Construction Biodiversity Management Sub-Plan

Narrabri to North Star (N2NS) SP1

6-0000-260-EAP-00-RP-0002 REV A

Document Control

REPORT TITLE	**CONSTRUCTION BIODIVERSITY MANAGEMENT SUB-PLAN**
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Revision History

REVISION	REVISION DATE	DESCRIPTION OF CHANGES
A	20/01/2025	Updated to Inland Rail template. Replace the Trans4m systems and policies with Inland Rail requirements.

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Glossary

Specific terms and acronyms used throughout this strategy are listed and described in the table below.

Table 1: Terminology

ACRONYM / ABBREVIATION	DEFINITION
AMS	Activity Method Statement
ARTC	Australian Rail Track Corporation
Australian DCCEEW	Australian Department of Climate Change, Energy, Environment and Water (formerly known as DAWE)
BMP	Biodiversity Management Plan
BOS	Biodiversity Offset Strategy
CAD	Computer-Aided Design
CEMP	Construction Environmental Management Plan
CIZ[1]	Construction Impact Zone
CoA	Conditions of Approval
CSEMP	Community and Stakeholder Engagement Management Plan
CSSI	Critical State Significant Infrastructure
DBH	Diameter at Breast Height
DAWE	Former Australian Department of Agriculture, Water and the Environment
DPE	Department of Planning and Environment (formerly DPIE)
DPIE	Department of Planning Industry and Environment
DPHI	Department of Planning, Housing and Infrastructure (formerly DPE)
ECM	Environmental Control Map
ECP	Environmental Control Plan
EIS	Environmental Impact Statement
EMS	Environmental Management System
EPA	Environmental Protection Authority
EPBC Act	*Environmental Protection and Biodiversity Conservation Act* (Australian)
EPL	Environment Protection Licence
EPO	Environmental Performance Objective
EP&A	*Environmental Planning and Assessment Act 1979* (NSW)
ER	Environmental Representative
ESCP	Progressive Erosion and Sediment Control Plan
FCWS	Five-clawed Worm Skink
GIS	Geographic Information System
GMR	Global Mandatory Requirement
HSEQS	Health, Safety, Environment, Quality and Sustainability
IMS	Integrated Management System

ACRONYM / ABBREVIATION	DEFINITION
IR	Inland Rail
ISCA	Infrastructure Sustainability Council of Australia
N2NS	Narrabri to North Star (Separable Portion 1)
NSW DCCEEW	Department of Climate Change, Energy, Environment and Water (formerly known as EES)
NPW Act	*National Parks and Wildlife Act 1974* (NSW)
PWMP	Pest and Weed Management Plan
REMM	Revised Environmental Management Measure
RTS	Response to Submissions
SEARs	Secretary's Environmental Assessment Requirements
SEMP	Site Establishment Management Plan
SEP	Site Environmental Plan
SPIR	Submissions Preferred Infrastructure Report
SuMP	Sustainability Management Plan
TEC	Threatened Ecological Community
TARP	Trigger Action Response Plan
TPZ	Tree Protection Zone
TRA	Task Risk Assessment
TfNSW	Transport for NSW
WIRES	Wildlife Rescue 1300 094 737 info@wires.org.au
WRA	Workplace Risk Assessment

NOTE:

1. For the purposes of this sub-plan; the project area, proposal site, study area, development footprint or construction footprint are general terms to refer to the area or site assessed and approved via the Project EIS and SPIR. Throughout the detailed design and construction phase, this footprint is referred to as the Construction Impact Zone (CIZ) which will undergo refinements and changes in accordance with Section 3.3 of this BMP.

Compliance Matrix

Table 2: EPBC Conditions of Approval

CONDITION REFERENCE	REQUIREMENTS	WHERE ADDRESSED
PART A CONDITIONS SPECIFIC TO THE ACTION		
1(a)	Implement conditions C4 and C9 of Part C, Schedule 2 of the State Infrastructure approval, of where they relate to monitoring, managing, avoiding, mitigating, offsetting, recording or reporting on, impacts to protected matters, with the exception of C9(a)	CEMP
1(b)	Ensure that the Weed Management Plan included in the Biodiversity Sub plan required under condition C9 of Part C, Schedule 2 of the State Infrastructure approval, includes appropriate weed control measures to prevent the introduction and/or spread of weeds from construction areas to any retained area of Belsons Panic (*Homopholis belsonii),* Natural Grassland on Basalt and Fine Textured Alluvial Plains of Northern New South Wales and Southern Queensland, Brigalow *(Acacia harpophylla* dominant and co dominant) and Weeping Myall Woodlands ecological communities.	BMP - Appendix A
1(c)	Implement biodiversity conditions E17-E21 and E23-E26 of Part E Schedule 2 of the State Infrastructure approval, where they relate to monitoring, managing, minimising, reducing, avoiding, mitigating, offsetting, recording, or reporting on, impacts to protected matters.	CEMP and BMP
1(d)	For any aspect of the action, for the period of which the approval has effect, the approval holder must not exceed the maximum impacts to protected matters specified under the State Infrastructure approval.	CEMP
PART B- STANDARD ADMINISTRATIVE CONDITIONS		
2	The approval holder must notify the Department in writing of the date of commencement of the action within 10 business days after the date of commencement of the action	CEMP
4	The approval holder must maintain accurate and complete compliance records.	CEMP - Section 8
5	If the Department makes a request in writing, the approval holder must provide electronic copies of compliance records to the Department within the timeframe specified in the request.	CEMP - Section 8
Annual Compliance Reporting		
6	The approval holder must prepare a compliance report for each 12 month period following the date of commencement of the action, or otherwise in accordance with the annual date that has been agreed with in writing by the Minister. The approval holder must:	CEMP - Section 8

CONDITION REFERENCE	REQUIREMENTS	WHERE ADDRESSED
	a) Publish each compliance report on the website within 60 business days following the relevant 12 month period; b) Notify the Department by email that a compliance report has been published on the website and provide the weblink for the compliance report within five business days of the date of publication; and c) Keep all compliance reports publicly available on the website until this approval expires.	
Reporting non-compliance		
7	The approval holder must notify the Department in writing of any: incident, non-compliance with the conditions of this approval; or non-compliance with the commitments made in any element of the Construction Environmental Management Plan, (required under Part C- State Infrastructure approval) referred to in condition 1. The notification must be given as soon as practicable, and not later than two business days after becoming aware of the incident or non-compliance. The notification must specify: a) Any condition which is or may be in breach; b) A short description of the incident and/or non-compliance; and c) The location (including co-ordinates), date and time of the incident and/or non-compliance. In the event the exact information cannot be provided, provide the best information available.	CEMP - Section 9
8	The approval holder must notify the Department in writing of any: incident, non-compliance with the conditions of this approval; or non-compliance with the commitments made in any element of the Construction Environmental Management Plan, (required under Part C- State Infrastructure approval) referred to in condition 1. The notification must be given as soon as practicable, and not later than two business days after becoming aware of the incident or non-compliance specifying: Any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future The potential impacts of the incident or non -compliance; and The method and timing of any remedial action that will be undertaken by the approval holder.	CEMP - Section 9

Table 3: Minister's Conditions of Approval

REQUIREMENT REFERENCE	DETAILS	WHERE ADDRESSED
A1	The CSSI may only be carried out in accordance with the terms of this approval and generally in accordance with the description of the CSSI in the Inland Rail – Narrabri to North Star Environmental Impact Statement, Volumes 1-7 (prepared by GHD and dated November 2017), the Inland Rail – Narrabri to North Star Submissions Preferred Infrastructure Report (ARTC, dated December 2019) and (updated BDAR, RtS on the SPIR and RFI responses).	CEMP -Section 1
A2	The CSSI must be carried out in accordance with all procedures, commitments, preventative actions, performance criteria and mitigation measures set out in in the documents listed in Condition A1 unless otherwise specified in, or required under, this approval.	CEMP -Section 5
A3	In the event of an inconsistency between the documents listed in Condition A1 or any other document required under this approval, and a term of this approval, the term of this approval prevails to the extent of the inconsistency. Note: For the purpose of this condition, there will be an inconsistency between a term of this approval and any document if it is not possible to comply with both the term and the document.	CEMP -Section 5
A4	The Proponent must comply with the written requirements or directions of the Planning Secretary, including in relation to: a) the environmental performance of the CSSI; b) any document or correspondence under the terms of this approval in relation to the CSSI (including the provision of such documentation or correspondence); c) any independent appointment or dismissal made in relation to the CSSI; d) any notification given to the Planning Secretary under the terms of this approval; e) any audit of the construction or operation of the CSSI; f) the terms of this approval and compliance with the terms of this approval (including anything required to be done under this approval); g) the carrying out of any additional monitoring or mitigation measures; and h) in respect of ongoing monitoring and management obligations, compliance with an updated or revised version of a guideline, protocol, Australian Standard or policy required to be complied with under this approval.	CEMP -Section 5
A5	Where the terms of this approval require a document or monitoring program to be prepared or a review to be undertaken in consultation with identified parties, evidence of the consultation undertaken must be submitted to the Planning Secretary with the document. The evidence must include: -documentation of the engagement with the party identified in the condition of approval that has occurred before submitting the document for approval	CEMP -Section 8

<table>
<tr><th>REQUIREMENT REFERENCE</th><th>DETAILS</th><th>WHERE ADDRESSED</th></tr>
<tr><td></td><td>-a log of the dates of engagement or attempted engagement with the identified party and a summary of the issues raised by them
-documentation of the follow-up with the identified party where engagement has not occurred to confirm that they do not wish to engage or have not attempted to engage after repeated invitations
-outline of the issues raised by the identified party and how they have been addressed
-a description of the outstanding issues raised by the identified party and the reasons why they have not been addressed.</td><td></td></tr>
<tr><td>A6</td><td>Any document that must be submitted, or approval that must be obtained, within a timeframe specified in or under the conditions of this approval may be submitted within a later timeframe agreed with the Planning Secretary. This condition does not apply to the immediate written notification required in respect of an incident under Condition A41. The Proponent must provide supporting evidence so that the Secretary can consider the need, environmental impacts and consistency of any request.
Note: Inaction and/or expedience will not be supported as justifications for need unless it can be demonstrated that there are beneficial environmental impacts associated with the request.</td><td>CEMP -Section 8</td></tr>
<tr><td>A16</td><td>Ancillary facilities that are not identified by description and location in the EIS; can only be established and used in each case if:
(c) they have no impacts on heritage items (including areas of archaeological sensitivity), threatened species, populations or ecological communities beyond the impacts approved under the terms of this approval.</td><td>CEMP</td></tr>
<tr><td>A21</td><td>Facilities including lunch sheds, office sheds, material lay down sites, stockpile areas, areas used to assemble infrastructure, and portable toilet facilities can be established and operated where they satisfy the following criteria:
iii) no impacts on biodiversity, soil and water, and heritage items beyond those already approved under other terms of this approval.</td><td>CEMP</td></tr>
<tr><td>C4</td><td>The following CEMP Sub-plans must be prepared in consultation with the relevant government agencies and relevant Councils identified for each CEMP Sub-plan and be consistent with the CEMP referred to in the EIS.
<table>
<tr><th></th><th>REQUIRED CEMP SUB-PLAN</th><th>RELEVANT GOVERNMENT AUTHORITIES TO BE CONSULTED FOR EACH CEMP SUB-PLAN</th></tr>
<tr><td>(c)</td><td>Biodiversity</td><td>EES, DAWE and relevant councils</td></tr>
</table></td><td>This BMP</td></tr>
<tr><td>C5</td><td>• The CEMP Sub-plans Listed in Condition C4 must state how:
a) the environmental performance outcomes identified in the documents listed in Condition A1, as modified by these conditions, will be achieved;</td><td>This BMP</td></tr>
</table>

REQUIREMENT REFERENCE	DETAILS	WHERE ADDRESSED
	b) the mitigation measures identified in the documents listed in Condition A1, as modified by these conditions will be implemented; c) the relevant terms of this approval will be complied with; and d) issues requiring management during construction (including coordination of concurrent activities of other projects as well as concurrent activities in this CSSI), as identified through ongoing environmental risk analysis, will be managed.	
C6	• The CEMP Sub-plans must be developed in consultation with relevant parties identified in **Condition C4**. Details of all information requested by an agency to be included in a **CEMP Sub-plan** as a result of consultation, including copies of all correspondence from those agencies, must be provided with the relevant **CEMP Sub-plan**.	• Section 4 of the CEMP
C7	• Any of the **CEMP Sub-plans** may be submitted to the Secretary along with, or subsequent to, the submission of the **CEMP**, but in any event, no later than one (1) month prior to construction.	• Noted
C9	The **Biodiversity Management Sub-plan** must include: a) a weed management plan, including appropriate weed control to manage introduction and/or spread of weeds from construction areas to any retained Weeping Myall Woodlands TEC, and appropriate protocols to demonstrate compliance with the requirements of the *Biosecurity Act 2015* and *Biosecurity Regulation 2017*; b) procedures for pre-clearing surveys for threatened species to be undertaken by a suitably qualified and experienced ecologist, including survey and relocation methodologies and management/offset measures; c) measures to control cane toads, as relevant to the construction phase areas and scope in accordance with the Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads (relevant to works adjacent to retained Brigalow (*Acacia harpophylla* dominant and co-dominant) TEC and Weeping Myall Woodlands TEC); and d) measures to protect *EPBC Act* listed threatened species, in particular the koala, and threatened ecological communities.	• Appendix A, (Pest and Weed Management Plan) and Section 5
C13	Construction must not commence until the CEMP and all CEMP Sub-plans have been approved by the Secretary. The CEMP and CEMP Sub-plans, as approved by the Secretary, including any minor amendments approved by the ER, must be implemented for the duration of construction. Where the CSSI is being staged, construction of that stage is not to commence until the relevant CEMP and sub-plans have been endorsed by the ER and approved by the Secretary.	• CEMP-Section 2
E17	The Proponent must minimise impacts to plant community types and not exceed the total areas impacted as identified in Table E1. Table E1: Native Vegetation Impacted	• Sections 4 and 5

REQUIREMENT REFERENCE	DETAILS			WHERE ADDRESSED
	VEGETATION ZONE AND PLANT COMMUNITY TYPE (PCT) ID AND NAME	TEC UNDER THE EPBC ACT (HA)	TOTAL AREA IMPACTED (HA)	
	Zone 1 - PCT27 (BR233, NA219) Weeping Myall open woodland of the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion	*Weeping Myall Woodlands* – 9.16	17.94	
	Zone 2 - PCT35 (BR120, NA117) Brigalow – Belah open forest / woodland on alluvial often gilgaied clay from Pilliga Scrub to Goondiwindi, Brigalow Belt South Bioregion	*Brigalow (Acacia harpophylla dominant and codominant)* – 16.13	17.31	
	Zone 3 - PCT39 (BR130, NA129) Coolabah – River Coolabah - Lignum woodland wetland of frequently flooded floodplains mainly in the Darling Riverine Plains Bioregion	*Coolabah - Black Box Woodland of the Darling Riverine Plains and the Brigalow Belt South Bioregions* – 1.74	1.74	
	Zone 4 - PCT52 (BR191, NA187) Queensland Bluegrass +/- Mitchell Grass grassland on cracking clay floodplains and alluvial plains mainly the northern-eastern Darling Riverine Plains Bioregion	*Natural Grasslands on Basalt and Fine-textured Alluvial Plains of Northern NSW and Southern Qld* – 432.07	432.07	
	Zone 5 - PCT56 (BR186, NA182) Poplar Box - Belah woodland on clay-loam soils on alluvial plains of north-central NSW	Not listed	143.95	
	Zone 6 - PCT56 (BR186, NA182) Poplar Box - Belah woodland on clay-loam soils on alluvial plains of north-central NSW (Derived - Native Grasslands)	Not listed	249.85	
	Zone 7 - PCT71 (BR127, NA126) Carbeen – White Cypress Pine - River Red Gum - bloodwood tall woodland on sandy loam alluvial and aeolian soils in the northern Brigalow Belt South Bioregion and Darling Riverine Plains Bioregion	Not listed	0.51	
	Zone 8 - PCT 78 River Red Gum riparian tall woodland / open forest	Not listed	11.82	

REQUIREMENT REFERENCE	DETAILS			WHERE ADDRESSED
	wetland in the Nandewar Bioregion and Brigalow Belt South Bioregion			
	Zone 9 - PCT 135 Coobah - Western Rosewood low open tall shrubland or woodland mainly on outwash areas in the Brigalow Belt South Bioregion	Not listed	9.50	
	Zone 10 - PCT 413 Silver-leaved Ironbark - White Cypress Pine - box dry shrub grass woodland of the Pilliga Scrub - Warialda region, Brigalow Belt South Bioregion	Not listed	5.72	
	Total Area Impacted	**459.10**	**890.41**	
E22	Prior to vegetation clearing, the Proponent must consult with community and landcare groups and government agencies to determine if retained timber and root balls can be reused in habitat enhancement and rehabilitation work, before pursuing other disposal options. The retained timber and root balls may be used on or off the CSSI site.			Section 2 CEMP – Appendix F Biodiversity, Flora and Fauna ECM

Table 4: Revised Mitigation Measures

REQUIREMENT REFERENCE	DETAILS	WHERE ADDRESSED
	BIODIVERSITY	
C3.1 General Biodiversity Impacts	A biodiversity management sub-plan would be prepared and implemented as part of the CEMP. It would include measures to minimise the potential for biodiversity impacts. The sub-plan would address, as outlined below: • a pre-clearing survey and tree-felling procedure • procedures to manage micro-bats • avoiding impacts on surrounding vegetation (item C3.2) • weed management (item C3.3) • dewatering of standing pools in watercourses • measure to minimise impacts on aquatic ecology.	This BMP
C3.2 Avoidance of impacts – terrestrial and aquatic biodiversity	Areas of biodiversity value outside the preferred infrastructure site would be fenced or signposted, where appropriate, to prevent the unnecessary disturbance during the construction phase.	Section 5
C3.3 Weed Management	Priority weeds would be managed in accordance with the Biosecurity Act 2015. Weeds of national environmental significance would be managed in accordance with the Weeds of National Significance Weed Management Guide.	Appendix A Pest and Weed

REQUIREMENT REFERENCE	DETAILS	WHERE ADDRESSED
	Any herbicides would be applied such that impacts on surrounding agricultural properties are avoided.	Management Plan Appendix E TARP
C3.4 Rehabilitation	Rehabilitation of disturbed areas would be undertaken progressively and in accordance with the rehabilitation strategy	SWMP

Table 5: SEARs Environmental Performance Outcomes

REQUIREMENT REFERENCE	DETAILS	WHERE ADDRESSED
6 Biodiversity	Offsets and/or supplementary measures are assured which are equivalent to any remaining impacts of project construction and operation.	Noted; (managed by IR)

1 Introduction

1.1 Purpose and Scope

This Construction Biodiversity Management Plan (BMP) forms part of the Construction Environmental Management Plan (CEMP) for the Narrabri to North Star (Separable Portion 1) (N2NS) Project and details the key management and mitigation measures that will be implemented by Inland Rail in order to minimise and manage the potential construction impacts on flora and fauna during the N2NS project. Construction of N2NS will have impacts on flora and fauna listed under both Commonwealth and NSW legislation.

This BMP addresses the relevant requirements of the Project Approval and all applicable guidelines and standards specific to biodiversity during the Project. It has been developed based on the findings of the Environmental Impact Statement (EIS) and the Submissions Preferred Infrastructure Report (SPIR) and describes how construction impacts on flora and fauna can be avoided, minimised and managed.

The BMP is consistent with the Inland Rail Environment and Sustainability Policy.

In accordance with Condition of Approval (CoA) C9 (a), the pest and weed management plan for the project can be found in Appendix A.

Construction will not commence until the CEMP and sub-plans and the Construction Monitoring Programs are endorsed by the Environmental Representative (ER) and approved by the Secretary of the Department of Planning, Housing and Infrastructure (DPHI). The CEMP and Construction Monitoring Programs will be submitted to the Secretary for approval no later than one month prior to the commencement of construction as required by CoAs C7 and C17.

The key objective of this BMP is to ensure that all CoAs, Revised Environmental Management Mitigation Measures (RMMs) and licence/permit requirements relevant to flora and fauna are adhered to, thus protecting biodiversity environmental values.

1.2 Objectives and Targets

The key objective of this BMP is to ensure that all legislative and licence/permit requirements (i.e. EPBC Act, CoA's, SPIR, RMMs and Project EIS) relevant to biodiversity are adhered to, thus protecting biodiversity values of the site and surrounds. Biodiversity management objectives and targets are outlined in Table 1.

Environmental objectives and targets for construction of the N2NS have been established as a means of guiding environmental management of the project and assessing environmental performance. These objectives and targets have been developed with consideration of key biodiversity issues identified through the environmental assessment and risk assessment process as well as the CoAs and RMMs.

The objectives and targets are consistent with Inland Rail's Environment and Sustainability Policy and will assist in monitoring whether the commitments of the policy are being met. The performance of the Project will be monitored against the objectives and targets.

Table 6: Objectives and Targets

OBJECTIVE	TARGET
Full compliance with and no breaches of the legislative requirements (i.e. EPBC Act, CoA, SPIR, RMMs and Project EIS) relevant to the construction phase of the Project	Full implementation and 100% compliance with this Biodiversity Management Plan including the Appendix A Pest and Weed Management Plan.
Impacts to plant community types will not exceed those identified in CoA E17 (Table E1)	No clearing / disturbance of native vegetation will occur outside of the approved CIZ without prior approval as part of the consistency assessment process.
	A clearing tracking register will be established and updated throughout the project to include all native vegetation clearing impacts for the project to measure compliance with relevant CoAs.
	A reduction of the vegetation clearing requirements (i.e. total area impacted as detailed Table E1 of the CoA) will be reduced by at least 5% for the Project. The clearing tracking register will be utilised to manage this target.
Prevent impacts to sensitive biodiversity areas associated with the project site	Develop a site Environmental Control Map for 100% of sites showing sensitive biodiversity areas (threatened species habitat/ TECs, weed infestations) and clearly identifying construction boundaries and No-Go Zones.
	Sensitive biodiversity areas (threatened species habitat/ TECs) occurring in proximity to the approved CIZ will be fenced and identified with appropriate signage to prevent inadvertent access/ impacts.
Prevent terrestrial fauna mortality during the project	Prior to clearing commencing project ecologists (or suitably trained environmental personnel) will complete pre-clearing surveys to identify/ relocate fauna within 100% of sites be to cleared. Relocation will be completed in accordance with the Fauna Handling Procedure (Appendix H).
	Prior to and during clearing capture / relocation of fauna will be undertaken within all areas of clearing by a suitably qualified and licensed fauna spotter catcher in accordance with the Fauna Handling Procedure (Appendix H).
	All (100%) hollow-bearing trees within the clearing boundary will be identified, marked and subject to a two-stage clearing process under the supervision of a qualified and licensed fauna spotter catcher to capture/ relocate native fauna present (refer to Appendix H Fauna Handling Procedure).
	All structures (culverts/ bridges) to be impacted by the project will be checked for microbats prior to demolition with ecologist guided management including capture/ relocation to be undertaken.
	Measures within trenches/ excavations will be implemented to avoid fauna entrapment.
	All pools in watercourses that would be impacted by the project will be subject to a dewatering procedure including capture/ relocation

OBJECTIVE	TARGET
No fish kill events within waterways associated with the project site	of native aquatic native fauna to be undertaken by a suitably qualified and experienced ecologist.
	Erosion/ sediment control measures will be implemented and maintained in accordance with the Progressive Erosion Sediment Control Plan (ESCP) to avoid sediment entering waterways.
No increase in the abundance or distribution of pests or weeds currently existing within the project area as a result of construction activities.	Undertake weekly environmental inspections to monitor the presence, abundance and types of pests and weed species present and record any new weed infestations or pest populations.
	Implement the weed hygiene protocol detailed in the Construction Pest and Weed Management Plan (Appendix A) including vehicle wash-down and weed hygiene declarations for all plant/ vehicles entering/ leaving the site.
	Any weed infestations recorded during the project will be controlled using herbicide application or manual removal.
	When working within or near an EEC, 100% of all workers will be inducted (including biodiversity risks) and attend a pre-start that details biodiversity risks.

The implementation of mitigation measures will ensure the performance targets are achieved. This will be managed through project inductions, specialised training, toolbox talks, inspections, and environmental monitoring and auditing. Project inductions will inform Inland Rail personnel (including subcontractors) of the management measures, while toolbox talks, and specialised training will ensure they are reinforced throughout the construction program.

1.3 Environment and Sustainability Policy

Inland Rail aims to protect the environment and heritage during the planning, design, construction, and operation of the Inland Rail Program through avoiding or mitigating harm and leaving an enduring regional asset for future generations.

1.4 Project Description

The N2NS Project is one of 13 projects that make up the Inland Rail Project. The route is within the Narrabri, Moree Plains and Gwydir Local Government Areas (LGAs) in north west NSW. N2NS extends approximately 171km from north of Narrabri Junction, terminating at North Star and the project is generally within the existing rail corridor. Works over the Gwydir Floodplain are excluded from the N2NS Project. This construct only contract was delivered by Inland Rail. Further detail on the project, including construction scope of works and construction schedule can be found in Section 2 of the CEMP.

2 Community and Stakeholder Engagement

Inland Rail's Community and Stakeholder Engagement Management Plan (CSEMP) provides a clear framework for active communication and stakeholder engagement management. The Plan outlines how Inland Rail will meet best practice community and project outcomes by keeping the community and other stakeholders informed, minimising potential impacts and responding to the needs and requirements of stakeholders. The CSEMP contains procedures and strategies to manage community and stakeholder engagement activities as they align to the Project delivery program. To the extent practicable, Inland Rail will provide stakeholders with open and transparent consultation.

CoA A5 and C4 require that the BMP be prepared in consultation with:

- NSW Department of Climate Change, Energy, Environment and Water (NSW DCCEEW) group formerly referred to EES;
- Australian Department of Climate Change, Energy, Environment and Water (Australian DCCEEW) formerly referred to as DAWE;
- Narrabri Shire Council;
- Moree Plans Shire Council; and
- Gwydir Shire Council.

As required by CoA C6, details of all information requested by an agency to be included in a CEMP Sub-plan as a result of consultation can be found in Appendix B. Appendix B also provides an assessment of where comments have been addressed in the BMP.

Comments have been received from NSW DCCEEW, Australian DCCEEW, Moree Plains Shire Council, Narrabri Shire Council and Gwydir Shire Council, refer to Appendix B for details.

As required under CoA E22, prior to clearing works commencing, Inland Rail have previously consulted with community and landcare groups and government agencies to determine if retained timber and root balls can be reused in habitat enhancement and rehabilitation work, before pursuing other disposal options.

3 Legal and Compliance Requirements

This section details the relevant legal and compliance requirements for the N2NS project including the Minister's CoAs, RMMs and the Secretary's Environmental Assessment Requirements (SEARs) environmental performance outcomes (EPOs).

3.1 Legislation

Legislation relevant to biodiversity outcomes and management associated with construction of the project include the:

- Australian *Environment Protection and Biodiversity Conservation Act 1999*;
- NSW *Biodiversity Conservation Act 2016*;
- NSW *Fisheries Management Act 1994*;
- NSW *Biosecurity Act 2015*;
- NSW Biosecurity Regulation 2017; and
- *NSW Environmental Planning and Assessment Act 1979*.

