- Survey
- Installation of temporary barriers
- Whytes Lane intersection and Gate 11A installation
- Gate 11B installation
- Monitoring including water and air quality measurements and noise level measurements
- Identification of protected flora / fauna and erection of exclusion fencing and nest boxes
- Site set out including establishment of main compound at Whytes Lane
- Installation of traffic control measures to control highway and construction traffic

### **2.3.2 Area 1, 2 and 3 Construction – Planned commencement: October 2015**

- Installation of temporary erosion, sediment and water quality control measures
- Improvement to access tracks and haul roads
- Clearing, grubbing and mulching
- Installation of drainage lines
- Geotechnical monitoring devices
- Placement of fabric
- Drainage blanket
- Wick drains
- High strength fabric
- Fill layers
- Batter treatment

- Final erosion and sediment control

### **2.3.3 Area 4 & 5 Construction – Planned commencement: February 2016**

- Installation of temporary erosion, sediment and water quality control measures
- Improvement to access tracks and haul roads
- Clearing, grubbing and mulching
- Installation of drainage lines
- Geotechnical monitoring devices
- Placement of fabric
- Drainage blanket
- Wick drains
- High strength fabric
- Fill layers
- Batter treatment
- Final erosion and sediment control

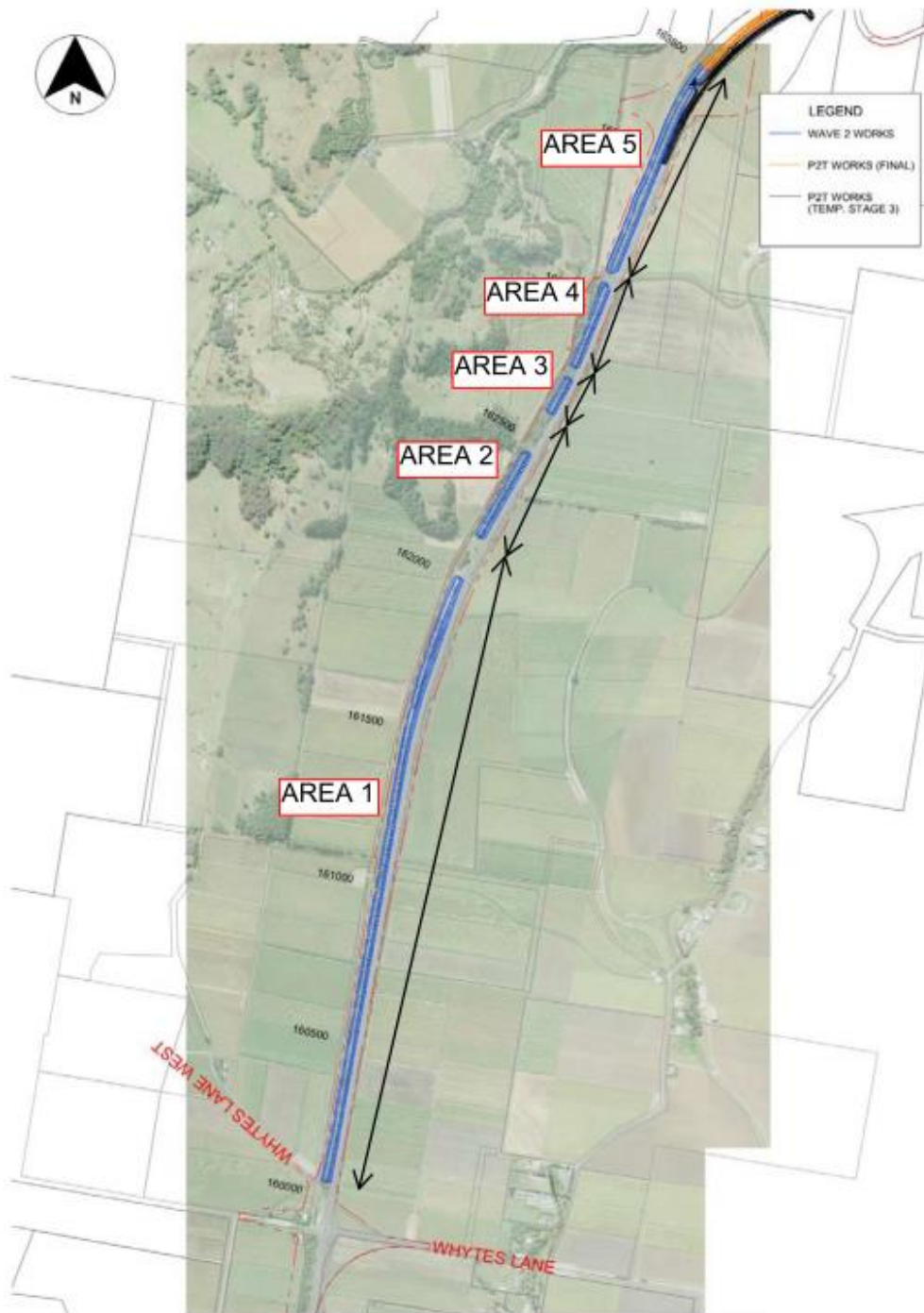
### **2.3.4 Culvert & Flood Earthbund at STN163800 Construction – Planned commencement: April 2016**

- Installation of temporary erosion, sediment and water quality control measures
- Improvement to access tracks and haul roads
- Installation of drainage lines
- Final erosion and sediment control

### **2.3.5 Finishing works (All areas) – Planned commencement: July 2016**

- Remove temporary works
- Restore and landscape temporary sites
- General site clean-up
- Re-vegetation if required

## LOCALITY SKETCH



HW10 Pacific Highway Upgrade, Woolgoolga to Ballina - Early Works - Wave 2, Contract No:  
14.2544.2091  
Preamble, Locality Sketch and Notes

Figure 2-1 Wave 2 Works Overview

## 2.4 Construction activities and sequence

Typically the following sequences of construction activities are anticipated:

- **Site establishment** – installing boundary fencing, construction facilities, environmental controls and carrying out pre-clearing vegetation fauna surveys.
- **Relocation or protection of services** – relocating and protecting electricity, gas, water and telecommunications infrastructure affected by the Project.
- **Site preparation** – removal of harvestable timber, clearing and grubbing, topsoil stripping and storage.
- **Earthworks** – undertaking cut and fills works along the alignment to achieve desired levels, removal of unsuitable material, batter and embankment shaping.
- **Landscaping and restoration** – Restore areas to a condition similar to that existing before disturbance. Restoration includes spill clean-up and soil remediation, where applicable, ripping, topsoiling of the area, weed control and seeding, planting, watering and maintenance, removal of temporary erosion control devices and of sediment in drainage lines plus removal of unused construction materials. The area should be progressively rehabilitated.

## 2.5 Materials, plant and equipment

### 2.5.1 The materials, plant and equipment expected to be on the Project are listed below. Materials

- Geotextiles
- High strength geosynthetic
- Precast concrete drainage items
- HDPE drainage items
- Silt fence
- Flag ropes
- Star pickets
- -40mm R31 material
- -300mm R44 material
- Fill
- Select material
- Basecourse material
- Asphalt
- Prime
- Rip rap
- Jute mesh
- Gabian baskets
- Concrete
- Stabilised sand
- Lime
- Line marking paint
- Concrete barriers
- Signage
- Fencing
- Barrier mesh
- Hydromulch

### 2.5.2 Plant

- 2t - 33t excavators
- Dozer
- Grader
- Compactor
- Water cart
- Truck and dogs
- Body trucks
- Rollers
- Utes
- Tractor
- Paver
- Traffic
- Backhoe
- Sweeper
- Loader
- Bob cat
- Fuel truck

### 2.5.3 Equipment

- Wacker packer
- Vibe plate
- Survey equipment
- Geotechnical equipment
- Generators
- Day makers
- VMS boards
- Radar detector
- Trench roller
- Pumps
- Demo saws
- Hand tools

## 2.6 Compound and ancillary facilities

The ancillary facility site is located south of McAndrews Lane, Pimlico to the west of the project between stations 159.4 to 159.8. The facility is located on Lot 5 DP 22326. The site is being used for sugar cane cropping and the surrounding land use is agriculture - sugar cane cropping. There is some remnant native vegetation located within the existing road reserve, south and north of the site, however this will not be impacted by the site compound. Access to the site is from McAndrews Lane.

The ancillary facility site was assessed in the *Woolgoolga to Ballina Pacific Highway Upgrade - Ancillary descriptions and impact assessment* prepared by RMS dated 13 December 2013. The site is identified as Section 11 Site 1a to be used as a main site compound for early works and construction. A non-conformance with standard conditions locational criteria was identified in regard to Aboriginal archaeology, however following further investigations the site is now approved for use as a compound subject to conditions identified in both the Construction Heritage Management Plan (Appendix B5) and the Ancillary Facilities Management Plan (Appendix B8).

The ancillary facility site is proposed to be a temporary compound and stockpile site, and acid sulphate soil treatment area. The site will be built up approximately 500mm with imported fill material to form a hardstand work platform, which will be removed on completion of the Project.

