Construction Environmental Management Plan

Northern Midlands Irrigation Scheme

EPBC Number: 2022/09295

Tasmanian Irrigation

Proponent details

Proponent: Tasmanian Irrigation Pty Ltd
ABN: 95 722 799 075
CAN 133 148 384

Declaration of accuracy

In making this declaration, I am aware that section 491 of the *Environment Protection and Biodiversity Conservation 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 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 that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed: 

Full name: Jacob Gerke
Organisation: Tasmanian Irrigation Pty Ltd
Date: 04/06/2025

Version	Date	Author	Reviewer	Comments
Version 1	12/07/2024	Erin Fitzner (ERA), Suki Hopgood (ERA), Charles Livesey (TI)	Charles Livesey (TI)	NA
Version 2	26/07/2024	Erin Fitzner (ERA), Suki Hopgood (ERA), Charles Livesey (TI)	Charles Livesey (TI)	Updated in accordance with review and comments from DCCEEW
Version 3	22/11/2024	Mandy Flowers (TI)	Charles Livesey (TI)	Added Appendix B1
Version 4	14/05/2025	Mandy Flowers (TI)	Charles Livesey (TI)	Updated maps, references to Project area, swan galaxias surveys and Dairy Creek crossing methodology, compliance and auditing requirements.
Version 5	04/06/2025	Mandy Flowers (TI)	Charles Livesey (TI)	Attached Appendix R which was submitted to DCCEEW 3 June 2025.

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Glossary

Abbreviation	Definition
BT	Balance tank
CEF	Construction Environmental Feature (as identified on CEP and CET)
CEMP	Construction Environmental Management Plan
CEP	Construction Environmental Plan
CET	Construction Environmental Table
DCCEEW	Department of Climate Change, Energy, the Environment and Water
EPA	Environment Protection Authority Tasmania
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPG	Environment Protection Guidelines
ha	hectare
HB	Hazell Bros
HDD	horizontal directional drilling
HSE	health, safety & environment
km	kilometre
ML	megalitre
MNES	Matters of National Environmental Significance
NBES	North Barker Ecosystem Services
NMIS	Northern Midlands Irrigation Scheme
PS	Pump Station
TEC	Threatened ecological communities
The Project	Northern Midlands Irrigation Scheme
TI	Tasmanian Irrigation Pty Ltd
Farm WAP	Farm Water Access Plan
WHMP	Weed and Hygiene Management Plan

1. Introduction

Tasmanian Irrigation Pty Ltd (TI) referred the Northern Midlands Irrigation Scheme (NMIS/the Project) to the Australian Government under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in 2022. The Project was determined to be a controlled action, with the controlling provision of listed threatened species and communities (section 18 and section 18A). The Project was approved under sections 130(1) and 133(1) of the EPBC Act (EPBC 2022/09295) on 9 July 2024, subject to a number of conditions. Condition 13 of EPBC 2022/09295 requires a Construction Environmental Management Plan (CEMP) to be submitted to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) for approval prior to the commencement of construction.

This CEMP has been prepared to satisfy the relevant conditions of EPBC 2022/09295 (see Section 2). The purpose of this CEMP is to outline clear measures to avoid, minimise, and manage the potential impacts of the Project to relevant Matters of National Environmental Significance (MNES) protected under the EPBC Act. This document has been prepared in accordance with the Environmental Management Plan Guidelines issued by DCCEEW (DCCEEW, 2024). In accordance with condition 14 of EPBC 2022/09295, the approval holder must not commence the Action unless the Minister has approved the CEMP in writing. The approval holder must implement the approved CEMP until the completion of the Action.

This CEMP draws from, and is supplementary to, the following Project documentation:

- Integrated Construction Management Plan, Appendix B – Construction Environmental Management Plan Prepared for Northern Midlands Irrigation Scheme, Revision 1, dated 10 June 2024 (Hazell Bros Group, 2024)
- Northern Midlands Irrigation Scheme Preliminary Documentation (EPBC 2022/09295) (NBES, 2024)

This CEMP does not address matters outside of the controlling provision of EPBC 2022/09295, which are dealt with separately by the broader Hazell Bros (HB) CEMP.

Five Environmental Protection Guidelines (EPG) were submitted to DCCEEW as part of the Preliminary Documentation. In response to the EPGs, Hazell Bros prepared various sub-plans to this CEMP which are referenced throughout this document and included as appendices In further versions of this CEMP, TI developed additional plans, including the Dairy Creek Crossing Methodology and Access Track and Service Locating Methodology. A summary of the CEMP sub-plans and how they address the relevant EPGs is provided in Table 1-1.

Table 1-1 Hazell Bros CEMP sub-plans and relevant Environmental Protection Guidelines

EPG	CEMP sub-plan
EPG 1: Disturbance to terrestrial and aquatic flora and fauna	Requirements of the EPG are covered by the following protocols and strategies: • Appendix D – Habitat tree (hollow-bearing) management protocol • Appendix E – Pre-clearance check and unanticipated den discovery protocol • Appendix F – Tasmanian wedge-tailed eagle strategy • Appendix G – Green and gold frog habitat management and impact mitigation protocol

EPG	CEMP sub-plan
	• Appendix Q – Dairy Creek Crossing Methodology • Appendix R - Access Track and Service Locating Methodology
EPG 2: Erosion, sedimentation and surface run-off	Requirements are incorporated into Appendix K – Drainage erosion and sediment control plan
EPG 3: Aboriginal artefacts – unanticipated discovery plan	Requirements are incorporated into Appendix O – Aboriginal artefacts and unanticipated discovery plan
EPG 4: Weed and hygiene control	Requirements are incorporated into Appendix J – Weed and hygiene management plan
EPG 5: Watercourse crossings	Requirements are incorporated into Appendix L – Construction water quality management plan (updated February 2025 using a TI format) and Appendix Q - Dairy Creek Crossing Methodology.

The Project is for the construction of a new irrigation scheme to supply 25,500 megalitres (ML) of water per annum from the Poatina Tailrace to 40 landowners located across the suburbs of Cressy, Campbell Town, Epping Forest, and Ross, in the Northern Midlands region of Tasmania. The Project will allow the irrigation of approximately 128,400 ha.

The Project consists of the following key elements:

- Approximately 155 km of large diameter pipeline
- An offtake dam, to be constructed adjacent to the Poatina Tailrace
- Two balance tanks:
    - Poatina Balance Tank (Poatina BT), with an adjacent overflow dam
    - Valleyfield Balance Tank (Valleyfield BT)
- Access roads to both the Poatina BT and Valleyfield BT
- Three pump stations:
    - Valleyfield Pump Station (Valleyfield PS)
    - Poatina Pump Station (Poatina PS)
    - Barton Pump Station (Barton PS)

An overview of the Project area is shown in Figure 1-1 and Appendix A – Project Area . A detailed description of the Project is provided Section 3.

The main potential impacts from the Project are related to habitat disturbance and are proposed to be managed for the most part through careful site planning and considered construction timing.

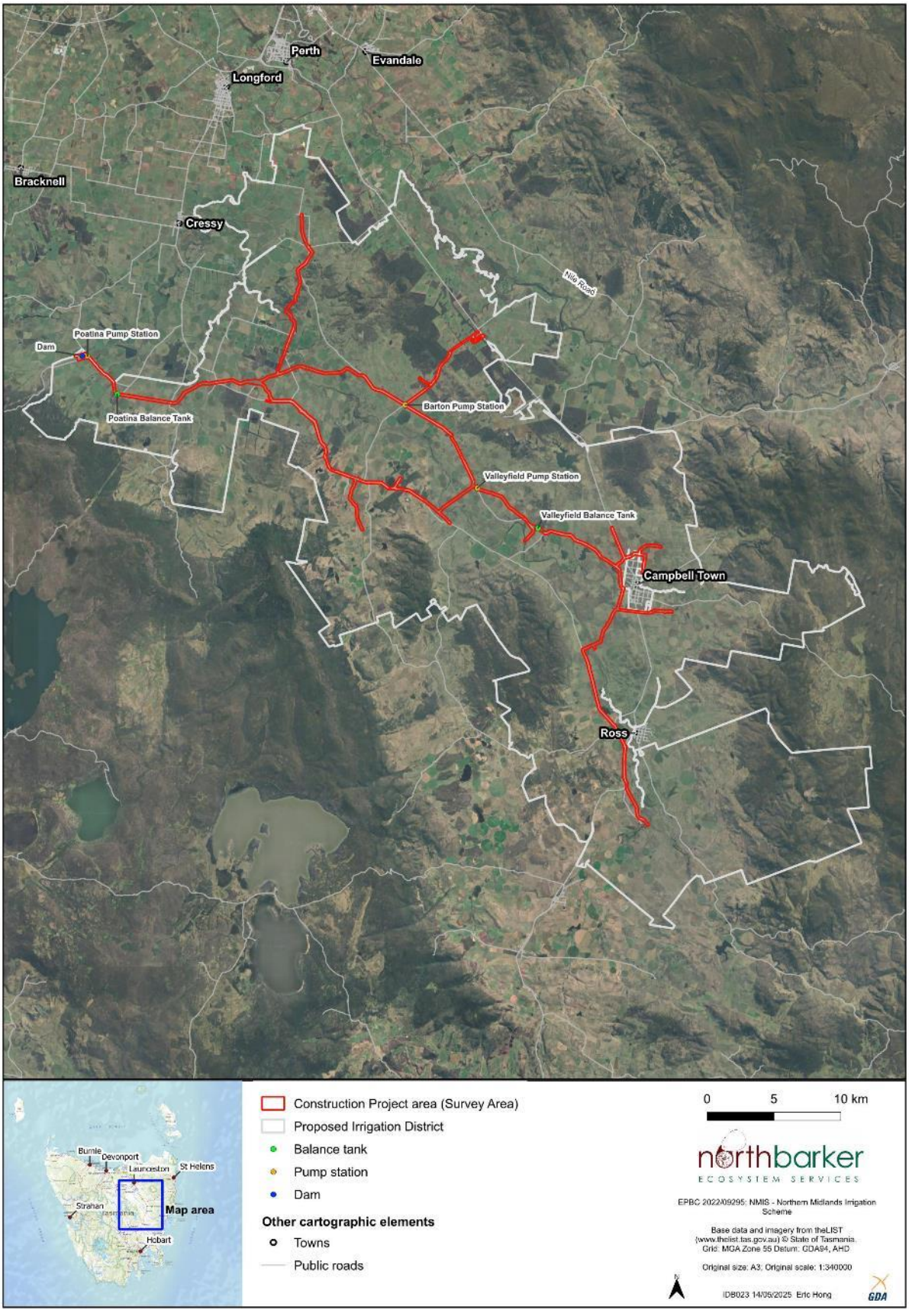

Figure 1-1 Overview of Project Area

Key potential impacts to MNES and the mitigation measures to be implemented during construction are summarised in Table 1-2. Potential environmental impacts and risks are detailed in Section 9. Environmental management measures, including adaptive management and corrective actions are presented in Section 10.

Appendix B provides Construction Environmental Plans (CEP)and Construction Environmental Tables (CET) which depict the location and application of all safeguards and mitigation measures as they relate to MNES. The CEP and CET also provide a full map set of the entire project area including details of all roads, dams, balance tanks and pump stations.

Table 1-2 Summary of key potential impacts to MNES and proposed mitigation measures

MNES	Potential impact	Mitigation measures
Threatened fauna species		
Tasmanian devil, eastern quoll and spotted-tail quoll	444.8 ha of potential habitat disturbance, including 74.6 ha of potential denning habitat (consisting of 17.47 ha of optimal habitat and 57.2 ha of sub-optimal habitat).	Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix E – Pre-clearance check and unanticipated den discovery protocol Appendix R – Access Track and Service Locating Methodology
	20.0 ha of potential habitat loss, including 1.4 ha of potential denning habitat (including 0.7 ha optimal and 0.7 ha sub optimal).	
	Increased probability of roadkill	Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix H – Roadkill management strategy
Tasmanian wedge-tailed eagle	Disturbance of an active nest during breeding season (eagle management constraint period).	Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix F – Tasmanian wedge-tailed eagle strategy Appendix R – Access Track and Service Locating Methodology
Green and gold frog	38.7 ha of potential habitat disturbance	Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix G – Green and gold frog habitat management and impact mitigation protocol Appendix R – Access Track and Service Locating Methodology
	0.14 ha of potential habitat loss	
	Introduction of chytrid fungus	Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix G – Green and gold frog habitat management and impact mitigation protocol Appendix J – Weed and hygiene management plan
Swan galaxias	Modification of environment (e.g. introduction of predator species, alteration of water flow, removal of streamside vegetation)	Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix L – Construction water quality management plan Appendix Q – Dairy Creek Crossing Methodology
Tasmanian masked owl	Removal of up to 12 potential habitat trees	Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix D – Habitat tree (hollow-bearing) management protocol Appendix R – Access Track and Service Locating Methodology
Threatened fauna (all)	Inadvertent impact to unidentified habitat for threatened species	Any previously unidentified habitat elements that support threatened fauna will be subject to the application of the relevant protocol.
	Fauna entrapment in trenches	Measures will be put in place such that if fauna enter any trench, there must be a sufficient number of ramps (with slopes less than

MNES	Potential impact	Mitigation measures
		45 degrees) placed within the trench to allow animals to readily vacate the trench. The period trenches are open must be minimised to the maximum extent. Trenches must be progressively backfilled to cover each days laid pipe. Open trenches must have wildlife proof fencing overnight or while operations are not in progress. The ends of pipe within trenches or stored welded pipe must be closed to ensure that fauna cannot enter the pipe. Inspection of trenches prior to commencement of works each morning must occur and removal of wildlife from the trench by appropriately trained personnel. Appropriately trained personnel must be approved by TI. Trench inspections will be captured in daily site diaries. Surveillance of the open trenches in sensitive areas and the removal of wildlife from the trench by appropriately trained personnel. Appropriately trained personnel must be approved by TI. Appendix R – Access Track and Service Locating Methodology
	Impacts to water quality	Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix K – Drainage erosion and sediment control plan Appendix L – Construction water quality management plan
Threatened flora species		
Grassland greenhood	Inadvertent clearance of threatened species	Appendix B – Construction Environmental Plans and Construction Environmental Tables Exclusion zones will apply within 5 m of all known populations of grassland greenhood. The exclusion zone will be marked on-ground and in the relevant Construction Environmental Plans (CEPs). Appendix R – Access Track and Service Locating Methodology
	Potential introduction of weed species	Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix J – Weed and hygiene management plan
Matted flax-lily	Removal of up to 4 m^2 of this species	Appendix B – Construction Environmental Plans and Construction Environmental Tables Exclusion zones will apply within 10 m of all known populations of the matted flax-lily, except for the area permitted for clearance to be shown on the CEPs. The exclusion zone will be marked on-ground and on the relevant CEPs. Appendix R – Access Track and Service Locating Methodology
	Potential introduction of weed species	Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix J – Weed and hygiene management plan
Propeller plant	Inadvertent clearance of threatened species	Appendix B – Construction Environmental Plans and Construction Environmental Tables Exclusion zones will apply within 5 m of all known populations of propeller plant. The exclusion zone will be marked on-ground and on the CEPs. Appendix R – Access Track and Service Locating Methodology
	Potential introduction of weed species	Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix J – Weed and hygiene management plan

2. Conditions of approval reference table

A summary of the approval conditions under EPBC 2022/09295 that this CEMP is intended to address is provided in Table 2-1.