Guidelines and standards relating to biodiversity management associated with construction of the project include:

- NSW Legislation, Guidelines and Policies – Flora and Fauna Management Sub-plans (Australian Rail and Track Corporation Limited, 2020)
- Biodiversity Guidelines – Protecting and Managing Biodiversity on RTA Projects (Roads and Traffic Authority, 2011)
- Matters of National Environmental Significance – Significant Impact Guidelines 1.1 (Department of the Environment, 2013)
- Guidelines for vegetation management plans on waterfront land (NSW Office of Water, 2012)
- Guidelines for controlled activities on waterfront land – riparian corridors (Department of Primary Industries, 2018)
- Why do Fish Need to Cross The Road? Fish Passage Requirements for Waterway Crossings. Fairfull and Witheridge (2003)
- Factsheet: Vehicle Biosecurity Kit – Plant Industries (Department of Primary Industries, 2012)
- Fauna Management Work Instruction (0-0000-900-EEC-00-WI-0004) (Inland Rail, 2019)
- Landscape and Rehabilitation Framework (0-0000-900-ELE-00-GU-0001) (Inland Rail, 2018)
- Inland Rail – Narrabri to North Star Phase 1: Five-Clawed Worm Skink (*Anomalopus mackayi*) Construction Species Management Plan.

3.2 Conditions of Approval, Mitigation Measures and Performance Outcomes

As discussed in Section 4 of the CEMP, the N2NS project is a Controlled Action under the EPBC Act and CSSI under the EP&A Act. Under section 45 of the EPBC Act (i.e. the bilateral agreement between the NSW and Australian Governments), the Project has been assessed by DPIE for both NSW and Australian Government approvals. The Project has been approved with conditions by both the NSW Minister for Planning and Public Spaces and the Australian Minster for Agriculture, Water and Environment. These conditions of approval relevant to the construction phase and where they have been addressed in this BMP can be found in the Compliance Matrix at the beginning of this document.

Biodiversity management and mitigation measures were identified in the EIS. Following consideration of the issues raised in the stakeholder and community submissions on the EIS and additional

assessments undertaken, mitigation measures were updated and included in the SPIR. RMMs relevant to biodiversity and where they have been addressed in this BMP can also be found in the Compliance Matrix at the beginning of this document.

The SEARs identified a number of desired environmental performance outcomes (EPOs) for the N2NS project. Based on the outcomes of the EIS and the implementation of the RMMs, EPOs have been established for the proposal. EPOs relevant to biodiversity and where they have been addressed in this BMP can also be found in the Compliance Matrix at the beginning of this document.

3.3 General Changes to the Project

As required by CoA A2, "*The CSSI must be carried out in accordance with all procedures, commitments, preventative actions, performance criteria and mitigation measures set out in in the documents listed in Condition A1 unless otherwise specified in, or required under, this approval*."

Refinements to the Project may occur during detailed design or changed circumstances throughout construction. Design changes or changes in scope will be communicated to the Contractor's Environment Manager either through formal change processes or via informal written communications. Proposed changes are to be assessed by Inland Rail for consistency against the approved Project.

For design/activity/work changes proposed by Contractor, the Environment Manager will undertake an assessment of the proposed changes for potential impacts and compare them to the proposed impacts for the assessed and approved Project. These changes would be managed through IR's Consistency Assessment Work Instruction (Consistency Assessment Work Instruction - 0-0000-900-EEC-00-WI-0013). Any consistency assessment and associated report required by the Contractor will include:

- A description of the approved development / activity / works
- A description of the proposed development / activity / works
- Justification for the proposed development / activity / works
- A description of the existing surrounding environment
- An assessment of the environmental impacts of the construction works, including, but not necessarily limited to traffic, noise and vibration, air quality, soil and water, ecology and heritage
- Any additional vegetation clearing requirements and specifically Project compliance with the vegetation clearing quantities detailed in Table E1 of the CoA
- Details of mitigation measures and monitoring specific to the proposed development / activity / works that would be implemented to minimise environmental impacts
- Identification of the timing for completion of the proposed development / activity / works and how the site/s would be reinstated
- Assessment of each component of the proposed development / activity / works to determine its consistency with the approved project; and
- Assessment of any other approvals that may be required for the proposed development / activity / works.

If the proposed design/activity/works are consistent with the approved project, the assessment would be submitted to the Environmental Representative (in accordance with CoA A29) and IR for determination. Written approval would be obtained prior to commencing the subject works.

If the proposed development/activity/works are inconsistent with the approved project, the proposed development/activity/works will be either:

- Modified to be consistent with the approved project; or

- The subject of a Planning Approval Modification process.

As N2NS is a CSSI project, changes that are not consistent with the Approval will require modification under section 5.25 of the EP&A Act and determination by the NSW Minister for Planning. If required, the CEMP and management plans will be updated to incorporate any additional potential environmental impacts or management measures that resulted from the proposed change.

4 Environmental Risk Assessment

4.1 Existing Biological Environment

A summary of the key findings from the EIS and SPIR are outlined below. Further detail can be found in the N2NS EIS and associated Technical Report 2 (Biodiversity Assessment Report). Mapping of vegetation communities undertaken during the EIS process can be found in Appendix D. Appendix D also contains mapping of koala habitat within the Construction Impact Zone.

- The majority of the study area has been heavily modified by past and ongoing disturbances associated with the active rail corridor and surrounding rural and agricultural activities. Clearance and maintenance of the rail corridor has resulted in fragmentation, a high level of disturbance and degradation of vegetation communities within the rail corridor. The majority of the proposal site (69 per cent) is cleared or consists of non-native vegetation. Patches of native vegetation exist sporadically within and near the proposal site, and are typically associated with travelling stock reserves, road reserves, or farm woodland remnants.
- The project occurs in a landscape that is dominated by crop land and introduced pastures and contains only a small proportion of woodland and scattered tree cover. Patches of native woodland habitat exists sporadically and are typically associated with road verges or small woodland patches on farmland. As such, native fauna habitats within the project are minimal. No critical habitat listed under the *Biodiversity Conservation Act 2016* (BC Act) occurs within the project area.
- 890.41 ha of native plant community types (including 175.25 ha of Koala habitat) listed under the BC Act and the EPBC Act will be impacted. IR will offset this impact with the retirement of ecosystems and species credits through biodiversity stewardship agreements.
- Four of the vegetation communities in the project area conform to threatened ecological communities (TECs) listed under the BC Act:
  - ✓ Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes Bioregions;
  - ✓ Brigalow within the Brigalow Belt South, Nandewar and Darling Riverine Plains Bioregions;
  - ✓ Coolibah - Black Box Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain and Mulga Lands Bioregions; and
  - ✓ Carbeen Open Forest community in the Darling Riverine Plains and Brigalow Belt South Bioregions.
- Seven threatened fauna species were recorded in the project area during field surveys:
  - ✓ Grey-crowned Babbler (*Pomatostomus temporalis temporalis*);
  - ✓ Varied Sittella (*Daphoenositta chrysoptera*);
  - ✓ Koala (*Phascolarctos cinereus*);
  - ✓ Grey-headed flying-fox (*Pteropus poliocephalus*);
  - ✓ Eastern Bentwing-bat (*Miniopterus schreibersii oceanensis*);
  - ✓ Little Pied Bat (*Chalinolobus picatus*); and
  - ✓ Yellow-bellied sheathtail-bat (*Saccolaimus flaviventris*).
- Three threatened flora species were recorded in the project area during field surveys:
  - ✓ Belson's Panic (*Homopholis belsonii*);
  - ✓ Creeping Tick-trefoil (*Desmodium campylocaulon*); and
  - ✓ Finger Panic Grass (*Digitaria porrecta*).
- No protected areas, defined as areas/reserves managed by DPIE and/or DPI NSW Fisheries under the NSW *National Parks and Wildlife Act 1974* (NPW Act), are located near the project.

- The proposal is located within the major water catchments of the Namoi River Basin, Gwydir River Basin and the Macintyre River Basin. Whereas minor river catchments (i.e. those less than 1,000 square kilometres) along the existing rail corridor include; Bobbiwaa Creek; Ten Mile Creek; Boggy Creek; Gehan Creek; Waterloo Creek; Little Bumble Creek; Gurley Creek; Halls Creek; Mehi River; Gil Gil Creek; Croppa Creek; Yallaroi Creek and Mungle Creek.
- The main impacts on aquatic ecological systems would be as a result of the removal and construction of new watercourse crossing structures along the proposal site and access over watercourses for movement of construction equipment and personnel. An assessment of significance of impact of the Project on aquatic communities identified that the Project is unlikely to have an adverse residual impact on threatened species and endangered populations. There are no State significant or important wetlands within the Project Boundary.
- The EIS lists 21 areas of key fish habitat (this includes areas found in the Separable Portion 2 works). These are areas classified as class 3 (minimal key fish habitat) or above, in accordance with the Policy and guidelines for fish habitat conservation and management (Department of Primary Industries, 2013).

4.2 Risk Assessment and Management

A risk assessment has been completed utilising the risk matrix to assess the risks of the project not achieving full compliance with legislative requirements (i.e. EPBC Act, CoAs, SPIR, RMMs and Project EIS) in relation to biodiversity. This risk assessment is included as Appendix C of this plan.

Section 26.3 of the N2NS EIS provides a summary of the potential residual impacts for the project with a description of how these potential residual impacts would be managed. The identified residual impact is that construction will involve the permanent removal of native vegetation and fauna habitat, including removal of threatened ecological communities and habitats for threatened species. Recommended potential mitigation measures are:

- implementation of a biodiversity offset strategy to offset permanent removal of native vegetation (managed by IR)
- detailed design and construction planning would minimise the construction footprint and avoid impacts to native vegetation as far as practicable
- Implementation of area clearing environmental control plan, detailing clear delineation of clearing limits and No-Go Zones
- implementation of the flora and fauna management sub-plan (as part of the CEMP), including weed control, fauna habitat management and monitoring
- pre-clearance surveys would be undertaken, and a tree felling procedure would be implemented to avoid injury and mortality of native fauna during construction
- native vegetation temporarily disturbed during construction would be rehabilitated.

These mitigation measures are incorporated in Inland Rail's management and mitigation measures detailed in Section 6 - Environmental Management Measures.

4.3 Concurrent Project Risk Management

Inland Rail will liaise with TfNSW and relevant Councils on a monthly basis with the aim of developing and implementing measures designed to manage concurrent projects in the region, including environmental management, impact and compliance. Concurrent projects may include simultaneous construction of Inland Rail (incl. other packages of the Inland Rail program), Newell Highway upgrade works co-ordinated by TfNSW and any significant Council improvement and / or development works.

5 Inland Rail Environmental Management System

Inland Rail will be utilising an Environmental Management System (EMS) to enhance its' environmental performance. This is discussed in detail in Section 7.1 of the CEMP.

5.1 Roles and Responsibilities

Section 7.4 of Inland Rail's CEMP details roles and responsibilities for environmental management (including Biodiversity). Inland Rail's Environment Manager has overall responsibility for the implementation of environmental matters on the Project and the Site Supervisor is responsible for field implementation of environmental requirements and control measures (including Biodiversity requirements and control measures). It is important to note that all personnel are responsible for ensuring biodiversity values are protected.

In addition, Inland Rail have engaged ecologists to:

- Provide advice on appropriately minimising vegetation clearing;
- Provide advice on management of fauna species such the Koala and micro bats; and
- Undertake pre-clearance surveys.

IR is responsible for managing the implementation of the Project's Biodiversity Offset Strategy (BOS).

5.2 Competence, Training and Awareness

All personnel performing environmental management activities for and on behalf of Inland Rail will be trained, qualified and competent. Personnel performing specified assigned tasks shall be qualified on the basis of appropriate education, training, skills and/or experience, as appropriate. Section 6.5 of the CEMP details competence, training and awareness and includes:

- Inductions;
- Tool box talks;
- Daily pre-start meetings; and
- Resource planning.

5.3 Hold Points

Hold Points will be implemented on this Project for the purpose of minimising the likelihood of an incident when undertaking specific construction activities that have a greater environmental risk. Further discussion of the hold-point process for the project is included in Section 8.6 of the CEMP. Hold Points specific to biodiversity management are detailed in Table 6 below.

Table 7: Hold points

HOLD POINT	RELEASING AUTHORITY
If the CIZ is to be amended after it has been approved, the amended CIZ must be submitted to the ER and IR for approval and will constitute a Hold Point. The	ER and IR

HOLD POINT	RELEASING AUTHORITY
amendment would be assessed via a consistency assessment (refer to **Section 3.3**).	
A Clearing Permit is required prior to any clearing of native vegetation, including GPS locations of extent of Clearing applicable to Permit. NOTE: The Clearing Permit is typically prepared by the Inland Rail Engineer or Site Supervisor and approved by the Inland Rail Environment Manager (or delegate). The Clearing Permit will include the following information: time, date and location of the clearing activities, Environmental Sensitive Area plan (ESA Plan) showing all environmental constraints within (or adjacent) to the site, the plant community types (PCT) and area to be cleared, any notable environmental features (i.e. threatened flora species, structures, hollow-bearing trees, suitable habitat, etc) and pre-clearance (or other) requirements.	Inland Rail Environment Manager (or delegate)

HOLD POINT	RELEASING AUTHORITY
Develop a site Environmental Control Map highlighting sensitive areas and clearly identifying construction boundaries and No-Go Zones.	Inland Rail Environment Manager (or delegate)
Excavation works cannot commence / recommence until an Erosion and Sediment Control Plan (ESCP) is developed/ reviewed and implemented.	Inland Rail Environment Manager (or delegate)
Water Discharge Permit is required prior to any water discharge from the site, to confirm water is suitable for discharge. NOTE: The Water Discharge Permit is typically prepared by the Inland Rail Engineer or Site Supervisor and approved by the Inland Rail Environment Manager (or delegate). The Water Discharge Permit will include the following information: time, date and location of discharge activities, the volume and quality of the water to be discharged and the receiving water quality.	Inland Rail Environment Manager (or delegate)
Prior to water reuse on the site, contact the Environment Manager to confirm water	Inland Rail Environment Manager (or delegate)

HOLD POINT	RELEASING AUTHORITY
quality criteria has been met.	

5.4 Environmental and Sustainability Inspections

Section 7.8 of Inland Rail's CEMP details environmental and sustainability inspections, including inspections related to the BMP. Table 7 lists the details of each type of environmental and sustainability inspection to be undertaken on the Project.

Table 8: Construction Inspection Schedule

ACTIVITY	FREQUENCY	RESPONSIBILITY	RECORD
Site inspection	Daily	Supervisor/s	Site Diary
Environmental and Sustainability	Weekly	Environment Coordinator/s	Weekly Environmental Management Inspection Checklist (Horizon 360)
Pre and Post Rainfall Events	Prior to forecasted rain. Following a rainfall event generating runoff.	Environment Coordinator/s	ESC Inspection Checklist (Horizon 360)
Pre Flood / Significant Rainfall Inspection	Following a BOM Weather Warning being issued (Severe Weather OR Flood Warning). NOTE: Nominated waterways only.	Environment Coordinator/s	Site Specific Flood Preparation Plan (Checklist)
High Risk Activity Inspections	As required	Construction Manager (or Delegate)	High Risk activity inspection checklist (Horizon 360)

NOTE: In the final stages of construction and post construction, the weekly Environmental and Sustainability Inspections will predominantly focus on demobilisation and rehabilitation requirements to ensure the sites are left in a clean, stable, and non-polluting state. These inspections will continue until the EPL has been relinquished. All work groups will be subject to the above-listed inspections, regardless of whether they are IR personnel or subcontractors.

5.5 General Environmental Compliance Monitoring and Reporting

The Contractor's Environment Team will undertake environmental inspections, audits and reporting to develop and evaluate the effectiveness of environmental controls. This will include:

- General observations for the daily management of flora and fauna controls shall be documented in site dairies (daily) by the Site Supervisor;
- Weekly inspections of flora, fauna and weed management controls shall be undertaken by the Environmental Coordinator and Site Supervisor using the Weekly Environmental Management Inspection Checklist and uploaded to Soteria;

- Effectiveness of the flora, fauna and weed management controls shall be reviewed weekly by the Environmental Coordinator for adequacy having regard for changing circumstances;
- Monthly reporting to Inland Rail on biodiversity management will be recorded through Project Monthly Reports;
- Six monthly Independent Environmental Audits (external) by a suitably qualified professional (RPS) reviewing BMP compliance;
- ER monitoring of the implementation of the documents listed in the CoA; and
- The broader EMP auditing process is discussed further in Section 6.10 of Inland Rail's CEMP.

5.6 Biodiversity Specific Monitoring and Reporting

A Construction Monitoring Program for biodiversity on the project (including pests and weeds) is detailed below in Table 8. The program aims to capture high quality baseline data for the project during ecologist pre-clearing surveys in relation to biodiversity including the presence of weeds, pests and pathogens. This information would be shown on Environmental Control Maps (ECMs) and use as the primary tool to inform Inland Rail's approach to management of biodiversity during construction.

Table 9: Construction Monitoring Program

ACTIVITY	TIMING	RESPONSIBILITY	REPORTING
WEEDS, PEST AND PATHOGEN MONITORING			
Pre-construction • As part of ecologist pre-clearing surveys of the project site, weed infestations would be recorded and mapped on ECMs for the project to inform management during construction. • If pathogens are identified on the site, mapping of affected areas would be undertaken immediately to inform works. • If pests are identified on the site, mapping of affected areas would be undertaken immediately to inform control measures. • Permit to Commence 0-0000-250-IHY-00-LP-0001	Prior to construction commencing	Environment Manager Ecologist	Pre-clearing survey report. ECM Permit to Commence
Construction • Weekly inspections of the site to be undertaken to record any weed infestations or signs of pests and pathogens using the Weekly Environmental Management Inspection Checklist with results uploaded to Project Pack Web. Control of weeds, pest and pathogens will be undertaken in accordance with actions within the Trigger Control Plan (Appendix E) and requirements of the Pest and	Weekly	Environment Coordinator	Weekly Environmental Management Inspection Checklist

ACTIVITY	TIMING	RESPONSIBILITY	REPORTING
Weed Management Plan (refer to Section 6 and the full PWMP included as Appendix A).			
• All works personnel will be trained on the identification of potentially occurring weeds, pests and pathogens and encouraged to report occurrences/ infestations to the Environmental Manager. Such occurrences would be confirmed by the environmental team with control to be undertaken in accordance with actions within the Trigger Action Response Plan (Appendix E) and the Pest and Weed Management Plan (refer to Section 6 and the full PWMP included as Appendix A).	When reported	Environmental Manager Environment Coordinator	Induction and toolbox records. Site diaries/ Weekly Environmental Management Inspection Checklist.
• Where control of pests, pathogens and weeds is undertaken follow-up monitoring (monthly or otherwise recommended by the pre-clearing survey) would be undertaken to determine the effectiveness of management and any follow-up management required.	One month after weed, pest, pathogen control is undertaken.	Environment Coordinator	Weekly Environmental Management Inspection Checklist /Project monthly reports
Post-construction • Post construction, the weekly Environmental and Sustainability Inspections will predominantly focus on demobilisation and rehabilitation requirements (incl. pest and weed) to ensure the sites are left in a clean, stable, and non-polluting state. These inspections will continue until the EPL has been relinquished	Weekly	Environment Coordinator	Weekly Environmental Management Inspection Checklist
ENVIRONMENTALLY SENSITIVE ENVIRONMENTS (THREATENED SPECIES HABITAT/TEC)			
Pre-construction • As part of ecologist pre-clearing surveys, sensitive biodiversity areas (threatened species habitat/ TECs) occurring in proximity to the clearing boundary would be identified on ECMs and fenced with appropriate signage to prevent inadvertent access/ impacts.	Prior to construction commencing	Environment Manager Ecologist	Pre-clearing survey report. Clearing Management Inspection Checklist. ECM.Permit to Commence

ACTIVITY	TIMING	RESPONSIBILITY	REPORTING
• Permit to Commence 0-0000-250-IHY-00-LP-0001			
Construction • Weekly inspections of the site to ensure sensitive areas shown in ECMs are appropriately fenced off/ protected using the Weekly Environmental Management Inspection Checklist with results uploaded to Project Pack Web. Any remediation of fencing will be actioned as required. • Any unexpected finds would be undertaken in accordance with actions within the Trigger Action Response Plan (Appendix E).	Weekly	Environment Coordinator	Clearing Management Inspection Checklist. Weekly Environmental Management Inspection Checklist
Post-construction • Post construction, the weekly Environmental and Sustainability Inspections will predominantly focus on demobilisation and rehabilitation requirements (incl. ground cover, weed species / abundance, erosion, etc) to ensure the sites are left in a clean, stable, and non-polluting state. These inspections will continue until the EPL has been relinquished.	Weekly	Environment Coordinator	Weekly Environmental Management Inspection Checklist
FAUNA			
Pre-construction • Completion of ecologist pre-clearing survey prior to works commencing • All project personnel will be made aware of project fauna requirements via the project induction • One (1) month prior to works commencing on a structure (i.e. bridges, culverts, etc), a suitably trained and qualified Ecologist will inspect the structure for presence of or signs of occupation by microbats. The structure will be monitored (inspected weekly, by the T4MR environment team) in the month leading up to works commencing and the results recorded. The findings of this	Prior to construction commencing	Environment Manager Ecologist	Pre-clearing survey report Microbat inspection report ECM Induction records

ACTIVITY	TIMING	RESPONSIBILITY	REPORTING
monitoring will determine if exclusion works are required (to be carried out by the Ecologist) and inform any additional management measures during construction. • Any unexpected finds would be undertaken in accordance with actions within the Trigger Action Response Plan (Appendix E). • Following exclusion works occurring (if required) and prior to works commencing on the structure, regular inspections (weekly, or as otherwise recommended by the Ecologist) would be undertaken by the Ecologist to ensure microbats have been excluded from the structure. NOTE: Partial exclusion of microbats from structures is not expected. In the event that partial exclusion is required, and populations of microbats will remain in situ whilst structure works is occurring, then weekly monitoring of the population numbers will occur by the project Ecologist throughout the construction stage.			
Construction (Clearing / Structures / etc) • Biodiversity/Flora and Fauna ECM (T4MR-FRM-ENV-001-06) • Daily monitoring would be undertaken by the fauna spotter catcher during clearing as follows: ✓ Habitat trees and other fauna habitats prior to and during removal ✓ Clearing limit fencing ✓ Presence of any threatened fauna species (e.g. Koalas) ✓ Fauna injuries/ mortalities • Daily (pre-start) monitoring would be undertaken by the construction team for presence of microbats in structures undergoing demolition, replacement, or refurbishment. • If partial exclusion is required whilst works are occurring on a structure, the Construction Team will monitor the microbat populations for daytime “flyout” and consult the Ecologist in the event of flyout.	Daily during clearing	Fauna spotter catcher Environmental Co-ordinator	ECM Clearing Management Inspection Checklist

ACTIVITY	TIMING	RESPONSIBILITY	REPORTING
Construction (general) • All project personnel would report any injured / dead fauna on the project site. • Weekly environmental inspections would monitor/ record any such occurrences. Any fauna injuries/ mortalities would be recorded within a project fauna register.	Weekly	All personnel Environmental Coordinator	Weekly Environmental Management Inspection Checklist
Five clawed Worm Skink – Site Survey*	Daily and at completion of construction activities that seek to disturb and remove known and potential FCWS habitat	Project Ecologist	Daily pre-clearing checklist and post clearing report

*Source: Inland Rail – Narrabri to North Star Phase 1: Five-Clawed Worm Skink (*Anomalopus mackayi*) Construction Species Management Plan

The Construction Monitoring Program implementation will be the responsibility of the Environmental Manager and will include the following aspects:

- Sufficient training of personnel;
- Arranging specialist consultants when required;
- Coordination of monitoring equipment and materials;
- Coordination of sample collection, documentation and delivery;
- Ensuring frequency and methodology is in accordance with all licences, permits, approvals, Australian Standards and any industry standards;
- Data management and representation of results; and
- Reporting non-compliances or incidents related to monitoring and implementing corrective actions.

5.7 Reporting and Communication

Compliance monitoring and reporting are discussed in further detail in Section 8 of Inland Rail's CEMP.

A Clearing Tracking Register will be maintained by IR to inform the clearing undertaken and the actual vegetation types and quantities to be offset under the BOS.

5.8 Pre-clearing Surveys

Prior to construction commencing, pre-clearing surveys will be undertaken by a suitably qualified ecologist to:

- Identify and demarcate habitat trees;

- Identify other fauna habitat features including fallen timber/hollow logs and burrows;
- Identify habitat features that are suitable for translocation or salvage;
- Undertake updated mapping of weed infestations for the project site;
- Identify culverts / bridges to be demolished which represent habitat for microbats;
- Identify any threatened flora species within the project site not assessed as part of the EIS; and
- Identify and demarcate any threatened flora to be retained occurring in proximity to the CIZ.

The results of the pre-clearing surveys would inform the production of Environmental Control Maps for the project.

5.9 Unexpected Finds Procedure

During pre-clearing surveys, it is possible that previously unidentified threatened species (not considered within the EIS) may be identified. Unexpected finds will be documented by the ecologist with no works to be undertaken within such areas until further assessment is undertaken including:

- Assessment and advice by a suitably trained and experienced ecologist (NOTE: this may include additional mitigation measures which will be included in the sites ECP, ECMF and this sub-plan as updated from time to time);
- Referral of the find to IR in accordance with the Incident and Event Management Procedure; and
- Works may proceed when an approval to proceed is received from the client.

NOTE: Unexpected finds of threatened flora, threatened fauna or EEC will be managed in accordance with Appendix G - Unexpected Threatened Species / Endangered Ecological Community Find Procedure and Appendix E – Trigger Action Response Plan, where relevant.

Any additional impacts to TEC's, koala habitat, threatened flora and / or fauna will be formally referred to IR via Aconex to ensure that the appropriate offsets are secured.

5.10 Fauna Spotter / Catcher

A suitably qualified fauna spotter catcher would be present during clearing activities to:

- Undertake searches prior to (pre-clearing surveys) and during clearing for any fauna and undertake relocation where possible;
- Supervise the felling of habitat trees which would be felled as gently as possible utilising a two stage clearing process;
- Uninjured animals would be released on the day of capture into nearby suitable secure habitat and would not be held for extended periods of time; and
- Injured animals would be taken to the nearest veterinary clinic or wildlife carer as soon as possible for assessment and treatment.

Where a Koala is located within a clearing area, clearing activities would stop and a 50m buffer established around the animal with no clearing within this area to resume until the fauna spotter/ catcher confirms the animal has left the area of its own volition. The Project Team will ensure the koala has a means of egress to more away from construction so the animal is not isolated with no route to escape.

Notification to the Inland Rail Environment Manager of Koala sightings within the works area, confirmation ceased of clearing activities and reporting of when works commenced for recording in the Project Fauna register. The Trigger Action Response Plan (Appendix E) provides further information regarding the management of Koala, Microbat and other threatened species finds.

All fauna will be handled in accordance with the fauna handling procedure included as Appendix H.