A summary of the assessment criteria for ancillary facilities is provided in Section 3.7.2. The ancillary facilities assessment as part of the Ancillary facilities management plan (Appendix B8) details the location, composition and purpose of compound and ancillary facilities required for the Project. An assessment of the ancillary facility assessment criteria required by CoA B73 is also provided. This assessment shall be approved by the Environmental Representative and included within the Ancillary Facilities Management Plan required under condition D21. Through the approval of this CEMP by the Minister it is deemed that these ancillary facilities are also approved and comply with the requirements set out in the CoA.



## 3 Planning

### 3.1 Project environmental obligations

All construction personnel working on the Project have the following general obligations:

- Minimise pollution of land, air and water.
- Use pollution control equipment and keep it in proper working order.
- Preserve the natural and cultural heritage environment.
- Give notice to the Roads and Maritime and relevant authorities of a non-Aboriginal or Aboriginal heritage discovery.
- Minimise the occurrence of offensive noise. Where noise management level has been exceeded, undertake review and investigate what reasonable and feasible actions can be implemented.
- Be a good neighbour to surrounding land users.
- Keep the community informed of Project milestones, upcoming activities and duration of relevant aspects of the works.
- Use equipment with noise control features where available and ensure that it is properly maintained.
- Take all feasible and reasonable steps to ensure compliance with the requirements of this CEMP.

### 3.2 Legal and other requirements

A register of legal and other requirements for the Project is contained in Appendix A1. This register is maintained as a checklist. This register will be reviewed at regular intervals eg during management reviews, and updated with any applicable changes. Any changes made to the legal requirements register will be communicated to the wider team where necessary through toolbox talks, specific training and other methods detailed in Chapter 5.

### 3.3 Approvals, permits and licences

A number of approvals, permits and licences have and/or will be obtained for the Project. Appendix A1 contains a register of all relevant environmental approvals, permits and licences. The register will be maintained by the Environmental Manager and will be reviewed prior to the commencement of construction and/or stages of construction, and at regular intervals during construction and at least annually as part of the management review.

The EIS recognised that the following approvals and licences identified in the planning approval process would be obtained or are required for the Project:

- Project Approval under the EP&A Act.
- Project Approval under the EPBC Act
- Environment protection licence (EPL) under the *Protection of the Environment Operations Act 1997* (PoEO Act) for any scheduled activities that are triggered such as for road construction and/or for the operation of ancillary facilities.
- Approvals under the *Water Act 1912* for access to ground or surface water during construction.

In accordance with CoA A6, all necessary licences, permits and approvals required for the development of the Project will be obtained and maintained as required throughout the life of the Project. No condition of the Project Approval removes the obligation for Roads and Maritime or SEE Civil to obtain, renew or comply with such necessary licences, permits or approvals except as provided under Section 115ZG of the EP&A Act.

The Project Approval is contained in the Compliance Tracking Program (Appendix A8), which provides a reference to where each requirement is addressed by this CEMP or other Project documentation. A checklist of compliance with Roads and Maritime specification G36 is included as Appendix A1.

### **3.4 Environmental aspects and impacts**

A risk management approach will be used to determine the severity and likelihood of an activity's impact on the environment and to prioritise its significance. This process considers potential regulatory and legal risks as well as taking into consideration the concerns of community and other key stakeholders.

The objectives of risk assessment are to:

- Identify activities, events or outcomes that have the potential to adversely affect the local environment and/or human health/property.
- Qualitatively evaluate and categorise each risk item.
- Assess whether risk issues can be managed by environmental protection measures.
- Qualitatively evaluate residual risk with implementation of measures.
- Qualitatively evaluate the risk of adverse impacts occurring beyond those that were identified in the EIS/SPIR.

Risk assessments for the Project are based on AS/NZS 4360:1999, the Australian standard for risk assessments.

Appendix A2 includes a list of activities associated with the Project, related aspects and corresponding risks. Measures to minimise the identified environmental risks are also provided.

### **3.5 Environmental policy**

The environmental policy describes SEE Civil's commitment to continual improvement in environmental performance and compliance with applicable legal requirements (refer Appendix A3).

The environmental policy is displayed on the Project website and at the site office, and communicated to staff and other interested parties via inductions and ongoing awareness programs.

### **3.6 Objectives and targets**

As a means of assessing environmental performance during construction of the Project, environmental objectives and targets have been established. These objectives and targets have been developed with consideration of key issues identified through the environmental assessment and risk assessment process. The objectives and targets are consistent with the Project environmental policy and will assist in monitoring whether the commitments of the policy are being met.

The targets are incorporated into relevant environmental management plans.

The performance of the Project against the objectives and targets will be documented in the Project construction compliance reports and at least on an annual basis as part of the management review.

Environmental objectives and targets for the Project are provided in Table 3-1.

Table 3-1 Environmental objectives and targets

Objective	Target	Measurement tool
Construct the Project in accordance with environmental approvals.	<ul style="list-style-type: none"> <li>• Full compliance with statutory approvals and approved management plans.</li> </ul>	Audits, construction compliance reporting, management view.
Implement a rigorous and comprehensive EMS that meets the requirements of AS/NZS ISO 14001.	<ul style="list-style-type: none"> <li>• Address non-conformances and corrective actions within specific timeframes.</li> </ul>	Audits, management reviews.
Engage with the effected and broader community, minimise complaints and respond to any complaints within a suitable timeframe.	<ul style="list-style-type: none"> <li>• Disseminate regular Project updates and other information through the Project website and other tools identified in the Community Communication Strategy.</li> <li>• Record and response to complaints within the timeframe specified in the Community Communication Strategy.</li> </ul>	Review complaints register, construction compliance report, audits.
Continuously improve environmental performance.	<ul style="list-style-type: none"> <li>• Develop and maintain a program of ongoing environmental training.</li> <li>• Capture lessons learnt from environmental incidents to minimise repeat issues.</li> <li>• Encourage and reward innovation and effort throughout the works force.</li> </ul>	Construction compliance report, management review.
Comply with all legal requirements	<ul style="list-style-type: none"> <li>• No regulatory infringements (PINs, prosecutions)</li> <li>• No formal regulatory warnings (pre-cursors to PIN or prosecution)</li> <li>• Compliance with all legal requirements, statutory approvals and Environmental Protection License</li> <li>• All correspondence with regulators recorded and retained on-site</li> </ul>	EPL Monthly Report
All staff and contractors are aware, trained and competent in relation to their roles on the projects A Training Matrix will be maintained	<ul style="list-style-type: none"> <li>• Environmental inductions and specific environmental training delivered by competent staff or trainer/s</li> <li>• Compliance with internal hold point that requires all staff and contractor staff to have undertaken environmental inductions prior to commencement of work on site.</li> <li>• Staff requiring specific environmental training have completed the required training</li> </ul>	Review of training records and matrix Outcome of audits and monthly report

Objective	Target	Measurement tool
	prior to commencing relevant works	
Minimise, pro-actively identify and appropriately manage environmental non-conformance	<ul style="list-style-type: none"> <li>• Environmental incidents and client non-conformances reported and logged within 24 hours of occurrence</li> <li>• ER reports complaint to RMS's Representative within 24 hours</li> <li>• Incidents and client non-conformances requiring investigation or action are appropriately investigated, and corrective actions assigned</li> <li>• Corrective actions are completed within designated time frames</li> </ul>	Review of non-conformance register and monthly Environmental reports
Proactive environmental performance	<ul style="list-style-type: none"> <li>• An adaptive management strategy to ensure ongoing high performance against environmental performance criteria</li> </ul>	Review of reporting on performance
Improve environmental systems, processes and procedures	<ul style="list-style-type: none"> <li>• Meet commitments for senior management involvement in environmental investigations / inspections</li> </ul>	Review of Management commitments
Targeted and pro-active management of environmental risks through sub-contracts	<ul style="list-style-type: none"> <li>• Environmental requirements identified in sub-contracts, including requirement to comply with CEMP and sub-plans.</li> <li>• Environmental Manager review and sign-off environmental management conditions of subcontractor engagement where activities with high environmental risk to be performed.</li> <li>• Environmental Manager involved in subcontractor review process and sign-off prior to subcontractor engagement</li> </ul>	Environmental Risk Assessment Review of subcontractor review forms Review of environmental obligations within subcontracts.
Minimise and adequately address environmental complaints in a timely and pro-active manner	<ul style="list-style-type: none"> <li>• All environmental complaints referred to the Environmental Manager.</li> <li>• Respond to all environmental complaints within 24 hours of the complaint being logged. Respond within two hours if complaint relates to out of hours work.</li> </ul>	Minimise and adequately address environmental complaints in a timely and pro-active manner

Objective	Target	Measurement tool
Minimise resource consumption and waste generation	<ul style="list-style-type: none"> <li>• Achieve targets set in the Construction Waste and Energy Management Plan</li> <li>• All materials leaving site classified according to the DECC Waste Classification Guidelines December 2008 and appropriately reused, recycled or disposed of.</li> </ul>	Resource conservation and waste minimisation considered in monthly environment reporting

## 3.7 Project refinements

### 3.7.1 General changes

Refinements to the Project may result from detailed design refinement or changed circumstances throughout construction. Roads and Maritime is responsible for formally seeking approval from the Minister for any Project modifications and for documenting refinements that are deemed consistent with the approved Project.