Table 2-1 - Conditions of approval reference table

No.	Condition	Condition requirement	Section of CEMP	Summary of commitment
1	PROJECT AREA BOUND	The approval holder must not: a) clear outside of the project area b) construct outside of the project area.	Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix R – Access Track and Service Locating Methodology	The Project will have a defined project area. No clearing or construction will occur outside of the project area. Minor physical disturbance associated with service locating or accessing the project outside the project area will be managed in accordance with Appendix R – Access track and service locating methodology. The project area will be communicated to construction personnel through the site-specific induction and will be identified on ArcGIS and in the CEPs for the Project, as well as being clearly demarked on site.
1A	PROJECT AREA BOUND	The approval holder must not clear or construct outside of the construction corridor unless doing so: a) is consistent with the requirements of conditions 2 and 12, b) does not result in clearing in any area where a protected matter or habitat of a protected matter is located, unless clearing is undertaken in accordance with the Green and Gold Frog Habitat Management and Impact Mitigation Protocol and the Pre-clearance Check and Unanticipated Den Discovery Protocol, and c) it does not cause harm to a protected matter. Note: On the date of this variation, the known location of protected matters or habitat of protected matters (excluding Growling Grass Frog and Swan Galaxias) is represented in Attachment A – Maps 1-37.	Appendix B – Construction Environmental Plans and Construction Environmental Tables Table 10-1 Table 10-2 Appendix G – Green and gold frog habitat management and impact mitigation protocol Appendix E – Pre-clearance check and unanticipated den discovery protocol	TI will not clear or construct outside the construction corridor if it does not meet conditions 2 and 12 and will cause harm to protected matters. GGF habitats and potential dens will be managed in accordance with Appendix G and E of the CEMP.
1B	PROJECT AREA BOUND	The approval holder must submit, as part of the completion data required by condition 57, a shapefile showing the final location of all construction and clearing undertaken as part of the Action, and locations of access tracks and service locating (where the latter occurs outside the project area).	Table 2-1	In accordance with condition 57, TI will submit a shapefile showing the final location of all construction and clearing undertaken as part of the Action, and locations of access tracks and service locating (where the latter occurs outside the project area).
2	CLEARING LIMITS	The approval holder must not clear more than:	Appendix B – Construction	Threatened species and habitat to be retained will be designated as an exclusion zone. Exclusion and

No.	Condition	Condition requirement	Section of CEMP	Summary of commitment
		a) 17.47 ha of Tasmanian devil, eastern quoll and spotted-tail quoll habitat b) 12 potential hollow-bearing trees c) 4 m^2 of matted flax-lily.	Environmental Plans and Construction Environmental Tables Table 10-1 Table 10-2	management zones will be communicated to construction personnel through the site-specific induction and will be identified on ArcGIS and in the CEPs for the Project, as well as being clearly demarked on site. The contractor must seek approval from TI prior to clearance of optimal denning habitat, potential hollow-bearing trees, and areas of matted flax-lily to ensure clearing limits are not exceeded.
3	CLEARING LIMITS	If the approval holder detects the presence, where likely to be affected by the Action, of any protected matter or the habitat of any protected matter not previously reported to the department as part of the referral of this Action or in accordance with this condition, the approval holder must: a) notify the department in writing of the presence and likely extent of any protected matter or the habitat of any protected matter not previously reported to the department within 10 business days of detecting the presence of any protected matter or the habitat of any protected matter not previously reported to the department, and b) not clear any area where the protected matter or the habitat of the protected matter is located unless: i) condition 2 provides for the clearing of that protected matter or habitat of that protected matter, and ii) clearing does not exceed the limit specified in condition 2 for that protected matter or habitat of that protected matter. iii) clearing is in accordance with the Green and Gold Frog Habitat Management and Impact Mitigation Protocol and the Pre-clearance Check and Unanticipated Den Discovery Protocol.	Table 6-1 Appendix E – Pre-clearance check and unanticipated den discovery protocol Appendix G – Green and gold frog habitat management and impact mitigation protocol	TI will notify DCCEEW in writing of the presence and likely extent of any protected matter or the habitat of any protected matter not previously reported to within 10 business days of detecting the presence of any protected matter or the habitat of any protected matter not previously reported to DCCEEW.
4	ACTION MANAGEMENT PLANS – Pre-clearance Check and Unanticipated Den Discovery Protocol	To mitigate harm to the Tasmanian devil, eastern quoll and spotted-tail quoll within the project area, the approval holder must commence implementing the Pre-clearance Check and Unanticipated Den Discovery Protocol no later than the commencement of the Action and continue to implement the Pre-clearance Check and Unanticipated Den Discovery Protocol for any construction works until completion of the Action.	Table 10-1 Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix E – Pre-clearance check and unanticipated den discovery protocol	**Pre clearance check** - Prior to the commencement of the action, the contractor must implement the pre-clearance check and unanticipated den discovery protocol. This includes the walkover of the impact area (including a 50 m buffer) and systematically searching for potential dens as detailed in Section A of the protocol. **Den monitoring assessment** -If dens are located during the preclearance surveys, they must be subject to a den monitoring assessment as detailed in Section B of the protocol. **Den decommissioning** – inactive dens in the construction corridor will be decommissioned by the Project

No.	Condition	Condition requirement	Section of CEMP	Summary of commitment
				Environmental Consultant in accordance with Section B of the protocol.
5	ACTION MANAGEMENT PLANS – Roadkill Mitigation Protocol/Strategy	To mitigate harm to the Tasmanian devil, eastern quoll and spotted-tail quoll within the project area, the approval holder must commence implementing the Roadkill Mitigation Protocol/Strategy no later than the commencement of the Action and continue to implement the Roadkill Mitigation Protocol/Strategy for any construction works until completion of the Action.	Table 10-1 Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix H – Roadkill management strategy	During the construction phase of the action, the contractor must comply with roadkill mitigation measures as detailed in Appendix H – Roadkill management strategy. Roadkill mitigation measures include: • Reduction of speed across all project roads for project vehicles • Centralising transport of key infrastructure to core roads. • Fitting project vehicles with a basic high frequency animal repellent device.
6	ACTION MANAGEMENT PLANS – Green and Golden Frog Habitat Management and Impact Mitigation Protocol	To mitigate harm to the green and gold frog, within the project area, the approval holder must commence implementing the Green and Gold Frog Habitat Management and Impact Mitigation Protocol no later than the commencement of the Action and continue to implement the Green and Gold Frog Habitat Management and Impact Mitigation Protocol for any construction works until the completion of the Action.	Table 10-1 Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix G – Green and gold frog habitat management and impact mitigation protocol Appendix J – Weed and hygiene management plan Appendix K – Drainage erosion and sediment control plan Appendix L – Construction water quality management plan	Pre-construction planning and risk minimisation measures will be implemented, including identifying areas of high-quality habitat as exclusion zones, and undertaking active searching prior to construction (including nocturnal searches during the breeding season), to maximise opportunities to detect and clear frogs from the construction area. Contractors will comply with best practice guidelines for construction hygiene to manage the risk associated with the transmission of chytrid fungus. The contractor will adopt appropriate sediment and erosion controls and management of environmentally hazardous materials to minimise potential impacts to the green and gold frog. Watercourses containing green and gold frogs or suitable green and gold frog habitat will be monitored in accordance with the Construction Water Quality Management Plan.
7	ACTION MANAGEMENT PLANS – Habitat Tree (Hollow Bearing) Management Protocol	To mitigate harm to the masked owl within the project area, the approval holder must commence implementing the Habitat Tree (Hollow Bearing) Management Protocol no later than the commencement of the Action and continue to implement the Habitat Tree (Hollow Bearing) Management Protocol until the completion of the Action.	Table 10-1 Appendix B – Construction Environmental Plans and Construction Environmental Tables	The habitat tree (hollow bearing) management protocol will be applied to any potential habitat tree identified on the CEPs and may additionally apply to any tree with a hollow suspected/confirmed during later investigations.

No.	Condition	Condition requirement	Section of CEMP	Summary of commitment
			Appendix D – Habitat tree (hollow-bearing) management protocol (page 57)	
8	TASMANIAN WEDGE-TAILED EAGLE MITIGATION	To mitigate harm to the Tasmanian wedge-tailed eagle, the approval holder must: a) not conduct construction works within 1000 m of an active eagle nest during the eagle management constraint period unless the works are not visible from any active eagle nest, b) not conduct construction works within 500 m of an active eagle nest during the eagle management constraint period, except in the circumstances specified in condition 8), c) not clear or construct within 200 m of any tree that contains a Tasmanian Wedge-tailed Eagle nest, d) if any construction is to occur during the eagle management constraint period, undertake an aerial nest search to detect all active eagle nests within 1250 m of any area within the project area where construction is planned during the eagle management constraint period. e) not conduct planned maintenance within 500 m of any active eagle nest during the eagle management constraint period.	Table 10-1 Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix F – Tasmanian wedge-tailed eagle strategy	The contractor will not conduct any works within 500 m direct distance and/or 1,000 m line-of-sight of an active eagle nest during the eagle management constraint period (defined as the beginning of July to the end of January, unless advice surrounding shortened or lengthened breeding season is provided by the Forest Practices Authority). The contractor will not clear or construct within 200 m of any tree that contains a Tasmanian wedge tailed eagle nest.
9	TASMANIAN WEDGE-TAILED EAGLE MITIGATION	The approval holder must ensure: a) all aerial nest searches conducted in relation to this Action are only undertaken: i) in accordance with the Fauna Technical Note 1: Eagle Nest Searching, Activity checking and Nest Management, ii) between 1 March to 30 June of any given year, b) at least once within any given two year period, within the project area, an aerial nest searches is undertaken in each area which fall within 1250 m of any area where construction is planned during the eagle management constraint period.	Table 10-1 Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix F – Tasmanian wedge-tailed eagle strategy	TI will undertake an aerial nest search outside of the eagle management constraint period to detect all active eagle nests within 1,250 m of the Project area where construction is planned during the eagle management constraint period (defined as the beginning of July to the end of January, unless advice surrounding shortened or lengthened breeding season is provided by the FPA).
10	TASMANIAN WEDGE-TAILED EAGLE MITIGATION	In the event that unplanned repair work or maintenance must be undertaken during the eagle management constraint period, unless the repair work is urgently required to avert serious threat to life, property or the environment, the approval holder must: a) unless an aerial nest search was undertaken in accordance with the Fauna Technical Note 1: Eagle Nest Searching, Activity checking and Nest Management to detect all active eagle nests within 1250 m of the location, assume that all known nests are active eagle nests,	Table 10-1 Appendix B – Construction Environmental Plans and Construction Environmental Tables	In the event that planned or unplanned work or maintenance must be carried out, the Tasmanian wedge-tailed eagle strategy must be followed.

No.	Condition	Condition requirement	Section of CEMP	Summary of commitment
		b) ensure that, before entering the project area, all workers are aware of the location of all active eagle nests, c) ensure that no person or vehicle enters any area within 200 m of an active eagle nest, d ensure that no person looks directly towards an active eagle nest while they are within 1,000 m of an active eagle nest, e) ensure that, unless not visible from any active eagle nest, no heavy vehicles and no more than 2 light vehicles enter any area within 1,000 m of an active eagle nest and that, in any seven-day period, no vehicle enters within 1,000 m of an active eagle nest more than twice, f) ensure that no heavy vehicles, and no more than 2 light vehicles, enter any area within 500 m of an active eagle nest and that, in any seven-day period, or enters within 500m of an active eagle nest more than twice, g) ensure that, in any seven-day period, unless not visible from any active eagle nest, no vehicle remains within 1,000 m of an active eagle nest any longer than 30 minutes and that regardless of visibility, no vehicle remains within 500 m of an active eagle nest any longer than 30 minutes, unless a suitably qualified eagle specialist has provided prior written agreement to the use of vehicles for longer than 30 minutes, specifying the required safeguards and mitigation measures and justification that harm will not result from the presence of the vehicles for longer than 30 minutes, h) if safety requirements allow, instruct workers to not wear hi-visibility clothing while in the allowed proximity to an active eagle nest, i) ensure that no vehicle is parked within sight of an active eagle nest. j) ensure workers always remain within 5 m of one another (where practical) and no work breaks are conducted while within 500 m of an active eagle nest.	Appendix F – Tasmanian wedge-tailed eagle strategy	
11	TASMANIAN WEDGE-TAILED EAGLE MITIGATION	In the event that unplanned repair work or maintenance must be undertaken during the eagle management constraint period, and that repair work is urgently required to avert serious threat to life, property or the environment, the approval must adhere to the requirements of condition 8) as closely as possible while giving priority to avert the serious threat to life, property or the environment.	Table 10-1 Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix F – Tasmanian wedge-tailed eagle strategy	In the event that planned or unplanned work or maintenance must be carried out, the Tasmanian wedge-tailed eagle strategy must be followed.