5.11 Five-clawed Worm-Skink

To reduce the impacts on the Five-clawed Worm-skink (FCWS) population, a Species Management Plan has been prepared. The SMP formalises the agreed management actions so that impacts can be minimised during the planning, construction and operation of the Project. The SMP can be found in **Appendix J**.

5.11.1 Five-clawed Worm-skink Encounter Protocol

A protocol to be enacted when a FCWS is encountered on the project within identified habitat areas (all Stage 1 and Stage 3: Chainage 735.000 to 754.250) is presented in **Appendix I**, which replaces **Appendix G** in this instance.

In the event of a FCWS, the fauna handling procedure (**Appendix H**) would be applicable with the following exceptions; data collection and record (i.e. fauna register), treatment of injured and deceased individuals and reporting requirements (refer **Appendix I**).

In an unexpected finds instance outside the above chainages, the management strategies outlined in this plan will be adopted for up to 500m on either side of the capture site and include:

- Additional pre-clearing and topsoil stripped surveys as deemed appropriate by the Project Ecologist;
- Relocation of individuals using the framework developed in this plan;
- Data capture of the individual and habitat data outlined in this plan;
- Updating of relocation sites, FCWS register, construction drawings and environmental control plans; and
- A periodic examination and review of the adequacy of the proposed mitigation measures proposed in consultation with DPHI, NSW DCCEEW and Australian DCCEEW.

5.11.2 Additional Mitigation measures

Additional mitigation measures to be implemented in Stage 1 and Stage 3: Chainage 735.000 to 754.250 are set out in more detail below.

Habitat enhancement and refuge placement

Two phases of habitat enhancement / refuge placement are proposed, with Phase 1 comprising works to be undertaken during clearing and grubbing activities, and Phase 2 comprising works to be undertaken during landscaping activities.

Key objectives of Phase 1: Clearing and grubbing; are the enhancement of retained habitats to improve population viability and the provision of refuge for relocated FCWS. The key objective of Phase 2: Post landscaping; is to encourage re-colonisation of the site post landscaping works to improve population viability.

Phase 1 temporary habitat enhancement would include the placement of hay bales at 100 m intervals on freehold and / or private land within the construction boundary.

More permanent habitat enhancement in Phase 2 will include the placement of course woody debris (e.g. logs, sleepers, or mulched woody vegetation piles) within the construction boundary. Where available, woody debris will be placed in a manner that is reflective of the pre-construction landscape.

As an example, at Yallaroi Creek (CH740.59), woody debris were placed at an average rate of one piece per 10m^2, whereas in open areas where no vegetation was removed, no woody debris will be placed.

Pre-soil disturbance mitigating activities

The following activities are to be implemented prior to soil disturbance, including:

- An ecologist would perform a pre clearing inspection to determine the suitability of the site for pre-clearing surveys before slashing commences. A pre-clearing survey involving active searches under logs and shelter sites would only be undertaken where these attributes occur. No pre-clearing survey involving active search would be undertaken in areas that comprise only dense tall grasses given there is little opportunity for the surveyor to actively search and locate FCWS. The same approach would occur where the area is inundated. Skinks captured during this stage would need to be retained until such a time the slashing has been completed adjacent to the relocation site. In most cases, this should not last for more than a few hours and accord with the Ecologists Animal Care and Ethics Approval Permit.
- An ecologist or spotter-catcher to perform clearing supervision when the slasher is mowing vegetation. The slasher should be set at a cutting height that is near to the ground (<100 mm) in order to reduce the suitability of the retained habitat. The ecologist/spotter-catcher would turn suitable materials such as logs, disused sleepers, refuse whilst looking for dispersing skinks. Skinks captured during this stage would need to be retained until such a time the slashing has been completed adjacent to the relocation site noting that a series of measurements and habitat information is to be recorded.
- Slashed vegetation should be windrowed to the edge of the CIZ to provide temporal refuge sites. This should be performed in a way so as to reduce the suitability of the habitat for FCWS within the CIZ. Ideally, slashing should seek to windrow the slashing material with each up and down pass so that it concentrates the windrowed material to enable more efficient FCWS checks prior to soil disturbance works.
- Relocation sites should be established based on the capture sites. Silt fence is proposed to assist in delineating these areas and to reduce habitat permeability between the relocation site and the CIZ.
- Once the above works are completed within a given area, a waiting period of at least 2 days/nights and up to 5 days/nights is proposed before topsoil stripping can commence. This should enable sufficient time for uncaptured FCWS to move of their own accord. NOTE: The adopted waiting period must be determined in consultation with Project Ecologist. The Project Ecologist should consider site-specific conditions at the time of clearing including the outcomes of any pre-clearing surveys, soil conditions (presence of moisture / cracking / baking), daytime temperatures and other factors that in the opinion of the Project Ecologist may or may not contribute to hostile ground conditions for the FCWS.

Soil disturbance mitigating activities

The following measures are to be implemented during soil disturbance activities, including:

Once the adopted waiting period has elapsed within a slashed area, the ecologist/spotter-catcher will implement the following measures during soil disturbance activities (e.g. topsoil stripping):

- A site assessment by a senior ecologist to determine the site suitability for FCWS. This survey is to determine if the area contains suitable habitat as opposed to unsuitable habitat which could include inundated or saturated areas or simply non-black cracking soils or highly trafficked areas such as driveways and road verges. Area still deemed as suitable habitat for FCWS would have the following procedures:

- A daytime pre-stripping survey for FCWS focusing on the most likely micro habitat components in the CIZ. This survey would occur within 2 days of the topsoil stripping with the completed survey area being clearly demarcated by either plastic bollards, witches hats or pennant flagging to ensure no topsoil stripping occurs in areas not yet surveyed.
- Topsoil stripping surveys to a depth of 100 mm would then be performed to capture and relocate displaced FCWS. At least one ecologist or spotter catcher will be assigned per machine (i.e. excavator, dozer, grader or scraper). Should a scraper be used, an ecologist or spotter catcher will be present to inspect the material at the recipient site.
- Salvaged FCWS would be assessed for signs of injury, measurements recorded and habitat data collected.

5.11.3 Five-clawed Worm-skink Environmental Management Measures

Environmental management measures for the identified FCWS habitat areas (Stage 1 and Stage 3: Chainage 735.000 to 754.250) are outlined below and included in **Section 6**, **Table 9** (B43-B46).

Five-clawed Worm-skink Induction

All Project personnel would be subject to a FCWS induction that includes:

- A general description of the FCWS (including photos and key identification features).
- Locations where FCWS are required on the project site i.e. Stage 1 and Stage 3 CH735.000 to CH754.250.
- Provision of Section 5 of this Biodiversity Management Plan.

Records of induction / toolbox training would be retained.

Visitors and delivery personnel are to be accompanied by a fully inducted person at all times in accordance with the CEMP. Signage is also provided at the various site offices.

Targeted Five-clawed Worm-skink surveys

Targeted FCWS surveys outlined in **Section 5.11.2** above would be undertaken by the Project Ecologist and/or Spotter-Catcher Team prior to and during slashing, clearing of woody vegetation and topsoil stripping activities within the FCWS habitat areas.

The surveys would include active searches of microhabitats, including, carefully turning woody debris, rocks and artificial debris, raking the soil surface or leaf litter beneath trees and looking beneath peeling bark for reptiles or their sloughs; searching for animals during topsoil stripping (working closely with the grader operator).

Targeted pre-clearing surveys would comprise a minimum of 1.5 person hours per hectare for habitats of average complexity per targeted species (scaled up or down depending on site complexity).

No pre-clearing survey involving active search would be undertaken in areas that comprise only dense tall grasses (or inundation) given there is little opportunity for the Ecologist to actively search and locate FCWS.

Skinks captured during this stage would need to be retained until such a time the slashing has been completed adjacent to the relocation site. In most cases, this should not last for more than a few hours and accord with the Ecologists Animal Care and Ethics Approval Permit.

Relocation Sites

i. Site Identification

Relocation sites will be identified based on the captures from pre clearing and clearing supervision surveys. This will ensure FCWS are moved a minimal distance from their capture site and still potentially within their home range. In some cases, FCWS relocation sites may be identified based on suitable habitat along the alignment and before the commencement of construction works so as to assist in the scheduling of construction resources. When this occurs, a relocation site will be selected using the following criteria:

- The area is adjacent to or comprises native grassland or woodland on public land;
- A relocation site must be as close as possible to the capture site;
- Sites must support suitable microhabitat of loose friable soil, with areas of leaf litter, mulch or dense vegetative groundcover which provides cover and foraging resources at least 100m2 in area, and
- Relocation sites will be mapped and a GIS layer developed.

ii. Site Establishment

Establishing a FCWS relocation site will involve:

- Creating a minimum 100 m^2 relocation area at 200 m intervals (where possible)'
- Installing hay bales (minimum one per 25m^2) with each bale measuring approximately 1m x 0.4m x 0.4m. Slashed vegetation and/or woody debris should also be used as an alternative.
- Erection of an exclusion fence (silt fence) along the CIZ boundary at the hub plus 10 m either side of the relocation hub where practicable. If this is not possible, it must be documented within the FCWS capture register.
- Appropriate signage and a high visibility boundary at every relocation site, where practicable.
- Relocation of up to 10 adults and 5 sub adult skinks per 100m^2.
- Sites that receive captured/relocated FCWS will be GPS and a register created as part of an environmental sensitive zone for IR operations.

Fauna Register Details

Any FCWS captured during the works would have the following data collected:

- Stage of Project and Chainage;
- Capture date and time;
- Condition (Good, Injured, Deceased);
- Microhabitat at capture site;
- Soil at capture site;
- Activity undertaken at time of find;
- Detection method (e.g. survey);
- GPS Coordinates for capture and relocation site;
- Details of the person/s who made the discovery;
- Description of vegetation/PCT;
- Where practicable, validation photos from on top, side, below and close-up photos of forelimbs and hindlimbs; and
- Series of measurements including; snout-vent length, tail length and total length.

Photographs of the site (general location, vegetation, habitat features where the individual/s was discovered) shall be captured each day for each work area.

In addition to the above, the following microhabitat features should be recorded for each find where practicable:

- Soil crack density and size range (depth if possible)
- % litter cover
- % bare ground
- % grass cover and/or tussock spacing
- 3 most abundant groundcover species
- Soil type, soil structure (blocky, small peds, massive) and pH if possible
- Large surface debris abundance
- Ground moisture levels (including recent rainfall amount if known/relevant).

Following the completion of habitat removal, the Ecologist will prepare a Post Clearing Summary Report.

The Project Ecologist or the Environmental Manager for Inland Rail or Contractor will manage this register. The register will be provided with each incident notification and live FCWS find report, and it will be made available to regulatory agencies.

5.11.4 Regulator Notification and Reporting Requirements for the Five-clawed Worm-skink

Regular Updates – DCCEEW and DCCEEW

Regular updates will be provided to NSW DCCEEW and the Australian DCCEEW within 48 hours of IR becoming aware of a FCWS encounter, or as otherwise agreed at the time with the respective departments.

Information to be provided should include:

- Capture date and time,
- GPS Coordinates for capture and relocation site;
- Condition (Good, Injured, Deceased);
- Microhabitat at capture site;
- Soil at capture site;
- Activity undertaken at time of find; and
- Detection method (e.g. survey).

Stage 3 Summary Report – NSW DCCEEW, Australian DCCEEW and DPHI

A final report is to be prepared at the conclusion of Stage 3 construction works detailing all FCWS finds from Stage 3. The report should include:

- A copy of the fauna register, including information outlined in **Section 5.11.3 *Fauna Register Details*** above.
- a detailed description of all survey methods and mitigation measures and subsequent outcomes.
- a description of all relocation sites and the number of skinks relocated into each site.
- any other relevant information collected or activities/procedures undertaken, including adaptive management.

Notification Requirements - DPHI

In the event of a FCWS mortality or injury or if unauthorised disturbance of habitat occurs, IR Representative/s will arrange DPHI notification/s in accordance with the relevant Ministers Condition of Approval.

5.12 Environmental Control Maps / Site Environmental Plans

Inland Rail will use Environmental Control Maps (ECMs) and Site Environmental Plans (SEP) to aid in the identification, communication and protection of significant biodiversity features associated with the project. The ECM / SEPs will include:

- Specific measures relevant to the work site to protect and prevent adverse impacts to environmentally sensitive areas or items;
- Significant environmental features of the site (i.e. TEC, populations of threatened flora, weed presence, hollow bearing trees, items or areas of cultural heritage, contaminated sites, etc); and
- Locations of 'known' and 'likely to occur' FCWS habitat areas, those being Stage 1 (Chainage 603.000 to 625.000) and those areas defined within Figure 4-1 FCWS distribution map (FCWS SMP, Appendix J).

Additionally, ECPs will be updated periodically to include 'Known' FCWS habitat as determined from FCWS finds during the construction of the N2NS Inland Rail Project. Known FCWS habitat identified in this way will include a 100m buffer around any FCWS record.

ECMs are further discussed in Section 8 of the CEMP.

5.13 Environmental Management Procedures, Forms and Other Documents

The Project's EMS procedures, project specific procedures, forms and other documents provide instructions and records related to both environmental and non-environmental activities throughout the Project. These are discussed in detail in Section 8 of the CEMP.

5.14 Communication and Complaints Management

Inland Rail's Community and Stakeholder Engagement Management Plan (CSEMP) and Section 8 of the CEMP details communication and complaints management processes and procedures. The CSEMP identifies key stakeholder groups that will be consulted and engaged with during the Project and outlines the communication tools that will be used to consult and engage with these groups. During construction, any comments, feedback or complaints relating to biodiversity issues will be addressed through the Complaints Management System. The Complaints Management System includes a complaint register within the stakeholder database Consultation Manager. The complaints register will be developed in accordance with AS 4269: Complaints Handling.

5.15 Incidents, Emergencies and Non-Conformity

In the event of an environmental, social performance, sustainability heritage or other incident, an Incident and Emergency Response Plan will be implemented. Environmental incidents are managed in accordance with Inland Rails Health and Safety Event Management Work Instruction 0-0000-900-POS-00-WI-0009_2, IR's Project Environmental Incident and Reporting Procedure (5-9020-0000-EEC-PR0001) and project approvals or licences. Incidents, emergencies, response plans and non-conformities are discussed in detail in Section 9 of the CEMP.

Any FCWS environmental incidents involving unplanned habitat disturbance, relocation failure or accidental death, the event will be investigated and reported to IR.

5.16 BMP Review and Revision Process

This BMP is a 'live' and 'working' document. As required by Inland Rail's EMS requirements, the Environment Manager will conduct regular reviews of the BMP and ensure that the BMP is formally reviewed and updated at least annually, or earlier as change requirements dictate. The CEMP and sub-plans review, and revision process is discussed in detail in Section 10 of the CEMP.

6 Environmental Management Measures

Table 9 details the mitigation measures that will be implemented by the Project to manage construction risks to biodiversity.

Table 10: Biodiversity Mitigation Measures

<table>
<tr><th>ID</th><th>MEASURE/ REQUIREMENT</th><th>RESOURCES</th><th>WHEN TO IMPLEMENT</th><th>RESPONSIBILITY</th></tr>
<tr><td colspan="5">PRE-CONSTRUCTION</td></tr>
<tr><td>B1</td><td>Impacts to plant community types will be minimised and will not exceed those identified in CoA E17 (Table E1 below).
Table E1: Native Vegetation Impacted
<table>
<tr><th>VEGETATION ZONE AND PLANT COMMUNITY TYPE (PCT) ID AND NAME</th><th>TEC UNDER THE EPBC ACT (HA)</th><th>TOTAL AREA IMPACTED (HA)</th></tr>
<tr><td>Zone 1 - PCT27 (BR233, NA219) Weeping Myall open woodland of the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion</td><td>Weeping Myall Woodlands – 9.16</td><td>17.94</td></tr>
<tr><td>Zone 2 - PCT35 (BR120, NA117) Brigalow – Belah open forest / woodland on alluvial often gilgaied clay from Pilliga Scrub to Goondiwindi, Brigalow Belt South Bioregion</td><td>Brigalow (Acacia harpophylla dominant and codominant) – 16.13</td><td>17.31</td></tr>
<tr><td>Zone 3 - PCT39 (BR130, NA129) Coolabah – River Coolabah - Lignum woodland wetland of frequently flooded floodplains</td><td>Coolabah - Black Box Woodland of the Darling Riverine Plains</td><td>1.74</td></tr>
</table></td><td>CoA
Clearing Management Procedure (T4MR-MPR-ENV-004)
Clearing register</td><td>Entire project</td><td>Project Director
Environment Manager or delegate
Site Engineer or delegate</td></tr>
</table>

ID	MEASURE/ REQUIREMENT			RESOURCES	WHEN TO IMPLEMENT	RESPONSIBILITY
	mainly in the Darling Riverine Plains Bioregion	*and the Brigalow Belt South Bioregions* – 1.74				
	Zone 4 - PCT52 (BR191, NA187) Queensland Bluegrass +/- Mitchell Grass grassland on cracking clay floodplains and alluvial plains mainly the northern-eastern Darling Riverine Plains Bioregion	*Natural Grasslands on Basalt and Fine-textured Alluvial Plains of Northern NSW and Southern Qld* – 432.07	432.07			
	Zone 5 - PCT56 (BR186, NA182) Poplar Box - Belah woodland on clay-loam soils on alluvial plains of north-central NSW	Not listed	143.95			
	Zone 6 - PCT56 (BR186, NA182) Poplar Box - Belah woodland on clay-loam soils on alluvial plains of north-central NSW (Derived - Native Grasslands)	Not listed	249.85			
	Zone 7 - PCT71 (BR127, NA126) Carbeen – White Cypress Pine - River Red Gum - bloodwood tall woodland on sandy loam alluvial and aeolian soils in the northern Brigalow Belt South Bioregion and Darling Riverine Plains Bioregion	Not listed	0.51			
	Zone 8 - PCT 78 River Red Gum riparian tall woodland / open forest wetland in the Nandewar	Not listed	11.82			

ID	MEASURE/ REQUIREMENT			RESOURCES	WHEN TO IMPLEMENT	RESPONSIBILITY
	Bioregion and Brigalow Belt South Bioregion					
	Zone 9 - PCT 135 Coobah - Western Rosewood low open tall shrubland or woodland mainly on outwash areas in the Brigalow Belt South Bioregion	Not listed	9.50			
	Zone 10 - PCT 413 Silver-leaved Ironbark - White Cypress Pine - box dry shrub grass woodland of the Pilliga Scrub - Warialda region, Brigalow Belt South Bioregion	Not listed	5.72			
	Total Area Impacted	**459.10**	**890.41**			
B2	If the establishment of a Construction Ancillary Facility (under CoA A16) is required outside of those areas previously assessed as part of the biodiversity assessment for the EIS and SPIR, additional field survey and analysis through a Consistency Assessment will be undertaken (refer to Section 3.3 of this plan).			CEMP, BMP	Prior to construction Construction	Project Director Environment Manager Site Engineer
B3	Clearing of Koala habitat, as identified by the CoA E23 (Table E4 below), will be reduced by at least 25%, or as otherwise agreed by the Planning Secretary. Prior to construction commencing, key construction and environmental personnel will assess the Construction Impact Zone (CIZ) issued by IR and identify areas where Koala Habitat (and other mapped vegetation) can be retained. As required by CoA 24, IR will submit a report to the Planning Secretary, DCCEEW and DAWE for information on the final construction footprint demonstrating how impacts to Koala Habitat shown in Table E4 have been reduced to at least 131.43 ha within six			Construction methodology and site layout drawings.	Prior to construction	Construction Manager Environment Manager or delegate Engineer or delegate

ID	MEASURE/ REQUIREMENT	RESOURCES	WHEN TO IMPLEMENT	RESPONSIBILITY

months after the commencement of construction. This process will be achieved via a workshop (or series of workshops) with representation from the Environment, Construction, Engineering and GIS / Survey Teams.

Table E4: Vegetation Zones/ Plant Community Types Identified as Koala Habitat

VEGETATION ZONE AND PLANT COMMUNITY TYPE (PCT) ID AND NAME	TOTAL AREA IMPACTED (HA)
Zone 2 - PCT35 (BR120, NA117) Brigalow – Belah open forest / woodland on alluvial often gilgaied clay from Pilliga Scrub to Goondiwindi, Brigalow Belt South Bioregion	17.31 (12.98)
Zone 3 - PCT39 (BR130, NA129) Coolabah – River Coolabah - Lignum woodland wetland of frequently flooded floodplains mainly in the Darling Riverine Plains Bioregion	1.74 (1.31)
Zone 4 - PCT52 (BR191, NA187) Queensland Bluegrass +/- Mitchell Grass grassland on cracking clay floodplains and alluvial plains mainly the northern-eastern Darling Riverine Plains Bioregion	0.08 (scattered trees) (0.06)
Zone 5 - PCT56 (BR186, NA182) Poplar Box - Belah woodland on clay-loam soils on alluvial plains of north-central NSW	143.95 (107.95)
Zone 6 - PCT56 (BR186, NA182) Poplar Box - Belah woodland on clay-loam soils on alluvial plains of north-central NSW (Derived - Native Grasslands)	0.35 (scattered trees) (0.26)

ID	MEASURE/ REQUIREMENT	RESOURCES	WHEN TO IMPLEMENT	RESPONSIBILITY
	Zone 8 - PCT 78 River Red Gum riparian tall woodland / open forest wetland in the Nandewar Bioregion and Brigalow Belt South Bioregion: 11.82 (8.87) **Total area impacted as per EIS: 175.25** **Revised total area of impact (allowing for reduction by 25%): 131.43** **NOTE: Figures shown in brackets detail the clearing quantities (by PCT) with the 25% reduction applied.**			
B4	Prior to construction commencing Environmental Control Maps (ECMs) will be prepared which clearly show all areas of sensitive biodiversity (including threatened flora/ fauna habitat, TECs and weed infestations) clearing boundaries and no-go areas associated with the site. Plans will be made readily available to construction personnel.	Ecologist pre-clearing survey report, Clearing Permit (T4MR-FRM-ENV-001-02) Project induction	Prior to construction	Environment Manager
B5	The CEMP, construction plans and ECMs will clearly document the location and full extent of clearing required.	CEMP, construction methodology, site layout drawings, Clearing Management Procedure (T4MR-MPR-ENV-004) and ECMs.	Prior to construction	Construction Manager Environment Manager or delegate
B6	All key actions of this BMP and ECMs (e.g. clearing demarcation, erosion control measures and clearing permit requirements) will be incorporated in relevant project HSEQ risk management documentation (AMS, ITPs, TRA/SWMS and ECMs) and included in the Supervisor's Workpack for the site.	BMP, ECM	Prior to construction	Project Director Environment Manager or delegate

ID	MEASURE/ REQUIREMENT	RESOURCES	WHEN TO IMPLEMENT	RESPONSIBILITY
B7	Prior to clearing commencing, demarcation of the approved clearing boundary (CIZ) will be undertaken and the extent of any areas of clearing defined with roped flagging or similar.	Clearing Management Procedure (T4MR-MPR-ENV-004) Site layout drawings and ECMs.	Prior to construction	Environment Manager or delegate Survey Manager Construction Superintendent
B8	Prior to clearing, sensitive biodiversity areas (threatened species habitat/ TECs) occurring outside but in proximity to the clearing boundary will be fenced with appropriate signage to prevent inadvertent access/ impacts.	Clearing Management Procedure (T4MR-MPR-ENV-004) Clearing Permit (T4MR-FRM-ENV-001-02) ECMs	Prior to construction	Environment Manager or delegate
B9	Prior to clearing commencing a clearing tracking register will be established to accurately track 'as-built' vegetation clearing impacts for the project to demonstrate compliance with relevant CoAs. The register will be maintained (monthly) throughout the project.	Clearing tracking register	Entire project	Environment Manager or delegate
B10	Prior to construction pre-clearing surveys of impacted bridges / culverts would be undertaken by a suitably qualified ecologist to identify roosting habitat and presence of microbats.	Ecologist pre-clearing survey report Clearing Management Procedure (T4MR-MPR-ENV-004) Clearing Permit (T4MR-FRM-ENV-001-02) ECMs	Prior to construction commencing	Environment Manager or delegate Ecologist

ID	MEASURE/ REQUIREMENT	RESOURCES	WHEN TO IMPLEMENT	RESPONSIBILITY
		Appendix D - Unexpected Threatened Species / Endangered Ecological Community Find Procedure		
B11	In the event that unidentified threatened species (not considered within the EIS) are identified on the site the Unexpected Finds Procedure (refer to Appendix G) will be initiated with no works to be undertaken within such areas until further assessment is undertaken including: • Assessment by ecologist • Referral of finding to client and regulatory authorities. • Approval to proceed works is received from the client.	Incident and Event Management procedure (T4MR-MPR-SQE-010) Appendix D - Unexpected Threatened Species / Endangered Ecological Community Find Procedure	Upon locating an unexpected threatened species.	Environment Manager or delegate Ecologist
B12	Prior to construction commencing appropriate local vets or rescue organisation/wildlife carers/facilities will be identified and contacted to seek permission to assist with any injured/ orphaned fauna. Contact details for these companies/ organisations will be included on ECMs.	Community Stakeholder and Engagement Management Plan (CSEMP) Biodiversity/ Flora and Fauna ECM (T4MR-MR-ENV-001-06)	Prior to construction	Environment Manager or delegate
B13	Prior to clearing commencing the community, Landcare groups and government agencies will be consulted to determine if retained timber and root balls can be reused in habitat and rehabilitation work.	Biodiversity, Flora and Fauna ECM	Prior to clearing commencing	Environment Manager or delegate Community and Stakeholder

ID	MEASURE/ REQUIREMENT	RESOURCES	WHEN TO IMPLEMENT	RESPONSIBILITY
		(7632-T4MR-PL-PES-010)		Engagement Manager or delegate
CLEARING				
B15	Prior to clearing commencing pre-clearance surveys will be undertaken by suitably qualified and experienced ecologists within areas of woody native vegetation within the CIZ including: • Identification and demarcation of all habitat tree (which are defined as trees containing hollows, cracks or fissures and spouts, active nests, dreys or other signs of recent fauna usage). • Identification of other fauna habitat features including fallen timber/hollow logs and burrows. • Identification of habitat features that are suitable for translocation or salvage. • Identification and demarcation of any threatened flora to be retained occurring in proximity to the CIZ. • Updated mapping of weed infestations for the project site.	Ecologist pre-clearing survey report Clearing Management Procedure (T4MR-MPR-ENV-004) Clearing Permit (T4MR-FRM-ENV-001-02) Appendix D - Unexpected Threatened Species / Endangered Ecological Community Find Procedure	Prior to clearing commencing	Environment Manager or delegate Ecologist
B16	A suitably qualified and licensed fauna spotter catcher will be present during the following clearing activities: • Clearing of any native, mature trees (>3 metres) in height. • Removal of habitat trees, stags and nests. • The fauna spotter catcher will: ✓ Undertake searches during clearing for any fauna and undertake relocation in accordance with the Fauna Handling Procedure (refer to Appendix H).	Ecologist pre-clearing survey report Clearing Management Procedure (T4MR-MPR-ENV-004) Clearing Permit (T4MR-FRM-ENV-001-02)	During clearing	Environment Manager or delegate Fauna spotter/ catcher