The Roads and Maritime Environmental Manager, Pacific Highway is responsible for the assessment of Project refinements and management of the consistency assessment process. The Environmental Manager is responsible for incorporating any new environmental impacts and/or new statutory approval requirements into the appropriate environmental management documentation.

Any design changes or changes in scope of works should be communicated to the Environmental Manager. The Environmental Manager or Environmental Officer will then undertake an additional environmental assessment and consistency review in consultation with the Roads and Maritime Environmental Manager, Pacific Highway to determine if a Project modification may be required.

Should the consistency review determine that a Project modification maybe required ie the impacts are of a nature and scale that it is not considered consistent with the Project approval, the Environmental Representative will be informed and a modification application under Section 115ZI of the EP&A Act 1979 prepared and submitted to the Secretary of the Department of Planning and Environment for determination.

The Roads and Maritime Environmental Manager, Pacific Highway or the General Manager, Pacific Highway will approve all refinements that are deemed consistent with the Project approval.

### 3.7.2 Ancillary facilities assessment criteria

Ancillary facilities are defined as a “temporary facility for construction, including for example an office and amenities compound, construction compound, batch plant (concrete or bitumen), materials storage compound, maintenance workshop, testing laboratory or material stockpile area”.

The location of the main site compound and ancillary facilities are nominated, assessed and detailed in as part of Appendix B8 Ancillary Facilities Management Plan. Circumstance may arise during construction where additional, or changes to the location of, ancillary facilities are required.

Where this situation arises, an assessment against the criteria detailed in CoA B73 will be undertaken. This criteria requires that ancillary facilities:

- (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 CoA D21 (refer Appendix B8).

Note that any proposed additional ancillary facilities and changes to ancillary facilities will be required to meet all relevant CoA where applicable as described in Appendix A1.

## 4 Implementation and operation

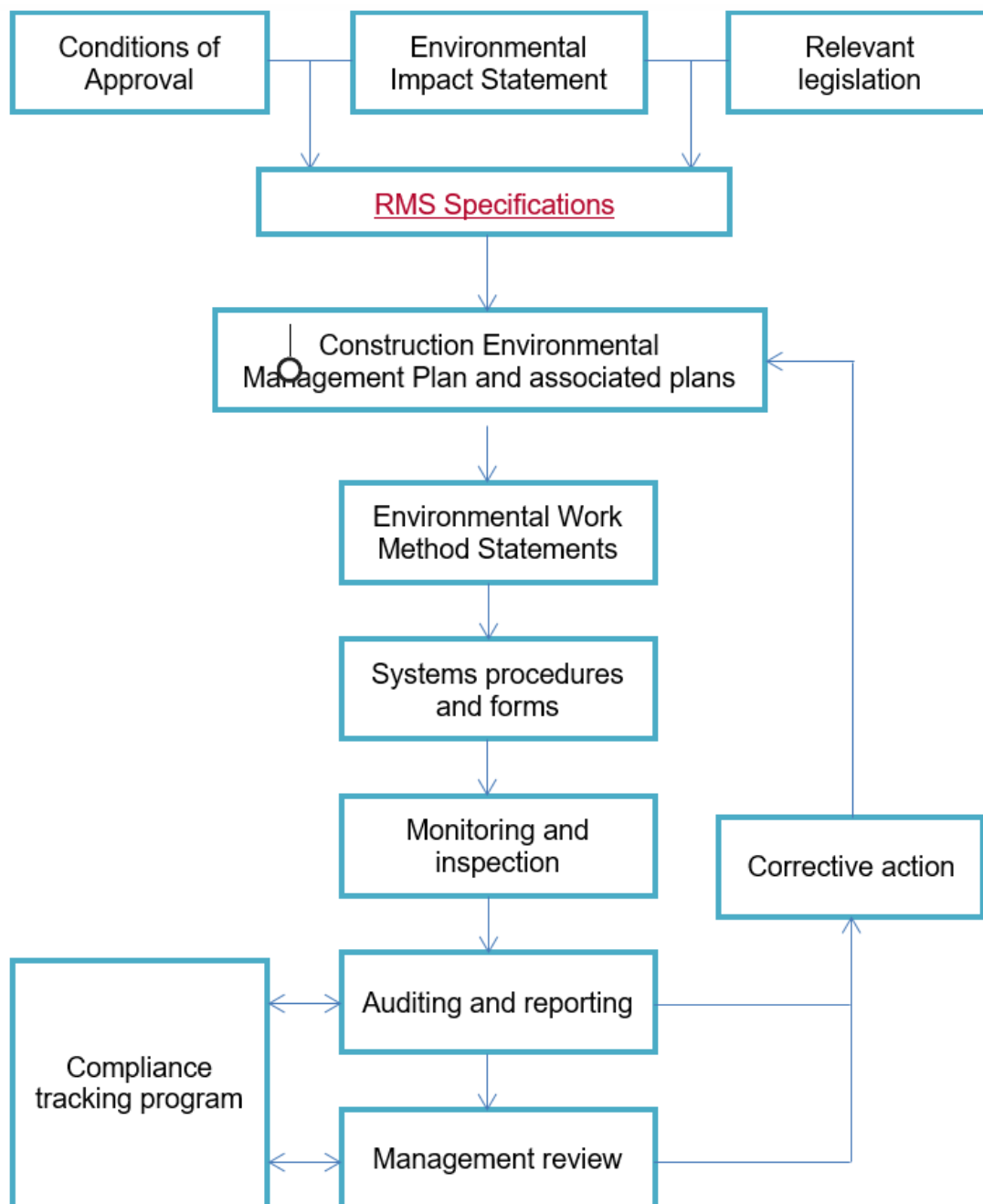
This CEMP is the overarching management plan for a suite of environmental management documents. It provides a structured and systematic approach to environmental management.

The primary purpose of the system of documentation is to:

- Ensure compliance with all applicable environmental laws, obligations and approvals.
- To minimise environmental impacts.

The structure of the environmental management system for the Project is shown in Figure 4-1.

**Figure 4-1 Environmental management system structure**



## 4.1 Environmental management system documentation

### 4.1.1 Construction environmental management plan

This CEMP provides the system to manage and control the environmental aspects of the Project during pre-construction and construction. It identifies all requirements applicable to activities described in Chapter 2. 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 this CEMP have been developed with consideration of the Project approval requirement, safeguards and mitigation measures presented in the environmental assessment and approval documents. This CEMP establishes the system for implementation, monitoring and continuous improvement to minimise impacts from the Project on the environment.

This CEMP is consistent with:

- Guideline for the preparation of Environmental Management Plans (DIPNR, 2004).
- AS/NZS ISO14001: 2004, '*Environmental Management Systems - requirements with guidance for use*'.
- Roads and Maritime QA Specification G36.

The CEMP and associated plans required under CoA D25 and D26 will be provided to the Secretary of the Department of Planning and Environment for approval.

### 4.1.2 Other environmental management plans and strategies

A number of environmental management plans support the CEMP. These documents are prepared to identify requirements and processes applicable to specific impacts or aspects of the activities described in Chapter 2. They address requirements of the CoA and mitigation measures identified in the environment impact assessment documentation.

Environmental strategies may also be developed as required throughout the Project. These will also guide environmental management of potential impacts on-site.

A list of construction plans and strategies for the Project, and their approval requirements, are provided in Table 4-1. The Project Staging Report documents the required Project-wide environmental documentation to be prepared for the Project and the timing required for submission where required.

Consultation with DoE is required for the Construction Flora and Fauna Management Plan, the Construction Soil and Water Quality Plan, the Ancillary Facilities Management Plan, and the Construction Acid Sulphate Materials Management Plan. The Minister may choose to call in these plans for approval under the EPBC Act if required.

Table 4-1 Environmental management plans and strategies

Document name	Document number	Approval pathway
Construction traffic and access management plan (Appendix B1)	05-A1-00-B1	Secretary's approval
Construction flora and fauna management plan, including threatened species management plans and weed management plan (Appendix B2)	05-A1-00-B2	Secretary's approval
Construction noise and vibration management plan including a blast management plan (Appendix B3)	05-A1-00-B3	Secretary's approval



Document name	Document number	Approval pathway
Construction soil and water quality management plan (Appendix B4)	05-A1-00-B4	Secretary's approval
Construction heritage management plan (Appendix B5)	05-A1-00-B5	Secretary's approval
Construction air quality management plan including dust management plan (Appendix B6)	05-A1-00-B6	Roads and Maritime approval
Construction waste and energy management plan including surplus material management plan (Appendix B7)	05-A1-00-B7	Roads and Maritime approval
Ancillary facilities management plan (Appendix B8)	05-A1-00-B8	Environmental Representative Approval
Borrow sites management plan (Appendix B9) – NOT USED	N/A	Secretary's approval
Construction contaminated land management plan (Appendix B10)	05-A1-00-B10	Roads and Maritime approval
Construction acid sulphate materials management plan (Appendix B11)	05-A1-00-B11	Roads and Maritime approval

#### 4.1.3 Environmental work method statements

Environmental Work Method Statements (EWMS) are prepared to manage and control all activities that have the potential to negatively impact on the environment. EWMS will be prepared prior to the commencement of relevant construction activities on site and will incorporate relevant mitigation measures and controls from management plans. They also identify key procedures to be used concurrently with the EWMS. EWMS are specifically designed to communicate requirements, actions, processes and controls to construction personnel using plans, diagrams and simply written instructions.