No.	Condition	Condition requirement	Section of CEMP	Summary of commitment
12	SWAN GALAXIAS MITIGATION	To avoid impacts to the Swan Galaxias, the approval holder must not clear in, dig in, or cause the pipeline to cross any waterway containing running or open water with potential Swan Galaxias habitat unless the approval holder has had an aquatic fauna expert undertake an aquatic survey of the waterway and the aquatic fauna expert has determined that Swan Galaxias is absent from the waterway, or, if the presence of Swan Galaxias is detected in any waterway, the Minister has approved the method of crossing that waterway. The approval holder must not clear in, dig in, or cause the pipeline to cross any waterway where the presence of Swan Galaxias has been detected unless the Minister has approved the method of crossing that waterway. The approval holder must implement each approved waterway crossing method.	Table 10-1 Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix L – Construction water quality management plan Appendix Q – Dairy Creek Crossing Methodology	Swan galaxias has been identified in a tributary down stream of two Dairy Creek water crossings. If these watercourses are running or contain open water at the time of construction, they will be constructed in accordance with the Dairy Creek Crossing Methodology and monitored as per the Construction Water Quality Management Plan.
13	CONSTRUCTION ENVIRONMENT MANAGEMENT PLAN	Prior to commencement of the Action the approval holder must submit a Construction Environment Management Plan (CEMP) to the department for the Minister's approval.	N/A	This document has been prepared to satisfy conditions 13 of EPBC 2022/09295.
14	CONSTRUCTION ENVIRONMENT MANAGEMENT PLAN	The environmental objective of the CEMP must be to prevent and mitigate harm to protected matters.	Section 4	The objective of this CEMP is to outline clear measures to avoid, minimise, and manage the potential for the Project to result in harm to relevant MNES protected under the EPBC Act. Harm means to cause any measurable direct or indirect disturbance or deleterious change as a result of any activity associated with the Action (i.e. the Project).
15	CONSTRUCTION ENVIRONMENT MANAGEMENT PLAN	The approval holder must not commence the Action unless the Minister has approved the CEMP in writing. The approval holder must implement the approved CEMP until the completion of the Action.	Section 1	The contractor must not commence construction unless this CEMP has been approved by the Minister in writing. The approved CEMP will be implemented for the duration of the Action.
16	CONSTRUCTION ENVIRONMENT MANAGEMENT PLAN	The CEMP must be consistent with the Environmental Management Plan Guidelines. All commitments, including environmental outcomes, management measures, corrective actions, trigger values and performance indicators in the CEMP must be SMART and based on referenced or included evidence of effectiveness. The CEMP must include measures to protect, repair and mitigate harm to protected matters including, but not limited to, the mitigation measures proposed within the Preliminary Documentation and the following:	N/A	This CEMP has been prepared in accordance with the Environmental Management Plan Guidelines issued by DCCEEW (DCCEEW, 2024) and EPBC 2022/09295 (including SMART criteria requirements).
16 (a)		ensuring that no person or vehicle enters within 5 m of grassland greenhood or propeller plant individuals or within 10 m of Matted Flax-lily plants (except in accordance with condition 2) c)).	Table 10-1 Appendix B – Construction Environmental Plans	Exclusion zones will apply within 5 m of all known populations of grassland greenhood and propeller plant, and 10 m of all known populations of matted flax-lily (excluding the area approved for clearance). The exclusion zone will be marked on-ground and on the CEPs.

No.	Condition	Condition requirement	Section of CEMP	Summary of commitment
			and Construction Environmental Tables	
16 (b)		measures to control weeds and ensure pathogen and weed propagule hygiene within the project area,	Table 10-1 Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix J – Weed and hygiene management plan	A Project specific weed and hygiene management plan (WHMP) that complies with the *Tasmanian Biosecurity Act 2019* has been developed for the project. The WHMP will cover all relevant aspects of the control and management of declared and environmental weeds. Contractors must implement measures from best practice guidelines during all construction activities. This is required to manage the risk associated with the transmission of chytrid fungus.
16(c)		measures to prevent erosion, sedimentation, and surface run-off within or from the project area,	Table 10-1 Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix K – Drainage erosion and sediment control plan	A drainage, erosion and sediment control plan has been developed for the Project. The plan outlines measures that will be implemented to minimise erosion, sedimentation, and surface run-off within or from the project area.
16(d)		measures to respond appropriately to unanticipated discoveries of aboriginal artefacts within the project area (i.e. unanticipated discovery protocol),	Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix O – Aboriginal artefacts and unanticipated discovery plan	An Aboriginal artefacts and unanticipated discovery plan has been developed in order to respond appropriately to unanticipated discoveries of aboriginal artefacts within the project area.
16(e)		measures, including directional drilling, to mitigate harm to protected matters at localities in which watercourses intersect the project area,	Table 10-1 Appendix B – Construction Environmental Plans and Construction Environmental Tables Appendix L – Construction water quality management plan	Swan galaxias has been identified in a tributary down stream of two Dairy Creek water crossings. If these watercourses are running or contain open water at the time of construction, they will be constructed in accordance with the Dairy Creek Crossing Methodology and monitored as per the Construction Water Quality Management Plan.

No.	Condition	Condition requirement	Section of CEMP	Summary of commitment
			Appendix Q – Dairy Creek Crossing Methodology	
16(f)		measures to manage risk of fauna mortality resulting from trenching works	Table 10-1	Measures will be put in place such that if fauna enter any trench, there must be a sufficient number of ramps (with slopes less than 45 degrees) placed within the trench to allow animals to readily vacate the trench. The period trenches are open must be minimised to the maximum extent. Trenches must be progressively backfilled to cover each days laid pipe. Open trenches must have wildlife proof fencing overnight or while operations are not in progress. The ends of pipe within trenches or stored welded pipe must be closed to ensure that fauna cannot enter the pipe. Inspection of trenches prior to commencement of works each morning must occur and removal of wildlife from the trench by appropriately trained personnel. Appropriately trained personnel must be approved by TI. Trench inspections will be captured in daily site diaries. Surveillance of the open trenches in sensitive areas and the removal of wildlife from the trench by appropriately trained personnel. Appropriately trained personnel must be approved by TI.
16(f)(A)		a procedure to undertake ecological surveys for protected matters in proposed impact areas outside the project area, and for ensuring that service locating and the establishment and use of any access tracks does not result in any harm to protected matters.	Appendix R – Access Track and Service Locating Methodology	The environmental management measures in Appendix R have been developed to ensure the use of any access tracks or service locating outside the project area does not result in any harm to protected matters.
16(g)		details of the relevant protected matters and a reference to the EPBC Act approval conditions to which the plan refers	Relevant MNES are discussed throughout the CEMP. Table 2-1 (this table) summarises the approval condition to which the CEMP refers. Appendix B – Construction Environmental Plans	The controlling provision of EPBC 2022/09295 is listed threatened species and communities. The relevant protected matters are: • Tasmanian devil • Eastern quoll • Spotted-tail quoll • Tasmanian wedge-tailed eagle • Tasmanian masked owl • Swan galaxias • Green and gold frog • Grassland greenhood • Matted flax-lily

No.	Condition	Condition requirement	Section of CEMP	Summary of commitment
			and Construction Environmental Tables	• Propeller plant
16(h)		a table of commitments made in the plan to achieve the environmental objectives, and a reference to exactly where these commitments are detailed in the plan	Table 2-1 (this table) summarises commitments of the CEMP and the relevant sections.	N/A
16(i)		commitments capable of ensuring that the environmental objectives are achieved	Table 2-1 (this table) summarises commitments of the CEMP	The environmental management measures have been developed to avoid, minimise, and manage the potential for the Project to result in harm to relevant MNES protected under the EPBC Act.
16(j)		reporting and review mechanisms to demonstrate compliance with the commitments made in the plan	Table 6-1	The reporting mechanisms have been developed to ensure compliance.
16(k)		an assessment of risks relating to achieving the environmental objectives and risk management strategies and/or mitigation measures that will be applied to address identified risks	Table 9-1	Potential impacts to threatened flora and fauna species from the Project are summarised in Table 9 -1, with a risk rating assigned based on the application of the management and mitigation measures outlined in Section 10. With the application of mitigation measures, the potential impacts to MNES are considered to be low-medium risk.
16(l)		impact avoidance, mitigation and/or repair measures, and the timing of those measures,	Table 10 -1 Appendix B – Construction Environmental Plans and Construction Environmental Tables	A summary of the measures applicable to the MNES potentially impacted by the Project, including the timing for implementation of the measures, is provided in Table 10 -1. Measures to protect and mitigate harm to MNES are depicted in the CEP and described in the CET.
16(m)		a monitoring program, which must include: i) measurable performance indicators, ii) trigger values for corrective actions, iii) the timing and frequency of monitoring, ensuring monitoring is capable of detecting trigger values and changes in the performance indicators, iv) proposed corrective actions if trigger values are reached,	Section 10.3 Environmental monitoring and corrective actions Table 10-2.	Monitoring and inspections will be undertaken to measure the effectiveness of the implementation of this plan and to facilitate continuous improvement.

No.	Condition	Condition requirement	Section of CEMP	Summary of commitment
		v) the timing and frequency of monitoring, ensuring monitoring is capable of detecting trigger values and changes in the performance indicators, and vi) proposed corrective actions if trigger values are reached		
16(n)		links to other relevant plans or conditions of approval (including state or territory approval conditions).	Table 2-2	Relevant state approvals include permits under the following legislation: • *Aboriginal Heritage Act 1975* • *Crown Lands Act 1976* • *Threatened Species Protection Act 1995* • *Nature Conservation Act 2002* • *Historic Cultural Heritage Act 1995* • *Land Use Planning and Approvals Act 1993*

2.1 State approvals

Approvals obtained under state legislation to date are outlined in Table 2-2.

Table 2-2 State approvals obtained to date for NMIS

Legislation	Permit no.	Approval
Aboriginal Heritage Act 1975	P208	Aboriginal heritage permit
Crown Lands Act 1976	SRA-22-16	Works permits - Midlands Highway
Threatened Species Protection Act 1995	DA 23144	Permit to take threatened flora - *dianella amoena* (4m^2), *Lobelia pratiodes* (0.08 ha), *Puccinellia purlaxa* (0.17 ha), *Pultenaea prostrata* (7m^2), *Scleranthus fasciculatus* (10m^2), *Stenanthemum pimeleoides* (5m^2), and *Vallisneria australia* (272m^2)
Nature Conservation (Wildlife Regulations) 2021	DA 23145	Permit to take wildlife (dens and burrows)
Threatened Species Regulations 2016	DA 24062	Permit to take threatened fauna (*Litoria raniformis;* green and gold frog)
Threatened Species Regulations 2016	DA 24049	Permit to take threatened fauna (green-lined ground beetle)
Historic Cultural Heritage Act 1995	5206, 5155, 5154, 5156, 5157, 5158, 5159, 5160, 5161, 5162, 5164	Historic cultural heritage exemption

Legislation	Permit no.	Approval
Land Use Planning and Approvals Act 1993	PLN23-0073	Planning permit

3. Project description

3.1 Project components

As outlined in Section 1, the Project is for the construction of a new irrigation scheme in the Northern Midlands region of Tasmania.

The Project consists of the following key components:

- Approximately 155 km of large diameter pipeline
- An offtake dam, to be constructed adjacent to the Poatina Tailrace
- Two balance tanks, the Poatina BT, with an adjacent overflow dam, and the Valleyfield BT.
- Access roads to both the Poatina BT and Valleyfield BT.
- Three pump stations:
    - Valleyfield PS
    - Poatina PS
    - Barton PS

The locations of the various Project elements are shown in Figure 1-1, Appendix A – Project Area and Appendix B – Construction Environmental Plans and Construction Environmental Tables. The construction Project area consists of the following:

Survey Area – approximately 100 m buffer on both sides of the construction corridor. The size of the buffer was refined in some areas to avoid important values (including reserves, threatened species, and habitat trees). The survey area was previously referred to as the 'design corridor' in the Preliminary Documentation (NMIS – EPBCA Ref 2022/09925). It includes all survey areas in the Preliminary Documentation plus additional areas that were surveyed as part of construction corridor realignments from July to December 2024.

Construction Corridor (Impact area) - the construction corridor is approximately 30 m wide along the length of the pipeline alignment. The width of the construction corridor is widened to 40 m for approximately 15 km between Poatina and Quarry Road to accommodate dual pipelines (see Figure 1-1 Construction Environmental Plans and Construction Environmental Tables). The construction corridor also includes parcels of land for the offtake dam, balance tanks, and pump stations. The alignment of the construction corridor may be subject to minor alteration during the construction phase and should be treated as indicative only, within the context of the broader values in the Project area (i.e. the Survey area).

Operation of the Project will occur within the NMIS Irrigation district shown in Figure 1-1 and Appendix A – Project Area The irrigation district covers a much broader area of approximately 128,400 ha (noting that not all of this area is irrigable land). Further description of the Project elements, including high-level information on the existing environment is provided below.

3.1.1 Pipeline alignment

The pipeline alignment includes approximately 155 km of large diameter (predominantly 1,000 mm) high-density polyethylene (HDPE) pipeline, with a design peak flow of 170 ML/day. The pipeline alignment broadly follows the Macquarie River, with the main lines following Valleyfield and Macquarie Roads, and several additional branches distributing water along Barton Road, Mount Joy Road, Mona

Vale Road, and the Isis River (Appendix A – Project Area and Appendix B – Construction Environmental Plans and Construction Environmental Tables). The existing environment within the construction corridor consists of 25.3 ha of native vegetation, and 420.1 ha of modified land (including 0.7 ha of permanent water). The construction corridor has been narrowed in places to avoid conservation significant values.

3.1.2 Offtake dam

The offtake dam is located north of Poatina Road, adjacent to the Poatina Tailrace. The proposed dam is a ring tank design with a wall height ranging from 2 - 7.5 m. The whole of the dam footprint is located on modified agricultural land. The permanent footprint of the dam covers an area of 17.3 ha. The dam wall and areas of fill will be revegetated with grasses following construction.

3.1.3 Balance tanks

The Poatina BT (3.45 ML capacity) and overflow dam will be located on a hilltop to the south-east of the offtake dam. The Valleyfield BT (1.35 ML) will be located on a hilltop near the intersection of Macquarie and Valleyfield Roads (opposite the Kirklands Presbyterian Cemetery). Access roads will be constructed to both balance tank sites. The Poatina BT and overflow dam will have an impact footprint of approximately 7,300 m^2 (including the access road). This site is located within modified land. The Valleyfield BT will have an impact footprint of approximately 7,100 m^2 (including the access road). This site is situated on the margins of a patch of eucalypt forest, however impact to native vegetation is minimal. The access roads will be approximately 4 m wide, with a 3 m wide passing bay to be provided at the Valleyfield BT.

3.1.4 Pump stations

The three pump station sites will have varying capacities and impact footprints (ranging from 700 m^2 to 2,400 m^2). The combined impact footprint of the pump station sites is approximately 5,000 m^2. All three sites are located within modified land.

3.2 Project activities

A description of activities to be undertaken during construction and operation of the Project, including relevant approval conditions under EPBC 2022/09295, is provided below. Potential impacts of Project activities on MNES are discussed in Section 9.