ID	MEASURE/ REQUIREMENT	RESOURCES	WHEN TO IMPLEMENT	RESPONSIBILITY
	✓ Uninjured animals will be released on the day of capture into nearby suitable secure habitat and would not be held for extended periods of time. ✓ Injured animals will be taken to the nearest veterinary clinic or wildlife carer as soon as possible for assessment and treatment prior to being released into nearby suitable secure habitat.	Appendix D - Unexpected Threatened Species / Endangered Ecological Community Find Procedure		
B17	A pre-clearance survey will to be undertaken by a qualified and licensed fauna spotter catcher immediately prior to the commencement of any vegetation clearing (on each day of clearing) to identify and relocate fauna within clearing areas.	Qualified fauna spotters on site during clearing activities Clearing Management Procedure (T4MR-MPR-ENV-004) Clearing Permit (T4MR-FRM-ENV-001-02)	During clearing	Environment Manager or delegate Fauna spotter/ catcher
B18	• Where a Koala is located within a clearing (or works) area, clearing or work activities will stop and a 50m buffer will be established around the animal with no clearing within this area to resume until the fauna spotter/ catcher confirms the animal has left the area of its own volition. The Project Team will ensure the Koala has a means of egress to more away from construction so the animal is not isolated with no route to escape. • Any Koala record within the site will be reported to Inland Rail's Environment Manager. Details of the record including cessation and recommencement dates/ times of clearing activities will be recorded in the project fauna register.	Biodiversity/ Flora and Fauna ECM (T4MR-MR-ENV-001-06) Appendix D - Unexpected Threatened Species / Endangered Ecological Community Find Procedure	During clearing	Entire project Fauna spotter/ catcher Environment Manager or delegate

ID	MEASURE/ REQUIREMENT	RESOURCES	WHEN TO IMPLEMENT	RESPONSIBILITY
• **B19**	• All habitat trees (as defined in B15) will be subject to a two-stage clearing process involving: ✓ Initial clearing of non-habitat trees around habitat trees within the immediate vicinity of habitat tree. ✓ Allowing habitat trees to stand for at least 48 hours after initial clearing to allow fauna the opportunity to self-relocate. • Felling of habitat trees will be supervised by the attending fauna spotter catcher. • The use of a harvester head will be used to carefully lower habitat trees to the ground where possible. • All habitat trees are to be lowered gently to the ground where possible. Additional steps such as bumping the habitat tree three times over a 5-minute period will be undertaken to encourage fauna to vacate prior to felling would be adopted where the potential to lower the tree gently is low. • The fauna spotter catcher will search all habitat trees immediately after felling to identify and capture any fauna present. • Uninjured animals would be released on the day of capture into nearby suitable secure habitat and would not be held for extended periods of time. • Injured animals will be taken to the nearest veterinary clinic or wildlife carer as soon as possible for assessment and treatment. • Hollow branches will be salvaged for re-use as hollow logs in adjacent retained vegetation where appropriate.	Clearing Management Procedure (T4MR-MPR-ENV-004) Clearing Permit (T4MR-FRM-ENV-001-02) Biodiversity/ Flora and Fauna ECM (T4MR-MR-ENV-001-06) Qualified fauna spotters on site during clearing activities	During clearing	Environment Manager or delegate Fauna spotter/ catcher
B20	Any death of a State or Commonwealth listed threatened fauna species will be reported to IR with 24 hours and further notification provided as per;	CEMP Incident and Event Management	Entire project	Environment Manager or delegate Ecologist

ID	MEASURE/ REQUIREMENT	RESOURCES	WHEN TO IMPLEMENT	RESPONSIBILITY
	• Environment Protection and Biodiversity Conservation Act 1999, Conditions of Approval (EPBC 2016/7729) and; • Critical State Significant Infrastructure Conditions of Approval (CSSI SSI7474)	procedure (T4MR-MPR-SQE-010)		Fauna spotter/ catcher Construction personnel
B21	A fauna register will be maintained throughout construction to include the following information: • All details of fauna captures, relocations and releases. • All fauna mortalities. • Any fauna taken into care and outcomes.	Biodiversity/ Flora and Fauna ECM (T4MR-MR-ENV-001-06) Fauna register	During clearing	Environment Manager or delegate Ecologist Fauna spotter/ catcher
B22	A post-clearing report will be completed at the completion of clearing activities documenting all data collected in the fauna register.	Clearing Management Procedure (T4MR-MPR-ENV-004)	At the completion of clearing	Environment Manager or delegate Ecologist
GENERAL CONSTRUCTION				
B23	Employee education and training including inductions for staff, contractors and visitors to the site will include biodiversity issues at the site to ensure all personnel understand responsibilities in relation to the protection and/or minimisation of impacts to native biodiversity. Site inductions will include: • Legislative responsibilities including General Environmental Duty and Duty to Notify. • Clearing requirements and penalties (including fines) for over-clearing. • Construction exclusion zones. • Protected area requirements. • Project identified sensitive flora and fauna locations and responsibilities in relation to these.	Site Induction Procedure (T4MR-MPR-SQU-001) CEMP ECM's	Site inductions Pre-Start and Toolbox talks	Project Director Environment Manager or delegate

ID	MEASURE/ REQUIREMENT	RESOURCES	WHEN TO IMPLEMENT	RESPONSIBILITY
	• Pest and weed awareness and reporting requirements. • Fauna interaction rules.			
B24	The management of trees in the vicinity of the construction zone will be undertaken in accordance with the AS 4970-2009 Protection of trees on development sites (incorporating Amendment No. 1 (March 2010)). Tree protection zones (TPZs) will be demarcated by para webbing or similar.	Clearing Management Procedure (T4MR-MPR-ENV-004) Clearing Permit (T4MR-FRM-ENV-001-02) AS 4970-2009 Protection of trees on development sites (incorporating Amendment No. 1 (March 2010)).	Entire project	Environment Manager or delegate Project arborist Construction personnel
DEMOLITION OF BRIDGES/ CULVERTS (MICROBAT HABITAT)				
B25	For any structures identified as potential microbat habitat an additional pre-clearance surveys would be undertaken by a suitably qualified ecologist prior to these structures being demolished to determine if microbats are present.	Ecologist pre-clearing survey report Clearing Management Procedure (T4MR-MPR-ENV-004) Clearing Permit (T4MR-FRM-ENV-001-02)	Prior to construction	Environment Manager or delegate Ecologist Fauna spotter/ catcher
B26	If small numbers (<10) of non-breeding bats are present (in surveys undertaken for B25) an ecologist would either: • Install exclusion after the bats have vacated the site at night.	Ecologist preclearing survey	Prior to demolition of structure	Environment Manager or delegate Ecologist

ID	MEASURE/ REQUIREMENT	RESOURCES	WHEN TO IMPLEMENT	RESPONSIBILITY
	• Capture and relocate the bats that evening.	Biodiversity/ Flora and Fauna ECM (T4MR-MR-ENV-001-06)		
B27	Where larger numbers or breeding microbats are identified a specific plan will be developed and implemented by an ecologist with microbat experience in consultation with IR / DPIE. *It is noted that ecological management for such instances will vary depending on factors including species, breeding status and seasonality therefore flexibility is required.*	Ecologist preclearing survey Biodiversity/ Flora and Fauna ECM (T4MR-MR-ENV-001-06)	Prior to demolition of structure	Environment Manager or delegate Ecologist
B28	Only suitably qualified ecologists with up to date bat Lyssavirus vaccinations will handle microbats.	Safety Management Plan Provision of ecologist license and vaccination records	Entire project	Environment Manager or delegate Safety Manager or delegate Ecologist
B29	Unless necessary from an Engineering, Quality or Construction perspective, any gaps, joins, lifting points and other void spaces in bridge elements and culverts will not be filled or enclosed to provide microbat roosting habitat.	IFC Design	Prior to installation / replacement of structure	Environment Manager or delegate Engineer & Supervisor
WORKS NEAR/ IN CREEKS AND TEMPORARY WATERWAY CROSSINGS				
B30	Works within the riparian zone will maximise the preservation of any existing vegetation and minimise disturbance.	Sediment and Erosion Plan Water quality, Sediment and Erosion ECM (T4MR-FRM-ENV-001-11)	Entire project	Environment Manager or delegate Environment Coordinator or delegate Site Supervisor

ID	MEASURE/ REQUIREMENT	RESOURCES	WHEN TO IMPLEMENT	RESPONSIBILITY
B31	Any instream large woody debris in the development footprint will be relocated upstream or downstream in consultation with the ecologist.	Ecologist preclearing survey Biodiversity/ Flora and Fauna ECM (T4MR-MR-ENV-001-06)	Entire project	Environment Manager or delegate Environment Coordinator or delegate Site Supervisor
B32	Designs for works within or near watercourses will provide for the retention of natural functions and maintenance of fish passage in accordance with Why do fish need to cross the road? Fish passage requirements for waterway crossings (*Fairfull and Witheridge, 2003*).	Design documents	Entire project	IR Project Engineer or delegate Environment Manager or delegate
B33	Works within watercourses will be avoided during / within 24 hours prior to periods of high rainfall or high flow events. Where works are required to continue, these will be risk assessed with a member of the Environmental Team.	ESCP Water quality, Sediment and Erosion ECM (T4MR-FRM-ENV-001-11)	Entire project	Construction Manager Environment Manager or delegate
B34	Any pools in watercourses that would be impacted by construction would be dewatered according to the Dewatering Procedure included in the Fauna Handling Procedure – Appendix H. As part of the dewatering procedure native aquatic fauna will be captured/ relocated with euthanasia of exotic species undertaken by a suitably qualified ecologist (refer to Fauna Handling Procedure – Appendix H). NOTE: Euthanasia is not to be undertaken by Project personnel unless under the approval of the Project Ecologist or T4MR Environment Manager.	Qualified ecologist ESCP Water quality, Sediment and Erosion ECM (T4MR-FRM-ENV-001-11) Biodiversity/ Flora and Fauna ECM (T4MR-MR-ENV-001-06)	Entire project	Environment Manager or delegate Construction Personnel

ID	MEASURE/ REQUIREMENT	RESOURCES	WHEN TO IMPLEMENT	RESPONSIBILITY
TRENCHES / DEEP EXCAVATIONS				
B35	Where possible trenches / deep excavation will not to be left open overnight.	Biodiversity/ Flora and Fauna ECM (T4MR-MR-ENV-001-06)	Entire project	Environment Coordinator or delegate Site Supervisor
B36	For trenches / excavation left open overnight, a fauna escape ramp / ladder (plastic garden mesh/ timber plank) will be provided.	Biodiversity/ Flora and Fauna ECM (T4MR-MR-ENV-001-06)	Entire project	Environment Coordinator or delegate Site Supervisor
B37	Trenches/ excavations left overnight will be inspected for fauna prior to works commencing the next day with any fauna present to be captured/ relocated by a suitably qualified fauna spotter / catcher.	Biodiversity/ Flora and Fauna ECM (T4MR-MR-ENV-001-06)	Entire project	Environment Manager or delegate Environment Coordinator or delegate Site Supervisor
FAUNA MORTALITY				
B38	If the cause of a listed fauna fatality is from a road strike within the CIZ, a review of avoidance measures will be undertaken and adaptively managed to prevent further deaths.	Toolbox Talks Prestarts	Entire project	Environment Manager or delegate Environment Coordinator or delegate Safety Manager or delegate
B39	If the cause of a listed fauna fatality is from a road strike on a public road adjacent to the project, a review will be undertaken to ensure project activities are not forcing fauna onto the road. Additional mitigation and / or avoidance measures will be undertaken and adaptively managed to prevent further deaths.	Toolbox Talks Prestarts	Entire Project	Environment Manager or delegate

ID	MEASURE/ REQUIREMENT	RESOURCES	WHEN TO IMPLEMENT	RESPONSIBILITY
				Environment Coordinator or delegate Safety Manager or delegate
MANAGEMENT OF CANE TOADS				
B40	Employee education and training inductions for staff, contractors and visitors to the site will include the following project requirements in relation to Cane Toads: • Awareness training • Any potential siting is to be immediately reported to the Environment Manager • The project ecologist is to investigate any potential Cane Toad observations including undertaking targeted surveys within the vicinity of the record • If confirmed on site relevant regulatory authorities would be notified within 24 hours with notification to include a management response to be prepared in consultation with a Cane Toad expert including monitoring and control actions to be implemented on the site to eradicate all toads within the CIZ. *Advice from Cane Toad expert, Dr Matthew Greenlees: Cane toads have nor do not currently occur in the greater New England region - including in the area between Moree and Narrabri. The current known distribution of toads in New South Wales is essentially east of the Great Diving Range - a considerable distance from the area. In addition, current models predict that the climate in the region is unlikely to be suitable for toads becoming established (Kearney et al. 2008; Kolbe et al. 2010). There have been few historical records of individuals that have been translocated (accidentally) to the region, though never in numbers or to specific areas that have threatened them becoming established (see ALA 2021). If cane toads are detected in the area, expert*	PWMP	Entire project	Environment Manager or delegate Ecologist Cane Toad expert All works personnel

ID	MEASURE/ REQUIREMENT	RESOURCES	WHEN TO IMPLEMENT	RESPONSIBILITY
	advice should be sought immediately in initiating control and eradication measures. These will include manual removal of adults and if necessary, ethggs, tadpoles and metamorph (juvenile) toads. Such measures have been demonstrated to be effective for local eradication of small established populations (Greenlees et al. 2018).			
REHABLITATION & REVEGETATION				
B41	All rehabilitation and revegetation works will be undertaken in accordance with the mitigation measures detailed in the Project's CSWMP. Habitat features, such as woody debris will be scattered throughout rehabilitated areas within the rail corridor in consultation with the IR Project Manager / Project Director.	CSWMP	Construction	Environment Manager or delegate Construction Manager
FIVE-CLAWED WORM-SKINK (ANOMALOPUS MACKAYI) - SPECIES SPECIFIC MITIGATION MEASURES				
B42	All Project personnel would be subject to a Five-clawed Worm-skink induction that includes: • A general description of the Five-clawed Worm-skink (including photos and key identification features). • Locations where Five-clawed Worm-skink surveys are required on the project site i.e. Stage 1 and Stage 3 CH735.000 to CH754.250. • Provision of the project's unexpected finds procedure for when works are to occur outside of anticipated Five-clawed Worm-skink habitat areas. • Reference to Section 5 of the BMP NOTE: Records of induction / toolbox training would be retained.	Induction Toolbox Talk	Construction	Environment Manager or delegate
B43	Targeted Five-clawed Worm-skink surveys would be undertaken by the Project Ecologist and/or Spotter-Catcher Team prior to and during slashing, clearing of woody vegetation and topsoil stripping activities within the following chainages: • All Stage 1; and		Construction	Environment Manager or delegate Project's Ecologists

ID	MEASURE/ REQUIREMENT	RESOURCES	WHEN TO IMPLEMENT	RESPONSIBILITY
	• Stage 3: Chainage 735.000 to 754.250. The surveys would include active searches of microhabitats, including, carefully turning woody debris, rocks and artificial debris, raking the soil surface or leaf litter beneath trees and looking beneath peeling bark for reptiles or their sloughs; searching for animals during topsoil stripping (working closely with the operator). Targeted pre-clearing surveys would comprise of 1.5 person hours per hectare for habitats of average complexity per targeted species (scaled up or down depending on site complexity).			Project's Spotter - Catchers
B44	Proposed release sites for a works area would be selected prior to works commencing in that area. The following criteria would be considered when selecting specific relocation points: • The area is adjacent to or comprises native grassland or woodland on public land; • A relocation site must be as close as possible to the capture site; • Sites must support suitable microhabitat of loose friable soil, with areas of leaf litter, mulch or dense vegetative groundcover which provides cover and foraging resources at least 100m2 in area, and • Relocation sites will be mapped and a GIS layer developed. Establishment of relocation sites would include: • Creating a minimum 100 m2 relocation area at 200 m intervals (where possible); • Installing hay bales (minimum one per 25m2) with each bale measuring approximately 1m x 0.4 x .46. Slashed vegetation and/or woody debris should also be used as an alternative; • Erection of an exclusion fence (silt fence) along the CIZ boundary at the hub plus 10 m either side of the relocation hub		Construction	Environment Manager or delegate Project's Ecologists

ID	MEASURE/ REQUIREMENT	RESOURCES	WHEN TO IMPLEMENT	RESPONSIBILITY
	where practicable. If this is not possible, it must be documented within the FCWS capture register. • Appropriate signage and a high visibility boundary at every relocation site, where practicable. • Relocation of up to 10 adults and 5 sub adult skinks per 100m2. • Sites that receive captured/relocated FCWS will be GPS and a register created as part of an environmental sensitive zone for IR operations.			
B45	Any Five-clawed Worm-Skinks captured during the works would have the following data collected in a Fauna Register: • Project Stage and Chainage • Capture date and time; • Condition (Good, Injured, Deceased); • Microhabitat at capture site; • Soil at capture site; • Activity undertaken at time of find; • Detection method (e.g. survey); • GPS Coordinates for capture and relocation site; • Details of the person/s who made the discovery; • Description of microhabitat at capture site; • Description of vegetation/PCT; • Where, practicable, validation photos from on top, side, below and close-up photos of forelimbs and hindlimbs; and • Series of measurements including; snout-vent length, tail length and total length.		Construction	Environment Manager or delegate

ID	MEASURE/ REQUIREMENT	RESOURCES	WHEN TO IMPLEMENT	RESPONSIBILITY
	Photographs of the site (general location, vegetation, habitat features where the individual/s was discovered) shall be captured each day for each work area. Deceased or euthanised individuals will be forwarded to the *Australian Museum* for research purposes. In addition to the above, the following microhabitat features should be recorded for each find where practicable: • Soil crack density and size range (depth if possible) • % litter cover • % bare ground • % grass cover and/or tussock spacing • 3 most abundant groundcover species • Soil type, soil structure (blocky, small peds, massive) and pH if possible • Large surface debris abundance • Ground moisture levels (including recent rainfall amount if known/relevant). The Project Ecologist or the Environmental Manager for Inland Rail will manage this register. The register will be provided with each incident notification and live FCWS find report, and it will be made available to regulatory agencies.			

WEED, PEST AND PATHOGEN MANAGEMENT				
ID	**Measure / Requirement**	**Resources**	**When to Implement**	**Responsibility**
PW1	During the project Priority Weeds (LLS North-West Region) will be managed in accordance with requirements of the Biosecurity Act 2015 and *Biosecurity Regulation 2017*, and Weeds of National	CEMP PWMP	Throughout project	Environment Manager or delegate

	Significance (WoNS) will be managed in accordance with the Weeds of National Significance Weed Management Guide.	WPM ECP (T4MR-FRM-ENV-001-12)		Construction Managers
PW2	If identified on site pest species and pathogens would be managed in accordance with relevant best practice guidelines. A qualified specialist will be engaged to prepare a specific management procedure in consultation with the client and relevant stakeholders for any pest/ pathogen identified on the site.	Industry best practice	Throughout project	Environment Manager or delegate Environmental Coordinators or delegate Site Supervisor
PW3	Should pest population control be required, a qualified specialist will be engaged to undertake this work and provide detailed advice. Where pest control has been undertaken, a record will be made and maintained. Monitoring of the effectiveness of the pest control measures as well as notification or neighbouring landholders will be undertaken as advised by the qualified pest specialist.	Subcontractor	Throughout project	Environment Manager or delegate Environmental Coordinators or delegate Site Supervisor
PRE-CONSTRUCTION				
PW4	Prior to construction as part of pre-clearing ecologist surveys of the project site, weed infestations will be recorded and mapped on Environmental Control Maps (ECMs) for the project to inform weed management during construction.	Preclearing survey ECM, WPM ECP (T4MR-FRM-ENV-001-12)	Prior to clearing commencing	Environment Manager or delegate Ecologist
PW5	Site personnel will be trained during project inductions on target weed species and weed infestations shown on ECMs. Training will include: • Identification of weed and pest species known to be present on the site; • Ecological impacts associated with invasive weeds and pests; • Mitigation and hygiene measures for controlling weeds and pests;	Project induction	Throughout project	Environment Manager or delegate

	• Awareness of human vectors in the introduction of weeds and pests.			
PATHOGEN MANAGEMENT				
PW6	If pathogens are identified on the site a Pathogen Management Procedure will be developed and implemented. This will include but is not limited to: • Exclusion zones using fencing and signage; • Hygiene washdowns for plant, light vehicles and personnel; and • Additional toolbox training in relation to locations of pathogen and requirements for personnel.		Throughout project	Environment Manager or delegate, Engineer, Site supervisor
MOVEMENT OF PLANT/ MACHINERY				
PW7	Mobile plant and vehicles must be clean of any mud or organic material, prior to arriving or departing from site to prevent the spread of weeds and disease.	ECM, WPM, ECP (T4MR-FRM-ENV-001-12)	Project Delivery	Environment Manager or delegate, Environmental Coordinators or delegate Site supervisor
PW8	Further washdown of vehicles, plant and equipment will be conducted as required. For example, where plant or vehicles have left sealed roads and driven through a known or potentially weed infested area then immediate washing will be required.	ECM, WPM, ECP (T4MR-FRM-ENV-001-12)	Project Delivery	Environment Manager or delegate, Environmental Coordinators or delegate Site supervisor
PW9	Further washdown of vehicles, plant and equipment will be conducted when transferring between landholdings within the project area.	ECM	Project Delivery	Engineer or delegate Site supervisor
PW10	Washing of vehicles, plant and equipment will be undertaken in an appropriately bunded wash down area.	ECM, WPM, ECP	Project Delivery	Environment Manager or delegate,

		(T4MR-FRM-ENV-001-12)		Environmental Coordinators or delegate All site personnel
PW11	Weed hygiene declarations will be obtained for all vehicles, plant and equipment on the site.	Weed hygiene declaration		Environment Manager or delegate Site supervisor
PW12	Vendors supplying materials with the potential to contain weeds or pests (e.g soil/fill, mulch etc.) will be required to provide written assurance that all supplied materials are free from any weeds or pests.	Weed hygiene declaration or similar	Project Delivery	Environment Manager or delegate Engineer
PW13	All mobile plant and vehicles, including deliveries, must use designated travel routes, site access tracks and lay-down areas.	Vehicle movement plan	Project Delivery	Environment Manager or delegate Construction Manager or delegate
VEGETATION CLEARING				
PW14	Weed control of identified areas of noxious weeds will be undertaken prior to/ during clearing and grubbing involving the following methods: • Spraying with herbicides; and/or • Mechanical removal.	ECM, WPM ECP (T4MR-FRM-ENV-001-12) Weed control contractor	Prior to/ during clearing	Environment Manager or delegate Environment Coordinator or delegate Site Supervisor
PW15	Where practicable, areas known to be infested with weeds will be cleared separately to non-infested areas to prevent cross contamination and reduce vehicle/plant/equipment cleaning requirements.	ECM	During clearing	Environment Manager or delegate Environment Coordinator or delegate Site Supervisor

PW16	Erosion and sediment control techniques will be undertaken to assist with the management of removed vegetation and subsequent exposed soils and to prevent further weed outbreaks.	Progressive erosion sediment control plan (PESCP)	Immediately after clearing	Environment Manager or delegate Environment Coordinator or delegate Site Supervisor
PW17	Any vegetation stockpiled after clearing will be managed to prevent the spread of weeds.	ECM	Immediately after clearing	Environment Manager or delegate Superintendent or delegate
USE OF HERBICIDE				
PW18	Herbicide application will only be undertaken by suitably qualified personnel in strict accordance with the requirements of the Pesticides Act 1999 so as not pose a threat to site personnel or nearby sensitive receivers.	Weed control contractor	Project Delivery	Environment Manager or delegate
PW19	Herbicide application will be undertaken during optimal seasonal conditions and in accordance with manufactures guidelines on application rates, intervals etc.	Weed control contractor	Project Delivery	Environment Manager or delegate
PW20	All chemical applications will be communicated and coordinated with relevant land holders.	WPM ECP (T4MR-FRM-ENV-001-12)	Project Delivery	Environment Manager or delegate Community consultation manager or delegate
PW21	Application of herbicide will only be applied such that impacts on surrounding properties (including agricultural land/ sensitive environments) are avoided.	ECM	Project Delivery	Environment Manager or delegate Community Engagement Manager or delegate
TOPSOIL STRIPPING				
PW22	Topsoil stripped from areas containing high densities of weeds will be treated and / or disposed of according to jurisdictional	ECM	During topsoil stripping	Environment Coordinator or delegate

	requirements. This may include on site burial or removal to an appropriately licensed waste management facility.			Site Supervisor
GENERAL CONSTRUCTION				
PW23	Weekly inspections for weed and pest infestations will be undertaken to assess the need for control measures during construction. Inspections for weeds and pests will be undertaken by person(s) appropriately trained in the identification of weeds and pests of significance in NSW and Nationally.	Weekly inspections	Project Delivery	Environment Manager or delegate Environment Coordinator or delegate Site Supervisor
PW24	Any weed infestations recorded during the project will be controlled using the following methods: • Spraying with herbicides; and/or • Mechanical removal.	Weekly inspections	Project Delivery	Environment Manager or delegate Environment Coordinator or delegate Site Supervisor
PW25	Construction sites will be managed to avoid the creation of habitat that favours pest species i.e. avoiding poor housekeeping, stockpiles of large woody debris and / or poor waste management.	Weekly Inspections	Project Delivery	Environment Coordinator or delegate Site Supervisor
DOCUMENTATION				
PW26	Documentation (including disposal receipts) will be maintained for all pest animal and weed control activities and will include records regarding application of herbicide.		Project Delivery	Environment Manager or delegate

7 Sustainability

The N2NS Project will pursue an Infrastructure Sustainability Council of Australia (ISCA) rating under the IS Rating Scheme V1.2.

The IS Rating Scheme (IS) is a comprehensive rating system for evaluating sustainability across the planning, design, construction and operational phases of infrastructure programs, projects, networks and assets. IS evaluates the sustainability performance of the quadruple bottom line (Governance, Economic, Environmental and Social) of infrastructure development.

This plan relates to Eco-1 Ecological Value and Eco-2 Habitat Connectivity. Eco-1 is measured on a sliding scale and Inland Rail will be aiming for an increase in ecological value of 5% and Level 1 for Eco-2. ISCA benchmarks are shown in Table 10 below.

The above targets will be achieved via the implementation of the mitigation measures detailed in Table 10 below.

Table 11: ISCA Scorecard Biodiversity Benchmarks

	LEVEL 1	LEVEL 2	LEVEL 3
BENCHMARK	**ECO-1 ECOLOGICAL VALUE (LEVEL 1 TO 3 ON A SLIDING SCALE)**		
	The ecological value of the infrastructure site is maintained.	The ecological value of infrastructure site is enhanced by 0 to 20%.	Fractions of Levels may be achieved on a sliding scale up to 20% for Level 3.
	ECO-2 HABITAT CONNECTIVITY		
	The existing degree of habitat connectivity is maintained.	NA	NA

8 Declaration of Accuracy

I declare that to the best of my knowledge, all the information contained in, or accompanying, this document is complete, current and correct. In making this declaration, I am aware that section 491 of the EPBC Act makes it an offence in certain circumstances to Inland Rail Report Template for external useknowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the Environment Protection and Biodiversity Conservation Regulations 2000 (Australian). The offence is punishable on conviction by imprisonment or a fine, or both. I am authorised to bind the approval holder to this declaration, and I have no knowledge of that authorisation being revoked at the time of making this declaration."

