Belmont Desalination Plant

Construction Biodiversity Management Sub-Plan

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Revisions and Distribution

Revisions

Draft issues of this document are identified as Revision A, B, C, etc. Upon initial issue (generally Contract Award) this will be changed to a sequential number commencing at Revision 0. Revision numbers will continue at Revision 1, 2, etc.

Rev	Date	Prepared By [Name]	[Signature]	Reviewed By [Name]	[Signature]	Approved By [Name]	[Signature]	Remarks
A		S. Grunsell	SG	A. Grant J. Nisbet	AG JN	J. Nisbet	JN	HWC and ER draft submission
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Terms and Abbreviations

Term/Abbreviation	Definition/Expanded text
AMS	Activity Method Statements
AQIS	Australian Quarantine and Inspection Service
CS	Communications Strategy
CBMSP	Construction Biodiversity Management Sub-Plan
CEMP	Construction Environmental Management Plan
CoA	Conditions of Approval
CEMP	Construction Environmental Management Plan
D&C	Design and Construct
DPHI	Former Department of Planning, Industry and Environment, now Department of Planning, Housing and Infrastructure
EIS	Environmental Impact Statement
EMP	Emergency Management Plan
EMS	Environmental Management System
Environmental Assessment Documentation	Hunter Water Corporation Belmont Desalination Plant Environmental Impact Statement, prepared by GHD dated 2019. Hunter Water Corporation Belmont Desalination Plant Amendment Report and Submissions Report prepared by GHD dated 2020. Hunter Water Corporation Belmont Desalination Plant Modification Report Environmental Impact Statement prepared by Jacobs dated 2024. Hunter Water Corporation Belmont Desalination Plant Modification Report – Submissions Report prepared by Jacobs dated May 2024 Hunter Water Corporation Belmont Desalination Plant Modification Report – Response to RFI Report prepared by Jacobs dated May 2024
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPA	Environment Protection Authority
EPL	Environment Protection Licence
ER	Environmental Representative
HWC	Hunter Water Corporation
JH	John Holland
LMCC	Lake Macquarie City Council
LGA	local government area
POEO Act	Protection of the Environment Operations Act 1997
REMM	Revised Environmental Management Measures
SEPP	State Environmental Planning Policy
SSI	State Significant Infrastructure
TARP	Trigger Action Response Plan
WWTW	Waste Water Treatment Works
WRA	Work Risk Assessment

Construction Biodiversity Management Sub-Plan

Plan Profile

Management System	The Project will use John Holland's Environmental Management System (EMS) and core Project plans to support Project delivery. Additional functional plans have been developed for the Project.
Name	Construction Biodiversity Management Sub-Plan (CBMSP)
Authorisation	All personnel employed on the Project will perform their duties in accordance with the requirements of this Plan and in compliance with Project system procedures and any specific Project instructions. This Plan is authorised by the Project Director.
Review and update	This Plan will be regularly reviewed, developed, and updated: • For changes in design or construction sequence, staging, methodology or resourcing • To consider progress of the Project Company's Work • For changes in access to the Project Site • To consider changes directed by the Environmental Representative and HWC under the D&C Deed.

1. Introduction

1.1. Context

This Construction Biodiversity Management Sub-Plan (CBMSP or Plan) forms part of the Construction Environmental Management Plan (CEMP) for the Belmont Permanent Desalination Plant (the Project).

The CBMSP has been prepared to address the requirements of the Conditions of Approval (CoA) and the measures listed in the Environmental Assessment Documentation.

1.2. Background

1.2.1. The Project

The Project was approved as SSI-8896 by the then New South Wales (NSW) Minister for Planning on the 23 July 2021. The approved Project involves the construction and operation of a drought response desalination plant producing up to 30 megalitres per day (ML/d) including seawater intake infrastructure; desalination units; brine discharge via existing ocean outfall; electricity/water supply; and ancillary works.

The approved Project is being developed on land (Part Lot 1 DP 433549) at 12a Ocean Park Road, Belmont South ('the Project area') that comprises a portion of the existing Belmont Wastewater Treatment Works (WWTW) which is located to the south-east of the town of Belmont, NSW within the Lake Macquarie City Council (LMCC) local government area (LGA). Belmont Lagoon, Cold Tea Creek and the residential area of Belmont is located to the west, with the Pacific Ocean bordering the site to the east and south.

1.2.2. Statutory Context

The Project was approved as State Significant Infrastructure (SSI-8896) by the then New South Wales (NSW) Minister for Planning and Public Spaces under Division 5.2 of Part 5 of the EP&A Act on the 23 July 2021 following submission of an EIS and Amendment Report to Department of Planning, Housing and Infrastructure (DPHI) (formerly Department of Planning, Industry and Environment (DPIE)) in November 2019 and August 2020 respectively. The Project is identified as an SSI project as it satisfies Clause 4(1) of the then State Environmental Planning Policy (State and Regional Development) 2011 (SEPP SRD).