3.2.1 Construction activities

General construction activities undertaken as part of the Project will include:

- Vegetation clearance
- Earthworks, including excavation, grading, trenching, blasting, , and backfilling.
- Watercourse crossings
- Stringing, joining, laying, and testing of the pipeline
- Establishing construction camps
- Rehabilitation and reinstatement

Permanent vegetation clearance and temporary disturbance will result from the Project. Temporarily cleared areas will be rehabilitated and revegetated following completion of construction activities. In accordance with condition 1(a) and 1(b)of EPBC 2022/09295, there will be no clearance or construction outside of the Project area. Forest Clearing Guidelines have been developed for the

Project which will guide clearance in all areas of forest (native and silviculture) within the Project area (Appendix C – Forest clearance guidelines).

Earthworks will occur throughout the construction corridor. Earthworks will include excavation for the construction of the offtake dam and balance tank overflow dam. Grading will be undertaken to establish access roads. Trenching will be undertaken along the length of the pipeline alignment, with trench width ranging from 1-5 m, depending on the diameter of pipe required and whether it is for dual or single pipelines. The depth of the trench will range from 1-3.5 m, with an average depth of 1.5 m. Measures to manage the risk of fauna entrapment during trenching works will be implemented (see Section 1).

Blasting may be required to facilitate excavation and trenching, depending on ground conditions. The pipeline will be laid in lengths alongside the prepared trench, with gaps to allow movement of fauna. The strung pipe will then be joined and inspected, prior to being laid in the trench. Dewatering of the trench may be required prior to laying the pipeline. Testing of the pipeline may involve hydrostatic testing. Following installation of the pipeline, the trench will be backfilled using excavated soil and compacted to minimise subsidence following construction.

Dairy Creek water crossings that have open or running water will be constructed in accordance with the Dairy Creek Crossing Methodology. Other waterway crossings will predominantly constructed through trenching, however trenchless methodologies may be considered depending on the time of year, presence of water, size of pipe and geotechnical considerations.

Construction campsites and worksites will be established within the Project area in appropriate locations to provide amenities for construction personnel, as well as storage and laydown areas for construction equipment and consumables.

Access tracks and service locating will be predominantly confined to the Project area however there may instances when these activities need to occur outside the Project area (e.g. if a service is unable to be located within the Project area or direct access routes are restricted). Access tracks and service locating outside the Project area will be managed in accordance with Appendix R – Access Track and Service Locating Methodology.

Rehabilitation and reinstatement are the final major construction activities and will be undertaken in accordance with the Rehabilitation and Reinstatement Plan prepared by Hazell Bros (Hazell Bros Group, 2024).

A summary of the approval conditions under EPBC 2022/09295 relevant to construction activities is provided in Table 3-1.

Table 3-1 Summary of approval conditions relevant to construction activities

No.	Condition	Construction activity
1	PROJECT AREA BOUND The approval holder must not: a) clear outside of the project area b) construct outside of the project area.	Construction – all activities
1A	The approval holder must not clear or construct outside of the construction corridor unless doing so: a) is consistent with the requirements of conditions 2 and 12,	Construction – all activities

No.	Condition	Construction activity
	b) does not result in clearing in any area where a protected matter or habitat of a protected matter is located, unless clearing is undertaken in accordance with the Green and Gold Frog Habitat Management and Impact Mitigation Protocol and the Pre-clearance Check and Unanticipated Den Discovery Protocol, and c) it does not cause harm to a protected matter. Note: On the date of this variation, the known location of protected matters or habitat of protected matters (excluding Growling Grass Frog and Swan Galaxias) is represented in Attachment A - Maps 1-37.	
2	CLEARING LIMITS The approval holder must not clear more than: a) 17.47 hectares (ha) of Tasmanian devil, eastern quoll and spotted-tail quoll habitat b) 12 potential hollow-bearing trees c) 4 m^2 of matted flax-lily.	Construction – Vegetation clearance
3	CLEARING LIMITS If the approval holder detects the presence, where likely to be affected by the Action, of any protected matter or the habitat of any protected matter not previously reported to the department as part of the referral of this Action or in accordance with this condition, the approval holder must: a) notify the department in writing of the presence and likely extent of any protected matter or the habitat of any protected matter not previously reported to the department within 10 business days of detecting the presence of any protected matter or the habitat of any protected matter not previously reported to the department, and b) not clear any area where the protected matter or the habitat of the protected matter is located unless: i) condition 2 provides for the clearing of that protected matter or habitat of that protected matter, and ii) clearing does not exceed the limit specified in condition 2 for that protected matter or habitat of that protected matter. iii) clearing is in accordance with the Green and Gold Frog Habitat Management and Impact Mitigation Protocol and the Pre-clearance Check and Unanticipated Den Discovery Protocol.	Construction – Vegetation clearance
4	PRE-CLEARANCE CHECK AND UNANTICIPATED DEN DISCOVERY PROTOCOL To mitigate harm to the Tasmanian devil, eastern quoll and spotted-tail quoll within the project area, the approval holder must commence implementing the Pre-clearance Check and Unanticipated Den Discovery Protocol no later than the commencement of the Action and continue to implement the Pre-clearance Check and Unanticipated Den Discovery Protocol for any construction works until completion of the Action.	Construction – Vegetation clearance Earthworks
5	ROADKILL MITIGATION PROTOCOL/STRATEGY To mitigate harm to the Tasmanian devil, eastern quoll and spotted-tail quoll within the project area, the approval holder must commence implementing the Roadkill Mitigation Protocol/Strategy no later than the commencement of the Action and continue to implement the Roadkill Mitigation Protocol/Strategy for any construction works until completion of the Action.	Construction – all activities
6	GREEN AND GOLD FROG HABITAT MANAGEMENT AND IMPACT MITIGATION PROTOCOL To mitigate harm to the green and gold frog, within the project area, the approval holder must commence implementing the Green and Gold Frog Habitat Management and Impact Mitigation Protocol no later than the commencement of the Action and continue to implement the Green and Gold Frog Habitat Management and Impact Mitigation Protocol for any construction works until the completion of the Action.	Construction – waterway crossings
7	HABITAT TREE (HOLLOW BEARING) MANAGEMENT PROTOCOL To mitigate harm to the masked owl within the project area, the approval holder must commence implementing the Habitat Tree (Hollow Bearing) Management Protocol no later than the commencement of the Action and continue to implement the Habitat Tree (Hollow Bearing) Management Protocol until the completion of the Action.	Construction – Vegetation clearance
8	TASMANIAN WEDGE-TAILED EAGLE MITIGATION To mitigate harm to the Tasmanian wedge-tailed eagle, the approval holder must: a) not conduct construction works within 1000 m of an active eagle nest during the eagle management constraint period unless the works are not visible from any active eagle nest,	Construction – all activities

No.	Condition	Construction activity
	b) not conduct construction works within 500 m of an active eagle nest during the eagle management constraint period, except in the circumstances specified in condition 8), c) not clear or construct within 200 m of any tree that contains a Tasmanian Wedge-tailed Eagle nest, d) if any construction is to occur during the eagle management constraint period, undertake an aerial nest search to detect all active eagle nests within 1250 m of any area within the project area where construction is planned during the eagle management constraint period.	
9	TASMANIAN WEDGE-TAILED EAGLE MITIGATION The approval holder must ensure: a) all aerial nest searches conducted in relation to this Action are only undertaken: i) in accordance with the Fauna Technical Note 1: Eagle Nest Searching, Activity checking and Nest Management, ii) between 1 March to 30 June of any given year, b) at least once within any given two year period, within the project area, an aerial nest searches is undertaken in each area which fall within 1250 m of any area where construction is planned during the eagle management constraint period.	Construction – all activities
12	SWAN GALAXIAS MITIGATION To avoid impacts to the Swan Galaxias, the approval holder must not clear in, dig in, or cause the pipeline to cross any waterway containing running or open water with potential Swan Galaxias habitat unless the approval holder has had an aquatic fauna expert undertake an aquatic survey of the waterway and the aquatic fauna expert has determined that Swan Galaxias is absent from the waterway, or, if the presence of Swan Galaxias is detected in any waterway, the Minister has approved the method of crossing that waterway. The approval holder must not clear in, dig in, or cause the pipeline to cross any waterway where the presence of Swan Galaxias has been detected unless the Minister has approved the method of crossing that waterway. The approval holder must implement each approved waterway crossing method.	Construction – Vegetation clearance Earthworks Waterway crossings

3.2.2 Operational activities

Operational activities include the irrigation of approximately 128,400 ha of land, and ongoing maintenance and repair work.

Ongoing maintenance is expected to be minimal, with operations and maintenance typically requiring a single light vehicle (operating in daylight hours, weekdays only). The scope of maintenance will vary from scheme-wide to individual sites. Major maintenance will be periodic at the primary asset sites (pump stations, balance tanks and dams). This will include the use of light and heavy vehicles over a period of up to a week, in daylight hours. Pump stations will typically require scheduled maintenance once a year, requiring 2-3 light vehicles, and significant maintenance involving some heavy vehicles (1-2) every 5-10 years. The balance tanks and dam will typically require additional vehicles every ten years, which may include heavy vehicles and heavy plant for up to a week (NBES, 2024).

A summary of the approval conditions under EPBC 2022/09295 relevant to operational activities is provided in Table 3-2.

Table 3-2 Summary of approval conditions relevant to operational activities

No.	Condition	Operational activity
8	TASMANIAN WEDGE-TAILED EAGLE MITIGATION To mitigate harm to the Tasmanian wedge-tailed eagle, the approval holder must: e) not conduct planned maintenance within 500 m of any active eagle nest during the eagle management constraint period.	Operation – Maintenance and repair

No.	Condition	Operational activity
10	TASMANIAN WEDGE-TAILED EAGLE MITIGATION In the event that unplanned repair work or maintenance must be undertaken during the eagle management constraint period, unless the repair work is urgently required to avert serious threat to life, property or the environment, the approval holder must: a) unless an aerial nest search was undertaken in accordance with the Fauna Technical Note 1: Eagle Nest Searching, Activity checking and Nest Management to detect all active eagle nests within 1250 m of the location, assume that all known nests are active eagle nests, b) ensure that, before entering the project area, all workers are aware of the location of all active eagle nests, c) ensure that no person or vehicle enters any area within 200 m of an active eagle nest, d) ensure that no person looks directly towards an active eagle nest while they are within 1,000 m of an active eagle nest, e) ensure that, unless not visible from any active eagle nest, no heavy vehicles and no more than 2 light vehicles enter any area within 1,000 m of an active eagle nest and that, in any seven-day period, no vehicle enters within 1,000 m of an active eagle nest more than twice, f) ensure that no heavy vehicles, and no more than 2 light vehicles, enter any area within 500 m of an active eagle nest and that, in any seven-day period, or enters within 500m of an active eagle nest more than twice, g) ensure that, in any seven-day period, unless not visible from any active eagle nest, no vehicle remains within 1,000 m of an active eagle nest any longer than 30 minutes and that regardless of visibility, no vehicle remains within 500 m of an active eagle nest any longer than 30 minutes, unless a suitably qualified eagle specialist has provided prior written agreement to the use of vehicles for longer than 30 minutes, specifying the required safeguards and mitigation measures and justification that harm will not result from the presence of the vehicles for longer than 30 minutes, h) if safety requirements allow, instruct workers to not wear hi-visibility clothing while in the allowed proximity to an active eagle nest, i) ensure that no vehicle is parked within sight of an active eagle nest. j) ensure workers always remain within 5 m of one another (where practical) and no work breaks are conducted while within 500 m of an active eagle nest.	Operation – Maintenance and repair
11	TASMANIAN WEDGE-TAILED EAGLE MITIGATION In the event that unplanned repair work or maintenance must be undertaken during the eagle management constraint period, and that repair work is urgently required to avert serious threat to life, property or the environment, the approval must adhere to the requirements of condition 8) as closely as possible while giving priority to avert the serious threat to life, property or the environment.	Operation – Maintenance and repair
17	FARM WATER ACTION PLANS The approval holder must, at least until the completion of the Action, ensure that the Farm Water Access Plan Biodiversity Module is implemented on any property which is proposed to receive water from the Action and the outcomes of implementing the Farm Water Access Plan Biodiversity Module considered prior to any decision being made to allocate and supply irrigation water from the Action to that property.	Operation – Irrigation

3.3 Timing

The anticipated project schedule is summarised as follows:

- July 2024 - Commence construction
- Aug 2026 - Complete construction
- May 2026 – Commence commissioning
- Aug 2026 - Complete commissioning
- Oct 2026 - March 2027 First full irrigation season

A detailed construction schedule is provided in Appendix P – Construction program. Timing of the environmental management measures to be implemented is outlined in Section 1. There are no foreseeable delays to construction anticipated in the construction schedule.

4. Objectives

The objective of this CEMP is to outline clear measures to avoid, minimise, and manage the potential for the Project to result in harm to relevant MNES protected under the EPBC Act. Harm means to cause any measurable direct or indirect disturbance or deleterious change as a result of any activity associated with the Action (i.e. the Project). The controlling provision of EPBC 2022/09295 is listed threatened species and communities (section 18 and section 18A), with the relevant MNES as follows:

Threatened fauna

- Eastern quoll (*Dasyurus viverrinus*)
- Green and gold frog (*Litoria raniformis*)
- Spotted-tail quoll (*Dasyurus maculatus maculatus*)
- Swan galaxias (*Galaxias fontanus*)
- Tasmanian devil (*Sarcophilus harrisii*)
- Tasmanian masked owl (*Tyto novaehollandiae castanops*)
- Tasmanian wedge-tailed eagle (*Aquila audax fleayi*)

Threatened flora

- Matted flax-lily (*Dianella amoena*)
- Grassland greenhood (*Pterostylis ziegeleri*)
- Propeller plant (*Stenanthemum pimeleoides*)

Specific performance targets for each of the above MNES are detailed in Section 10.2.

5. Roles and responsibilities

The TI Project Manager has the overall responsibility for the Project, including liaising with the contractor (Hazell Bros) to ensure compliance with EPBC 2022/09295. Any non-compliance will be reported to the TI Project Manager, who will then notify the TI General Manager Environment, Health and Safety to notify DCCEEW.

The contractor is responsible for the preparation of the broader Project CEMP (Hazell Bros CEMP) and for ensuring that construction is undertaken in an environmentally acceptable manner in accordance with this CEMP and conditions under EPBC 2022/09295.

The TI Environment Team is responsible for reviewing the Hazell Bros CEMP, and undertaking site visits and audits to ensure the controls outlined in this CEMP are implemented by Hazell Bros.

Roles and responsibilities for the Project are presented in Table 5-1.

Table 5-1 Roles and responsibilities

Role	Responsibility
TI General Manager Environment, Health and Safety	Liaise with DCCEEW in relation to compliance with EPBC 2022/09295, including reporting of any non-compliance.
TI Project Manager	Overall responsibility for the Project, including liaising with the contractor (Hazell Bros) to ensure compliance with EPBC 2022/09295.