EWMS will be prepared progressively in the lead up to and throughout construction in consultation with relevant members from the Project team, and approved by the Environment Manager.

EWMS for activities identified as having high environmental risk will undergo a period of consultation with stakeholders and authorities prior to approval. A list of upcoming/future EWMS will be provided to ERG participants during regular meetings. The ERG will determine which EWMS are high risk and require consultation and those that do not.

EWMS for activities likely to be considered high risk due to their proximity to environmentally sensitive areas as determined in the Risk Workshop include:

- • Survey
- • Site Establishment
- • Temporary waterway crossings
- • Temporary pavement construction

- • Nest box installation
- • Dust monitoring gauge installation
- • Access track establishment
- • Clearing and grubbing
- • Stockpiles

All construction personnel and sub-contractors undertaking a task governed by an EWMS must participate in training on the EWMS, and acknowledge that they have read and understood their obligations prior to commencing work.

Regular monitoring, inspections and auditing against compliance with the EWMS will be undertaken by Project management, quality, and environmental personnel to ensure that all controls are being followed and that any non-conformances are recorded and corrective actions implemented.

A register of EWMS will be maintained in Appendix A4.

#### **4.1.4 Erosion and sediment control plans**

Erosion and Sediment Control Plans (ESCPs) are planning documents that clearly show the site layout and the approximate location of erosion and sediment control structures onsite. They cover all construction stages from initial vegetation clearing through to rehabilitation when erosion and sediment control are no longer required and are removed. ESCP will be developed and implemented across the Project where there is a risk of erosion and sediment loss.

ESCPs may be produced in conjunction with EWMS to provide more detailed site-specific environmental mitigation measures.

ESCPs will be developed by environment staff in consultation with the superintendent, site engineers, foreman and other relevant site personnel, as required. They will be modified to reflect site condition at the time of construction. The Environmental Manager will approve ESCP in the first instance. Minor changes thereafter will be approved by environment staff in consultation with the Environmental Manager, as required.

ESCPs will be developed for all work areas prior to commencing activities.

#### **4.1.5 Sensitive area plans**

The Project traverses a diversity of environmental and socially sensitive areas/sites. To assist pre-construction planning and on-site construction management, these site constraints are consolidated on a series of map-based sheets that extend the length of the Project. Sensitive area maps include information pertaining, but not limited to:

- Noise sensitive receivers eg residential dwellings, educational institutions.
- Flora features, including threatened species and endangered ecological communities.
- Aboriginal and non-Aboriginal heritage sites including assessment boundaries, items, places, objects and sites.
- Local waterways.
- Recorded threatened fauna sightings.
- State Forest / National Parks / Nature Reserves / Flora Reserves
- Areas of vegetation to be retained
- Potential or actual acid sulphate soil areas
- Contaminated sites

- Monitoring locations for groundwater, surface water and dust
- Clearing limit boundary

The sensitive area plans are presented in Appendix A5. They are a working element of the CEMP and will be revised throughout construction to reflect true ground conditions and the most up-to-date information available on sensitive sites. Sensitive area plans will be used in conjunction with EWMS to help identify key risk areas and to promote ongoing communication to construction personnel during the Project.

#### **4.1.6 System procedures, forms and other documents**

The Project environmental management system procedures, forms and other documents provide instructions and records related to both environmental and non-environmental activities throughout the Project.

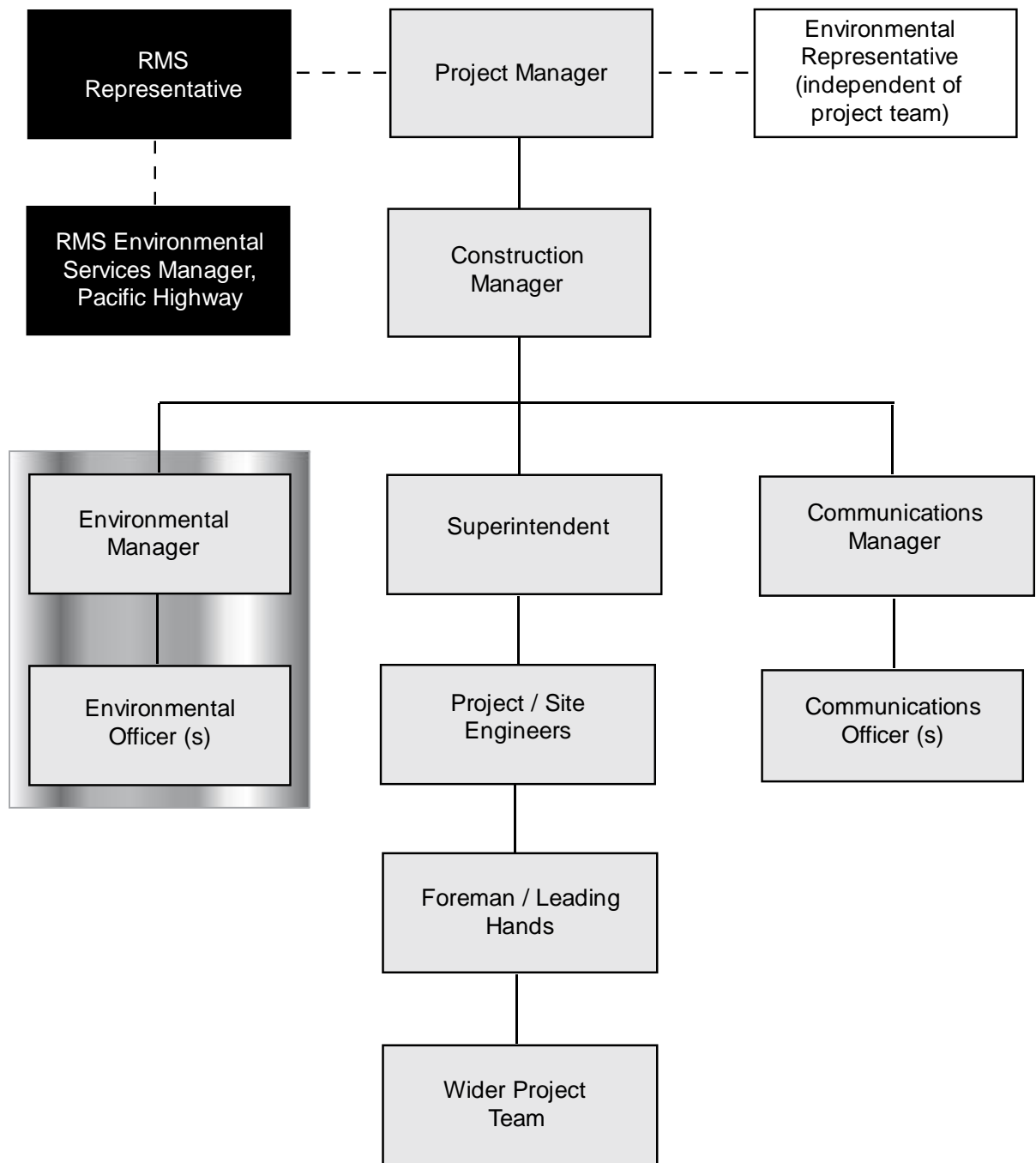
Project specific procedures will be developed in accordance with the requirements for the Project. Where applicable, existing contractor procedures and work instructions will be applied or amended for use on the Project.

A register of relevant environmental procedures and forms are maintained in Appendix A4.

## **4.2 Resources, roles, responsibilities and authority**

The key environmental management roles and responsibilities for the construction phase of the Project are described below. The structure of these roles is shown in Figure 4-2.

**Figure 4-2 Management structure**



- RMS personnel
- Contractor personnel
- Environment team

#### **4.2.1 Environmental Representative**

The Environmental Representative is approved by the Secretary of the Department of Planning and Environment. The environmental responsibilities of the Environmental Representative are detailed in CoA D23 and include:

- a) Be the principal point of advice in relation to the environmental performance of the Project.
- b) Monitor the implementation of environmental management plans and monitoring programs required under the Project Approval and advise the Proponent upon the achievement of these plans / programs.
- c) Consider and advise the Proponent on matters specified in the CoA, and other licences and approvals related to the environmental performance and impacts of the Project.
- d) Ensure that environmental auditing is undertaken in accordance with the Environmental Management System.
- e) Approve / reject minor amendments to the CEMP.
- f) Approve / reject Out of Hours Works activities. These works shall be conducted in accordance with the Out of Hours Works Protocol (OOHW Protocol)
- g) Approve / reject ancillary facilities in accordance with CoA B73 and B74.
- h) 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.
- i) Be consulted in responding to the community concerning the environmental performance of the Project where the resolution of points of conflict between the Proponent and the community is required.

Also in accordance with CoA 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.

#### **4.2.2 Roads and Maritime Environmental Manager**

The environmental responsibilities of the Roads and Maritime Environmental Manager include (but are not limited to):

- Review any environmental management plans and related documents prepared for the Project.
- Review minor Project refinements that are consistent with the Project environmental assessment and approval documentation and recommend they be approved to the General Manager, Pacific Highway.
- Monitor the environmental performance of the Project in relation to Roads and Maritime requirements.