Authorised Signatory (Inland Rail):

Date:

Appendix A Construction Pest and Weed Management Plan

Construction Pest and Weed Manageme

Appendix B Stakeholder Comments

NSW DCCEEW - DATE 02/12/2020				
No	**Comment**	**Page No**	**Recommendation**	**Response**
1	BCS has reviewed the draft document and notes that repetition exists throughout the BMP, particularly between Table 5 (biodiversity risk assessment), Table 9 (construction monitoring program), and Table 10 (biodiversity mitigation measures). Consideration should be given to whether some of these items could be combined to minimise repetition. Alternatively, where one item is amended as recommended within our response in Attachment A, all other relevant references to that matter must be updated throughout the BMP.			Table 5 (Biodiversity Risk Assessment) moved to Appendix C to avoid repetition within the document. Various changes made throughout remainder of document to remove and avoid repetition.
2	BCS notes that in numerous parts of the BMP it is stated that construction will only occur outside of the approved construction impact			Section 3.4 added to include clarification of consistency assessment and modification.

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	zone (CIZ) following the approval of a Consistency Assessment. Condition E17 of the Infrastructure Approval states that impacts to plant community types must not exceed those listed in Table E1 of the approval. BCS would welcome clarification on how impacts outside of those assessed through the Environmental Impact Statement can be approved via a Consistency Assessment rather than a project modification.			
3	All criteria in the BMP including performance targets and monitoring actions should adhere to the SMART principles (specific, measurable, achievable, repeatable, time-bound). A Trigger Action Response Plan based on the plan's objectives, performance measures and			Section 1.2 and Table 9 amended to provide a more comprehensive list of targets, following the SMART principles. A TARP has been prepared and included as an Appendix.

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	monitoring actions should be developed and inserted into the BMP.			
4	Section 1.2 Objectives and targets are outlined in section 1.2. The four performance targets that are listed are not comprehensive, and consideration should be given to increasing the targets so they cover the full scope and objectives of the BMP. All performance targets should adhere to the SMART principles (specific, measurable, achievable, repeatable, time-bound).		Increase the number of performance targets in section 1.2 so they cover the full scope and objectives of the BMP. All targets should adhere to the SMART principles.	Section 1.2 amended to provide a more comprehensive list of targets, following the SMART principles.
5	Section 3.1		Add the Environmental Planning and Assessment Act 1979.	Section 3.1 Updated to include the EP&A Act.

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6	Section 4.1		Make the following edit in the third dot point – "….with the ~~purchase~~ retirement of ecosystems and species credits….".	Section 4.1 Updated to reflect comment.
			4. Change the reference in dot point 7 from OEH to DPIE.	Section 4.1 Updated to reflect comment.
			5. Include a summary in section 4.1 of the creeks and rivers that the rail alignment crosses.	Section 4.1 Updated to include minor and major waterways along the alignment.
7	In Table 5 (and other sections and tables in the BMP) there is an explanation of the pre-clearing surveys that will be undertaken. If a pre-clearing checklist or proforma exists it would be beneficial to include a copy as an appendix to the BMP.		Include a copy of any pre-clearing survey checklist or proforma as an appendix to the BMP.	Appendix D DRAFT Pre-Clearance Checklist included. This Checklist is Draft and has been provided for information purposes. This Checklist will be further refined and finalised during the site establishment and mobilisation period.

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8	Table 5 Clearing – Unexpected threatened species finds In Table 5 and section 4.11 of the BMP it is stated that unexpected threatened species finds will be documented by an ecologist and referred to the client and regulatory authorities. Further information should be provided regarding the individual steps in the protocol. The protocol used in the Inland Rail Parkes to Narromine Flora and Fauna Management Plan could potentially be used as an example.		Further information should be included in Table 5 and/or section 4.11 regarding the unexpected threatened species finds protocol that is proposed.	Appendix G added to provide additional detail regarding unexpected finds of threatened species and EEC's.

NSW DCCEEW - DATE 02/12/2020				
9	Table 5 Clearing – Felling of habitat trees BCS supports the salvage of habitat elements for re-use. The last dot point in Table 5 (Clearing – felling of habitat trees) states that hollow branches would be reused as hollow logs in adjacent retained vegetation where appropriate. Clarification is required regarding whether this would be within the rail corridor, or in adjacent private property, or elsewhere. Where it will be outside the rail corridor, an overview of the agreements/discussions that have occurred with landholders should be provided.		Clarify in Table 5 Clearing (felling of habitat trees) whether salvaged habitat elements will be placed in the rail corridor or elsewhere. Detail the nature of discussions with landholders where private land will be the recipient site.	Table 5 updated. Hollow branches would be salvaged for re-use as hollow logs in adjacent retained vegetation within the CIZ, where appropriate
10	Table 5 Works in proximity to CIZ boundary Reference is made to the AS 4970-2009 Protection of trees on development sites. It is not clear what this document is or what its applicability is to		An explanation should be provided in Table 5 regarding the relevance of the AS 4970-2009 Protection of trees on development sites document and how it has been applied to this project.	Table 5 updated. -Trees that occur within the CIZ boundary that will be retained will be protected in accordance with AS 4970-2009 Protection of trees on development sites (incorporating Amendment No. 1 (March 2010)). -Indirect impacts to any vegetation beyond the CIZ boundary will be managed in general accordance with AS 4970-2009 Protection of trees on development sites (incorporating Amendment No. 1 (March 2010)).

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	this project. No clearing beyond the approved footprint, or construction impact zone (CIZ), should occur without approval. The BMP should clarify what procedure will be enacted if this does occur. Does it constitute an "incident" as per section 4.15?		10. Clarification in the BMP is required regarding what procedure will be enacted if clearing beyond the construction impact zone occurs.	Table 5 Updated. NOTE: No clearing of vegetation or disturbance to groundcover is permitted beyond the CIZ. Should clearing occur beyond the CIZ this will be considered an environmental incident and managed in accordance with Inland Incident and Event Management procedure (T4MR-MPR-SQE-010), IR's Project Environmental Incident and Reporting Procedure (5-9020-0000-EEC-PR0001) and notification will occur in accordance with project approvals or licences. Incidents, emergencies, response plans and non-conformities are discussed in detail in Section 9 of the CEMP.
11	Table 5 Demolition of bridges/culverts (microbat habitat) It is proposed that a specified plan would be developed where large numbers of breeding microbats are identified (fourth dot point). This plan should be developed in consultation with BCS.		Update Table 5 Demolitions of bridges/culverts (microbat habitat) to state that any specific plan developed to manage large numbers or breeding microbats with regards to bridge or culvert demolition should include consultation with BCS.	Table 5 updated to include consultation with DPIE (BCS).
12	Table 7 states that a clearing permit is required prior to any clearing of native vegetation. Further information is required regarding who prepares and approves this permit,		Provide further detail on the second item in Table 7 regarding the clearing permit, including who prepares and approves it.	Table 7 updated to include additional detail regarding the Clearing Permit

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	and what information it will contain.			
13	Table 7; A Water Discharge Permit is required prior to any water being discharged from the site. Further information is required regarding who prepares and approves this permit, and what information it will contain.		Provide further detail on the fifth item in Table 7 regarding the Water Discharge Permit, including who prepares and approves it.	Table 7 updated to include additional detail regarding the Water Discharge Permit.
14	Section 4.7 Dot points two and three state that regular inspections and reviews will be undertaken on flora, fauna and weed management controls. The frequency of “regular” inspections and reviews should be clearly stated.		Update section 4.7 to quantify how often “regular” inspections and reviews of flora, fauna and weed management controls will occur.	Section 4.7 updated. Inspections (and reviews of controls) will be undertaken weekly.
15	Table 9 Fauna		Add details to Table 9 regarding the monitoring to be undertaken for microbats.	Table 9 updated to include micrbat monitoring measures.

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16	Section 4.12		Review the text in section 4.12 in the second dot point after "The ECMs will include" and update/edit accordingly.	Section 4.12 corrected.
17	Table 10			
	Item B3 states that clearing of koala habitat will be minimised where possible. Condition E23 of the infrastructure approval states that the area of impact to koala habitat must be reduced by 25%. This explicit requirement should be stated in the table.		Update item B3 in Table 10 to state that the clearing of koala habitat will be reduced by 25%.	Table 10 amended to read; Clearing of Koala habitat, as identified by Table E4 (CoA), will be reduced by at least 25%, or as otherwise agreed by the Planning Secretary. Prior to construction commencing, key construction and environmental personnel will assess the Construction Impact Zone (CIZ) issued by IR and identify areas where Koala Habitat (and other mapped vegetation) can be retained.
	Item B11 states that pre-clearing surveys of culverts and bridges will identify microbat roosting habitat – this should be expanded to include identifying the presence of microbats.		Update item B11 in Table 10 to state that roosting habitat "and the presence of" microbats will be determined in pre-clearing surveys.	Table 10 amended ro read; Presence or absence of microbats will also be determined during the pre-clearing surveys.

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	Items B29-B33 discuss mitigation measures relevant to works in creeks and temporary waterway crossings. An additional mitigation measure that should be added is that all spoil and stockpiles will be located in the CIZ and will be located an appropriate distance away from riparian areas. The BMP should specify distances, including justification for the distances selected.		Add a mitigation measure to Table 10 "works near/in creeks and temporary waterway crossings" that states spoil and stockpiles will be located in the CIZ but away from riparian areas.	Mitigation Measure B45 added.
	An additional mitigation measure that could be implemented to minimise impacts to native fauna could be avoiding working hours at dawn and dusk (when fauna are more active). Any night work should avoid excessive use of artificial lighting. An out-of-hours work protocol should be established.		Consider the addition of a mitigation measure to Table 10 to avoid working hours at dawn and dusk. Night work should avoid excessive use of artificial lighting, and an out-of-hours work protocol should be established.	Table 10 amended to read; Where possible, construction works will be avoided at dawn and dusk when some fauna are most active. All night works must be assessed and approved by the Project's Environmental personnel via the Project's Out-Of-Hours Protocol and should avoid the excessive use of artificial lighting.

NSW DCCEEW - DATE 02/12/2020				
18	Section 6 Table 11 refers to the IS Rating Scheme V1.2. An explanation of this rating scheme is required, including what actions will contribute to the achievement of a Level 1 benchmark for Eco-2 habitat connectivity		Describe the IS Rating Scheme V1.2 in section 6, including what actions will contribute to achieving the Level 1 benchmark for habitat connectivity.	Table 11 updated. The IS Rating Scheme (IS) is a comprehensive rating system for evaluating sustainability across the planning, design, construction and operational phases of infrastructure programs, projects, networks and assets. IS evaluates the sustainability performance of the quadruple bottom line (Governance, Economic, Environmental and Social) of infrastructure development.
19	The BMP does not contain a Trigger Action Response Plan (TARP). A TARP allows for the development of a threshold or trigger point for each item being monitored and action being implemented, detailing relevant actions that need to occur when thresholds have been exceeded or not met.		Develop a Trigger Action Response Plan for the BMP.	TARP prepared and included in Appendix.

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20	The BMP discusses the pre-clearing surveys that will be undertaken to detect roosting habitat for microbats, how microbats will be excluded from structures or captured and relocated, and the trigger for developing a specific plan where more than 10 microbats are detected. Consideration should be given to including a specific microbat procedure in the BMP, like that developed for the Parkes to Narromine Flora and Fauna Management Plan. Given the potential for the existing rail structures to provide microbat habitat (culverts, bridges, and other drainage structures), consideration should be given to installing habitat structures in the new bridges and structures like microbat habitat boxes.		Consider including a microbat procedure in the BMP like that developed for the Parkes to Narromine Flora and Fauna Management Plan.	Microbat Monitoring and Management requirements included in the relevant sections of the BMP i.e. Microbat monitoring requirements detailed in Section 5.6, Microbat Management requirements detailed in Section 6 and Triggers and Actions specific Microbats included in the TARP (Appendix).
			Consider including microbat habitat boxes on new drainage and bridge structures.	Microbat nest boxes will be considered and discussed with the Project Ecologist depending on the following: - The quantity (if any) and types of microbats found (or signs of occupation) during pre-clearance surveys. - The amount of microbat habitat lost through the retrofit, upgrade or replacement of bridge and culvert structures. - The amount of habitat created by the retrofit, upgrade or replacement of bridge and culvert structures. NOTE: A mitigation measure (B30) has been added not to fill in or enclose any joins, gaps, lifting points or other void spaces in culverts or structures. This is to be confirmed with the Construction and Engineering Team.
Pest and Weed Management Appendix				

NSW DCCEEW - DATE 02/12/2020				
22	Table 1 The performance targets listed in Table 1 should be reviewed to ensure that they conform to SMART principles. For example, rather than undertaking “regular” compliance reviews the performance target should state a quantifiable frequency. Consideration should be given to expanding the performance targets to adequately address the objectives of the Pest and Weed Management Appendix. For example, infestations of newly identified weeds will be contained within a specific time period.		The performance targets in Table 1 should be reviewed to ensure they conform to the SMART principles.	The Targets detailed in Table 1 have been amended to comply with the SMART principles.
			Consideration should be given to expanding the performance targets to comprehensively address the objectives of the Pest and Weed Management Appendix.	The Targets detailed in Table 1 have been amended to address the objectives of the Pest and Weed Management Appenidx.
23	Table 2		Update Table 2 to describe the relative abundance and geographic distribution of the weed species along the alignment.	Table 2 updated to include relative abundance of WONS and other weeds identified during the Project EIS.

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24	No details are provided in the appendix regarding the pest animals that have been recorded in the project boundary, their relative abundance, what the performance targets are, and what control activities will be undertaken.		Update the Pest and Weed Management Appendix to include information on the pest animals that have been recorded in the project boundary, including the proposed control activities to be undertaken.	Table 2 updated to include the pest fauna species identified during the Project EIS (NOTE: Information describing the relative abundance of the pest fauna species was not provided in the Project EIS). Section 1.2 updated to include objectives and targets and Section 5 updated to include mitigation measures.
Narrabri Shire Council (05/02/2021)				
1	There is a lack of discussion of rehabilitation of the project site once construction is complete. Requirement C3.4 REMM (Revised Environmental Management Measure) from the SPIR (Submissions Preferred Infrastructure Report) refers to the 'rehabilitation strategy' which should be addressed in Section 5 of the BMP.	9	Yes addressed	The mitigation measures for site rehabilitation and revegetation have been detailed in Section 6 of the CSWMP. Table 3 of the BMP updated accordingly.

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2	The Weeping Myall Woodland, nor any other Threatened Ecological Community (TEC) is not specifically discussed or addressed. It is also unclear is how long the permit holder is responsible for weed and pest management post construction.	18	Yes addressed	TECs are explained in Section 4 - Existing Environment with mitigation measures to protect TECs are provided in Section 6 of the document. Mitigation measures added to the PWMP include: Following completion of construction, weed monitoring (and subsequent management) will occur whilst Tran4m Rail has site possession and the EPL remains in place.
3	a)A Construction Environmental Management Plan (CEMP) must be prepared in accordance with the Department's Environmental Management Plan Guideline for Infrastructure Projects (DPIE, 2020) to detail how the performance outcomes, commitments and mitigation measures will be implemented and achieved during all stages of construction. The BMP is a required CEMP Sub-Plan. The complete CEMP was unavailable at the time of this review,	N/A	Noted	These references have been externally verified by the Project ER and DPIE via the review process.

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	therefore there are many references within the BMP which could not be verified.			
4	b)Requirement C3.4 refers to the 'rehabilitation strategy' which should be addressed in Section 5 of the BMP. There is no detail about rehabilitation in Section 5, instead it refers to the Erosion and Sediment Control Plan. The rehabilitation strategy needs to be further clarified.	9	Addressed	NOTE: Rehabilitation and revegetation requirements detailed in the SWMP. Table 3 amended accordingly.
5	c) Within the glossary on page 10: ·the definition for ECM is incorrect. ·an ECP, EPO and TEC definition need to be included. ·the ESCP definition is out of alphabetical order which makes it hard to find. ·ESCP definition in the glossary is inconsistent with the	10	Yes	Comments addressed in Glossary.

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	report – is it the Project Erosions and Sediment Control Plan, or the Progressive Erosion and Sediment Control Plan?			
6	d)There is inconsistent use of Construction Impact Zone/ project area/ proposal site/ study area/ Project/ project/ development footprint/ construction footprint. Define which term/s are relevant and be consistent with use.	11	Yes	Clarity of the terms provided.
7	e)There are no Plant Community Type (PCT) descriptions within the body of the BMP, nor discussion of which PCT's are associated with which Threatened Ecological Community (TEC). There could also be more discussion about threatened species recorded in the 'project area' including which species are relevant,	17	Yes	Section 4.1 expanded to clearly explain the existing environment including the threatened flora and fauna and TEC's impact by the works. Mitigation Measure B1 describes the PCTs and the anticipated impact to each. Mitigation measures B3 updated to describe the process to reduce vegetation (and Koala Habitat) clearing. Reference (impact area) updated to 890.41Ha and 175.25Ha for Koala habitat.

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	mapped or offset. There is also no discussion of reducing impact to koala habitat by 25 percent as per CoA E23. The impact area stated in this section of the report (see snip below) is not consistent with the 890.41 hectares listed in the Compliance matrix – please explain the difference. CoA states impact to koala habitat is 175.25 hectares which is also different to the amount listed below. ***932 ha of native plant community types (including 174 ha of Koala habitat) listed under the BC Act and the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) will be impacted. ARTC will offset this impact with the retirement of ecosystems and species credits***			

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	through biodiversity stewardship agreements.			
8	f) The area of impact to native vegetation is constantly changing as the project evolves and progresses, this should be explained in the BMP.	Section 3.3	Yes	Section 3.3 added, General Changes to the Project. This clearly defines the Consistency Assessment process. Bullet point 6 defines changes to vegetation clearing.
9	g) Key Fish Habitat (KFH) is touched upon at the end of Section 4.1 but there is no further discussion about impact to KFH. Explanation is required about mitigation of impact to KFH.	App C and Table 8	Yes	Appendix C updated to include direct and indirect impacts to KFH. Table 8 includes mitigation measures to address those risks identified.
10	h) There are many references to the Environmental Control Maps (ECM) which will clearly show sensitive areas, weeds etc but there is no explanation of who is responsible for creation of these maps and when will they be issued and where are they available. One ECM is referred to in particular; Biodiversity/ Flora and Fauna ECM	CEMP App G BMP Section 5.11	Yes	NOTE: The Environmental Control Plans are included in App G of the CEMP. These are draft. The Environmental Control Maps will be progressively developed by the Environmental Coordinators as works are initated.

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	(T4MR-MR-ENV-001-06) but it was unable to be located, and for this review it was assumed to be a part of the CEMP.			
11	i) Table 5 refers to future approved consistency assessments. What is a Consistency Assessment? This is not clearly explained.	Section 3.3	Yes	Section 3.3 added, General Changes to the Project. This clearly defines the Consistency Assessment process.
12	j) Regarding Clearing risk assessment (Table 5) where a koala is located, it should include 'allow koala a means of egress to more away from construction so the animal is not isolated with no route to escape'.	App C and various other Sections	Yes	Addressed, (text included) in Appendix C (Biodiversity Risk Assessment) and various other Sections.
13	k) Regarding inspections and monitoring, what is the duration of requirements post construction?	20 Table 7	Yes	Section 5.4 amended to detail post-construction inspection requirements.
14	l) With regards to the vegetation maps in Appendix C: · The legend should only show features that are visible on that	App D	Yes	New map suite appended, noting: - Legend showing all attributes. - Maps in order, based on Chainage. - Threatened species and TEC's identified.

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	particular map · Maps are not in a clear order – would be better if they visually connected to the next map (they appear to be in reverse order) · Threatened species should be labelled or colour co-ordinated to you can tell which species is where · Location of TEC's should be clearly marked · Some design lines are not PCT mapped · The red and pink hashed areas are difficult to differentiate.			- All PCT's mapped. - Colours legible.
15	PWMP - The Weeping Myall Woodland, nor any other Threatened Ecological Community (TEC) is not specifically discussed or addressed in this plan, some extra detail and clarification may be required.	Section 1.3 Table 1 Table 3	Yes	The impacts to the Weeping Myall Woodland (and other TEC) is added to various sections of the PWMP. The mitigation measures to address these risks have been included in Section 5.
15	PWMP - It is also unclear is how long the permit holder is responsible for weed and pest	19	Yes	PW26 added to Table 4.

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	management post construction.			
17	PWMP - Further consideration is required to ensure that the reference from 'noxious' weeds is changed to 'priority' weeds throughout the document in line with current legislation.	Throughout	Yes	Addressed throughout
Gwydir Shire Council				
1	"No comment" received from GSC on the 25th February 2021.			
Moree Plains Shire Council				
1	"No comment" received from MPSC on the 24th November 2020.			
DAWE				
Condition / Requirement	**DAWE Review**	**Proposed Trans4m Rail Response**	**DAWE Response**	**Trans4m Rail Response (Rev E)**
General comments	**Plan not fit for purpose** As is detailed below, the plan does not commit to either actions or outcomes. It cannot be considered fit for purpose until such time as the plan makes binding, measurable, auditable, and enforceable commitments	Responses detailed below	BMP Rev C received 17 Feb 2021, addresses DPIE's comments, DAWE comments from 1st February yet to be incorporated into BMP revision.	BMP and PWMP revised to address comments (see below)

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	regarding both the actions that will be taken, and the outcomes that will be achieved. These commitments must be specific, fully-defined, timebound, and drafted in unambiguous language so that an independent auditor could determine, objectively and without any lack of certainty, whether the commitments had been met. The plan also regularly just refers to further sub-plans (which have not been provided to the Department) instead of stating in the plan itself what will be done to manage various risks, impacts, and uncertainties. This is not acceptable. The plan must be capable of operating as a standalone			

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	document with all necessary information contained within it. There are also numerous typographical errors, which unacceptably undermine the plan's accuracy and enforceability. For example, as discussed below, Table 1 has numerous errors in condition numbering. These typographical errors must be fixed before the plan is suitable for approval.			
Relevant EPBC Approval Conditions				
1. The approval holder must:		Responses detailed below		Refer below

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a. Implement conditions C4 and C9 of Part C, Schedule 2 of the State Infrastructure approval, where they relate to monitoring, managing, avoiding, mitigating, offsetting, recording, or reporting on, impacts to protected matters, with the exception of C9(a).	**Not Met.** See Comments below.		BMP Rev C claims this is addressed in CEMP	
b. Ensure that the Weed Management Plan included in the Biodiversity Management	**Not Met.**		We note the inclusion of the Construction Pest and Weed Management Appendix to Rev C.	Mitigation measures for weeds, pests and pathogens have been duplicated in the BMP.

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Subplan required under condition C9 of Part C, Schedule 2 of the State Infrastructure approval, includes appropriate weed control measures to prevent the introduction and/or spread of weeds from construction areas to any retained area of Belson's Panic (*Homopholis belsonii*), Natural Grassland on Basalt and Fine-textured Alluvial Plains of Northern New South Wales and Southern Queensland, Brigalow (*Acacia harpophylla* dominant and codominant) and Weeping Myall Woodlands	Table 5 states that "A separate Pest and Weed Management (PWMP) Sub-plan has been prepared for the project." That is contrary to the EPBC Act approval conditions. The weed management measures must be included in the BMP. They must be set out in full, with binding commitments made, enforceable timeframes for implementation established, and justifications provided for why those measures are expected to succeed in preventing weed incursion into Weeping Myall Woodlands, Brigalow TEC, and Belson's Panic Natural Grassland. Also, from a		Objectives and Targets should reflect the conditions ie include prevention of introduction and/or spread of weeds from construction areas to any retained area of Belson's Panic, Natural Grassland, Brigalow and Weeping Myall Woodlands ecological communities.	

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ecological communities.	governance perspective, such an approach would create three separate layers of plans, without clarity as to which override in which situations, should there be inconsistencies, and without clarity as to which, if any, are enforceable. That is not appropriate.			

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	Despite the plan's statement noted above, Appendix A is titled "Construction Pest and Weed Management Appendix". However, it does not provide adequate measures to control and prevent the spread of weeds from construction areas to retained areas of MNES. Table 1 of that Appendix sets out a series of objectives and targets for the Appendix. As with the objectives and targets for the main plan itself, the Appendix objectives are not written in binding language, are non-specific, are undefined, and therefore are not capable of either enforcement or independent,	Mitigation measures for weeds and pests will be duplicated in the BMP.	Section 5.6 Table 7 contains detail of construction monitoring program including weekly inspections by environment coordinator to record weeds, pest and pathogens where observed. Control of weeds to be actioned as required – can this be altered to point to Appendix E trigger action response plan – this then closes the loop on what actions will be taken when an observation is made. What process would allow ad-hoc reporting of weeds, pest and pathogen from construction crew/outside the weekly environmental inspection? Will the weekly inspection include the placement and securement of	Objectives in the PWMP and BMP have been redrafted to use more enforceable language and accord with SMART principles

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	objective auditing and compliance verification. The objectives and targets need to be redrafted to adhere to SMART principles (specific, measurable, achievable, repeatable, time-bound).		roping/flagging/fencing of CIZ and sensitive MNES areas, to ensure disturbance of the soil and hence increased risk of weeds being spread outside CIZ is assessed?	
			An explanation of why the measures proposed are considered appropriate to prevent the spread to the MNES is required.	

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		All weed management measures are aimed at managing/ controlling weeds on site thereby avoiding impacts to offsite areas including these containing MNES. We have no ability to access offsite areas to undertake weed monitoring/ management therefore our efforts to control weeds need to be confined to site.	The language at section 4.4 of Weed Management Appendix should be tightened to ensure enforcement.	Objectives and targets within the PWMP have been updated to include specific mention of avoiding introduction/ spread of weeds to nearby areas containing MNES.