Role	Responsibility
TI Environment Team	• Review Hazell Bros CEMP and associated sub-plans. • Auditing of Contractor compliance with the CEMP. TI will document compliance to an appropriate level to ensure that an external audit by a regulatory authority can be completed. • Implementing a compliance process to ensure that environmental requirements are upheld throughout the entire construction period. • Arranging for periodic aerial nest searches and nest activity assessments to be completed by a suitably qualified eagle specialist. Suitably qualified eagle specialist means a person who has attended and passed an eagle management course organised or approved by the Forest Practices Authority with at least 5 years' experience in eagle nest management.
Hazell Bros Project Manager	The Hazell Bros Project Manager must understand relevant environmental permits and legislation, including keeping informed about any legislative amendments or changes. The Project Manager may delegate the below environmental responsibilities to other staff but remains accountable for the overall management of all project environmental aspects and impacts and the implementation of this CEMP. • Developing monitoring environmental policies, procedures and work instructions. • Provide support, training and resources to ensure compliance with legal and other requirements. • Review and authorise the Hazell Bros CEMP prior to being issued for construction. • Oversee the implementation of this CEMP. Including ensuring that all site personnel, including visitors under the Contractor's control, comply with the Project's environmental controls. • Ensure this CEMP is periodically reviewed (see Section 11. 2 Environmental management plan review), including in response to changes in environmental legislation, environmental incident, internal or external audit findings or as part of any periodic review process. • Complete reporting requirements, including monthly reporting to TI and notification and reporting of non-compliances and incidents. • Schedule internal audits. • Minimising environmental damage and harm in the event of an incident.
Hazell Bros Construction Manager and Project Engineers	• Delegated authority to oversee the implementation of this CEMP. • Assist the Project Manager in periodic reviews of this CEMP. • Conduct project site specific inductions which will include project environmental obligations. • Assist the Project Health Safety Environment (HSE) Advisor and other environmental specialists with environmental monitoring requirements and weekly HSE inspections.
Hazell Bros Project Superintendent and Supervisors	• Conduct project site specific inductions which will include project environmental obligations. • Assist the Project Health Safety Environment (HSE) Advisor and other environmental specialists with environmental monitoring requirements and weekly HSE inspections. • Delegated authority to oversee the implementation of this CEMP, including (but not limited to): • Maintaining exclusion zones (noting compliance in daily site diaries) • Compliance of plant and vehicle washdowns • Inspect and maintain erosion and sediment controls • Pre-clearance checks • Confirm welded pipes are capped • Ensure open trenches are ramped at less than 45 degrees, appropriately flagged or fenced off when left overnight. • Implementing stop work for any potential or actual non-compliance and incident, and reporting to the Project Manager.
Hazell Bros Project HSE Advisor	• Provide technical advice to other project staff on the implementation of this CEMP • Liaise with Hazell Bros Environmental Advisors, government environmental officers and independent environmental specialists (including the Project Environmental Consultant) to provide appropriate environmental advice to all site personnel. • Preparing site specific inductions and will ensure environmental monitoring programs are completed as required under the CEMP. The HSE Advisor should also ensure site HSE inspections and audits are planned, conducted and reported in accordance with the CEMP and Project Manager's expectations.
Project Environmental Consultant - suitably qualified ecologist (Hazell Bros subconsultant)	Hazell Bros will engage a Project Environmental Consultant (suitably qualified ecologist) for the purpose of implementing all protocols or strategies in this CEMP including (but not limited to): • Advising on and completing all pre-clearance checks • Auditing of exclusion zones • Relocation of green and gold frogs • Den monitoring and decommissioning • Active inspections of hollow bearing trees and decommissioning

Role	Responsibility
	• Monitoring of removal of threatened plants and completing Permit Activity Reports The Project Environmental Consultant (suitably qualified ecologist) will be a person with relevant professional qualifications and: • at least 3 years of work experience writing and implementing management plans (plans mean any action management plan, strategy or protocol) for the habitat of protected matters (protected matter means a matter protected under a controlling provision in Part 3 of the EPBC Act for which this CEMP applies); and • has implemented and reported on these management plans for the habitat of protected matters and can demonstrate the implementation of those plans achieved the desired habitat quality for habitat of protected matters.
All site personnel and subcontractors (contractor)	Understand and implement the requirements of the CEMP, including (but not limited to): • Report and clean up environmental spills. • Maintain exclusion zones • Report potential or actual non-compliance and incidents • Complete plant and vehicle washdowns and hygiene checks • Install and maintain sediment and erosion controls • Cap welded pipes • Ensure open trenches are ramped and appropriately flagged or fenced off when left overnight • Report any harm to native wildlife

6. Reporting

A summary of the reporting requirements for the Project is provided in Table 6-1. Records of all reports will be maintained by TI throughout the life of the Project.

Table 6-1 Reporting requirements

Type	Responsibility	Details	Reporting trigger
Monthly Health Safety Environment (HSE) report	Contractor	The contractor will provide a monthly HSE report to TI. The report will detail: • any incidences of harm to protected matters • weekly environmental inspections • non compliances & corrective actions • status of compliance with EPBC condition requirements including total area of optimal denning habitat cleared, number of hollow bearing trees cleared and total roadkill • all data collected as part of the environmental monitoring requirements as detailed in Section 1.	Required monthly
Annual compliance report	Tas Irrigation	TI will provide DCCEEW with an annual compliance report in accordance with conditions 39 to 45 of EPBC 2022/09295. The report will detail compliance against each of the approval conditions.	Requirement of EPBC 2022/09295 within 20 business days from the date of approval decision
Non-compliance notifications	Contractor	The Contractor must notify TI Project Manager immediately when becoming aware of a non-compliance event or any event that results in actual or potential harm. The notification must specify: • the commitment or condition which has not been (or may not have been) complied with; and • a short description of the event, including the location, time and date.	Non-compliance with conditions of EPBC 2022/09295
	Tas Irrigation	TI must notify DCCEEW within 2 business days of becoming aware of a non-compliance event. The notification must specify:	Non-compliance with conditions of EPBC 2022/09295

Type	Responsibility	Details	Reporting trigger
		• The commitment or condition which has not been (or may not have been) complied with. • A short description of the event, including the location, time and date.	
Incident report	Contractor	The contractor is to provide TI Project Manager an incident report within 14 business days of becoming aware of a non-compliance or any event that results in actual or potential harm. This must specify: • All details of the event. • All corrective measures and investigations which have already been undertaken in respect of the event. • Potential impacts of the event. • Method and timing of any corrective measures that the approval holder proposes to undertake to address the event. • Any variation of EPBC 2022/09295 or revision of a plan that will be required to prevent recurrence of the event and/or to address its consequences.	Non-compliance with conditions of EPBC 2022/09295
Non-compliance report	Tas Irrigation	TI must provide a non-compliance report to DCCEEW within 20 business days of becoming aware of a non-compliance event. This must specify • All details of the event. • All corrective measures and investigations which have already been undertaken in respect of the event. • Potential impacts of the event. • Method and timing of any corrective measures that the approval holder proposes to undertake to address the event. • Any variation of EPBC 2022/09295 or revision of a plan that will be required to prevent recurrence of the event and/or to address its consequences.	Requirement of EPBC (2022/09295) within 20 business days of becoming aware of an event.
Internal Audit	Contractor	The contractor will undertake internal audits of the CEMP (see Section 11 for further details).	Monthly for the first 3 months of commencement and every 3 months thereafter.
	Tas Irrigation	Internal audit of the CEMP.	Within 3 months of commencement of construction and every 6 months thereafter. Further audits may be undertaken by TI based on contractor performance in the protection of MNES.
Independent audit	Tas Irrigation	In accordance with EPBC 2022/09295 conditions 48 to 56	Every 5 years from commencement of action
MNES	Tas Irrigation	TI will notify DCCEEW in writing of the presence and likely extent of any protected matter or the habitat of any protected matter not previously reported to within 10 business days of detecting the presence of any protected matter or the habitat of any protected matter not previously reported to DCCEEW.	Potential impacts to unreported MNES

7. Environmental training

The contractor (Hazell Bros) has a Corporate Environmental Awareness Training and Induction package that provides an overview of Hazell Bros ISO 14001 certified Environmental Management System. This training and induction are completed by Site Supervisors and above, and covers key elements of this CEMP including:

- Environmental policy
- Legal and other requirements
- Roles and responsibilities
- Environmental aspects and impacts
- Environmental control measures
- Objectives and targets
- Monitoring
- Incident reporting and investigation
- Emergency preparedness and response
- Inspections and auditing

Site inductions will include (but not be limited to) training on the content of this CEMP, in particular, the implementation of the management and mitigation measures outlined in Section 1. Exclusion and management zones will be communicated to construction personnel through the site-specific induction and will be identified on ArcGIS and in the CETs and CEPs for the Project, as well as being clearly marked on site. In addition to being communicated through the site induction, copies of this CEMP will be available in site offices and crib rooms for reference.

Corporate training records are maintained in an electronic training database with site-specific induction records maintained with project documentation. Training records will include the following information:

- the person receiving the training
- the date the training was received
- the name of the person conducting the training
- a summary of the training.

8. Emergency contacts and procedures

A Project Emergency Response Plan has been prepared for the Project, outlining responses to potential emergencies and emergency contacts (see Appendix N – Emergency response plan). A summary of the responses to the potential environmental emergencies is provided in Table 8-1.

Table 8-1 Summary of potential environmental emergencies and responses

Emergency	Response
Bushfire	All work activities will be stopped, and the emergency warden will take control of the site. If safe/possible to do so, plant and equipment will be shut down. Flammable materials will be contained. Evacuate site.

Emergency	Response
High rainfall/flood event	Erosion and sediment control structures must be visually inspected: • Within one hour of the commencement of any runoff resulting from rain events during normal construction hours. • Every four hours during periods of continuous rain during normal construction hours. • Within 12 hours of a rain event outside of normal construction hours. Erosion and sediment control structures will be reinstated/additional controls added as required to prevent environmental harm. Any non-compliances and incidents will be reported as per Section 6.
Environmental spill/leaks	Control the source of the spill, where it is possible and safe to do so (e.g. stop re-fuelling). Contain the spill to prevent further spread and minimise the potential for spills to enter aquatic environments. Sandbags, absorbent pads, or pillows may be used to contain the spread of the spill. Containment dykes and cut-off trenches may be used to prevent flow from entering drainage lines. If the spill has reached drainage lines, block the drainage line using the containment methods. A contaminated site consultant must be engaged to determine the extent of remediation of spills and management of waste. Remediation and waste management must be in accordance with a contaminated site consultants recommendation and in agreement with TI. Any non-compliances and incidents will be reported as per Section 6.
Wildlife injury	If any injured wildlife is found, Bonorong Wildlife Rescue (0447 ANIMAL) must be contacted immediately, and arrangements made for transferring injured wildlife to specialist carers at an animal hospital, vet, or refuge. If rehabilitation is not possible, animals are to be dealt with humanely in accordance with the Best Practice Guidelines for Wildlife Rehabilitation set out by NRE Tas.

Potential environmental incidents for the Project include any event that results in actual or potential harm to relevant MNES protected under the EPBC Act (see Section 4). This includes:

- Unauthorised clearance of threatened fauna habitat (e.g. optimal denning habitat, hollow-bearing trees, tree containing Tasmanian wedge-tailed eagle nest).
- Unauthorised clearance, excavation, or obstruction of permanent or flowing waterways with potential swan galaxias habitat.
- Disturbance of an active Tasmanian wedge-tailed eagle nest
- Unauthorised clearance of threatened flora species.
- Spills of environmentally hazardous materials to land or waterways containing suitable habitat for MNES.
- Failure of sediment and erosion controls on land or waterways containing suitable habitat for MNES.
- Unauthorised discharge of sediment waters to land or waterways.

The responses/corrective actions for these potential incidents are outlined in Section 10.3 Environmental monitoring and corrective actions.

Emergency contacts will include the Hazell Bros Project Manager and the TI Project Manager, who will either stop or direct works as required to manage the emergency. The Environment Protection Authority Tasmania (EPA Tasmania) will be notified where there is a risk of environmental harm (including environmental nuisance), as defined under the *Environmental Management and Pollution Control Act 1994* (EMPC Act). If the environmental emergency has the potential to harm a MNES, DCCEEW will also be notified through the TI General Manager Environment, Health and Safety (see Section 5 Roles and responsibilities). Key contacts for environmental emergencies are outlined in Table 8-2.

Table 8-2 Key contacts for environmental emergencies

Emergency contact	Contact number
Hazell Bros Project Manager - <name not disclosed in public document>	<number not disclosed in public document>
TI Project Manager – <name not disclosed in public document>	<number not disclosed in public document>
Environment Protection Authority (incident response)	1800 005 171
WIRES Wildlife Rescue	1300 094 737

9. Potential environmental impacts and risks

Potential impacts to MNES are assessed in the Preliminary Documentation completed for the Project by North Barker Ecosystem Services (NBES) (NBES, 2024). A summary of the potential impacts relevant to the controlling provision of EPBC 2022/09295 (listed threatened species and communities) is provided below. Further detail, including relevant DCCEEW guidelines, plans and/or polices that were followed as part of the assessment is provided in the Preliminary Documentation (NBES, 2024) and Appendix Q – Dairy Creek Crossing Methodology.

A risk assessment for each MNES is presented in Table 9-1.

9.1 Threatened fauna species

9.1.1 Dasyurids (Tasmanian devil, eastern quoll and spotted-tail quoll)

Potential impacts of the Project on the Tasmanian devil, eastern quoll, and spotted-tail quoll include habitat disturbance (including the potential for trench entrapment), habitat loss, and roadkill.

Habitat disturbance and loss

Surveys and analysis conducted by NBES have established that 416.7 ha of the 2,639 ha Project area represents potential denning habitat for the Tasmanian devil, eastern quoll, and spotted-tail quoll (109.5 ha of which is classed as optimal, with the remaining 307.2 ha classed as sub-optimal). The remaining 2,222.3 ha of habitat is classed as unsuitable for denning and represents foraging habitat only (noting areas of optimal and sub-optimal denning suitability are also suitable for foraging) (NBES, 2024).

The total area of habitat disturbance is limited to the construction corridor (444.8 ha). The construction corridor contains 74.6 ha of potential denning habitat (consisting of 17.47 ha of optimal habitat and 57.2 ha of sub-optimal habitat). The majority of the construction corridor (370.2 ha) contains unsuitable denning habitat and is suitable for foraging only, noting foraging habitat is essentially ubiquitous due to the ecology of the devil. Construction related disturbance will include trenching and excavation. Fauna egress points will be put in place such that if a devil or quoll were to find its way into an open trench, there would be a sufficient number of ramps placed within the trench to allow animals to readily vacate (NBES, 2024).