#### **4.2.3 Roads and Maritime Representative**

The environmental responsibilities of the Roads and Maritime Representative include (but are not limited to):

- Evaluate and advise on compliance with Roads and Maritime environmental requirements.
- Review and approve any environmental management plans for the Project or related activities that are not required to be approved by the Secretary of the Department of Planning and Environment.

#### **4.2.4 Project Manager**

The environmental responsibilities of the Project Manager include (but are not limited to):

- Ensure all works comply with relevant regulatory and Project requirements.
- Ensure the requirements of the CEMP are fully implemented, and in particular, that environmental requirements are not secondary to other construction requirements.
- Endorse and support the Project environmental policy attached at Appendix A3.
- Liaise with Roads and Maritime, Environmental Representative and other government authorities as required.
- Participate and provide guidance in the regular review of this CEMP and supporting documentation.
- Provide adequate resources (personnel, financial and technological) to ensure effective development, implementation and maintenance of the CEMP.
- Ensure that all personnel receive appropriate induction training, including details of the environmental and community requirements.
- Ensure that complaints are investigated to ensure effective resolution.
- Stop work immediately if an unacceptable impact on the environment is likely to occur.

#### **4.2.5 Construction Manager (Earthworks Pavement Manager)**

The environmental responsibilities of the Construction Manager include (but are not limited to):

- Plan construction works in a manner that avoids or minimises impact to environment.
- Ensure the requirements of the CEMP are fully implemented.
- Ensure construction personnel manage construction works in accordance with statutory and approval requirements.
- Ensure environmental management procedures and protection measures are implemented.
- Ensure all Project personnel attend an induction prior to commencing works.
- Liaise with Roads and Maritime, the Environmental Representative and other government authorities as required.
- Stop work immediately if an unacceptable impact on the environment is likely to occur.

#### **4.2.6 Superintendent (Site Supervisor)**

The environmental responsibilities of the superintendent include (but are not limited to):

- Communicate with all personnel and sub-contractors regarding compliance with the CEMP and site-specific environmental issues.
- Ensure all site workers attend an environmental induction prior to the commencement of works.
- Coordinate the implementation of the CEMP.
- Coordinate the implementation and maintenance of pollution control measures.
- Identify resources required for implementation of the CEMP.
- Report any activity that has resulted, or has the potential to result, in an environmental incident immediately to the Environmental Manager / Environmental Officers.
- Coordinate action in emergency situations and allocate required resources.
- Stop activities where there is an actual or immediate risk of harm to the environment and advise the Construction Manager and Environmental Manager.

#### **4.2.7 Environmental Manager (Environmental Site Representative)**

The Contract only requires the appointment of an Environmental Site Representative by the Contractor. As such, the Environmental Site Representative will undertake both the role of Environmental Manager and Environmental Officer for the Project.

The environmental responsibilities of the Environmental Manager include (but are not limited to):

- Overall responsibility for the implementation of environmental matters on the Project.
- Development, implementation, monitoring and updating of the CEMP and associated environmental plans in accordance with ISO14001.
- Report to Project Manager and other senior managers on the performance and implementation of the CEMP.
- Ensure management reviews of the CEMP are undertaken annually, documented and actions implemented.
- Ensure environmental risks of the Project are identified and appropriate mitigation measures implemented.
- Identify where environmental measures are not meeting the targets set and where improvement can be achieved.
- Ensure environmental protocols are in place and managed.
- Ensure environmental compliance.
- Obtain and update all environmental licences, approvals and permits as required.
- Lead liaison with Environmental Representative and approval authorities.
- Manage environmental document control, reporting, inductions and training.
- Manage environmental reporting within the Project team and to the Roads and Maritime and regulatory authorities.
- Preparing reports on a monthly basis outlining the Project Works undertaken and the achievements that have been met, as well as identifying those areas where improvements were made.
- Oversee site monitoring, inspections and audits.
- Manage all subcontractors and consultants with regards to environmental matters, including assessing their environmental capabilities and overseeing the submission of their environmental documents.
- Prepare and/or distribute environment awareness notes.
- Review and approve ESCP.
- Develop and facilitate induction, toolbox talks and other training programs regarding environmental requirements for all site personnel.
- Notify Roads and Maritime and relevant authorities in the event of an environmental incident and manage close-out of these.
- Stop activities where there is an actual or immediate risk of harm to the environment, or to prevent environmental non-conformities, and advise the Project Manager, Construction Manager and Superintendent.
- Assist the Communications Manager to resolve environment-related complaints.

#### **4.2.8 Environmental Officer (Environmental Site Representative)**

The environmental responsibilities of the Environmental Officer include (but are not limited to):

- Assist in preparing the CEMP (including any future revisions) in accordance with all relevant requirements.

- Develop ESCP in consultation with the superintendent, site engineers, foreman and other relevant site personnel, as required.
- Undertake site inspections, carry out monitoring activities and complete site checklists.
- Ensure monitoring records are appropriately maintained, reviewed and any non-compliance issues addressed.
- Manage the day-to-day environmental elements of construction.
- Record and provide written reports to the Environmental Manager of non-conformances or corrective actions with the CEMP. This may include the need to implement additional, or revise existing, mitigation measures.
- Assist in identifying environmental risks.
- Advise the Environmental Manager and Construction Manager of the need to stop work immediately prior to non-conformance/non-compliance occurring. If an unacceptable impact on the environment is likely to occur or to require other reasonable steps to be taken by the Construction Manager or site construction staff to avoid or minimise impacts.
- Provide reports to the Environmental Manager on any major issues resulting from the Project.
- Assist all site staff with issues concerning Project environmental matters.
- Assist in developing training programs regarding environmental requirements and deliver where required, including delivery of the environmental component of toolbox talks.
- Stop activities where there is an actual or immediate risk of harm to the environment and advise the Project Manager, Construction Manager, Superintendent and Environmental Manager.

#### **4.2.9 Communications Manager**

The environmental responsibilities of the Communications Manager include (but are not limited to):

- Ensure that all community consultation activities are carried out in accordance with approved plans and strategies.
- Report any environmental issues to the Environmental Manager raised by stakeholders or members of the community.
- Communicate general Project progress, performance and issues to stakeholders including the community.
- Maintain the 24 hour complaints hotline.

#### **4.2.10 Project/Site Engineers**

The environmental responsibilities of the Project / Site engineers include (but are not limited to):

- Provide input into the preparation of environmental planning documents as required.
- Ensure that instructions are issued and adequate information provided to employees that relate to environmental risks on-site.
- Ensure that the works are carried out in accordance with the requirements of the CEMP and supporting documentation, including the implementation of all environmental controls.
- Identify any environmental risks.
- Identify resource needs for implementation of CEMP requirements and related documents.
- Ensure that complaints are investigated to ensure effective resolution.
- Take action in the event of an emergency and allocate the required resources to minimise the environmental impact.



- Report any activity that has resulted, or has the potential to result, in an environmental incident immediately to the Superintendent and Environmental Manager.

#### **4.2.11 Foreman**

The environmental responsibilities of the foreman include (but are not limited to):

- Undertake any environmental duties as defined by the superintendent or Project/site engineer.
- Control field works and implement/maintain effective environmental controls.
- Where required, undertake environmental risk assessment of works prior to commencement.
- Ensure site activities comply with EWMS and relevant records are kept.
- Ensure all site workers are site inducted prior to commencement of works.
- Attend to any spills or environmental incidents that may occur on-site.
- Report any activity that has resulted, or has the potential to result, in an environmental incident immediately to the Superintendent.
- Stop activities where there is an actual or immediate risk of harm to the environment and advise the Project Manager, Construction Manager, Superintendent or Environmental Manager.

#### **4.2.12 Project Soil Conservationist**

The Project appointed Soil Conservationist will be retained by SEE Civil until Contract Completion and will be present for critical site activities including (but not limited to) site establishment, vegetation clearing, earthworks, drainage works and site stabilisation. The environmental responsibilities of the Soil Conservationist include (but are not limited to):

- Registered as an RMS approved service provider in accordance with 'Soil Conservation Consultancy Services' category.
- Must review all erosion, sediment and water pollution plans, controls and measures prior to installation.
- Must assist in Project training regarding erosion and sediment control issues
- Must liaise on a regular basis with any Soil Conservationist appointed for the Project by RMS.

#### **4.2.13 Wider Project Team (including sub-contractors)**

The environmental responsibilities of the wider Project Team (including sub-contractors) include (but are not limited to):

- Comply with the relevant requirements of the CEMP, or other environmental management guidance as instructed by a member of the Project's management.
- Participate in the mandatory Project/site induction program.
- Report any environmental incidents to the foreman immediately or as soon as practicable if reasonable steps can be adopted to control the incident.
- Undertake remedial action as required to ensure environmental controls are maintained in good working order.
- Stop activities where there is an actual or immediate risk of harm to the environment and advise the Project Manager, Construction Manager, Superintendent or Environmental Manager.

### **4.3 Sub-contractor management**

Environmental requirements and responsibilities are to be specified to sub-contractors in the contract documentation. As part of the selection process, consideration will also be given to their past environmental performance. The Environmental Manager, or delegate, will participate in the tender assessment and selection process where it is deemed necessary due to associated environmental risks. All sub-contractors will be required to complete a sub-contractor questionnaire or similar.

All sub-contractors are required to work in accordance with the approved CEMP.