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		Could DAWE please advise how mitigation measures for weeds in the PWMP are insufficient?		Section 5.6 (Table 7) has been updated to reference the trigger action control plan.
		Objectives in the PWMP will be redrafted to use more enforceable language.		Additional item included in Section 5.6 (Table 7) to capture ad-hoc reporting of weeds, pests and pathogens by construction personnel.
				The installation of clearing boundary flagging/ signage would not be undertaken as part of the weekly inspections rather this would be a routine activity to be undertaken within all clearing areas prior to commencing works.
				Additional wording has been provided in Section 1.3 of the PWMP explaining specifically why the measures proposed are appropriate to manage adjacent areas of MNES.
				Section 4.4 of PWMP reworded to be more clear and accommodate SMART principles.
Relevant State infrastructure Approval Conditions				

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C5 The CEMP Sub-plans listed in Condition C4 must state how:	**Not Met.**	Objectives and targets for the BMP will be redrafted to use more enforceable language.	Rev C Table 8 Environmental Management Measures for preconstruction. We look forward to seeing the next version where our comments will be addressed.	Objectives and targets for the BMP have been redrafted to be more specific, use more enforceable language and differentiate between targets and objectives.
(a) the environmental performance outcomes identified in the documents listed in Condition A1, as modified by these conditions, will be achieved;	The BMP's objectives are listed at Section 1.2. Section 1.2 is not sufficiently specific. For example, it states that one objective is to "minimise disturbance to fauna and flora; including habitation, reproductive cycles, and availability of selective food sources". DAWE is not clear what a "selective food source" would refer to. More broadly, the objective is not framed in binding, measurable, nor enforceable language. The			

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	objective needs to commit to maximum permitted disturbances/impacts on each relevant protected matter.			
	Section 1.2 also sets out 'targets' for the plan. It is not clear what distinguishes an objective from a target. Again, targets are not written in binding, measurable, nor enforceable language. For example, one target is "minimise fauna fatalities resulting from construction activities". That target is not meaningful, because it:		Append D/G? Unexpected Threatened Species Procedure – Table 8 typo.	Mitigation measures within the BMP have been updated to include the maximum permitted impact on each vegetation community, TEC and Koala habitat. Maximum permitted clearing areas for threatened species habitat are not provided as these are captured by maximum permitted plant community areas and are not separated out in CoA.
	• does not state the maximum acceptable number of fatalities,		Table 8 B13 What is addressed in the Biodiversity/Flora and Fauna ECM (T4MR -MR-ENV-001-06)?	

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	• does not state whether there are particular species where markedly lower levels of fatalities may still be unacceptable, and			As discussed matters relating to biodiversity credits would be managed by IR and therefore are not part of the remit of the BMP.
	• does not explain how it will be determined whether impacts have been minimised. On one interpretation, minimisation might mean no fatalities at all are permitted, and whatever mitigations are needed to achieve that goal must be implemented. Alternatively, this might mean that there should be no fatalities save those that occur through normal construction			
	– that is, any amount of fatalities that occur through 'normal' construction methods will be			Table 8 typo corrected re Appendix G – Threatened Species Procedure.

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	acceptable. "[M]inimised" is therefore too ambiguous and undefined a term, and is not a fit basis for objections or targets.			
	At Section 4.1, the plan notes that 932 ha of native plant communities will be impacted, but does not commit to impacting no more than 932 ha. Committing to a maximum permitted impact is essential. While the plan identifies the vegetation types to be impacted that are listed TECs under the BC Act, it does not identify which EPBC Act-listed TECs will be impacted. The plan also does not state the maximum permitted impact on each TEC. Identifying the maximum permitted			The Biodiversity/Flora and Fauna Environmental Constraints Maps (ECMs) (T4MR -MR-ENV-001-06) shows all biodiversity constraints associated with the project including sensitive environmental areas, weed infestations, clearing boundaries etc. This is detailed in mitigation measure B4 and Section 5.11 of the BMP.

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	impact on each TEC is essential as it may radically alter the offsetting obligations that apply. Similarly, the plan does not state the maximum permitted impact on habitat for listed threatened fauna and flora species. Once the maximum permitted impacts are stated, the plan will also need to state the number of credits required to offset those impacts for each protected matter, and commit to retiring the required credits, and commit to doing so in compliance with the amended like-for-like rules that apply for projects subject to EPBC Act approvals.			

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		Section 4.1 is providing context to the plan as such doesn't need include a break-down of vegetation community clearing impacts. However, the relevant mitigation measure in Section 6 (Table 8) will be updated to include the maximum permitted impact on each community as well as TECs and threatened species habitat.		

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		Biodiversity credits will be offset by IR and therefore cannot be included as a commitment in Inland Rails CEMP.		
			Have requested information from IR on their offset strategy.	

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(b) the mitigation measures identified in the documents listed in Condition A1, as modified by these conditions will be implemented;	**Not Met.**	We believe the proposed mitigation measures are appropriate to achieve compliance with project requirements and good ecological outcomes. It is noted that DPIE (BCS) have reviewed the BMP and PWMP and have provided comments which have been incorporated into the plans.	The comments here and above still stand – no commitments have been made to maximum number of acceptable fatalities/injuries per species and commitment to a maximum area of native plant community impact of 932ha and maximum impact on each TEC and habitat for listed species.	Maximum areas of impact for plant communities, TECs and Koala habitat have been added to Table 8 mitigation measure.

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	The mitigation measures are not adequately identified, nor is a meaningful implementation plan or schedule provided. Table 10 (Section 5) purports to list mitigation measures. However, it suffers from the same issues discussed both above and below in this table: measures are not defined, are not written in binding language, and could not be independently and objectively audited to determine compliance. For example, measure B3 states: “Clearing of Koala habitat will be minimised by reducing the construction footprint where possible.” This table has explored the problems with			

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	the word “minimised” and the phrase “where possible” elsewhere, and those comments apply equally here. Those issues consistently afflict all measures suggested in Table 10.			
		The language of mitigation measures can be tweaked where possible to make the language more enforceable.		Setting a maximum number of acceptable fatalities for fauna is not possible given that fauna abundance/ distribution varies greatly between areas and has a major bearing on the number of fauna mortalities recorded on a project. The only meaningful objective in relation to fauna mortalities is to ‘minimise’ injuries/ mortalities.

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		Mitigation measure B3 has been updated to specifically state that clearing of Koala habitat will be reduced by 25%.	Can you specify the new target area for koala habitat clearing?	New target area for Koala habitat has been included.
				Mitigation measures have been edited to use more enforceable language (where possible…).
(c) the relevant terms of this approval will be complied with; and	**Not Met.**	We have checked the numbering for CoA in the current plan and this appears correct.	No response proposed, comment has been addressed.	No response required
	Table 1 shows the EPBC conditions of approval listed with incorrect numbering. The condition reference for EPBC conditions must be consistent with the numbering in the EPBC approval			

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	notice. Similarly, the numbering in the plan for the NSW Approval Conditions is incorrect, and must be amended.			
		It is noted the plan has been updated to incorporate comments received from BCS.		
(d) issues requiring management during construction (including coordination of concurrent activities of other projects as well as concurrent activities in this CSSI), as identified through ongoing environmental risk analysis, will be managed.	**Not Met.**	Responses detailed below	-	-
	See comments below on the need for a full rewrite of the plan's risk analysis.			

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C6 The CEMP Sub-plans must be developed in consultation with relevant parties identified in Condition 0. Details of all information requested by an agency to be included in a CEMP Sub-plan as a result of consultation, including copies of all correspondence from those agencies, must be provided with the relevant CEMP Sub-plan.	**Further consultation needed.**	We disagree that a wholesale re-write of the plan is necessary. The plan has been reviewed following overlapping comments received from BCS. The plan has also been reviewed by the project Environment Representative who has endorsed the plan. Whilst some comments provided by DAWE require tweaks to mitigation measures most comments relate to editorial/ structural changes to the document	Plan has been revised following BCS comments. DAWE will need to see the revised plan before confirming plan is fit for purpose.	Noted

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	DAWE considers that the plan has major deficits that will likely require a wholesale rewrite of the plan to address. As such, DAWE requests that a revised BMP be submitted for further consultation once DAWE's comments have been addressed.	which BCS have not identified.		
C9 The Biodiversity Management Sub-plan must include	**Not Met.**	Refer to response at EPBC Condition 1(b).	-	-

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(a) a weed management plan, including appropriate weed control to manage introduction and/or spread of weeds from construction areas to any retained Weeping Myall Woodlands TEC, and appropriate protocols to demonstrate compliance with the requirements of the *Biosecurity Act 2015* and *Biosecurity Regulation 2017*;	See comments at EPBC Condition 1(b).			

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(b) procedures for pre-clearing surveys for threatened species to be undertaken by a suitably qualified and experienced ecologist, including survey and relocation methodologies and management/offset measures;	**Not Met.**	The pre-clearing mitigation measures are standard for large infrastructure projects and sufficiently detailed. A fauna handling procedure will be included to provide additional detail on ecologist fauna capture/ relocation methods. It is noted that ecologists/ fauna spotter catchers are to be suitably qualified and experienced to undertake this work and as such would be bound by industry best practice.	Appendix F is Clearing Management Inspection Checklist.	Fauna handling procedure included as Appendix H.

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	The plan does not detail or define the procedures for pre-clearing surveys. Survey and relocation methodologies are not provided. Please provide the relevant government authorities with a copy of the Clearing Management Procedure (T4MR - MPR-ENV-004). If there is a pre-clearing checklist or proforma, please include a copy as an appendix to the BMP. The procedure needs to be provided in sufficient detail to constitute an enforceable commitment. That will also require framing the commitments regarding pre-clearing surveys in enforceable			

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	language (e.g.: not using “should”, “may”, “where possible”, or “where appropriate”). Those commitments also must include commitments regarding timeframes and survey extent/effort.			
		A Clearing Management Checklist has been included in the latest draft.		Further refining of mitigation measures related to pre-clearing surveys/ fauna spotter catcher requirements has been undertaken to accord further with SMART principles.

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(c) measures to control cane toads, as relevant to the construction phase areas and scope in accordance with the Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads (relevant to works adjacent to retained Brigalow (*Acacia harpophylla* dominant and co-dominant) TEC and Weeping Myall Woodlands TEC); and	**Not Met.**	A statement will be included by one of Australia's leading Cane Toad researchers to support the statement that the current distribution of Cane Toads does not occur anywhere near the site.	Suggest a trigger flow chart be developed similar to the unexpected threatened species trigger at Appendix G, to demonstrate the approach proposed.	Additional detail provided in Table 8 (B39) including advice from Cane Toad expert and actions to be undertaken in the event of a Cane Toad being recorded.
	Tables 5 and 10 note that cane toads are not yet thought to be present at the site, and therefore propose only that any observation of a Cane Toad on the site be reported to the relevant regulatory authority and advice on management actions is to be			

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	provided by a Cane Toad expert. That is potentially a reasonable starting point, but it is not sufficient, and cannot be said to constitute "measures to control cane toads". DAWE will also need to see evidence supporting that statement.			
	DAWE would require the following additional information:	Additional measures will be included in the plan in relation to Cane Toads including:		Trigger action response plan updated to include a separate line item relating to Cane Toad response. As such, the flow chart is not considered necessary.
	• What is the evidence (a survey report or published ecological survey from within the last two years will suffice) that Cane Toads are not currently present on the site?	*Staff training awareness and reporting requirements to be included in induction.		

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	• Will staff be trained to recognise Cane Toads and signs of their presence?	*A number of additional mitigation measures that would be triggered if a Cane Toad is detected on the site.		Given the fact that Cane Toads are highly unlikely to occur at the site no formal monitoring is warranted.
	• Will there be a formal regular monitoring program actively seeking to determine whether Cane Toads are present, or does the approval holder propose to rely on passive, incidental observation?			
	• If a formal, regular monitoring program will take place, what will that program consist of? How regularly will it occur? What methods will be used?	Given the fact that Cane Toads are highly unlikely to occur at the site no formal monitoring is warranted.		
	• What control measures will be implemented if			

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	Cane Toads are detected?			
	DAWE is not able to accept proposals to leave key details (such as the actual control measures to be implemented) to be determined at a later date.			
	Once that information is provided, DAWE will be able to advise whether we consider the proposed measures fit for purpose.			
General expectations for producing quality Management Plans				

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Plans must effectively assess, management, and account for, risks that may cause those plans not to achieve their outcomes. This must include:	The plan presents a brief summary of a risk assessment from another plan at Table 5 (in Section 4.2). This is not sufficient, for several reasons.	It is noted that changes suggested to the risk assessment are largely editorial/ structural and will not affect mitigation measures and on-ground outcomes. The risk assessment used in the plans is based on John Hollands compliant environmental system. In addition, ongoing risk assessment is built into the environmental management systems to be used on the project.	It would be beneficial to add a table indicating how the risk ratings were derived. The EPBC Act EMP Policy states that EMPs should clearly present how conclusions about risk are reached. Please add the risks related to the yellow highlighted section in our comments.	Risk assessment matrices have been included in the BMP and PWMP reflecting the overall risk assessment process used by Inland Rail outlined in full in the N2NS Risk Management Plan. The risk assessments in the BMP and PWMP has been revised to align with this risk assessment approach.

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• **Identifying the limits of available information and its utility;**	Firstly, the plan states final risk ratings, but does not explain how those risk ratings were derived. The risk analysis needs to state both the likelihood of the risk eventuating and the consequence should that risk eventuate. The interaction of likelihood and consequence should be assessed in accordance with a table such as below.			
• **Identifying any matter on which there is significant lack of information or significant uncertainty;**		The risk assessment process forms part of the JHG SQE risk management system, also forming part of our EMS accredited system.		

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- **Implementing strategies to manage uncertainty;**
- **Discussing <u>all</u> risks that may cause the plan not to achieve its outcomes, including *force majeure* risks; and**

The risk

RISK MATRIX	
Qualitative measure of likelihood (how likely is it that this event/circumstance will occur after management activities are implemented)	
Highly likely	Is expected to occur in most circumstances
Likely	Will probably occur during the life of the project
Possible	Might occur during the life of the project
Unlikely	Could occur but considered unlikely or doubtful
Rare	May occur in exceptional circumstances
Qualitative measure of consequences (what will be the consequence/result if the issue does occur)	

Mitigation

Minor	Minor incident of environmental damage that can be reversed *(e.g. short-term delays to achieving plan objectives, implementing low-cost, well-characterised corrective actions)*
Moderate	Isolated but substantial instances of environmental damage that could be reversed with intensive efforts *(e.g. short term delays to achieving plan objectives, implementing well-characterised, high-cost/effort corrective actions)*
High	Substantial instances of environmental damage that could be reversed with intensive efforts *(e.g. medium-long term delays to achieving objectives, implementing uncertain, high-cost/effort corrective actions)*
Major	Major loss of environmental amenity and real danger of continuing *(e.g. plan objectives are unlikely to be achieved, with significant legislative, technical, ecological and/or administrative barriers to attainment that have no evidenced mitigation strategies)*
Critical	Severe widespread loss of environmental amenity and irrecoverable environmental damage *(e.g. plan objectives are unable to be achieved, with no evidenced mitigation strategies)*

		Consequence				
		Minor	**Moderate**	**High**	**Major**	**Critical**
Likelihood	**Highly Likely**	Medium	High	High	Severe	Severe
	Likely	Low	Medium	High	High	Severe
	Possible	Low	Medium	Medium	High	Severe
	Unlikely	Low	Low	Medium	High	High
	Rare	Low	Low	Low	Medium	High

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• **Clearly explaining how conclusions about risks have been reached.**	Secondly, the partial risk assessment does not commit to any mitigation measures. Instead, all mitigation measures are said to be merely “indicative”. Such a framing removes any enforceability, and means DAWE cannot have confidence that risks will be managed, let alone managed effectively.	As the project breakdowns into activities, further risk assessments are completed, which are more detailed, and task focused.		

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Please note: the risk analysis is about the risk that the plan will not achieve its outcomes, <u>not</u> just the risk that environmental impacts may occur.	Those mitigations are then also not sufficiently specific. For example, one proposed mitigation is “Clearing of Koala habitat will be minimised by reducing the construction footprint where possible.” As discussed elsewhere in these comments, “minimised” is not a term capable of enforcement because it is undefined. That lack of enforceability is then exacerbated by the phrase “where possible”, which again would appear to absolve the approval holder of any obligation to undertake minimisations, even should minimisation be adequately defined.	Given the short timeframes involved with project commencement, the project team would like to focus on mitigation measures and tangible outcomes of the plan. As such we question if a rewrite of the risk assessment is warranted?		

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	Thirdly, Table 5 does not address corrective actions should the identified risks eventuate. The risk analysis must state: the monitoring method that will detect when a risk has occurred or is likely to occur; the objectively and independently measurable trigger or threshold at which corrective actions will be taken in response to the risk occurring or becoming likely; and the corrective actions that will be taken in response to those triggers having been reached. Corrective actions are distinct from general mitigations. Mitigations are pre-emptive measures that are taken to reduce the likelihood of a risk			

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	eventuating, and to reduce the severity of a risk should it occur. Mitigations will be implemented at all relevant times – they will not be triggered by particular events. By contrast, corrective actions are additional measures that will be enacted should they become necessary due to particular events or circumstances emerging.			

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	There are also no timeframes for the implementation of any measures listed in the incomplete risk assessment.	In relation to comments over page, the term indicative will be removed and the mitigation measures will be aligned with those in Section 6 (Table 8) of the BMP and Table 4 of the PWMP.		
	Finally, the risk assessment appears to be assessing the wrong risks. The risk assessment appears to be assessing the sources of potential impacts to the environment, rather than the risk that the plan will not achieve its objectives. Each risk must be assessed in terms			

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	of how it will affect the approval holder's ability to achieve the plan's objectives (which must in turn be defined and measurable, so that successful achievement can be objectively verified). Mitigations must speak to how the impacts on the approval holder's ab ility to achieve the plan's objectives will be managed.			
		As mentioned earlier where possible mitigation measures will be revised to use more enforceable language.		

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Plans must demonstrate that all proposed measures are efficient, effective, timely, transparent, scientifically-robust, and reasonable. References to unpublished data are not acceptable. The Department is also not able to accept assertions based solely on a consultant's experience in environmental management.	Again, a severe lack of detail and definition means the plan cannot demonstrate that its measures are adequate. For example, one of the proposed control measures (see Section 4.5) is a series of "Hold Points". However, the plan does not state what a Hold Point means in this context, nor what the consequences of a Hold Point will be at such time as it is reached. As such, it is impossible to assess whether the Hold Points are likely to be efficient, effective, timely, transparent, scientifically-robust, or reasonable.	Additional explanation of the hold-point process is provided in the CEMP. This will not be brought over into the BMP to avoid repetition.	Please ensure any cross referencing to the CEMP and other procedures are clear, complete and specify the document version and date – this should include a reference to where the definition of 'hold point' is described.	Cross referencing to the relevant section of the CEMP included within 'Section 5.3 Hold Points' of the BMP. A number of additional CEMP references updated in BMP.

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Support from published scientific and environmental literature is required.	Section 4.8 and Table 9 provides somewhat more detail on measures associated with the monitoring program. Unfortunately, this serves to highlight the lack of detail in the plan. For example, under “Pre-construction”, the plan states that, if certain things are identified on site (weeds, pathogens, pest fauna), then monitoring will follow, and that monitoring will inform further control measures. The plan does not state what the monitoring program will be that might detect the relevant triggers (method, frequency, and percentage of site covered are all not provided). The plan then also does not state the monitoring		The maps do not identify which threatened species are present.	

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	program that will follow from the trigger having been detected (again, method, frequency, and percentage of site covered need to be stated). Finally, there is no explanation of how the monitoring results will inform further control measures. There is no list of control measures given that monitoring will help select from. There is no discussion of the situations in which any particular control measures would be appropriate. There is also no commitment actually to implement any control measures, nor is any timeframe for implementation provided.			

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	DAWE cannot currently have confidence that any control measures would in fact be implemented at any point.	Monitoring comprises detailed ecologist pre-construction surveys and weekly inspections of the site to be undertaken during construction. Additionally, surface water monitoring and dust monitoring is undertaken at the site. This monitoring is considered adequate to identify any changes on site and is in line with additional.	Please provide a checklist of what the Weekly Environmental Management Inspection Checklist would contain as a minimum, acknowledging it would be added to over time.	Maps have been updated to show threatened species names.

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	The plan also frequently refers to secondary documents that have not been provided, instead of making commitments to specific actions. For example, the Unexpected Finds Procedure (Section 4.11) states that any previously unidentified threatened species will trigger a notification process contained in the Incident and Event Management Procedure. "Incidents, Emergencies and Non- Conformity" is Section 4.15 of the plan .The section says only that incidents will be managed under Inland's Incident and Event Management procedure and IR's Project			

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	Environmental Incident and Reporting Procedure, both of which are wholly separate documents from the plan under review. That is not acceptable. Any procedure or process that will govern actions taken under the plan needs to be explained in the plan itself. Otherwise, DAWE cannot know what the relevant processes are, nor be confident that those processes are appropriate.			

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	The maps in Appendix C show dots representing 'threatened species' but do not say which species they represent. Please label or define what these species are.	A Trigger Response Plan (Appendix E) has been provided in response to BCS comments which provides detail on additional management responses and when they would be triggered.		A copy of the Weekly Environmental Management Checklist is included separately for information. This has not been included in the BMP as it is still being finalised.

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		Unexpected finds procedure has been included in latest revision. The Incident and Reporting Procedure is included in the CEMP and will not be included in the BMP to avoid duplication.		
		The legend will be updated to incorporate species names.		

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Plans must have transparent governance arrangements, including being able to be readily measured, monitored, audited, and enforced. This means:	Throughout the plan, the language is non-binding, relying on undefined terms (such as "minimised") that are subject to such varied interpretation that measurement, enforcement, or auditing would be impossible.	The relevant mitigation measure in Section 6 (Table 8) will be updated to include the maximum permitted impact on each community as well as TECs and threatened species habitat.	Based on conversation at teleconference 10 Feb 2021, credits are proposed to be written in Credit Retirement Report within 6 months post clearance. The consultant writing the BMP said this was IR's commitment – IR said there was no specific requirement to use Biodiversity Offset Scheme. Have requested information from IR on proposed offset strategy.	Mitigation measures of the BMP have been updated to include the maximum permitted impact on each vegetation community, TEC and Koala habitat. Maximum permitted clearing areas for threatened species habitat are not provided as these are captured by maximum permitted plant community areas and are not separated out in CoA.
• **The person taking the action must have full, enforceable responsibility for both the implementation and the success of the measures proposed;**	The plan has no definitions of success or failure that could be independently measured or audited.			

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• **All commitments must be specific and auditable with measurable outcomes and clear timeframes;**	At Section 4.1, the plan notes that 932 ha of native plant communities will be impacted, but does not commit to impacting no more than 932 ha. Committing to a maximum permitted impact is essential. While the plan identifies the vegetation types to be impacted that are listed TECs under the BC Act, it does not identify which EPBC Act-listed TECs will be impacted. The plan also does not state the maximum permitted impact on each TEC. Identifying the maximum permitted impact on each TEC is essential as it may radically alter the offsetting obligations that apply. Similarly, the plan does not state the maximum	Biodiversity credits will be offset by IR and therefore cannot be included as a commitment in Inland Rails CEMP.		As discussed matters relating to biodiversity credits would be managed by IR and therefore are not part of the remit of the BMP.

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	permitted impact on habitat for listed threatened fauna and flora species. Once the maximum permitted impacts are stated, the plan will also need to state the number of credits required to offset those impacts for each protected matter, and commit to retiring the required credits, and commit to doing so in compliance with the amended like-for-like rules that apply for projects subject to EPBC Act approvals.			
• **All commitments must be written clearly and**	That said, Section 3.3 provides an extensive list of source documents for relevant standards and regulations, with sufficient detail for those documents to be located by regulators and/or members of the			

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	public efficiently and easily.			
unambiguously, using the terms "will" and "must" rather than "should" or "may", and without phrases like "if possible", "if appropriate", "may consider" or similar caveats; and				

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• **Any and all technical terms or acronyms must be clearly and fully defined and explained, and any source documents for external standards must be identified and, at a minimum, hyperlinks to those source documents must be provided.**				
The plan must include the following declaration: **"Declaration of accuracy**	No such declaration has been included.	Declaration of accuracy will be included.	No response proposed, comment addressed – to check in next revision of BMP/CEMP received.	Declaration of accuracy included

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I declare that to the best of my knowledge, all the information contained in, or accompanying, this document is complete, current and correct. In making this declaration, I am aware that section 491 of the *Environment Protection and Biodiversity Act 1999* (Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the *Environment Protection and*				

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Biodiversity Conservation Regulations 2000 **(Cth). The offence is punishable on conviction by imprisonment or a fine, or both. I am authorised to bind the approval holder to this declaration, and I have no knowledge of that authorisation being revoked at the time of making this declaration."**				

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The declaration must then be signed by an authorised person.				
DAWE - Additional Comments (12/03/2021) – Amended in Rev F				
1	If cause of listed fauna fatality is from road strike within CIZ, a review of avoidance measures should be undertaken and adaptively managed to prevent further deaths.	Yes	37	Mitigation measure B39 added to address this.
2	If cause of listed fauna fatality on a public road, a review should be undertaken to ensure project activities are not forcing fauna onto the road, and then avoidance and mitigation measures reviewed and adaptively managed.	Yes	38	Mitigation measure B40 added to address this.
3	Add to Appendix E TARP for fauna species that any injured fauna, not just threatened species would be taken to a vet. Update actions taken to include the timelines for notifying DAWE/NSW authorities of death of	Yes	135	App E updated to address comments.

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	a threatened species (I believe it was 24 hours – please put reference to this procedure in BMP). Include in action taken, to review work practices to minimise any further injury or death ie create adaptive management loop.			
4	Appendix H Fauna Handling Procedure, Procedure 5a “If time permits call ecologist or fauna rescue for advice”. This conflicts with procedure 2 “Contact project ecologist to obtain positive identification of the subject species”. Recommend remove procedure 5a, and add to procedure 2 ‘obtain advice for action to be taken from project ecologist’.	Yes	140	Appendix H amended as per comments.

Appendix C Biodiversity Risk Assessment

The N2NS Risk Management Plan includes full details on the risk assessment process utilised by Inland Rail. A risk assessment has been completed utilising the risk matrix included within Appendix A of the N2NS Risk Management Plan (refer below) to assess the risks of the project not achieving full compliance with legislative requirements (i.e. EPBC Act, CoA's, SPIR, RMMs and Project EIS) in relation to biodiversity. This risk assessment is included below.