The limited nature of the permanent works is such that permanent habitat loss is extremely minor in the context of the broader area (20 ha of total habitat loss). Only the areas proposed to contain balance tanks, pump stations, and the offtake dam will constitute permanent habitat loss – these areas comprise 0.7 ha of optimal denning habitat, 0.7 ha of sub-optimal denning habitat, and 18.7 ha of unsuitable denning habitat – all of which constitute potential foraging habitat (NBES, 2024).

As the measured density of Tasmanian devils, eastern quolls, and spotted-tail quolls in the broader area surrounding the Project area is extremely low, the scale of habitat loss is extremely unlikely to lead to a significant decrease in population size or result in any population fragmentation (NBES, 2024).

Roadkill

Analysis of the traffic data collated for the Project indicates that the following major roads to be used during construction are expected to have an increase of >10 % of night-time traffic (largely around dawn and dusk):

- Cressy Road (dam construction and pipeline installation)
- Poatina Road (dam construction and pipeline installation)
- Powranna Road (dam construction and pipeline installation)
- Mount Joy Road (pipeline construction)
- Barton Road (pipeline construction)
- Valleyfield Road (pipeline construction)
- Macquarie Road between Valleyfield Road and Midland Highway (pipeline construction)
- Macquarie Road between Valleyfield Road and Poatina Road (pipeline construction)
- Ashby Road (pipeline construction)

Given this expected increase in traffic volume, it can be expected that there will be an increased probability of roadkill incidence (proportional to traffic increases) without mitigation.

Roadkill data available on the Natural Values Atlas provides an indication of baseline roadkill for the Project roads, noting that there are limitations with reporting and the actual roadkill amount is likely to be higher. Roadkill observations since June 2018 (over a period of approximately six years) are as follows:

- Tasmanian devil – 19 individuals, approximate annual average of 3.2
- Spotted-tail quoll – 7 individuals, approximate annual average of 1.2
- Eastern quoll – 3 individuals, approximate annual average of 0.5

With the implementation of a Roadkill Mitigation Protocol/Strategy in accordance with condition 5 of EPBC 2022/09295 (see Section 1), it is anticipated that project-specific roadkill mortalities can be

minimised, with regular monitoring and periodic data review in place to trigger contingency measures if needed (NBES, 2024).

9.1.2 Tasmanian wedge-tailed eagle (*Aquila audax fleayi*)

The Tasmanian wedge-tailed eagle uses the Project area and surrounding areas for nesting and foraging. Aerial nest searches undertaken by NBES in May 2021 and June 2023 identified a number of nests within 1.2 km of the Project area.

Anticipated potential impacts to this species are limited to disruption of an active nest (within 500 m direct distance or 1 km line-of-sight of the works) within a particular breeding season. A Tasmanian wedge-tailed eagle strategy (Appendix F) has been developed for all eagle nests that occur within 500 m direct distance or 1 km line of sight of the Project. With the application of mitigation measures outlined in Section 1 encompassing conditions 8-11 of EPBC 2022/09295, disruption of a breeding event is unlikely to be a potential impact pathway.

The Project does not include any infrastructure which could be an aerial obstruction, so does not present any potential impact pathways in relation to collisions or flight obstructions. Impacts due to the presence of permanent infrastructure are not considered to present a disturbance threat to eagles, with audible impacts expected to be negligible. Direct clearance of nests is also not anticipated to be a potential impact pathway, as the Project has been designed to avoid all known eagle nests.

9.1.3 Green and gold frog (*Litoria raniformis*)

Minor parts of the Project area are within areas of core range for the green and gold frog. Natural values surveys undertaken by NBES have identified 259.9 ha of potential habitat (sub-optimal only) within the Project area, with 38.7 ha within the construction corridor. Potential habitat disturbance will be limited to the construction corridor. The permanent habitat loss associated with the Project is 0.14 ha (NBES, 2024).

No known populations of the green and gold frog will be impacted by the Project and it is considered unlikely that this species will occur. However, the potential absence of this species has not been definitively confirmed. The primary threat to the green and gold frog is habitat loss, fragmentation, and degradation. Although some potential breeding habitat is present within the Project area, the likelihood of frogs occurring is considered to be very low based on the paucity of records from the Northern Midlands region over the past 30 years, as well as their noted decline in the region (NBES, 2024).

The pipeline alignment crosses a number of minor waterways and drainage lines that provide potential connectivity habitat for this species. Destruction of habitat and individuals (tadpoles and adults) are the most likely avenues for impacts to occur. Direct impacts to individuals is considered extremely unlikely to occur given individuals in all stages are highly mobile. Impacts to habitat are limited to linear strips which are likely to rapidly rehabilitate following construction and therefore are unlikely to affect the overall habitat quality in the area (NBES, 2024). The Green and Gold Frog Habitat Management and Mitigation Protocol will be implemented to mitigate the potential for harm to this species, in accordance with condition 6 of EPBC 2022/09295.

The introduction of chytrid fungus to the Project area also presents an impact pathway to this species.

9.1.4 Swan galaxias (*Galaxias fontanus*)

A prioritisation study and electrofishing survey were completed by an aquatic fauna expert from August to September 2024. Approximately 200 watercourses in the project area were considered unsuitable habitat for swan galaxias. Five watercourses with potential habitat were electro fished, and swan galaxias was found at one location downstream of the Project area in Dairy Creek. The species was not found in any other watercourses.

Potential impact pathways for this species in relation to the construction of waterway crossings are limited to the introduction of predator species, alteration of water flow, and the removal of streamside vegetation (which may alter water flow and quality), all of which will be mitigated with the appropriate controls for waterway crossings in accordance with condition 12 of EPBC 2022/09295 (see Section 1) (NBES, 2024).

The conversion of areas upstream from known populations to agriculture and/or silviculture is a possible impact pathway from operations in the district, which will be mitigated with the processes of the requisite Farm Water Access Plans (Farm WAPs) (in accordance with condition 17 of EPBC 2022/09295) (NBES, 2024).

The construction of dams can be another potential impact pathway due the effects on downstream populations and their habitats, however the offtake dam for the Project will inundate agricultural land and will be fed via an intake from the Poatina Tailrace (a non-natural waterway), as such, no streams that may provide habitat for the swan galaxias will be blocked/altered by this construction and no habitat will be lost to inundation (NBES, 2024).

The Dairy Creek Crossing Methodology and Construction Water Quality Management Plan have been developed to help to mitigate the potential for harm to this species, in accordance with condition 12 of EPBC 2022/09295.

9.1.5 Tasmanian masked owl (*Tyto novaehollandiae castanops*)

The Project area is within the core range of the Tasmanian masked owl and contains potential habitat (trees with large hollows ≥15 cm entrance diameter) (NBES, 2024). There are no known nests within the Project area (NBES, 2024).

The construction corridor contains 12.5 ha of forested vegetation that represents the highest quality habitat in terms of foraging opportunities for the masked owl, and 0.3 ha is expected to be permanently destroyed. All remaining habitat may see the removal of trees and shrubs, but the overall areas will remain viable as a foraging resource both during and post construction (NBES, 2024).

Potential impacts to the masked owl include the removal of up to 12 potential habitat trees within the construction corridor. The Habitat Tree Management Protocol (see Appendix D – Habitat tree (hollow-bearing) management protocol) will be applied to ensure that no occupied trees are impacted by the Project, in accordance with Condition 7 of EPBC 2022/09295.

9.2 Threatened flora species

9.2.1 Grassland greenhood (*Pterostylis ziegeleri*)

The Project has been designed to avoid known populations of the grassland greenhood, which will be treated as an exclusion zone with a buffer of 5 m (per condition 16(a) of EPBC 2022/09295).

Construction of the Project has the potential to introduce weed species and result in habitat loss for the species. This potential impact will be managed through a project-specific Weed and Hygiene Management Plan (WHMP), in accordance with condition 16(b) of EPBC 2022/09295.

Facilitated impacts applicable to this species that may arise from the operation of the NMIS may include:

- clearance and conversion of undocumented habitat
- erosion
- altered hydrology (including changes to flow regime, runoff, lowering/raising of water table)
- increased/decreased salinity
- disease introduction
- weed infestations
- land use changes (i.e. native vegetation converted to pasture/crop)

The potential for the above facilitated impacts due to the operational phase of the NMIS will be mitigated by the implementation of the Farm WAP (in accordance with condition 17 of EPBC 2022/09295). If it is determined by the Farm WAP that impacts due to the operation of the NMIS on individual properties are likely, individual irrigators may need to refer their action independently.

9.2.2 Matted flax-lily (*Dianella amoena*)

The Project has been designed to minimise potential impacts to known populations of matted flax-lily, however 4 m^2 of this species north of Valleyfield Road, which may contain up to 10 plants, will be impacted during construction. This clearance will be in accordance with condition 1(c) of EPBC 2022/09295). All other areas containing this species will be treated as an exclusion zone with a 10 m buffer in accordance with condition 16(a) of EPBC 2022/09295.

9.2.3 Propeller plant (*Stenanthemum pimeleoides*)

The Project has been designed to avoid known populations of the propeller plant, which will be treated as an exclusion zone with a buffer of 5 m in accordance with condition 16(a) of EPBC 2022/09295.

Indirect impacts are not anticipated due to the operation of the scheme. Habitat suitable for this species is unlikely to be altered to a point where this species can no longer persist.

9.3 Risk assessment for impacts to MNES

Potential impacts to threatened flora and fauna species from the Project are summarised in Table 9-1, with a residual risk rating assigned based on the application of the management and mitigation measures outlined in Section 10. With the application of mitigation measures, the potential impacts to MNES are considered to be low-medium risk. The risk rating table used is in accordance with the Environmental Management Plan Guidelines issued by DCCEEW, shown in Table 9-2 (DCCEEW, 2024).

Table 9-1 Risk assessment for potential impacts to relevant MNES following application of management and mitigation measures

MNES	Potential impact	Project phase	Residual likelihood	Residual consequence	Residual risk
Threatened fauna species					
Tasmanian devil, eastern quoll and spotted-tail quoll	444.8 ha of potential habitat disturbance, including 74.6 ha of potential denning habitat (consisting of 17.47 ha of optimal habitat and 57.2 ha of sub-optimal habitat).	Construction (temporary disturbance)	Highly likely	Minor	Medium
	20.0 ha of potential habitat loss (foraging), including 1.3 ha of potential denning habitat (sub optimal & optimal denning) .	Construction (permanent loss)	Highly likely	Minor	Medium
	Increased probability of roadkill	Construction	Possible	Moderate	Medium
Tasmanian wedge-tailed eagle	Disturbance of an active nest during breeding season.	Construction	Unlikely	High	Medium
Green and gold frog	38.7 ha of potential habitat disturbance	Construction (temporary disturbance)	Highly likely	Minor	Medium
	0.14 ha of potential habitat loss	Construction (permanent loss)	Highly likely	Minor	Medium
	Introduction of chytrid fungus	Construction	Unlikely	Moderate	Low
	Downstream impacts of water quality	Construction	Unlikely	Moderate	Low
Swan galaxias	Modification of environment (e.g. introduction of predator species, alteration of water flow, removal of streamside vegetation, water quality impacts)	Construction	Unlikely	Moderate	Low
Tasmanian masked owl	Removal of up to 12 potential habitat trees	Construction	Highly likely	Minor	Medium
Threatened fauna (all)	Inadvertent impact to unidentified habitat for threatened species.	Construction	Unlikely	Moderate	Low
	Fauna entrapment in trenches	Construction	Unlikely	Moderate	Low

MNES	Potential impact	Project phase	Residual likelihood	Residual consequence	Residual risk
	Impacts to water quality	Construction	Unlikely	Moderate	Low
Threatened flora species					
Grassland greenhood	Inadvertent clearance of threatened flora species	Construction	Unlikely	Moderate	Low
	Potential introduction of weed species	Construction	Unlikely	Moderate	Low
Matted flax-lily	Removal of up to 4 m^2 of this species	Construction	Highly likely	Minor	Medium
	Potential introduction of weed species	Construction	Unlikely	Moderate	Low
Propeller plant	Inadvertent clearance of threatened flora species	Construction	Unlikely	Moderate	Low
	Potential introduction of weed species	Construction	Unlikely	Moderate	Low

Table 9-2 Risk rating (DCCEEW, 2024)

	Consequence				
	Minor	**Moderate**	**High**	**Major**	**Critical**
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

10. Environmental management measures

10.1 Performance targets

The following performance targets have been defined for the Project during the construction phase (see Section 3.3 Timing) to minimise potential impacts to relevant MNES:

- Zero non-compliances (i.e. 100 % compliance) with any protocols or strategy within this CEMP including:
    - Habitat-tree (hollow-bearing) management protocol
    - Pre-clearance check and unanticipated den discovery protocol
    - Tasmanian wedge-tailed eagle strategy
    - Green and gold habitat management and impact mitigation protocol
    - Roadkill management strategy
- No more than 17.47 ha of optimal habitat for the Tasmanian devil, eastern quoll, and spotted-tail quoll will be disturbed. Best endeavours will be made to further reduce impacts below this limit. All dens for the Tasmanian devil, eastern quoll, and spotted-tail quoll will be decommissioned prior to commencement of clearance and construction. No active dens will be decommissioned during the construction phase of the Project.
- No increase in roadkill frequency (from baseline conditions) for the Tasmanian devil, eastern quoll, and spotted-tail quoll on roads used by Project construction traffic (see Appendix I – Roads used by construction traffic (for roadkill monitoring)). Based on a two-year construction schedule and annual averages of baseline data presented in the Preliminary Documentation (NBES, 2024), the following performance targets apply:
    - Tasmanian devil <6 individuals
    - Eastern quoll <1 individual
    - Spotted-tail quoll <2 individuals

  Best endeavours will be made to further reduce impacts below these limits.
- No more than 12 potential hollow-bearing trees (which provide suitable habitat to the masked owl) will be impacted. Best endeavours will be made to further reduce impacts below this limit.
- No clearance or construction within 200 m of any tree that contains an active Tasmanian wedge-tailed eagle nest will occur.
- No incursion of Tasmanian wedge-tailed eagle nest buffer zones during the eagle management constraint period (defined as the beginning of July to the end of January), unless undertaken in accordance with conditions 8 and 10 of the permit and Appendix F – Tasmanian wedge-tailed eagle strategy.
- No clearance, excavation, or obstruction of permanent or flowing waterways with potential swan galaxias habitat will occur during the construction phase, unless under an approved crossing method, or absence of swan galaxias has been confirmed by an aquatic fauna expert.
- No impacts to the green and gold frog will occur.
- No more than 4 m^2 of matted flax-lily will be impacted. Best endeavours will be made to further reduce impacts below this limit.
- No impacts to the grassland greenhood or propeller plant will occur.