All sub-contractors are required to attend Project and/or site inductions where the requirements and obligations of the CEMP are communicated. A record of all sub-contractors inducted will be maintained as part of the Project induction and training register.

A standard monitoring form will be developed that will be used to assess:

- The sub-contractor's general work practices.
- The effectiveness of the sub-contractor's environmental protection measures.
- The sub-contractor's compliance with the requirements of this CEMP.
- The maintenance of environmental measures.

### **4.4 CEMP availability**

This CEMP will be made available for public inspection on request. Confidential information, which may include the location of threatened species, Aboriginal objects or places and personnel contact details, will be removed from all documents provided or made available to the public.

An electronic copy of the CEMP is provided on the Project website.

## 5 Competence, training and awareness

To ensure that this CEMP is effectively implemented, each level of management is responsible for ensuring that all personnel reporting to them are aware of the requirements of this CEMP. The Environmental Manager will coordinate the environmental training in conjunction with other training and development activities (eg safety).

### 5.1 Environmental induction

All personnel (including sub-contractors) are required to attend a compulsory site induction that includes an environmental component prior to commencement on-site. This is done to ensure all personnel involved in the Project are aware of the requirements of the CEMP and to ensure the implementation of environmental management measures.

Short-term visitors to site for purposes such as deliveries will be required to be accompanied by inducted personnel at all times.

The Environmental Manager (or delegate) will conduct the environmental component of the site inductions.

The environmental component will include, but not limited to, an overview of:

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

A record of all environment inductions will be maintained and kept on-site. The Environmental Manager may authorise amendments to the induction at any time. Possible reasons for changes to the induction may be Project modifications, legislative changes or amendments to this CEMP or related documentation.

The Environmental Representative will review and approve the induction program and monitor implementation.

### 5.2 Toolbox talks, training and awareness

Toolbox talks will be one method of raising awareness and educating personnel on issues related to all aspects of construction including environmental issues. The toolbox talks are used to ensure environmental awareness continues throughout construction.

Toolbox talks will include details of EWMS for relevant personnel. Toolbox talks will also be tailored to specific environmental issues relevant to upcoming works.

Relevant environmental issues may include (but are not limited to):

- Erosion and sedimentation control.
- Hours of work.
- Emergency and spill response.
- Aboriginal and non-Aboriginal heritage.
- Threatened species, endangered ecological communities, clearing controls and vegetation protection.
- Weed management.

- Dust control.

Toolbox attendance is mandatory and attendees of toolbox talks are required to sign an attendance form and the records maintained.

Targeted environmental awareness training will be provided to individuals or groups of workers with a specific authority or responsibility for environmental management or those undertaking an activity with a high risk of environmental impact. Topics covered may include those detailed above, or others deemed necessary in the lead up to or during construction.

Another way to inform construction personnel will be through the development and distribution of awareness notes. These will typically take the form of a poster, booklet, or similar and will be distributed to engineers, leading hands, foreman and others with a responsibility for managing specific work locations or activities. This documentation will be used to inform the broader workforce through either daily pre-starts meeting (see section 5.3) or provision in worker crib sheds / break facilities.

The Environmental Representative will review and approve the training program and monitor implementation.

### **5.3 Daily Pre-Start Meetings**

The pre-start meeting is a tool for informing the workforce of the day's activities, safe work practices, environmental protection practices, work area restrictions, activities that may affect the works, coordination issues with other trades, hazards and other information that may be relevant to the day's work.

The Foreman will conduct a daily pre-start meeting with the site workforce before the commencement of work each day (or shift) or where changes occur during a shift. Daily pre-start meetings are generally succinct in nature and take approximately 10-15 minutes.

The environmental component of pre-starts will be determined by relevant foreman and environmental personnel and will include any environmental issues that could potentially be impacted by, or impact on, the day's activities. All attendees will be required to sign on to the pre-start and acknowledge their understanding of the issues explained.

Pre-start topics, dates delivered and a register of attendees will be recorded.

## **6 Communication**

### **6.1 Internal communication**

Clear lines of communication throughout all levels and functions (eg management, staff and sub-contracted service providers) are key to minimising environmental impacts and achieving continual improvements in environmental performance.

The environmental team will meet regularly to discuss any issues with environmental management on-site, any amendments to plans that might be required or any new / changes to construction activities.

Regular meetings may also be scheduled with the Environmental Representative and relevant Roads and Maritime environmental staff. The purpose of these meetings would be to communicate ongoing environmental performance and to identify any issues to be addressed.

In addition, environment team members will participate in toolbox talks on at least a weekly basis. This forum will provide an opportunity for the environment team members to communicate on environmental performance, to advise on any upcoming sensitive environmental matters for future work areas and to receive feedback from on-site personnel.

Further internal communications regarding environmental issues and aspects will be through awareness training as described in Section 5.2.

### **6.2 External and government authority consultation**

The Environmental Manager will be the main point of contact regarding specific environmental issues. The Environmental Manager has the responsibility to report on the ongoing environmental performance of the Project to Roads and Maritime, Environmental Representative and EPA. The Environmental Manager will report regularly to Roads and Maritime on progress and any key environmental matters and to the EPA through monthly EPL reports.

### **6.3 Stakeholder and community communication**

#### **6.3.1 Community communication strategy**

The Communications and Stakeholder Engagement Strategy has been developed to provide an approach to stakeholder and community communications in accordance with the requirements of CoA C1. The strategy identifies opportunities for providing information and consulting with the community and stakeholders during the construction phase of the Project. The strategy defines:

- The engagement groups.
- The key messages of the Project.
- The range of tools that will be used to interact with community and stakeholders.

Communication tools defined in the strategy include:

- Targeted community open days.
- Advertisements.
- Displays.
- Door-knock.
- Letterbox drops.
- Signage.
- Website.

- Focus meetings.
- 1800 number and email address.

The W2B Communications and Stakeholder Engagement Strategy was approved by the Department of Planning and Environment on 13 May 2015. A Community Action Plan will be developed for the Project in accordance with the Woolgoolga to Ballina Communications and Stakeholder Engagement Strategy and will be approved by RMS prior to construction commencing.

### **6.3.2 Complaints and enquires procedure**

A Complaints and Enquiries Procedure, consistent with *AS 4269: Complaints Handling*, will be developed for the Project, in accordance with the requirements of CoA C2 and C3.

All community inquiries and complaints related to the construction activities will be referred to the 24-hour community information line (1800 778 900). A postal address (Woolgoolga to Ballina upgrade, Att: Communications, PO Box 546 Grafton NSW 2460) and email address ([W2B@rms.nsw.gov.au](mailto:W2B@rms.nsw.gov.au)) has been provided for receipt of complaints and enquiries. The telephone number, the postal address and the email address were published in newspapers circulating in the local area prior to the commencement of construction and is provided on the Project website.

Information on all complaints received, including the means by which they were addressed and whether resolution was reached and whether mediation was required or used, will be included in a complaints register. The information contained within the register will be made available to the Secretary on request.

Attempts will be made to resolve all complaints in accordance with the Communications and Stakeholder Engagement Strategy. An initial response to complaints will be provided within 24 hours of a complaint being received. A further detailed response, including steps taken to resolve the issue(s) that lead to the complaint, will be provided within 10 days. All complaints should be closed off in the stakeholder database. At all times the stakeholder will be kept informed of when they will receive a response.

The Environmental Manager will apply an adaptive approach to ensure that corrective actions are applied in consultation with the appropriate construction staff to allow modifications and improvements in the management of any environmental issues resulting in community complaints.

## 7 Incidents and emergencies

In the event of an environmental incident, Roads and Maritime Environmental Incident Classification and Reporting Procedure will be implemented. The full procedure is provided in Appendix A6.

The procedure provides references to:

- Types of incidents.
- Criteria for classifying of environmental incidents.
- Processes for systematically responding to and managing emergency situations.
- Processes, and legal requirements (eg Acts, Regulations, EPL), for reporting and notification of an environmental incident.

The procedure covers the management of events such as, but not limited to:

- Spills of fuels, oils, chemicals and other hazardous materials.
- Unauthorised discharge from sediment basins or other containment devices.
- Unauthorised clearing or clearing beyond the extent of the Project boundary or premises.
- Inadequate installation and subsequent failure of temporary erosion and sediment controls.
- Unauthorised damage or interference to threatened species, endangered ecological communities or critical habitat.
- Unauthorised harm or desecration to Aboriginal objects and Aboriginal places.
- Unauthorised damage or destruction to any State or locally significant relic or Heritage item.
- Unauthorised damage to marine vegetation and mangroves.
- Unauthorised dredging or reclamation works within a watercourse.
- Potential contamination of waterways or land.
- Accidental starting of a fire or a fire breaking out of containment.
- Any potential breach of legislation, including a potential breach of a condition of: an environment protection licence; CoA approval; or any agency permit condition.
- Works undertaken without appropriate approval or assessment under the EP&A Act.
- Works undertaken that are not in accordance with a Project assessment.
- Unauthorised dumping of waste.

In accordance with the requirements of CoA D27, the Compliance Tracking Program will document:

- Mechanisms for reporting and recording incidents and actions taken in response to those incidents.
- Provisions for reporting environmental incidents to the Director General during construction and operation.
- Procedures for rectifying any non-compliance identified during review of incident management.