Likelihood Rating

PROBABILITY OR CHANCE	QUALITATIVE ASSESSMENT	RECURRENCE TIMEFRAME
≥ 90%	Almost certain to occur during the project / contract life	Less than "Monthly"
51% to 89%	Considered likely to occur during the project / contract life	"Monthly" to "Yearly"
30% to 50%	Considered a possible occurrence during the project / contract life	Between 2 and 5 years
5% to 29%	Considered unlikely to occur during the project / contract life	Between 5 and 20 years
< 5%	Considered a rare occurrence to happen during the project / contract life	Greater than every 20 years

Risk / Opportunity Rating Table

LIKELIHOOD	CONSEQUENCE					
	RATING	1	2	3	4	5
	ALMOST CERTAIN	D	C	B	A	A
	LIKELY	D	D	C	B	A
	POSSIBLE	E	D	C	C	B
	UNLIKELY	E	E	D	C	B
	RARE / REMOTE	E	E	D	D	C

Opportunity Consequence Rating

CONSEQUENCE - RISK					
RATING	1	2	3	4	5
Workplace Health and Safety	* First aid injury, and/or * Minor safe working issues	* Medical treatment, and/or * Moderate safe working breach likely to impact on operations	* Serious medical / hospital treatment resulting in need alternate working or resulting in lost time injury, and/or * Significant safe working breach with actual impact on operations	* Serious or permanent Injury, and/or * Significant safe working beach with immediate impact on operations on one or more worksites	* 1 or more fatalities, and/or * Major breach of safe working with immediate and extensive impact on one or more worksites
Budget ($AUD)	< $6,307,026 **(<1%)** under project budget	$6,307,026 to $31,535,130 **(1% to 3%)** under project budget	$31,535,130 to $31,535,130 **(3% to 5%)** under project budget	$31,535,130 to $63,070,261 **(5% to 10%)** under project budget	>$63,070,261 **(>10%)** under project budget
Time Schedule (Target Program)	< 10 days **(<1% of program)** under the critical path program	10 to 21 days **(1% to 2% of program)** under the critical path program	21 to 32 days **(2% to 3% of program)** under the critical path program	32 to 54 days **(3% to 5% of program)** under the critical path program	>54 days **(>5% program)** under the critical path program
Environment & Natural Resources	* Low severity environmental impact(s) or impact on natural resources availability that are promptly reversible and affected area is within the site boundary	* Nuisance or low severity environmental impact(s) or impact on natural resources availablity that are promptly reversible and affected area is outside the site boundary	* Moderate severity environmental impact(s) or impact on natural resources availablity where the affected area is within the site boundary	Moderate severity environmental impact(s) or impact on natural resources availablity where the affected area is outside the site boundary	High severity environmental impact(s) or impact on natural resources availablity at local scale significance

CONSTRUCTION ACTIVITY/ ASPECT	POTENTIAL IMPACT	RISK LEVEL PRIOR TO MITIGATION	INDICATIVE MITIGATION MEASURES	RISK LEVEL FOLLOWING MITIGATION	DOCUMENTS / PROCEDURES / TRAINING REQUIRED
Pre-construction	Clearing outside approved CIZ and clearing areas exceeding approval requirements.	B	• Impacts to plant community types will not exceed those identified in the CoA (Table E1) and any future approved Consistency Assessments. • If Construction is required outside of those areas previously assessed as part of the biodiversity assessment for the EIS and SPIR, additional field survey and analysis through a Consistency Assessment is required. • Clearing of Koala habitat will be minimised by reducing the construction footprint where possible. • The CEMP and construction plans will clearly document the location and full extent of clearing required. • Prior to construction, demarcation of the clearing boundary (CIZ) is to be undertaken. The extent of any areas of clearing are to be defined with roped flagging or similar. • Sensitive Area Plans are to be prepared which clearly show all areas of sensitive biodiversity associated with the site. Plans are to be included on Environmental Control Maps (ECM). • Sensitive biodiversity areas (threatened species habitat/ TECs) occurring in proximity to the clearing boundary would be fenced with appropriate signage to prevent inadvertent access/ impacts. • A clearing tracking register will be established and maintained throughout the project to accurately track 'as-built' vegetation clearing impacts for the project to demonstrate compliance with relevant CoAs.	D	Approved CIZ Clearing tracking register Approved design Minister's Conditions of Approval Environmental Control Map Clearing Management Procedure T4MR - MPR-ENV-004
Clearing **Pre-clearing surveys**	Fauna mortality	B	• Pre-clearance surveys will be undertaken by suitably qualified and experienced ecologists within areas of woody native vegetation that are to be cleared and would involve:	C	Clearing Management Procedure T4MR - MPR-ENV-004

CONSTRUCTION ACTIVITY/ ASPECT	POTENTIAL IMPACT	RISK LEVEL PRIOR TO MITIGATION	INDICATIVE MITIGATION MEASURES	RISK LEVEL FOLLOWING MITIGATION	DOCUMENTS / PROCEDURES / TRAINING REQUIRED
			✓ Identification and demarcation of habitat trees which are defined as trees containing hollows, cracks or fissures and spouts, active nests, dreys or other signs of recent fauna usage. ✓ Identification of other fauna habitat features including fallen timber/hollow logs and burrows. ✓ Identification of habitat features that are suitable for translocation or salvage. ✓ Identification and demarcation of any threatened flora to be retained occurring in proximity to the CIZ. • Pre-clearing surveys would also be undertaken of any culverts/ bridges/ built structures that are to be removed to identify roosting habitat for microbats (refer to microbat mitigation measures).		EWMS-Clearing and Grubbing NSW Legislation, Guidelines and Policies – Flora and Fauna Management Sub-plans Guideline
Clearing **Unexpected Threatened Species Finds**		C	• During pre-clearing surveys, it is possible that previously unidentified threatened species (not considered within the EIS) may be identified. Unexpected finds will be documented by the ecologist with no works to be undertaken within such areas until further assessment is undertaken including: ✓ Assessment by ecologist ✓ Referral of finding to IR and regulatory authorities. ✓ Approval to proceed works is received from IR. NOTE: Unexpected finds of threatened flora, threatened fauna or EEC will be managed in accordance with Appendix D - Unexpected Threatened Species / Endangered Ecological Community Find Procedure.	E	Clearing Management Procedure T4MR - MPR-ENV-004 Appendix D - Unexpected Threatened Species / Endangered Ecological Community Find Procedure NSW Legislation, Guidelines and Policies – Flora and Fauna

CONSTRUCTION ACTIVITY/ ASPECT	POTENTIAL IMPACT	RISK LEVEL PRIOR TO MITIGATION	INDICATIVE MITIGATION MEASURES	RISK LEVEL FOLLOWING MITIGATION	DOCUMENTS / PROCEDURES / TRAINING REQUIRED
					Management Sub-plans Guideline
Clearing **Clearing supervision (Fauna spotter/ catcher)**	Fauna mortality	B	• Identify appropriate local vet or rescue organisation/wildlife carers/facilities. Contact details for this person/company must be available in the relevant ECM. • A suitably qualified fauna spotter catcher is to be present during the following clearing activities: ✓ Clearing of any native, mature trees (>3 metres) in height. ✓ Removal of habitat trees, stags and nests. • The fauna spotter catcher would undertake searches during clearing for any fauna and undertake relocation where possible. • Uninjured animals would be released on the day of capture into nearby suitable secure habitat and would not be held for extended periods of time. • Injured animals would be taken to the nearest veterinary clinic or wildlife carer as soon as possible for assessment and treatment. • As part of clearing supervision, a pre-clearance survey is to be undertaken immediately prior to the commencement of any vegetation clearing to identify and relocate if possible, any fauna within clearing areas. • Where a Koala is located within a clearing area, clearing activities would stop and a 50m buffer would be established around the animal with no clearing within this area to resume until the fauna spotter/ catcher confirms the animal has left the area of its own volition. The Project Team will ensure the koala has a means of egress to more away from construction so the animal is not isolated with no route to escape.	C	Clearing Management Procedure T4MR - MPR-ENV-004 Appendix D - Unexpected Threatened Species / Endangered Ecological Community Finds Procedure NSW Legislation, Guidelines and Policies – Flora and Fauna Management Sub-plans Guideline

CONSTRUCTION ACTIVITY/ ASPECT	POTENTIAL IMPACT	RISK LEVEL PRIOR TO MITIGATION	INDICATIVE MITIGATION MEASURES	RISK LEVEL FOLLOWING MITIGATION	DOCUMENTS / PROCEDURES / TRAINING REQUIRED
			• Unexpected finds of threatened flora and fauna or EEC would be managed in accordance with Appendix D - Unexpected Threatened Species / Endangered Ecological Community Finds Procedure.		
Clearing **Felling of habitat trees**	Fauna mortality	B	• Habitat trees would be subject to a two-stage clearing process involving: ✓ Initial clearing of non-habitat trees around habitat trees within the immediate vicinity of habitat tree. ✓ Allowing habitat trees to stand for at least 48 hours after initial clearing to allow fauna the opportunity to self-relocate. ✓ Felling of habitat trees would be supervised by the attending fauna spotter catcher. ✓ The use of a harvester head would be used to carefully lower habitat trees to the ground where possible. ✓ All habitat trees are to be lowered gently to the ground where possible. Additional steps such as bumping the habitat tree three times over a 5 minute period would be undertaken to encourage fauna to vacate prior to felling where the potential to lower the tree gently is low. ✓ The fauna spotter catcher would search all habitat trees immediately after felling to identify and capture any fauna present. ✓ Uninjured animals would be released on the day of capture into nearby suitable secure habitat and would not be held for extended periods of time. ✓ Injured animals would be taken to the nearest veterinary clinic or wildlife carer as soon as possible for assessment and treatment.	C	Clearing Management Procedure T4MR - MPR-ENV-004 EWMS Clearing and Grubbing Clearing Permit T4MR -FRM-ENV-001-02 Appendix D - Unexpected Threatened Species / Endangered Ecological Community Find Procedure NSW Legislation, Guidelines and Policies – Flora and Fauna Management Sub-plans Guideline

CONSTRUCTION ACTIVITY/ ASPECT	POTENTIAL IMPACT	RISK LEVEL PRIOR TO MITIGATION	INDICATIVE MITIGATION MEASURES	RISK LEVEL FOLLOWING MITIGATION	DOCUMENTS / PROCEDURES / TRAINING REQUIRED
			✓ Hollow branches would be salvaged for re-use as hollow logs in adjacent retained vegetation within the CIZ, where appropriate. ✓ Unexpected finds of threatened flora, threatened fauna or EEC will be managed in accordance with Appendix D - Unexpected Threatened Species / Endangered Ecological Community Find Procedure.		
Clearing **Re-use of timber**		E	• The community, Landcare groups and government agencies will be consulted to determine if retained timber and root balls can be reused in habitat and rehabilitation work.	E	Minister's Conditions of Approval
Clearing **Documentation**	Not demonstrating project compliance	D	• Any death of a State or Commonwealth listed threatened fauna species would be reported to IR and the applicable government department. • A fauna register will be maintained during clearing by the ecologist/ fauna spotter catcher of: ✓ All habitat trees recorded/ cleared. ✓ All details of fauna captures/ relocation. ✓ All fauna mortalities. ✓ Any fauna taken into care and outcomes. • A post-clearing report would be completed at the completion of clearing activities documenting all data collected in the relevant work area.	E	Incident & Event Management Procedure T4MR - MPR-SQU-010 Clearing Permit T4MR -FRM-ENV-001-02 Appendix D - Unexpected Threatened Species / Endangered Ecological Community Find Procedure
General construction	Poor understanding	A	• Employee education and training including inductions for staff, contractors and visitors to the site would include the biodiversity	B	Project induction

CONSTRUCTION ACTIVITY/ ASPECT	POTENTIAL IMPACT	RISK LEVEL PRIOR TO MITIGATION	INDICATIVE MITIGATION MEASURES	RISK LEVEL FOLLOWING MITIGATION	DOCUMENTS / PROCEDURES / TRAINING REQUIRED
	of project biodiversity obligations		issues present at the site to ensure all personnel understand responsibilities in relation to the protection and/or minimisation of impacts to native biodiversity.		Site induction procedure T4MR-MPR-SQE-001
Works in proximity to CIZ boundary	Damage to trees adjacent to the CIZ	B	• Trees that occur within the CIZ boundary that will be retained will be protected in accordance with AS 4970-2009 Protection of trees on development sites (incorporating Amendment No. 1 (March 2010)). • Indirect impacts to any vegetation beyond the CIZ boundary will be managed in general accordance with AS 4970-2009 Protection of trees on development sites (incorporating Amendment No. 1 (March 2010)). NOTE: No clearing of vegetation or disturbance to groundcover is permitted beyond the CIZ. Should clearing occur beyond the CIZ this will be considered an environmental incident and managed in accordance with Inland Incident and Event Management procedure (T4MR-MPR-SQE-010), IR's Project Environmental Incident and Reporting Procedure (5-9020-0000-EEC-PR0001) and notification will occur in accordance with project approvals or licences. Incidents, emergencies, response plans and non-conformities are discussed in detail in Section 9 of the CEMP.	C	Approved CIZ AS 4970-2009 Clearing Permit T4MR -FRM-ENV-001-02
Demolition of bridges/ culverts (microbat habitat)	Microbat mortality	B	• Pre-clearing surveys would be undertaken of any culverts/ bridges that are to be removed to identify roosting habitat for microbats. • For any structures identified as potential microbat habitat an additional pre-clearance survey would be undertaken by a suitably qualified ecologist on the day prior to the disturbance of these structures to determine if microbats are present.	C	Clearing Permit T4MR -FRM-ENV-001-02

CONSTRUCTION ACTIVITY/ ASPECT	POTENTIAL IMPACT	RISK LEVEL PRIOR TO MITIGATION	INDICATIVE MITIGATION MEASURES	RISK LEVEL FOLLOWING MITIGATION	DOCUMENTS / PROCEDURES / TRAINING REQUIRED
			• If small numbers (<10) of non-breeding bats are present an ecologist would either: ✓ Install exclusion after the bats have vacated the site at night. ✓ Capture and relocate the bats that evening. • Where larger numbers or breeding microbats are identified a specific plan would be developed and implemented by an ecologist with microbat experience in consultation with IR and DPIE (BCS). • Only suitably qualified ecologists with up to date bat Lyssavirus vaccinations are to handle microbats.		
Works near / in creeks, piling pads and temporary crossings	Impacts to waterway Impacts (complete or partial blockages) to fish passage. Indirect and direct impacts to key fish habitat i.e. instream structures, sediment laden runoff, noise and vibration, etc.	B	• Works within the riparian zone would maximise, where practicable, the preservation of any existing vegetation and minimise disturbance. • Any instream large woody debris in the development footprint would be relocated upstream or downstream. • Designs for works within or near watercourses would provide for the retention of natural functions and maintenance of fish passage in accordance with Why do fish need to cross the road? Fish passage requirements for waterway crossings (Fairfull and Witheridge, 2003). • Works within watercourses will not commence during periods of rain or high flow events.	E	Waterway Crossing EWMS Why do fish need to cross the road? Fish passage requirements for waterway crossings (Fairfull and Witheridge, 2003). Clearing Permit T4MR -FRM-ENV-001-02

CONSTRUCTION ACTIVITY/ ASPECT	POTENTIAL IMPACT	RISK LEVEL PRIOR TO MITIGATION	INDICATIVE MITIGATION MEASURES	RISK LEVEL FOLLOWING MITIGATION	DOCUMENTS / PROCEDURES / TRAINING REQUIRED
	Aquatic fauna mortality	B	• Any pools in watercourses that would be impacted by construction would be dewatered according to a dewatering procedure to be prepared. • The dewatering procedure is to include methods for collection and relocation of native aquatic fauna (defishing) in offsite habitat and euthanasia of exotic species.	C	Water Discharge permit T4MR - FRM-ENV-001-01
Trenches/ deep excavation	Fauna mortality	C	• Where possible trenches/ deep excavation are not to be left open overnight. • Where possible for trenches/ excavation left open overnight, a fauna escape ramp/ ladder (plastic garden mesh/ timber plank) is to be provided. • Trenches/ excavations left overnight are to be inspected prior to works commencing for fauna with any fauna present to only be captured/ relocated by a suitably qualified fauna spotter/ catcher.	D	Clearing Permit T4MR -FRM-ENV-001-02 Flora & Fauna ECM- T4MR - FRM-ENV-001-06
Management of cane toads	Lethal toxic ingestion, caused by cane toads to local fauna.	C	• Cane toads have nor do not currently occur in the greater New England region - including in the area between Moree and Narrabri. The current known	E	Pest and Weed Management Appendix

CONSTRUCTION ACTIVITY/ ASPECT	POTENTIAL IMPACT	RISK LEVEL PRIOR TO MITIGATION	INDICATIVE MITIGATION MEASURES	RISK LEVEL FOLLOWING MITIGATION	DOCUMENTS / PROCEDURES / TRAINING REQUIRED
			distribution of toads in New South Wales is essentially east of the Great Diving Range - a considerable distance from the area. In addition, current models predict that the climate in the region is unlikely to be suitable for toads becoming established (Kearney et al. 2008; Kolbe et al. 2010). There have been few historical records of individuals that have been translocated		

CONSTRUCTION ACTIVITY/ ASPECT	POTENTIAL IMPACT	RISK LEVEL PRIOR TO MITIGATION	INDICATIVE MITIGATION MEASURES	RISK LEVEL FOLLOWING MITIGATION	DOCUMENTS / PROCEDURES / TRAINING REQUIRED
			(accidentally) to the region, though never in numbers or to specific areas that have threatened them becoming established (see ALA 2021). If cane toads are detected in the area, expert advice should be sought immediately in initiating control and eradication measures. These will include manual removal of adults and if necessary, eggs, tadpoles and		

CONSTRUCTION ACTIVITY/ ASPECT	POTENTIAL IMPACT	RISK LEVEL PRIOR TO MITIGATION	INDICATIVE MITIGATION MEASURES	RISK LEVEL FOLLOWING MITIGATION	DOCUMENTS / PROCEDURES / TRAINING REQUIRED
			metamorph (juvenile) toads. Such measures have been demonstrated to be effective for local eradication of small established populations (Greenlees et al. 2018).		
Weed, pest and pathogen management	Proliferation and spread of weeds, pest species and pathogens.	B	• A separate Pest and Weed Management (PWMP) Sub-plan has been prepared for the project. All measures within this plan would be implemented.	E	Pest and Weed Management Appendix
Earthworks	Reduced water quality as a result of released sediments.	B	• All erosion sediment control measures detailed within the Progressive Erosion Sediment Control Plan (ESCP) would be implemented. • Rehabilitation of disturbed areas would be undertaken progressively and in accordance with the rehabilitation strategy.	E	Erosion and Sediment control procedure T4MR-MPR-ENV-005 Progressive Erosion Sediment Control Plan

Appendix D Vegetation Communities and Koala Habitat Mapping

Appendix E Trigger Action Response Plan

TRIGGER	ACTION	RESPONSIBILITY
WEEDS, PEST AND PATHOGEN		
• A WONS, Priority Weed Species, plant pathogen or pest species is identified on-site. NOTE: This includes an observed increase in the abundance or distribution of a WONS, Priority Weed Species, plant pathogen or pest species.	- Ecologist consulted to confirm species / pathogen. - Mapping of affected areas or population undertaken immediately. - Exclusion set-up around impacted / infestation area. - Notify IR, Project ER and any relevant authorities. - Undertake management or control activities as per the Pest and Weed Management Appendix, or as otherwise directed by the Ecologist or Pest and Weed Contractor. - Investigate source / cause of the introduction or infestation. - Communicate any findings or change of management to the work force. - Update CEMP, sub-Plans and any ECM, as required.	Environment Manager Environmental Co-ordinator Ecologist Weed / Pest Management Contractor / Consultant Supervisor
• A Cane Toad is detected on the site.	- Ecologist consulted to confirm presence. - Within 24 hours notify IR, Project ER and any relevant authorities. - Notification to include a management response to be prepared in consultation with a Cane Toad expert including monitoring and control actions to be implemented on the site to eradicate all toads within the CIZ. These will include manual removal of adults and if necessary, eggs, tadpoles and metamorph (juvenile) toads. *Advice from Cane Toad expert, Dr Matthew Greenlees: Cane toads have nor do not currently occur in the greater New England region - including in the area between Moree and Narrabri. The current known distribution of toads in New South Wales is essentially east of the Great Diving Range - a considerable distance from the area. In addition, current models predict that the climate in the region is unlikely to be suitable for toads becoming established (Kearney et al. 2008; Kolbe et al. 2010). There have been few historical records of individuals that have been translocated (accidentally) to the region, though never in numbers or to specific areas that have threatened them becoming established (see ALA 2021). If cane toads are*	Environment Manager Environmental Co-ordinator Ecologist Cane Toad expert

TRIGGER	ACTION	RESPONSIBILITY
	detected in the area, expert advice should be sought immediately in initiating control and eradication measures. These will include manual removal of adults and if necessary, eggs, tadpoles and metamorph (juvenile) toads. Such measures have been demonstrated to be effective for local eradication of small established populations (Greenlees et al. 2018).	
• Where control of pests, pathogens and / or weeds is undertaken and follow-up monitoring confirms that the control works has not adequately controlled the risk (i.e. new germination / new weed growth, increase in abundance or distribution of pathogen or weed, low mortality of weed species, increase in population or distribution of pest species, etc).	- Investigate reason for the additional / ongoing infestation. - Mapping of affected areas or population undertaken immediately. - Consult Ecologist and Weed and Pest Contractors regarding follow up / additional control works. - Notify IR, Project ER and any relevant authorities. - Communicate any findings or change of management to the work force. - Update CEMP, sub-Plans and any ECM as required.	Environment Manager Environment Coordinator Ecologist Weed / Pest Management Contractor / Consultant Supervisor
ENVIRONMENTALLY SENSITIVE ENVIRONMENTS (GENERAL)		
• Threatened species or EEC unexpectedly identified during the pre-clearance survey.	- Exclusion area set-up around threatened species / EEC. - Notify IR, Project ER and any relevant authorities. - Enact the Project's Threatened Species / EEC Unexpected Finds Procedure. - Ecologist engaged to undertake a Test of Significance as per the Biodiversity Conservation Act, or similar test. - Ecologist to recommend additional controls or management requirements. - Communicate any findings or change of management to the work force. - Update CEMP, sub-Plans and any ECM as required.	Environment Manager Environment Coordinator Ecologist Supervisor

TRIGGER	ACTION	RESPONSIBILITY
• Mapped native vegetation (EEC or otherwise) cleared or directly impacted outside the CIZ.	- Stop works, protect the area and notify the Environment Manager. - Consult Project Ecologist regarding impact caused to vegetation. - Manage event in accordance with Project's Environmental Incident Procedure. - Notify IR, Project ER and any relevant authorities. - Breach of CIZ investigated (using suitable investigation method) to understand root cause of incident. - Additional controls developed to avoid reoccurrence of incident. - Communicate any findings or change of management to the work force. - Update CEMP, sub-Plans and any ECM as required.	
FAUNA		
• Microbats confirmed in a structure (i.e. bridge or culvert) during the pre-clearance surveys (undertaken weekly for the month prior to works commencing).	- Ecologist engaged to undertake exclusion works. This exclusion works must be undertaken by a suitably qualified and experienced Ecologist in accordance with industry best practice. - Ecologist consulted regarding installation of compensatory habitat. - Notify IR, Project ER and any relevant authorities. - Communicate any findings or change of management to the work force. - Update CEMP, sub-Plans and any ECM as required. - Undertaken monitoring to confirm no microbats return to structure.	Environment Manager Ecologist Supervisor
• Following exclusion works occurring (if required), microbats confirmed to return to the structure.	-Ecologist engaged to undertake additional exclusion works. This exclusion works must be undertaken by a suitably qualified and experienced Ecologist in accordance with industry best practice. - Ecologist consulted regarding installation of compensatory habitat. - Notify IR, Project ER and any relevant authorities.	

TRIGGER	ACTION	RESPONSIBILITY
	- Communicate any findings or change of management to the work force. - Update CEMP, sub-Plans and any ECM as required. - Undertaken monitoring to confirm no microbats return to structure.	
• If partial exclusion is required whilst works are occurring on a structure and microbats remain in situ and the Construction Team observe daytime "flyout".	- Construction Team to stop and observe flyout event i.e. time, duration, approx. quantity of microbats leaving structure, general behaviour (leave structure and not return or short flight and return to structure, etc). - Stop works and consult the Ecologist. - Ecologist consulted regarding whether works can proceed as is, or if additional controls need to be implemented based on the flyout event and observations.	Construction Team Environment Manager Ecologist
• Koala identified within the impact zone during pre-clearance surveys.	- Exclusion established around Koala and local work crews notified of the find. - Enact the Project's Threatened Species / EEC Unexpected Finds Procedure. - Ecologist immediately engaged regarding suitable management practises. NOTE: The Project's preference is not to interfere with the Koala and allow the individual to relocate on its own. Physical capture and relocation is last resort and will be only be undertaken by a suitably experienced Ecologist, in consultation with the Project ER, IR and DPIE. - Surrounding food trees within the CIZ may be collared, if required. - Notify IR, Project ER and any relevant authorities. - Communicate any findings or change of management to the work force. - Update CEMP, sub-Plans and any ECM as required.	Environment Manager Ecologist

TRIGGER	ACTION	RESPONSIBILITY
• Fauna species (threatened or otherwise) found on-site believed to be orphaned, sick, injured or killed.	- Environment Manager consulted regarding taking the orphaned, sick or injured animal to Vet or WIRES carer (Wildlife Rescue Phone 1300 094 737). - All threatened (and other) species (injured, orphaned, sick or dead) would be taken to a Vet. Dead threatened species would require a cause of death and general health of individual provided by Vet. - Threatened species would require notification to Project ER, IR and the relevant authorities within 24hrs. - Fauna injuries/ mortalities recorded within a project fauna register. - A review of the work practices will be undertaken to minimise any further injury or death to fauna species. Additional avoidance or mitigation measures will be adapted as required. See below for Five-clawed Worm-skink encounters.	All personnel Environmental Coordinator Ecologist
• Five-clawed Worm-skink identified on-site.	- Where Five-clawed Worm-skink/s is/are identified within anticipated habitat areas (I.e. all Stage 1 or Stage 3: Chainage 735.000 to 754.250), enact the Five-clawed Worm-skink encounter protocol (Appendix I) - Where Five-clawed Worm-skink/s is/are identified outside of anticipated habitat areas (outside the areas detailed above), enact the Unexpected Threatened Species Find Procedure (Appendix G) - All Five-clawed Worm-skink encounters shall be recorded within a project fauna register. - If the animal is not well enough to be relocated (injured), the project ecologist would determine requirement for euthanasia, rest period or veterinary treatment. - Deceased Five-clawed Worm-skinks and dropped tails would be retained and appropriately stored, with specimens sent to Australia Museum.	All personnel Environmental Coordinator Ecologist

Permit to Commence

INLAND RAIL

Clearing Management Inspection Checklist

To be completed prior and during construction works

Person Conducting Inspection (Including Role):	**Date:**
Inspection Team Members (Including Roles):	
Work Description/Location:	
Relevant Supervisor/Leading Hand:	

Instructions: The Person conducting the inspection must do so in consultation with the Workers performing the task

Checklist Item	Yes/No/NA	Actions/Leading Practice Identified Documents Reviewed
1. Has the project obtained all permits, licences and approvals required for clearing works?		
2. Has the Project Engineer and Site Supervisor been consulted in the preparation of the SEP?		
3. Does SEP document a. Clearing limits b. Exclusion zones c. Control measures d. Processes, equipment and resources required to undertake clearing works		
4. Have all Supervisors and Site Workers involved in clearing completed targeted and ongoing training (as required)?		
5. Have all relevant conditions associated with permits, licences and approvals been addressed? Where these are a hold point prior to works commencing have they been addressed before works started?		

Checklist Item	Yes/No/NA	Actions/Leading Practice Identified Documents Reviewed
6. Are any additional studies and/or site investigations required to quantify the impact on: a. Heritage values and/or b. Flora and Fauna		
7. Are all erosion and sediment controls in place prior to the commencing of clearing works?		
8. Are clearing works sequenced and staged to minimise the area of exposed earth and time of exposure?		
9. Has the project developed and communicated an Unexpected Finds Protocol?		
Clearing Limits and Protected Areas		
10. Have all necessary clearing limits been established, demarcated, maintained and complied with?		
11. Protected heritage flora and fauna areas identified, demarcated and clearly signed?		
Erosion and Sediment Controls		
12. Are controls appropriately implemented to protect receiving waters?		
13. Are controls appropriately maintained?		
Monitoring		
14. Have the necessary monitoring requirements been implemented?		
15. Are monitoring results available and communicated to stakeholders?		
Rehabilitation and Protection		
16. Are protected areas being rehabilitated/stabilised as required?		
17. Are plans for permanent protection being undertaken?		
Appreciative Enquiry		

Checklist Item	Yes/No/NA	Actions/Leading Practice Identified Documents Reviewed
18. Do the workers understand why clearing activities and land access need to be managed during construction?		
19. Do the workers understand the task? Have they been asked for input into how the task is to be done?		
20. Is the task being completed as planned? *Question the workers as to whether they think there is a better way to complete the task.*		

Actions				
QN No.	Action	Due Date	Person Responsible	Action Closed (Y/N)

Leading Practice			
QN No.	Leading Practice	Shared with Region (Y/N)	Person Responsible

Appendix F Unexpected Threatened Species / Endangered Ecological Community Find Procedure

Purpose
This procedure details the actions to be taken when a threatened species (flora or fauna) or an Endangered Ecological Community (EEC) is unexpectedly encountered during construction activities associated with the N2NS SP1 / Inland Rail Project.