The effectiveness of the environmental management measures in achieving the above performance targets will be monitored through the environmental monitoring and corrective actions described in the following section.

10.2 Management & mitigation measures

Environmental management measures for the construction of the Project are specified in the following Project documentation:

- EPBC 2022/09295 Conditions.
- Hazell Bros CEMP (Hazell Bros Group, 2024) and associated subplans.
- Northern Midlands Irrigation Scheme Preliminary Documentation (EPBC 2022/09295) (NBES, 2024).
- Site-specific mitigation measures are depicted in the CET and CET (Appendix B – Construction Environmental Plans and Construction Environmental Tables).

Where there is discrepancy between the measures outlined in the above documents, and this CEMP the provisions of this CEMP will prevail as they are consistent with the conditions of approval under EPBC 2022/09295.

A summary of the mitigation and avoidance measures applicable to the MNES potentially impacted by the Project, including the timing for implementation of the measures, is provided in Table 10-1. The locations of the mitigation measures are shown in the CEP and described in the CET (see Appendix B – Construction Environmental Plans and Construction Environmental Tables).

Table 10-1 Summary of mitigation and avoidance measures

MNES	Mitigation / avoidance measure	Description	Responsibility	Timing
Threatened fauna				
Dasyurids (Tasmanian devil/ eastern quoll/ spotted-tail quoll)	Pre-clearance check and unanticipated den discovery protocol	**Pre clearance check -** Prior to the commencement of the action, in accordance with Appendix E – Pre-clearance check and unanticipated den discovery protocol. This includes the walkover of the impact area (including a 50 m buffer) and systematically searching for potential dens as detailed in the protocol.	Project Environmental Consultant - suitably qualified ecologist (Hazell Bros subconsultant)	Two weeks prior to any vegetation clearance
		Den monitoring assessment -If dens are located during the preclearance surveys, they must be subject to a den monitoring assessment as detailed in Section B of the protocol.	Project Environmental Consultant - suitably qualified ecologist (Hazell Bros subconsultant)	As required
		Den decommissioning - The Project Environmental Consultant requires authorisation from TI to decommission a den.	Project Environmental Consultant - suitably qualified ecologist (Hazell Bros subconsultant)	As required
		Authorisation to clear –the contractor must complete a pre-clearance checklist prior to commencing clearing and construction that summarises den survey findings and required exclusion zones (where applicable). TI will review the checklist prior to works commencing to ensure surveys have been completed and exclusion zones are in place (where required).	Contractor TI	As required
	Roadkill mitigation protocol/strategy	During the construction phase of the action, the contractor must comply with roadkill mitigation measures as detailed in Appendix H – Roadkill management strategy. Roadkill mitigation measures include: • Reduction of speed across all project roads for project vehicles. • Centralising transport of key infrastructure to core roads. • Fitting project vehicles with a basic high frequency animal repellent device.	All site personnel and subcontractors (contractor)	Throughout the construction phase
Tasmanian wedge-tailed eagle	Tasmanian wedge-tailed eagle strategy	**Proximity constraint -** As detailed in Appendix F – Tasmanian wedge-tailed eagle strategy, the contractor will not conduct any works within 500 m direct distance and/or 1,000 m line-of-sight of an active eagle nest during the eagle management constraint period (defined as the beginning of July to the end of January, unless advice surrounding shortened or lengthened breeding season is provided by the Forest Practices Authority). The contractor will not clear or construct within 200 m of any tree that contains a Tasmanian wedge tailed eagle nest.	All site personnel and subcontractors (contractor)	During the eagle management constraint period (July-January inclusive, unless otherwise advised by the FPA)

MNES	Mitigation / avoidance measure	Description	Responsibility	Timing
		Aerial nest search - If any construction is to occur during the eagle management constraint period, an aerial nest search must be undertaken to detect all active eagle nests within 1,250 m of any area within the project area where construction is planned during the eagle management constraint period. Aerial nest searches conducted for the project must be undertaken in the following manner: • In accordance with the Fauna Technical Note 1: Eagle Nest Searching, Activity checking and Nest Management • Between 1 March to 30 June of any given year At least once within any given two-year period, within the project area, an aerial nest search must be undertaken in each area which fall within 1,250 m of any area where construction is planned during the eagle management constraint period.	TI will engage a suitably qualified eagle specialist. Suitably qualified eagle specialist means a person who has attended and passed an eagle management course organised or approved by the Forest Practices Authority with at least 5 years' experience in eagle nest management.	Every two years for the duration of the construction phase. March-June inclusive, unless otherwise advised by the FPA.
		Nest activity assessment - Eagle nest activity assessments (utilising assessment methods supported by the Forest Practices Authority) will be carried out as required. If an activity assessment conclusively shows that a nest is not active for that season, then works can be undertaken within the eagle management constraint period without risk of disrupting a breeding event. If a nest is found to be active, then no works will occur until the end of the eagle management constraint period to avoid potential disturbance. Eagle nest activity assessments will be carried out as required for the duration of the construction phase of the project from late October to late December. Until an activity assessment is completed at the commencement of each season, all known nests must be considered 'active'.	TI will engage a suitably qualified eagle specialist. Suitably qualified eagle specialist means a person who has attended and passed an eagle management course organised or approved by the Forest Practices Authority with at least 5 years' experience in eagle nest management.	Annually from late October to late December
		Planned and unplanned repair work or maintenance - In the event that planned or unplanned work or maintenance must be carried out during the eagle management constraint period, the protocol outlined in Appendix F – Tasmanian wedge-tailed eagle must be followed.	All site personnel and subcontractors (contractor) Tas Irrigation (maintenance)	During the eagle management constraint period (July-January inclusive, unless otherwise advised by the FPA)
Tasmanian masked owl	Habitat tree (hollow-bearing) management protocol	**Preclearance procedure** the protocol will be applied to any potential habitat tree identified on the CEPs and may additionally apply to any tree with a hollow suspected/confirmed during later investigations.	Project Environmental Consultant - suitably qualified ecologist (Hazell Bros subconsultant)	Application of the protocol should be undertaken between March-July inclusive.
		Hollow bearing tree management – active inspections & decommissioning – each tree should be assessed for direct hollow observations in accordance with Section D of the protocol.	Project Environmental Consultant - suitably qualified ecologist (Hazell Bros subconsultant)	

MNES	Mitigation / avoidance measure	Description	Responsibility	Timing
		Hollow bearing tree management – passive inspections & clearance -for trees that cannot be accessed safely an ecologist must undertake a dusk/dawn observations over the course of 3 consecutive days in accordance with Section E of the protocol.	Project Environmental Consultant - suitably qualified ecologist (Hazell Bros subconsultant)	
		Hollow bearing tree management – masked owl nesting - If breeding activity of masked owl is likely/confirmed, the tree will be excluded from clearance (applying a 150 m exclusion zone where no works will occur) until fledging has completed (up to 18 weeks), breeding has failed, or additional evidence is available to refute the suspected breeding evidence. A monitoring program will be required to inform this process and will need to be determined by a suitably qualified ecologist as to what is most suitable for the particular nesting tree.	Project Environmental Consultant - suitably qualified ecologist (Hazell Bros subconsultant)	
		Authorisation to clear – the contractor must seek authorisation from TI to clear a hollow bearing tree.	Contractor TI	
Swan galaxias	Dairy Creek Crossing Methodology	Dairy Creek waterway crossings with open or running water will be constructed in accordance with Appendix L – Construction water quality management plan and Appendix Q – Dairy Creek Crossing Methodology.	Contractor	Throughout the construction phase.
Green and gold frog	Green and gold frog habitat management and impact mitigation protocol	**Pre-construction planning and risk minimisation** - Any areas identified as high-quality habitat that are in the vicinity of the proposed construction area must be buffered by a minimum of 30 m and designated as works exclusion zones. These areas must be clearly marked on the CEP and on the ground. Within the week prior to commencement of construction activities through a waterbody, concerted efforts should be made by qualified ecologists (with relevant permits) to detect and capture threatened frogs (and other ground- dwelling fauna within the construction area), using active searching techniques. Search techniques should follow the recommendations in the significant impact guidelines for the vulnerable growling grass frog (Australian Government, 2009) If construction is to occur through a waterbody during the breeding season for the green and gold frog (September to January), and the environmental conditions at the time are conducive to increased frog activity (i.e., warm and wet nights), then nocturnal searches for the species should also be made prior to construction, to maximise the chances of detecting and clearing frogs from the construction zone. **Authorisation to clear habitat –** the contractor must complete a pre-clearance checklist prior to commencing clearing and	Project Environmental Consultant - suitably qualified ecologist (Hazell Bros subconsultant) Contractor TI	Throughout the construction phase.

MNES	Mitigation / avoidance measure	Description	Responsibility	Timing
		construction that summarises green and gold survey findings and ecologist recommendations (where applicable). TI will review the checklist prior to works commencing to ensure protocol requirements have been met.		
		Construction hygiene – Contractors must implement measures from best practice guidelines (Keeping it Clean – A Tasmanian Field Hygiene Manual to Prevent the Spread of Freshwater Pests and Pathogens, 2010) during all construction activities. This is required to manage the risk associated with the transmission of chytrid fungus.	Contractor	Throughout the construction phase.
		Construction activities – The contractor must: • Ensure excavation activities (including stockpiles) do not impede surface water flows. • Conduct construction activities across drainage lines when dry, where practicable. • Utilise sediment control measures. • Ensure all vehicles are well maintained and that all servicing occurs at designated facilities and ensure that vehicles movements are restricted to a designated pathway. • Adopt appropriate chemical and oil storage, handling, and disposal.	Contractor	Where possible, works should be completed between April and August in any potential high-quality habitat locations. If heavy rain is falling, forecast to fall or has recently fallen during the previous 24 hours, measures should be taken to restrict construction works within waterways until water levels have returned to 'normal' background levels.
		Post-construction – The contractor must reinstate surface contours as part of the rehabilitation process.	Contractor	Post-construction
Threatened fauna (all)	Application of relevant protocol	Any previously unidentified habitat elements that support threatened fauna will be subject to the application of the relevant protocol.	Contractor	Throughout the construction phase
	Fauna egress points	Measures will be put in place such that if fauna enter any trench, there must be a sufficient number of ramps (with slopes less than 45 degrees) placed within the trench to allow animals to readily vacate the trench. The period trenches are open must be minimised to the maximum extent. Trenches must be progressively backfilled to cover each days laid pipe. Open trenches must have wildlife proof fencing overnight or while operations are not in progress. The ends of pipe within trenches or stored welded pipe must be closed to ensure that fauna cannot enter the pipe. Inspection of trenches prior to commencement of works each morning must occur and removal of wildlife from the trench by	Contractor	Throughout the construction phase

MNES	Mitigation / avoidance measure	Description	Responsibility	Timing
		appropriately trained personnel. Appropriately trained personnel must be approved by TI. Trench inspections will be captured in daily site diaries. Surveillance of the open trenches in sensitive areas and the removal of wildlife from the trench by appropriately trained personnel. Appropriately trained personnel must be approved by TI.		
Threatened flora species				
Grassland greenhood	Exclusion zones	Exclusion zones will apply within 5 m of all known populations of grassland greenhood. The exclusion zone will be marked on-ground and on the CEP.	Project Environmental Consultant - suitably qualified ecologist (Hazell Bros subconsultant)	Throughout the construction phase
Matted flax-lily	Exclusion zones	Exclusion zones will apply within 10 m of all known populations of matted flax-lily, except the area of clearance permitted for clearance under EPBC 2022/09295. The exclusion zone will be marked on-ground and on the CEPs. **Authorisation to clear** - the contractor will seek authorisation to clear from TI	Project Environmental Consultant - suitably qualified ecologist (Hazell Bros subconsultant) TI	Throughout the construction phase
Propeller plant	Exclusion zones	Exclusion zones will apply within 5 m of all known populations of propeller plant. The exclusion zone will be marked on-ground and on the CEP.	Project Environmental Consultant - suitably qualified ecologist (Hazell Bros subconsultant)	Throughout the construction phase
General				
	Weed and hygiene management plan (WHMP)	A project specific weed and hygiene management plan (WHMP) has been developed for the Project in accordance with the 'Weed and disease planning and hygiene guidelines' (DPIPWE 2015) (Appendix J – Weed and hygiene management plan). Measures to control weeds and ensure pathogen and weed propagule hygiene within the project area are as follows: • The construction corridor will be surveyed for weed species identified in the WHMP prior to construction. • Disturbance to areas containing weed species will be minimised. • Plant and machinery will be washed down prior to arriving to site.	Contractor	Throughout the construction phase

MNES	Mitigation / avoidance measure	Description	Responsibility	Timing
		• Movement of vehicles and personnel to be limited to defined access tracks. • All vehicles and machinery to enter and exit construction site at designated access points only. • All vehicles, plant, and machinery will be washed down between property boundaries. Wash down units will be located at access points between properties. • An inspection checklist will be completed to record compliance of wash downs. Any vehicles or machinery operating within or nearby to waterways is to be washed down with Phytoclean or Trigene, applied using a mobile high pressure water trailer to mitigate potential spread of disease as required. A washdown register will be kept for all vehicles. • Should weed affected soils need to be stockpiled, locations will be nominated and agreed with landowners. Treatment will be applied as required. • Any material required to be sourced from quarries or borrow pits will be of weed-free status. • A weed eradication program will be implemented as part of the rehabilitation and reinstatement plan (see Appendix M – Rehabilitation and reinstatement plan).		
	Drainage, erosion and sedimentation plan	The contractor has prepared a Drainage Erosion and Sediment Control Plan (see Appendix K – Drainage erosion and sediment control plan), which includes the following measures: • Vegetation clearance will be minimised as much as practicable. • Vegetation clearance will be staged to minimise the area exposed to potential erosion at any given time. • Perimeter drainage will be installed to direct clean water from disturbed areas. • Rock check drains, coir logs, or similar structures will be installed in areas of concentrated flow to reduce water velocity. • Rock spalls/beaching will be installed at culvert outlets and in other areas of concentrated flow to protect the soil surface. • High risk areas for erosion will be protected with temporary groundcover (e.g. mulch, rock, gravel, geotextile, shotcrete). • Disturbed areas will be progressively rehabilitated with appropriate groundcover.	Contractor	Throughout the construction phase

MNES	Mitigation / avoidance measure	Description	Responsibility	Timing
		• Rehabilitation areas will be monitored and failed areas re-treated as required. • Temporary sediment traps will be installed at culvert outlets. • Drainage from disturbed areas will be diverted through sediment controls. • Silt fences or sediment barriers will be installed, with the specific locations to be determined on site and submitted to TI as part of a water crossing methodology.		
	Rehabilitation and reinstatement plan	A rehabilitation and reinstatement plan has been developed for the Project (see Appendix M – Rehabilitation and reinstatement plan). A total of 23.89 ha of native vegetation will be rehabilitated post-construction. The area over the pipeline alignment will be revegetated with native grasses and shrubs (no trees planted over the pipeline due to allow future access for maintenance). Areas of native vegetation that require post-work rehabilitation will be remediated via natural regeneration from the soil seed bank. Rehabilitation of agricultural land must be completed as per Landowner Access Agreements. Areas of agricultural land that require post-work rehabilitation will be remediated via natural regeneration from the soil seed bank or direct seeding. Where seeding is required, seed mix to be as specified by the landowner.	Contractor	Post-construction
	Construction water quality management plan	A construction water quality management plan has been developed for the Project (see Appendix L – Construction water quality management plan), which includes procedures for determining the construction method for watercourse crossing, and environmental monitoring and reporting requirements in relation to water quality.	Contractor	Throughout the construction phase

10.3 Environmental monitoring and corrective actions

Monitoring and inspections will be undertaken to measure the effectiveness of the implementation of this plan and to facilitate continuous improvement. General and species-specific monitoring and corrective actions are summarised in Table 10-2.