Typically, environmental incidents will be notified verbally immediately and in writing within one hour of any incident occurring to the Roads and Maritime Representative and the Environmental Representative. Incident reports will be provided to the 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.

The EPA will be immediately 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 PoEO Act. The circumstances where this will take place include:

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

Where an incident involves an Aboriginal site, relevant Registered Aboriginal Parties will be notified and their input sought in closing out the incident.

Roads and Maritime Environment Branch and Project team will maintain all records relating to environmental incidents.



# 8 Inspections, monitoring and auditing

## 8.1 Environmental inspections

### 8.1.1 Weekly and post rainfall site inspections

The Environmental Manager and/or Environmental Officers will undertake weekly and post rainfall inspections of the work sites to evaluate the effectiveness of environmental controls. Post rainfall inspections occur typically within 24 hours of a rainfall event that exceeds 10 millimetres rainfall or as required by the EPL. The Environmental Officers will record inspection findings on an inspection checklist form.

If any maintenance and/or deficiencies in environmental controls or in the standard of environmental performance are observed, they will be recorded on the checklist form. Records will also include details of any maintenance required, the nature of the deficiency, any actions required and an implementation priority.

### 8.1.2 Environmental Representative, Roads and Maritime and ERG inspections

The Environmental Representative, Roads and Maritime staff and members of the ERG will undertake regular inspections of works sites, and in particular critical activities throughout construction of the Project. Inspections by the Environmental Representative and Roads and Maritime Project staff would typically occur on a weekly or fortnightly basis depending on the complexity and anticipated risks associated with the stage of construction. ERG inspections will typically be less frequent, more likely on a monthly or three-monthly basis depending on the construction staging of Project.

A member of the Project environment team will participate in all Environmental Representative, client and ERG inspections, and records maintained. Deficiencies and required actions will be analysed and prioritised at the completion of the inspection and timeframes for implementation of corrective actions agreed.

### 8.1.3 Pre-work inspections

Prior to the commencement of works on each shift, an inspection will be carried out and will include a check of relevant environmental controls and resources required to ensure effective operation and maintenance. Works are not to commence unless inspections are found to be satisfactory.

The foreman will undertake the inspections.

## 8.2 Monitoring

Monitoring will be undertaken to validate the impacts predicted for the Project, to measure the effectiveness of management plans, environmental controls and implementation of this CEMP, and to address approval requirements. The monitoring requirements for required aspects are included in the relevant management plans and summarised in Table 8-1.

Table 8-1 Summary of environmental monitoring required by Project approval

CoA	Description	Relevant Sub-Plan	Reporting Requirements
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CoA	Description	Relevant Sub-Plan	Reporting Requirements
B66	Monitoring of dust proposed, how results of monitoring recorded and reported, how to rectify any non-compliance	Construction air quality management plan (Appendix B6)	Refer to plan
D8 (d)	Ecological monitoring as part of Threatened Species Management Plans	Construction flora and fauna management plan (Appendix B2).	Annual reporting of results to the Secretary and <i>OEH, DPI (Fisheries) and DoE.</i>
D12 (e)(f)	Water Quality Monitoring Program to monitor impacts on surface and groundwater quality and resources and wetlands.	Construction soil and water quality management plan (Appendix B4).	Reporting of results to DP&E, EPA, DPI and NOW.
D21 (l)	Monitoring of the construction compound and ancillary facilities management.	Ancillary Facilities Management Plan (Appendix B8)	Refer Section 2.4 and Appendix B8
<b>D23 (b)</b>	<b>Monitoring the implementation and outcomes of EMPs and monitoring programs by the Environmental Representative.</b>	<b>N/A</b>	<b>Report to Roads and Maritime</b>
D26 (a)(v)	Monitoring of noise and vibration proposed, how results of monitoring recorded and reported, how to rectify any non-compliance	Construction noise and vibration management plan (Appendix B3)	Refer to plan
D26 (b)(vii)	Monitoring of construction traffic and access management plan.	Construction traffic and access management plan (Appendix B1)	Refer to plan
D26 (c)(ix)	Monitoring of effectiveness of soil and water quality management measures and the soil and water quality management plan.	Construction soil and water quality management sub plan (Appendix B4).	Refer to plan
D26 (d)(iii)	Protection / monitoring of Aboriginal cultural heritage sites and historic heritage items and the heritage management plan.	Construction heritage management plan (Appendix B5)	Refer to plan
D26 (e)	Monitoring of the flora and fauna management plan.	Construction flora and fauna management plan (Appendix B2).	Refer to plan
D28 (a)	Monitoring of noise and vibration, effectiveness of noise mitigation measures	Construction noise and vibration management plan (Appendix B3)	Operational Noise Compliance Report

A monitoring procedure will address how these activities will be undertaken.

The monitoring procedure will include:

- Purpose and scope.

- Minimum acceptable frequency and standards listed in applicable approvals, licences and regulations.
- Relevant EPA approved methods, Australian Standards or, in the absence of an Australian Standard, industry acceptable procedures.
- Targets and parameters.
- Processes for response to any exceedances of targets/standards.
- Processes for recording and reporting results.

The Environmental Representative and Roads and Maritime Representative will be advised of any non-conformances from monitoring and details reported in the monthly report.

Where a non-conformance is detected or monitoring results are outside of the expected range and are directly attributable to the Project (ie are influenced by factors under the direct control of the Project eg noise from construction equipment), the process described in Section 8.6 will be implemented. Steps in the process will typically include:

- An analysis of the results by the Environmental Manager in more detail with a view of determining possible causes for the non-conformance.
- A site inspection by the Environmental Manager or delegate.
- Advising relevant personnel of the problem.
- Identifying and agreeing on actions to resolve or mitigate the non-conformance.
- Implementing actions to rectify or mitigate the non-conformance.
- A review of the effectiveness of the actions in solving the non-conformance.

A non-conformance Environmental Incident Report and/or Environmental Improvement Notice may be issued by the Environmental Manager in response to the non-conformance problem if it is found to be construction related.

The timing for any improvement will be agreed between the relevant Engineer/Superintendent and Environmental Manager based on the level of risk (eg a significant risk will require immediate action).

All environmental monitoring equipment shall be maintained and calibrated according to manufacturer's specifications and appropriate records kept.

## **8.3 Auditing and reporting**

Table 8-2 presents auditing requirements that are applicable to the Project.

### **8.3.1 Contractor audits**

Internal auditing will be undertaken generally on a six monthly basis throughout the Project. The purpose of auditing is to verify compliance with:

- This CEMP and associated plans.
- Approval requirements (CoAs).
- Any relevant legal and other requirements (eg licences, permits, regulations, Roads and Maritime contract documentation).

An audit checklist will be developed and amended as necessary to reflect changes to this CEMP, subsequent approvals and changes to Acts, regulations or guidelines.

### **8.3.2 Independent external audits**

External auditing will be undertaken by an independent environment auditor in accordance with ISO 19011:2003 - *Guidelines for Quality and/ or Environmental Management Systems Auditing*.

Table 8-2 Audit requirements

No.	Audit	Requirement	Timing	Responsibility	Recipient
1	Internal audit	Verify compliance with approval and legal requirements, Roads and Maritime specifications and construction documentation	The first audit within three months of the commencement of construction and then at six monthly intervals thereafter. The final submitted within five working days of contract completion date.	Environmental Manager	Project Manager, Roads and Maritime
2	External independent audit	Verify compliance with approval and legal requirements, Roads and Maritime specifications, construction documentation and any other commitments.	Six monthly	Environmental Manager	Project Manager, Roads and Maritime
3	Site Audit	Verify compliance of Phase 2 contamination investigations and remediation of (where required) with approval and legal requirements, Roads and Maritime specifications, construction documentation and any other commitments.	Prior to commencement of site preparation and excavation activities in areas identified as having moderate to high risk of contamination.	Environmental Manager, Environmental Officer (s)	Project Manager, Roads and Maritime
4	Independent Environmental Audit	Verify compliance with approval and legal requirements,	Within twelve months of the commencement of operation.	Environmental Manager, Environmental Officer (s)	Environmental Manager, Environmental Officer (s)

No.	Audit	Requirement	Timing	Responsibility	Recipient
		Roads and Maritime specifications, construction documentation and any other commitments			

## 8.4 Compliance tracking program

A Compliance Tracking Program has been approved for the Project by the Department of Planning and Environment. The requirements of the Compliance Tracking Program, as prescribed in CoA D27 are:

CoA D27: The Applicant shall develop and implement a **Compliance Tracking Program** to track compliance with the requirements of this approval. The Program shall be submitted to the Director General for approval prior to the commencement of construction and operate for a minimum of one year following commencement of operation, or as otherwise agreed by the Director General. The Program shall 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 Project (including prior to each stage, where works are being staged).
- b) Provisions for periodic review of the compliance status of the Project against the requirements of the Project approval.
- c) Provisions for periodic reporting of compliance status to the Secretary, including a Pre-Construction Compliance Report, during construction reporting and a Pre-Operation Compliance Report.
- 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.

The Compliance Tracking Program describes how the requirements of CoA D27 will be met and sets out a program and frequency for compliance reporting and independent auditing. The compliance reporting required under the Compliance Tracking Program will record how the CoA has been addressed. A summary of the required compliance reporting, as required by CoA D27, is provided in Table 8-3.