Induction / Training
During the Project Induction, all Inland Rail and sub-Contractor personnel will be inducted on the identification of potential threatened species occurring on site and the relevant actions to be taken with regards to this procedure.

Scope

This procedure is applicable to all activities conducted by Inland Rail and sub-Contractor personnel that have the potential to come into contact with threatened species and EEC.

Procedure

1. THREATENED SPECIES UNEXPECTEDLY ENCOUNTERED DURING CLEARING, EXCAVATION OR OTHER CONSTRUCTION ACTIVITIES

If a threatened species, either flora or fauna, or an EEC is encountered prior to or during construction activities:

- STOP ALL WORK in the vicinity of the find.
- The area surrounding the find must be protected and the Inland Rail Supervisor and any other personnel working in the area must be immediately notified of the find.
- The Inland Rail Environment Manager / Coordinator must also be notified immediately who will contact IR and the Project Environmental Representative (ER).
- The Inland Rail Environment Manager / Coordinator will contact an Ecologist who will confirm the species / EEC is an unexpected find and / or threatened.
- If the find is confirmed not to be a threatened species or EEC, the Inland Rail Environment Manager will provide written approval to recommence works.
- If the species is confirmed to be a threatened species or EEC, Step 2 applies.

NOTE: Unexpected Finds will be immediately notified to IR and IR will notify the relevant regulatory agencies within 1 business day. A draft report must be provided to IR within 7 days and IR will provide a final version of the report to the relevant regulatory agencies with 14 days. The report must include the following:

a. Date and time of discovery;
b. Details of the discovery site (GPS points, description of vegetation, soil, microhabitat features present);
c. Details of how potential relocation sites will be identified;
d. Details of the individual/s discovered, including photographs;
e. Photographs of the site (general location, vegetation, habitat features where the individual/s was discovered);
f. Maps / plans identifying the location of the discovery at an appropriate scale;
g. Details of the person/s who made the discovery; and
h. Mitigation measures to be implemented

2. Assessment of Impact

In the event that the species is confirmed to be threatened, the Ecologist will undertake an assessment to determine the likely impact to the threatened species and appropriate management options developed i.e. Test of significance, in accordance with Section 7.3 of the *Biodiversity Conservation Act* or similar. This assessment will be documented.

NOTE: Inland Rail's Construction and Engineering personnel will be consulted to avoid any direct impacts to the threatened species or EEC.

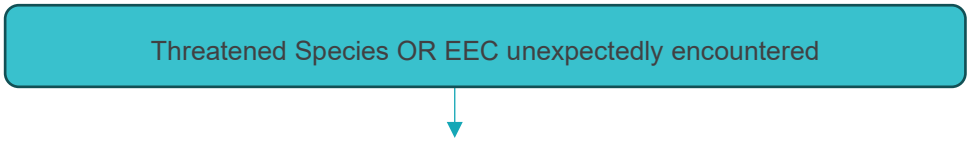
3. Approvals

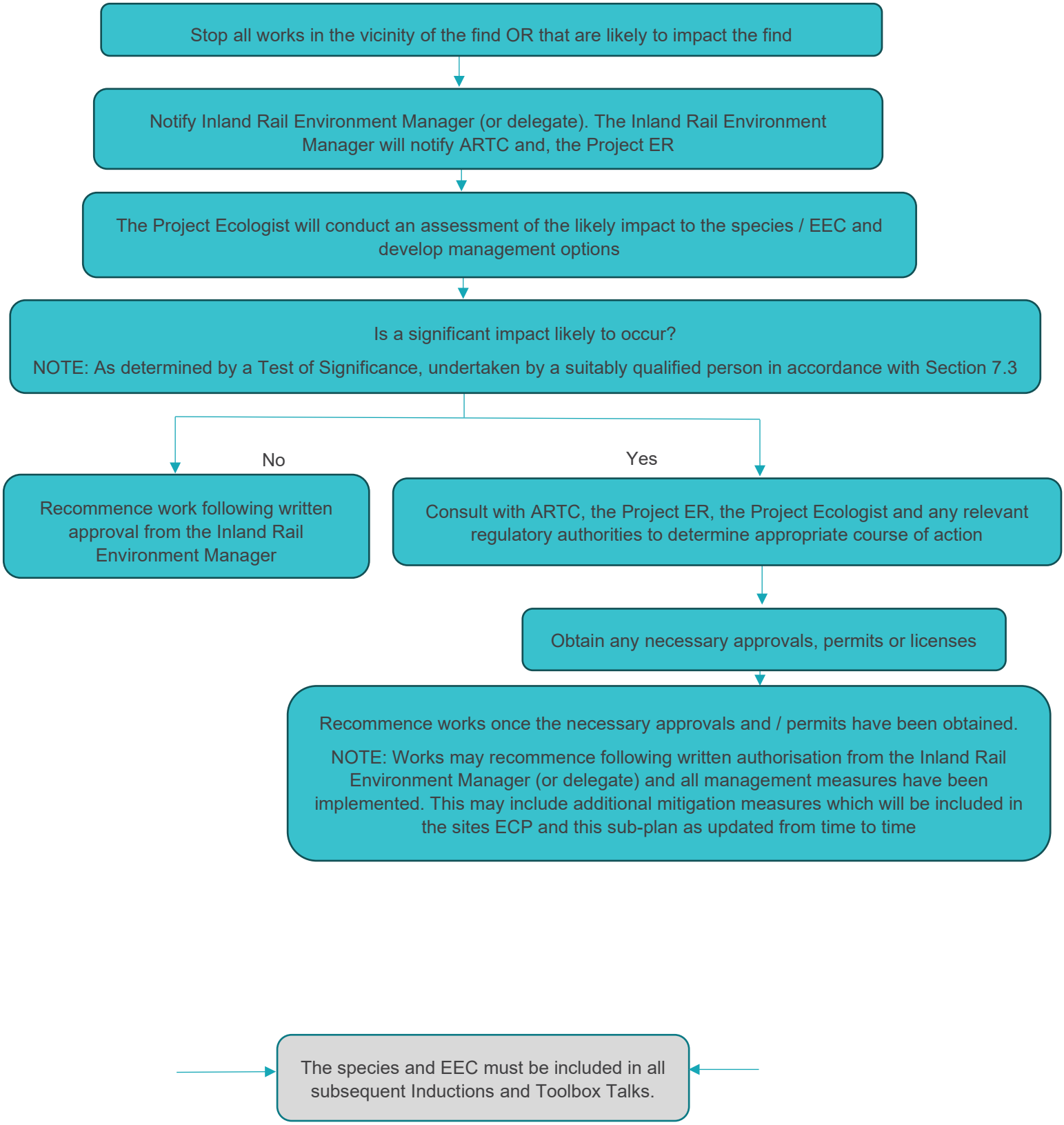
Inland Rail will obtain any licences, permits or approvals required if the species is likely to be significantly impacted by the Project works.

4. Recommencement of Works

Works will recommence once necessary advice has been sought and permits obtained (if required). If permits are not required, works can recommence following authorisation from the Inland Rail Environment Manager (or delegate).

Figure 1: Unexpected Threatened Species / EEC Find Flow Chart




Stop all works in the vicinity of the find OR that are likely to impact the find
Notify Inland Rail Environment Manager (or delegate). The Inland Rail Environment Manager will notify ARTC and, the Project ER
The Project Ecologist will conduct an assessment of the likely impact to the species / EEC and develop management options
Is a significant impact likely to occur?
NOTE: As determined by a Test of Significance, undertaken by a suitably qualified person in accordance with Section 7.3
No
Yes
Recommence work following written approval from the Inland Rail Environment Manager
Consult with ARTC, the Project ER, the Project Ecologist and any relevant regulatory authorities to determine appropriate course of action
Obtain any necessary approvals, permits or licenses
Recommence works once the necessary approvals and / permits have been obtained.
NOTE: Works may recommence following written authorisation from the Inland Rail Environment Manager (or delegate) and all management measures have been implemented. This may include additional mitigation measures which will be included in the sites ECP and this sub-plan as updated from time to time
The species and EEC must be included in all subsequent Inductions and Toolbox Talks.

Appendix G Fauna Handling Procedure

Purpose

This procedure explains the actions to be taken if an animal or eggs are discovered on the Project site that require handling or rescue during vegetation and soil clearance and ongoing construction activities. The procedure relates primarily to injured shocked and juvenile individuals but also applies to nocturnal fauna or slow moving species that may not be capable of moving away from mobile plant and equipment.

Scope

This procedure is applicable to all native and introduced species that are found on the Project site.

Induction / Training

All Inland Rail and Contractor personnel will attend the Project induction, which will include a section on Fauna.

Procedure

In the event wildlife (including shocked, juvenile animals or eggs) are discovered on the Project site during vegetation and soil clearance and ongoing construction activities the following steps shall be taken:

1. **STOP ALL WORK** in the vicinity of the fauna and immediately notify an Environmental Officer.
2. Contact project ecologist to obtain positive identification and advice / recommendations of the subject species.
3. Preferably allow fauna to leave the area without intervention.
4. If immediately available, use a licensed fauna ecologist or wildlife carer with specific animal handling experience to carry out any fauna handling.
5. To minimise stress to native fauna and remove the risk of further injury an appropriately licensed and experienced person shall:

    a. Attempt to herd animal into adjoining forest, outside the CIZ.
    b. If capture is necessary, cover larger animals with a towel or blanket and place in a large cardboard box and/or cotton/calico bag.
    c. Place smaller animals in a cotton/calico bag tied at the top.
    d. Keep the animal in a quiet, warm, ventilated and place away from noisy construction activities.
    e. Aquatic fauna are to be placed in plastic aquaria or a moistened plastic bag. Frogs will be transported in moistened plastic bags (1 frog/bag) with a small amount of leaf litter. Handling and translocation of frogs shall be in accordance with the Hygiene Protocol for the Control of Disease in Frogs (see Note 3).

    Note 1. Some animals require particular training before being handled (e.g. venomous reptiles, raptors) and should only be handled by appropriately qualified and experienced personnel i.e. Project Ecologist or wildlife carer.

    Note 2. If handling bats, the handler must be vaccinated against the Australian Bat Lyssavirus (ABL - a form of rabies).

    Note 3. Any frog handling will be undertaken in accordance with the Hygiene Protocol for the Control of Disease in Frogs (DECC 2008). This protocol recommends onsite hygiene precautions be undertaken to minimise the transfer of disease between and within wild frog populations. Measures recommended include:

i. Thoroughly cleaning/disinfecting footwear and equipment before entering frog habitat and when moving from one site to another.
ii. In high risk areas, spraying/flushing vehicle tyres with a disinfecting solution and avoid driving through frog habitat.
iii. Cleaning/disinfecting hands between collecting samples/frogs (preference would be given to using bags, rather than bare hands to handle frogs).
iv. Limiting one frog or tadpole to a bag. Bags should not be reused.

6. If the animal cannot be handled (i.e. venomous reptiles);

   a. Exclude all personnel from the vicinity with fencing and / or signage; and
   b. Record the exact location of the individual and provide details to the appropriate rescue agency.

7. Call the Project Ecologist immediately and follow any advice provided. The ecologist may nominate to contact a rescue agency (e.g. WIRES - 1300 094 737) to assist. Any decisions regarding the care of the animal will be made by the ecologist, with advice from the rescue agency as required. Contact details of key personnel are as follows:

   _____

   In the event the rescue service and/or local veterinary service cannot be contacted, the injured animal will be delivered to the relevant agency as soon as practically possible. The injured animal should be recorded on the Fauna rescue and relocation register.

8. If the fauna species is a threatened species that is not identified in the EIS, the EO or EM must:

   a. Apply the Unexpected Finds Procedure (Appendix G of the BMP)
   b. Immediately cease all work likely to affect the threatened species.
   c. The EM shall contact the IR Environmental Officer to inform them of the situation.
   d. The EM shall then contact the following stakeholders, in this order, to determine the appropriate corrective actions and additional safeguards to be undertaken:

      i. EPA (Ph: 131555).
      ii. Environmental Representative.
      iii. Others as instructed by IR.

   e. Following consultation with all relevant stakeholders, the EM shall implement any corrective actions and additional safeguards.
   f. Following confirmation by the EM that all appropriate safeguards have been implemented, construction works shall recommence.

9. Relocation of fauna adjacent to the footprint will be undertaken by, or under advice from, the project ecologist or wildlife carer and will be recorded on the Fauna rescue and relocation register. If the animal is not injured or stressed, it may be released nearby in an area that is not to be disturbed by construction, in accordance with the following procedures:

   a. Sites identified as suitable release points by the Project Ecologist.
   b. Release will be into similar habitat as close to the original area as possible.
   c. If the species is nocturnal, release will be carried out at dusk.
   d. Release would generally not be undertaken during periods of heavy rainfall.
   e. Hollow-dependent species, particularly those with dependent young, shall be released into a temporary nest box.

Dewatering procedure and aquatic fauna relocation

Where necessary, aquatic fauna shall be relocated in accordance with the following steps:

1. Ensure all aquatic fauna relocation works are supervised by a suitably qualified aquatic ecologist.

2. Prior to the commencement of pumping, advice should be sought from the aquatic ecologist on pumping methods and the extent of drawdown.

3. The water level should be pumped down to a level that will allow the safe and effective implementation of capture methods, such as seine nets, dip nets and electrofishing.

4. A fine mesh screen (≤5mm) may be installed on the inlet of the pump or a fish basket used to remove the risk of native aquatic fauna being transferred through pump. A maximum depth of 500mm is typically required before fish salvage can commence but site-specific advice will be required from the aquatic ecologist.

5. Aquatic ecologist is to establish the presence of native and introduced aquatic fauna and plan relocation. Access to adjoining properties may be required for relocation, particularly when dewatering dams. The aquatic ecologist will ensure that native aquatic fauna species are released into suitable habitat as close to the original location as possible.

6. Native fish will be placed in tubs full of water sourced from the salvage site where they will be housed for brief periods before being transferred to the release site. Pest fish will be euthanized using an ice slurry.

7. Tadpoles will be placed in individual clip-seal bags and acclimatized to the release site (i.e. bag placed in waterbody for 30 minutes) before being released.

8. Following completion of relocation, a final check shall be undertaken to find any remaining fish or dying/dead fish.

9. All euthanized and dead fish will be transported to a licensed landfill facility for disposal.

10. Records will be kept on habitat type, method of water extraction, species, number of individuals and reproductive status of fish encountered.

11. Aquatic ecologist will prepare a report on the relocation, detail the source of the fish, the number and species of fish released and euthanized.

Project Ecologist responsibilities for fauna handling and rescue

The Project Ecologist will follow the relevant steps detailed below:

1. All fauna habitat will be clearly marked (“H” painted on four sides and red & white tape tied around trunk at eye height) seven days prior to the commencement of clearing. Targeted nocturnal surveys will be undertaken 24-48hrs prior to clearing; pre-clearing surveys (i.e. active searches for fauna) will occur immediately prior to clearing.
2. Surveys and rescue will be undertaken in accordance with the two-stage clearing process:

Stage 1 (under-scrubbing and non habitat tree removal) - all fauna that can be physically captured during targeted surveys (i.e. active searches, spotlighting, trapping) will be relocated into areas of suitable habitat adjacent to the project site (i.e. normally adjacent to the clearing footprint) as soon as possible after capture.

Stage 2 (habitat tree removal at least 48 hours after Stage 1) - all fauna captured will be relocated into areas of suitable habitat adjacent to the project site. Note – Habitat trees are to be felled using equipment that allows trees to be carefully felled with minimal impact (e.g. adequately sized harvester with rotating head).

3. Relocation of fauna captured during the clearing and associated works will take place in areas of suitable habitat as close as possible to the project site, taking into account:
    a. The release site contains similar habitat and occurs as close to the point of capture as possible.
    b. If the species is nocturnal, release will normally be carried out at dusk.
    c. Hollow dependent nocturnal fauna will generally be housed in a nest box, which will be installed temporarily at the release site and unplugged at dusk. The box will be checked and, if unoccupied, retrieved the following day.
    d. Release would not be undertaken during periods of heavy rainfall except for aquatic fauna.
    e. Non-native fauna will be euthanised in accordance with licence conditions and Animal Care & Ethics Committee Approvals.
    If the animal has been placed into care due to injury, age (i.e. young) or stress, upon its rehabilitation it will be released in an area, selected by the Project Ecologist, that will not be disturbed by the project construction works. The Project Ecologist will record and provide the capture and relocation data in the post clearing report.

4. To minimise stress to native fauna and/or remove the risk of further injury the Project Ecologist shall:
    a. Cover larger animals with a towel or blanket and place in a suitable nest box, carry cage or canvas bag.
    b. Place smaller animals in a cotton bag, tied at the top, or suitable nest box.
    c. Place frogs/tadpoles in a plastic bag with a small amount of water and leaf litter. One individual per bag.
    d. Fish and other aquatic life (i.e. turtles) place in plastic aquaria or plastic container with sufficient water.
    e. For terrestrial fauna keep the animal in a quiet, warm, well-ventilated and dark place away from noisy activities.
    f. For aquatic fauna species ensure there is sufficient water and adequate aeration. Notes on fauna handling.

Note 1. Some animals require particular handling (e.g. venomous reptiles, raptors) and should only be handled by appropriately qualified personnel i.e. Project Ecologist or wildlife carer.

Note 2. If handling bats, the handler must be vaccinated against the Australian Bat Lyssavirus (ABL) which is a form of rabies.

Note 3. Any frog handling would be undertaken in accordance with the Hygiene Protocol for the Control of Disease in Frogs (DECC 2008).

5. In the event an animal is injured the following fauna rescue services and local veterinary surgeries contact details are detailed above. In the event the rescue service and/or local veterinary service cannot be contacted, the most appropriate euthanasia method will be administered by the Project Ecologist (i.e. cervical dislocation for small vertebrates, ice slurry for introduced fish). This is to occur in accordance with applicable guidelines and legislative requirements. If the fauna species is identified as a threatened species that is not a species identified in the EIS, notify the Environmental Manager immediately. NOTE: Euthanasia is not to be undertaken by Project personnel unless under the approval of the Project Ecologist or T4MR Environment Manager.

The project ecologist will keep a register of all pre-clearing survey methods (including times, weather conditions, effort and results), fauna species captured (number of individuals, sex, age class and general health of each individual), release sites and dates, individuals taken into care and release date or fate.

6. In the event of a Five-clawed Worm-skink find, the above handling procedure would be applicable with the following exceptions; data collection and record (i.e. fauna register), treatment of injured and deceased individuals and reporting requirements (refer Appendix I).

Appendix H Five-clawed Worm-skink Encounter Procedure

Purpose

This procedure details the actions to be taken when a Five-clawed Worm-skink is encountered during construction activities associated with the N2NS SP1 / Inland Rail Project within the anticipated Five-clawed Worm-skink habitat area (All Stage 1 and Stage 3 (Chainage 735.000 to 754.250).

Induction / Training

All Project personnel would be subject to a Five-clawed Worm-skink induction that includes:

- A general description of the Five-clawed Worm-skink (including photos and key identification features).
- Locations where Five-clawed Worm-skink surveys are required on the project site i.e. Stage 1 and Stage 3 (CH735.000 to CH754.250).
- Provision of Section 5 of this Biodiversity Management Plan.

Records of induction / toolbox training would be retained.

Scope

This procedure is applicable to all activities conducted by Inland Rail and sub-Contractor personnel that have the potential to come into contact with Five-clawed Worm-skinks.

Procedure

1. FIVE-CLAWED WORM-SKINK ENCOUNTERED DURING CLEARING, EXCAVATION OR OTHER CONSTRUCTION ACTIVITIES

If a Five-clawed Worm-skink is encountered prior to or during construction activities:

- STOP ALL WORK in close vicinity of the find, or that would impact upon the find.
- The Project Ecologist will confirm the species, and record details of the find, including:
- Stage and Chainage
- Capture date and time;
- Condition (Good, Injured, Deceased);
- Microhabitat at capture site;
- Soil at capture site;
- Activity undertaken at time of find;
- Detection method (e.g. survey);
- GPS Coordinates for capture and relocation site;
- Details of the person/s who made the discovery;
- Description of microhabitat at capture site;
- Description of vegetation/PCT;
- Where practicable, validation photos from on top, side, below and close-up photos of forelimbs and hindlimbs; and
- Series of measurements including; snout-vent length, tail length and total length.

Photographs of the site (general location, vegetation, habitat features where the individual/s was discovered) shall be captured each day for each work area.

- Series of measurements including; snout-vent length, tail length and total length.
- Microhabitat details of find location
    - Soil crack density and size range (depth if possible)
    - % litter cover
    - % bare ground
    - % grass cover and/or tussock spacing
    - 3 most abundant groundcover species
    - Soil type, soil structure (blocky, small peds, massive) and pH if possible
    - Large surface debris abundance
    - Ground moisture levels (including recent rainfall amount if known/relevant).
- The Project Ecologist will assess the condition of the Five-clawed Worm-skink and determine whether it can be relocated.
- If relocated, the details of the relocation site and condition will be recorded
- If injured and unable to be relocated, the project ecologist would determine requirement for euthanasia, rest period or veterinary treatment.
- If deceased, specimens shall be preserved and sent to the Australian Museum or similar at regular intervals

NOTE: Five-clawed Worm-skink finds will be immediately notified to IR will notify the relevant regulatory agencies as per Section 5.11.5 of this BMP, and Step 3 below.

2. Recommencement of works

Works will recommence at the direction of the Inland Rail Environment Manager (or delegate) once the Five-clawed Worm-skink has been removed from the work area, and all necessary details recorded.

3. Reporting

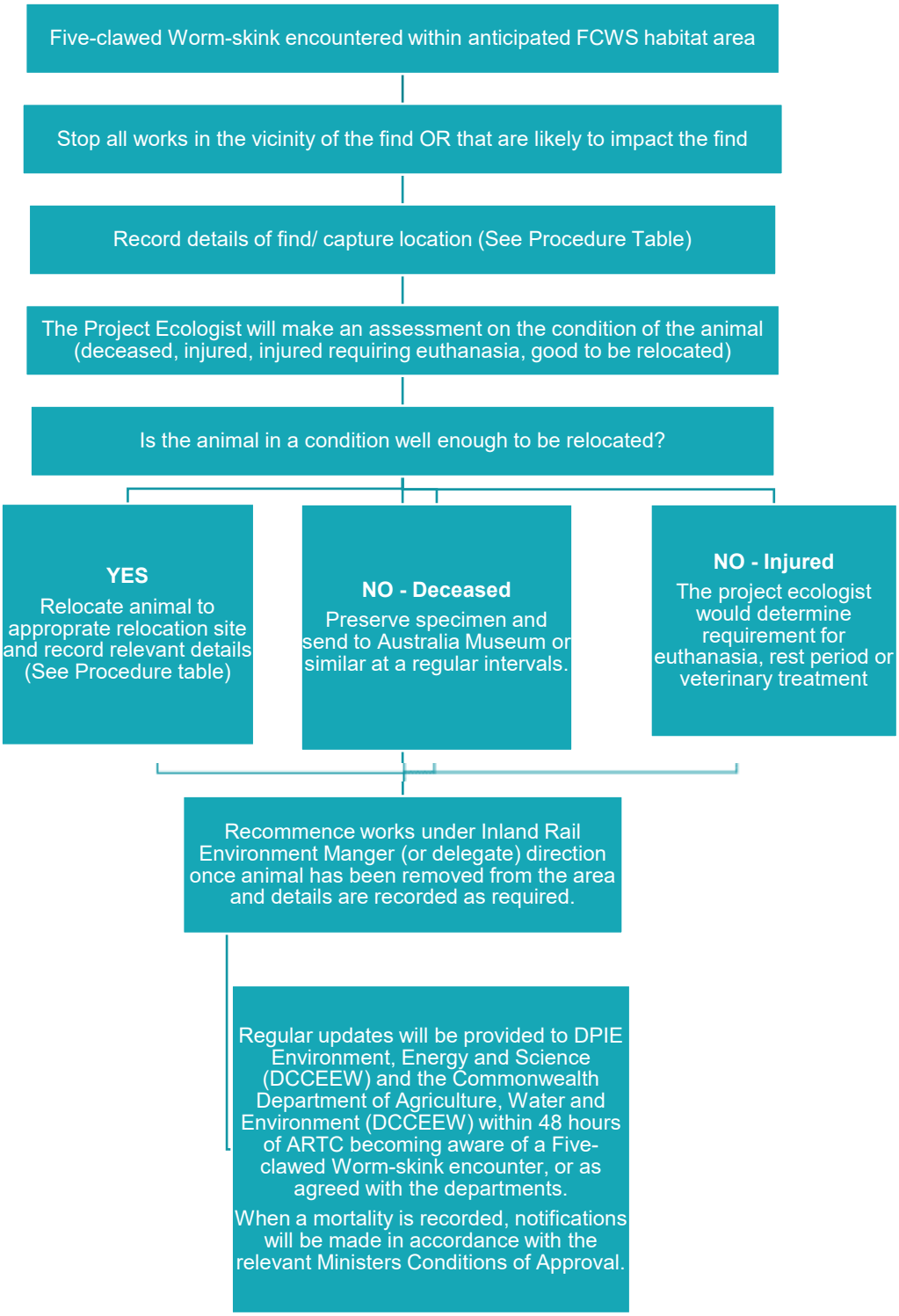
Regular updates will be provided to DPIE Environment, Energy and Science (DCCEEW) and the Commonwealth Department of Climate Change, Energy, Environment and Water (DCCEEW) within 48 hours of IR becoming aware of a Five-clawed Worm-skink encounter, or as otherwise agreed at the time with the departments. Information to be provided should include:

- Capture date and time,
- GPS Coordinates for capture and relocation site;
- Condition (Good, Injured, Deceased);
- Microhabitat at capture site,
- Soil at capture site,
- Activity undertaken at time of find;
- Detection method (e.g. survey).

A register of all finds will be maintained and be provided upon request from regulators.

When a mortality is recorded, notifications will be made in accordance with the relevant Ministers Conditions of Approval.

Figure 1: FCWS Find Flow Chart



Appendix I INLAND RAIL – NARRABRI TO NORTH STAR PHASE 1: FIVE-CLAWED WORM SKINK (*Anomalopus mackayi*) CONSTRUCTION SPECIES MANAGEMENT PLAN – Rev. 6, Dated 29/08/24

FCWS Management Sub-plan - Rev 6_Fina