Monitoring data will be maintained in accordance with conditions 36 and 37 of EPBC 2022/09295. In accordance with condition 38, all monitoring data (including sensitive ecological data), surveys, maps, other spatial and metadata and all species occurrence record data (sightings and evidence of presence) electronically to DCCEEW within 20 business days of 30 September of that year.

Table 10-2 Summary of environmental monitoring and corrective actions

MNES	Performance target/trigger value	Monitoring	Corrective action
Threatened fauna species			
Dasyurids (Tasmanian devil/ eastern quoll/ spotted-tail quoll)	No more than 17.47 ha of optimal habitat will be cleared. All inactive dens within the impact area will be decommissioned prior to commencement of clearance and construction.	Preclearance surveys and den decommissioning will be undertaken in accordance with the pre-clearance check and unanticipated discovery protocol. The Project Environmental Consultant (Hazell Bros subconsultant) will monitor any vegetation clearance and/or ground breaking work in the areas shown as optimal habitat on the CEPs to ensure that the protocol has been implemented. The contractor must complete a pre-clearance checklist prior to clearing to ensure compliance with the protocol and confirm relevant hold points have been released by TI. In cases where a Den Monitoring Assessment is required the Project Environmental Consultant (Hazell Bros subconsultant) will inspect exclusion zones during the monitoring assessment to ensure they are maintained and in good repair. TI will maintain an ArcGIS file which records the cumulative total area of optimal denning habitat cleared. This will be reviewed when the contractor seeks authorisation from TI to clear optimal denning habitat. Reinstatement of disturbed habitat will be undertaken in accordance with the rehabilitation and reinstatement plan (Appendix M – Rehabilitation and reinstatement plan).	A stop works notice must be issued if a non-compliance occurs and an internal investigation undertaken. Authorisation to commence works must be sought from TI.
	Roadkill rates (for the duration of construction) will not exceed baseline levels as follows: • Tasmanian devil <6 individuals • Eastern quoll <1 individual • Spotted-tail quoll <2 individuals	During the construction phase, all internal roads within the current works or commute routes shall be monitored daily by all contractor staff for roadkill, with mortalities removed from the road surface immediately upon location (to limit likelihood of predators being attracted to the carcass). The same shall apply to selected arterial roads that will be subject to increased use as project staff commute to the site from places of accommodation. Records of roadkill will be maintained by the contractor and will detail location and species of any roadkill. Roadkill will be noted as a project vehicle collision or if it is found incidentally (and not already reported) assumed to be the result of collision from a non-project vehicle. The project roadkill data will be periodically independently reviewed (minimum every 6 months through construction), with scope to assess collision rates and determine if site access measures will require reassessment and further mitigation implemented where applicable.	If there is any occurrence of roadkill for an EPBC listed species, an internal review of management and mitigation measures will be undertaken, including but not limited to: • driver education • increased convoy requirements • reduction of work hours to ensure dusk/dawn periods are avoided.

MNES	Performance target/trigger value	Monitoring	Corrective action
		Roadkill monitoring results will be incorporated into the contractors monthly HSE reports to TI.	
Tasmanian wedge-tailed eagle	No clearance of trees that contain Tasmanian wedge-tailed eagle nests.	Commitment to undertake periodic aerial nest searches outside of the eagle management constraint period to detect any new nests within proximity of the project area (every two years), in accordance with Appendix F – Tasmanian wedge-tailed eagle strategy.	In the case that an active eagle nest is identified within 500 m direct distance or 1,000 m line of sight of proposed construction, the schedule for construction activities will need to be reviewed in context to the eagle management constraint period.
	No disturbance of an active Tasmanian wedge-tailed eagle nest.	The Project Environmental Consultant (Hazell Bros subconsultant) will ensure that all works cease from 1 July to 31 January within the 500 m exclusion zone and 1,000 m line-of-sight.	A stop works notice must be issued if a non-compliance occurs and an internal investigation undertaken. Authorisation to commence works must be sought from TI. Additional training will be provided to all construction personnel on the Tasmanian wedge-tailed eagle strategy (see Appendix F – Tasmanian wedge-tailed eagle strategy
Tasmanian masked owl	No more than 12 potential hollow-bearing trees to be cleared	The Habitat Tree (hollow bearing) Management Protocol will be implemented during construction (see Appendix D – Habitat tree (hollow-bearing) management protocol). If a habitat tree with masked owl is likely/confirmed then a150 m exclusion zone will be established and a breeding activity monitoring plan developed by a suitably qualified specialist to monitor the tree until fledging has completed, in accordance with Section F of the protocol. The Project Environmental Consultant (Hazell Bros subconsultant) will monitor any clearance of potential hollow-bearing trees to ensure that clearance is restricted to those locations as shown in EPBC 2022/09295. Daily visual inspections of exclusion zones during clearing and construction to ensure that are maintained and in good repair. TI will maintain records that track clearance of hollow-bearing trees and are reviewed prior to approving habitat tree hold release points.	A stop works notice must be issued if a non-compliance occurs and an internal investigation undertaken. Authorisation to commence works must be sought from TI.
Swan galaxias	No clearing, digging in or causing the pipeline to cross any waterway containing running or open water with potential Swan Galaxias habitat unless an aquatic fauna expert has undertaken an aquatic survey of the waterway, and the aquatic fauna expert has determined that Swan Galaxias is absent from the waterway.	Dairy Creek watercourses that are running or contain open water at the time of construction will be constructed and monitored in accordance with the Dairy Creek Crossing Methodology and Construction Water Quality Management Plan.	A stop works notice must be issued if a non-compliance occurs and an internal investigation undertaken. Authorisation to commence works must be sought from TI.

MNES	Performance target/trigger value	Monitoring	Corrective action
Green and gold frog	No impacts to green and gold frog	Watercourses containing green and gold frogs or suitable green and gold frog habitat will be monitored in accordance with the Construction Water Quality Management Plan (see above and Appendix L – Construction water quality management plan).	A stop works notice must be issued if a non-compliance occurs and an internal investigation undertaken. Authorisation to commence works must be sought from TI. The contractor may be required to engage a fauna specialist to determine whether the non-compliance constitutes and ongoing threat to green and gold frog and habitat.
Threatened flora species			
Grassland greenhood	No impacts to grassland greenhood	Daily visual inspections of construction boundaries and exclusion zones to ensure that they are maintained and in good repair.	A stop works notice must be issued if a non-compliance occurs and an internal investigation undertaken. Authorisation to commence works must be sought from TI.
Matted flax-lily	No more than 4 m^2 of matted flax-lily will be impacted	Daily visual inspections of construction boundaries and exclusion zones to ensure that they are maintained and in good repair. The contractor's environmental consultant will monitor any vegetation clearance to ensure that clearance of this species is restricted to the area permitted under EPB 2022/09295.	A stop works notice must be issued if a non-compliance occurs and an internal investigation undertaken. Authorisation to commence works must be sought from TI.
Propeller plant	No impacts to propeller plant.	Daily visual inspections of construction boundaries and exclusion zones to ensure that they are maintained and in good repair.	A stop works notice must be issued if a non-compliance occurs and an internal investigation undertaken. Authorisation to commence works must be sought from TI.
General			
	Compliance with EPBC 2022/09295	**Daily site inspections**– prior to the commencement of works, an inspection will be undertaken by the Contractor and will include a check of relevant environmental controls are in place. Evidence of inspections will be documented in the daily site diary, and will include monitoring of exclusion zones, watercourses (i.e. change in flow), erosion and sediment control measures, weed and hygiene control measures, and trench inspections. **Weekly HSE inspections -**environmental site inspection will be undertaken by the contractor's project management team with	The contractor must notify TI within 24 hours of becoming aware of a non-compliance. Any instances of non-compliance will be reported to DCCEEW by TI within two business days of TI being notified. TI will issue a non-compliance report to DCCEEW within 20 business days of the notification. Site CET's & CEP's to be updated as required as an outcome of inspections & preclearance surveys.

MNES	Performance target/trigger value	Monitoring	Corrective action
		relevant construction personnel to evaluate the effectiveness of environmental controls. The outcomes of these inspections will be detailed in the contractors monthly HSE reports to TI. Except in the instance that there is a non-compliance that requires reporting within 24 hours.	
		Erosion and sediment control - Erosion and sediment controls will be monitored daily and inspected weekly during formal HSE inspections.	The Contractor must ensure that the erosion and sediment controls are complied with, and that the compliance is documented. Compliance will be outlined in: • Daily Site Diary • Weekly environmental checklists (submitted to TI)
		Weed and hygiene management • Fortnightly monitoring will be undertaken of all plant, materials, and stockpile locations. • Spot inspections of plant will be undertaken to ensure the effectiveness of control measures, including washdowns. • Follow-up monitoring to be undertaken rehabilitation and additional control undertaken as required.	The Contractor must ensure that the weed and hygiene controls are complied with, and that the compliance is documented. Compliance will be outlined in: • Daily Site Diary • Weekly environmental checklists (submitted to TI)

11. Audit and review

11.1 Environmental auditing

The following table outlines the schedule for auditing the effectiveness of the construction environmental management plan.

Table 11-1 Auditing schedule

Audit	Responsibility	Frequency	Corrective Action
Internal audit of the construction environmental management plan	Contractor	Monthly for the first three months of commencement and every 3 months thereafter	If non-compliance is identified, immediately suspend works and undertake assessment of construction activity and controls. Determine appropriateness of controls and determine if additional controls required.
Internal audit of the construction environmental management plan	TI	Within 3 months of commencement of construction and every 6 months thereafter	If non-compliance identified, immediately stop works and issue contractor with a notice to undertake internal investigation. Determine appropriateness of controls and if additional controls required prior to recommencing work.
Independent audit in accordance with EPBC 2022/09295	TI (independent audit)	Every 5 years from commencement of action	N/A

11. 2 Environmental management plan review

A review of the CEMP may be triggered by the corrective actions outlined in Table 10-2, depending on the outcomes of internal investigations undertaken. If the review identified areas where the plan does not meet the approval requirements, a variation to the approved plan will be prepared and submitted for approval.

References

Australian Government. (2009). *Significant impact guidelines dor the vulnerable growling grass frog (Litoria ramiformis).* Retrieved from Department of the Environment, Water, Heritage and the Arts: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.dcceew.gov.au/sites/default/files/documents/litoria-raniformis.pdf

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Hazell Bros Group. (2024). *Appendix B Construction Environmental Management Plan prepared for Northern Midlands Irrigation Scheme.* Hazell Bros Group.

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Appendix A – Project Area

Appendix B – Construction Environmental Plans and Construction Environmental Tables

Instructions on how to use and interpret this map set.

Instructions for Use

Construction Environment Plans (CEP) and Construction Environmental Tables (CET)

- The construction corridor is divided into 304 map segments (note: plans are numbered from 1 to 310. Plans 294-299 were made redundant in CEMP v4 following changes to the Project area and therefore are no longer included in Appendix B), each being 500 meters in length.
- Each segment has a detailed CEP that includes:
  - A summary of environmental permits, protocols, and sub-plans relevant to that map segment.
  - A CET describing the features and their mitigation measures relevant to that map segment.

Map Version History

Version	Date:	Comments:
Version 0.1	20/05/2024	For internal review
Version 0.2	11/07/2024	Original CEMP submission to DCCEEW, including eagle nests and roadkill speed zones
Version 0.3	19/07/2024	Updated to remove weeds and add impact maps
Version 0.4	26/07/2024	Updated to improve visibility of symbology and labelling
Version 0.5	14/05/2025	Updated to show new Project area

Digital Usage

- These maps are designed for electronic use in 'Field Maps'.
- They clearly show the construction corridor and exclusion zones.
- The maps depict each impact feature accurately, with consistent scales (1:1000) except for specific deviations:
  - 1035 (1:1500)
  - 1036 (1:4000)
  - 1041 (1:2000)
  - 1043 (1:1500)
  - 1045 (1:2000)
  - 1050 (1:4000)
  - 1051 (1:7000)
  - 1055 (1:2500)
  - 1056 (1:1500)

Appendix B1 – Poatina Buffer Dam Construction Environmental Plan and Construction Environmental Table (Version 0.5)

Appendix C – Forest clearance guidelines

Appendix D – Habitat tree (hollow-bearing) management protocol

Appendix E – Pre-clearance check and unanticipated den discovery protocol

Appendix F – Tasmanian wedge-tailed eagle strategy

Appendix G – Green and gold frog habitat management and impact mitigation protocol

Appendix H – Roadkill management strategy

Appendix I – Roads used by construction traffic (for roadkill monitoring)

Appendix J – Weed and hygiene management plan

Appendix K – Drainage erosion and sediment control plan

Appendix L – Construction water quality management plan

Appendix M – Rehabilitation and reinstatement plan

Appendix N – Emergency response plan

Appendix O – Aboriginal artefacts and unanticipated discovery plan

Appendix P – Construction program

Appendix Q – Dairy Creek Crossing Methodology

Appendix R – Access Track and Service Locating Methodology