Note: The contractor is required to track and report on the compliance status of all construction related CoA.

Table 8-3 Compliance reporting

No.	Report	Requirement	Timing	Responsibility	Recipient
1	Compliance tracking program CoA D27	Describes how the requirements of CoA D27 will be met and sets out a program and frequency for compliance reporting and independent auditing.	Prior to construction	Contractor to prepare Roads and Maritime to Revise and submit	The Minister has approved this document
2	Pre-Construction Compliance Report CoA D27	Review of compliance status of the Project against the requirements of the Project approval prior to construction	Prior to construction commencing	Contractor to prepare Roads and Maritime to Revise and submit	DP&E
3	Construction reporting CoA D27	Periodic review of compliance status of the Project against the requirements of the Project approval during construction	Six months following the commencement of construction and then at 6 monthly intervals thereafter	Contractor to prepare Roads and Maritime to Revise and submit	DP&E
4	Pre-Operation Compliance Report CoA D27	Review of compliance status of the Project against the requirements of the Project approval prior to operation	Prior to operation commencing	Contractor to prepare Roads and Maritime to Revise and submit	DP&E

## 8.5 Other reporting

Prior to, during and following construction, various reports will be prepared to fulfil internal Roads and Maritime and contractor reporting needs, and requirements under the Project approval. Table 8-4 sets out the reporting requirement applicable to the Project, timing of the reporting, who is responsible for managing preparation of the reports and the intended recipient(s).

Additional reporting may be necessary as the works progress. In such a circumstance, Table 8-4 will be amended to reflect these changes.

Table 8-4 Reporting requirements

No.	Report	Requirement	Timing	Responsibility	Recipient
1	Monthly environmental report	For incorporation in Project Monthly Reports including environmental statistics (ie incidents, regulatory action, complaints on environmental issues), regulatory and authority considerations, monitoring program performance and key environmental issues.	Monthly	Environmental Manager	Roads and Maritime
2	EPL monthly report	Details of all non-compliances with conditions of EPL, measures taken to prevent recurrence, and details of discharges from sediment basins where water quality results exceed EPL conditions, or reporting on other licence requirements.	Within 10 working days of the end of each calendar month.	Environmental manager	EPA
3	EPL annual returns	Report on compliance with EPL.	Within 60 days of the anniversary of the EPL.	Environmental Manager	EPA
4	ER inspection report	Report of site environmental performance following routine inspections.	Monthly	Environmental Representative	Roads and Maritime /DP&E
5	Environmental risk assessment	Conducted for each construction stage, Project changes and significant issues.	Prior to construction during development of CEMP and as required thereafter.	Environmental Manager, Construction Manager	Roads and Maritime
6	Monitoring results	Report on monitoring data recorded and potential exceedances against criteria.	Monthly	Environmental Manager, Environmental Officer (s)	Roads and Maritime

No.	Report	Requirement	Timing	Responsibility	Recipient
7	RMS and/or EPA, ER environmental inspection reports	Response to matter raised in RMS and/or EPA site inspections.	As required. (Typically every two weeks for RMS inspection reports and monthly for EPA inspection reports).	Environmental Manager, Environmental Officer (s)	Roads and Maritime /EPA, ER
8	Internal audit report	Verify compliance with approval and legal requirements, Roads and Maritime specifications and construction documentation.	The first audit within three months of the commencement of construction and then at six monthly intervals thereafter. The final submitted within five working days of contract completion date.	Environmental Manager	Project Manager, Roads and Maritime
9	External independent audit report	Verify compliance with approval and legal requirements, Roads and Maritime specifications, construction documentation and any other commitments.	Six monthly	Environmental Manager	Project Manager, Roads and Maritime



No.	Report	Requirement	Timing	Responsibility	Recipient
10	Site Audit Report	Report on outcomes of Phase 2 contamination investigations. Where remediation is required, site audit statement(s) shall be prepared verifying that the site has been remediated to a standard that is consistent with the intended land use.	Prior to commencement of site preparation and excavation activities in areas identified as having moderate to high risk of contamination.	Environmental Manager, Environmental Officer (s)	Roads and Maritime
11	Independent Environmental Audit	Report on environmental performance and compliance, and adequacy of the environmental management system.	Within twelve months of the commencement of operation.	Environmental Manager, Environmental Officer (s)	Roads and Maritime

## **8.6 Non-conformity, corrective and preventative actions**

Any member of the Project team may raise a non-conformance or improvement opportunity. The Quality Plan (reference to be provided) describes the process for managing non-conforming work practises and initiating corrective/preventative actions or system improvements.

The Environmental Representative, Roads and Maritime Representative or public authority may also raise a non-conformance or improvement opportunity using the same process.

A non-conformance is the failure or refusal to comply with the requirements of this CEMP and supporting documentation.

For each non-conformance identified a corrective/preventative action (or actions) must be implemented. In addition any environmental management improvement opportunities can be initiated as a result of incidents or emergencies, monitoring and measurement, audit findings or other reviews. Improvement opportunities may also result in the implementation of corrective/preventative actions.

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

Non-conforming activities may be stopped, if necessary, by the Environmental Manager, Environmental Officers or Project / Site Engineer following consultation with the Construction Manager or delegate. The works will not commence until a corrective / preventative action has been closed out. The Environmental Representative may also stop works in these circumstances. In such circumstances a non-conformance report must be prepared in accordance with the Quality Plan.

Procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management are also documented in the Compliance Tracking Program / Reports

## 9 Review and improvement

Management reviews are undertaken as part of the continual improvement process. The management review can consist of group reviews, or executive reviews.

A group review is initiated by the Environmental Manager and includes relevant Project team members and stakeholders. The environment team also meet at least quarterly, or at other pre-determined periods, to review environmental management issues for the Project. The environment team meeting can be run in conjunction with a wider group meeting if the Environmental Manager deems it appropriate.

The environment group meetings include:

- A review of the aspects and impacts register, legal register and environmental induction.
- Consideration of monitoring, inspection and audit results.
- Consideration of incidents and any lessons learnt.
- Consideration of any new regulatory issues.
- A review of the effectiveness of erosion and sediment controls.
- Consideration of issues raised by ERG.
- Consideration of changes in operational needs such as resourcing.
- Feedback from management reviews.

An executive review will involve the management team. This review will be held every 12 months and will include a review of:

- Effectiveness of environmental management documentation implementation.
- Management effectiveness.
- Potential improvements to the environmental management documentation.
- Adequacy of resources.
- Findings of audits.
- Environmental objectives and targets.
- Environmental performance.
- Compliance with legal and other requirements.
- Critical non-conformance or repeated non-conformances.
- Organisation changes.
- Effectiveness of training and inductions.

The outcomes of the group and executive reviews could include amendments to this CEMP and related documentation, revision to the Project's environmental management system, risk assessment review, re-evaluation of the Project objectives and targets as well as feeding into other Project documents.

# 10 Documentation

## 10.1 Environmental records

The Environmental Manager is responsible for maintaining all environmental management documents as current at the point of use. Types of records include:

- All monitoring, inspection and compliance reports/records.
- Correspondence with public authorities.
- Induction and training records.
- Reports on environmental incidents, other environmental non-conformances, complaints and follow-up action.
- Community engagement information.
- Minutes of CEMP and construction environmental management system review meetings and evidence of any action taken.

All environmental management documents are subject to ongoing review and continual improvement. This includes times of change to scheduled activities or to legislative or licensing requirements.

Only the Environmental Manager, or delegate, has the authority to change any of the environmental management documentation.

## 10.2 Document control

The Contractor, or Roads and Maritime where relevant, will coordinate the preparation, review and distribution, as appropriate, of the environmental documents listed above. During the Project, the environmental documents will be stored at the main site compound.

The Contractor will implement a document control procedure to control the flow of documents within and between Roads and Maritime, stakeholders and subcontractors.

The procedure will also ensure that documentation is:

- Developed, reviewed and approved prior to issue.
- Issued for use.
- Controlled and stored for the legally required timeframe.
- Removed from use when superseded or obsolete.
- Archived.

A register and distribution list will identify the current revision of particular documents or data.

# Appendices

*Appendix A1 Legal and other requirements*

*Appendix A2 Environmental aspects and impacts*

*Appendix A3 Environmental policies*

*Appendix A4 Document register*

*Appendix A5 Sensitive area plans*

*Appendix A6 Environmental incident classification and reporting*

*Appendix A7 Other relevant management measures*

*Appendix A8 Compliance Tracking Program*

*Appendix B1 Construction traffic and access management plan*

*Appendix B2 Construction flora and fauna management plan*

*Appendix B3 Construction noise and vibration management plan*

*Appendix B4 Construction soil and water quality management plan*

*Appendix B5 Construction heritage management plan*

*Appendix B6 Construction air quality management plan*

*Appendix B7 Construction waste and energy management plan*

*Appendix B8 Ancillary facilities management plan*

*Appendix B9 Borrow sites management plan – Note: This Appendix is not applicable to the Wave 2 project and therefore has been intentionally omitted.*

*Appendix B10 Construction Contaminated Land Management Plan*

*Appendix B11 Construction Acid Sulphate Materials Management Plan*