Under Section 5.25 of the EP&A Act, a proponent may request the Minister to modify the approval for State Significant Infrastructure. Such approval is required if the infrastructure as modified is not consistent with the existing approval issued under section 5.13 of the Act. After consultation with the DPHI, a Modification Report was prepared to support a request by Hunter Water for the Minister to modify the approval to allow further changes to the approved project.

The Modification EIS was exhibited by the DPHI from 24 January 2024 to 20 February 2024. During the exhibition of the Modification EIS, 22 submissions were received from government agencies, stakeholders, and the community. A Submissions Report was prepared and made available in May 2024 via the Project website.

1.3. Scope of the Plan

The scope of this Plan is to describe how the potential impacts to biodiversity will be managed during construction of the Project. This Plan been prepared under and is consistent with the CEMP, considering relevant sensitive land uses and construction activities.

This Plan is applicable to all activities during construction of the Project, including all areas where physical works will occur or areas that may otherwise be impacted by the construction works, and under the control of John Holland (JH). All JH staff and sub-contractors are required to comply with the requirements of this Plan and related construction environmental management plans, over the full duration of the construction program. A copy of this Plan will be kept on the premises for the duration of construction.

1.4. Environmental Management Systems Overview

The Environmental Management System (EMS) overview is described in the CEMP. The EMS also incorporates the Project-specific CEMP and sub-plans, strategies and procedures. The EMS provides overarching environmental management actions for implementation by Project personnel and contractors and will apply for the duration of construction.

The EMS consists of governance documentation, incorporating environmental management plans, policies, procedures and tools including:

- **CEMP**. Details the processes and procedures to be implemented during the Project to comply with applicable CoA, REMMs, Environment Protection Licence (EPL), legislative obligations and contractual requirements.
- **Environmental Management Sub-plans**. These documents describe procedures and controls for specific environmental aspects requiring more rigorous management strategies.
- **WHS Management Plan.** Details the processes and procedures to be implemented during the Project to comply with applicable work health and safety requirements.
- **Procedures, strategies and protocols**. Detailed procedures for inclusion in work packs.

1.4.1. CBMSP preparation, endorsement and approval

The CBMSP has been prepared to satisfy the NSW CoA in relation to the management of biodiversity during construction of the Project, particularly NSW CoA C11(d) and C14.

The CBMSP will be reviewed by the Hunter Water Corporation (HWC) Environmental representative (or delegate) and the independent Environmental Representative (ER) to confirm they are consistent with, and incorporate, all relevant elements of the CoA prior to submission to the Planning Secretary for approval.

Construction of the Project will not commence until the CBMSP is endorsed by the ER and approved by the Planning Secretary.

2. Purpose and Objectives

2.1. Purpose

The purpose of this Plan is to describe how the Project will manage and protect flora and fauna during construction of the Project.

2.2. Objectives

The key objective of this CBMSP is to ensure that potential impacts to biodiversity from the construction works are minimised.

To aid in achieving this objective all CoA, revised environmental mitigation measures (REMMs) and licence/permit requirements relevant to biodiversity are described, scheduled and assigned responsibility as outlined in:

- Environmental Assessment Documentation
- Infrastructure Approval CoA (SSI 8896)
- All relevant legislation and other requirements described in Section 3.1 of this Plan.

JH will aim to meet the environmental control measures relating to biodiversity as defined in the Environmental Assessment Documentation. Relevant environmental control measures are detailed in Section 6.1.

2.3. Performance Targets

The following targets have been established for the management of impacts relating to biodiversity during Project construction:

- Full compliance with the relevant legislative requirements, CoA and REMMs
- Implement reasonably practicable measures to minimise flora and fauna impacts during construction
- Training is provided in the form of inductions to relevant Project personnel relating to flora and fauna issues before they begin work on site
- No disturbance to flora and fauna outside the approved construction footprint
- No increase in distribution of weeds or other invasive species currently existing and no new weeds or other invasive species are introduced within the Project areas
- No transfer of plant diseases or pathogens to or from the Project work areas.
- Minimal project impacts to GDEs

3. Environmental Requirements

3.1. Relevant Legislation and Guidelines

Table 3-1 lists the principal legislation, regulation, plans, policies, guidelines, specifications, and Australian Standards that apply to the management of biodiversity.

Table 3-1: Principal legislation and regulation relevant to Biodiversity

Legislation	**Commonwealth Legislation** • *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act) (Commonwealth) **NSW Legislation** • *Environmental Planning and Assessment Act 1979* (EP&A Act) • *Threatened Species Conservation Act 1995 (*TSC Act) • *Biodiversity Conservation Act 2016* (BC Act) • *Biodiversity Conservation (Savings and Transitional) Regulation 2017* • Bilateral agreement made under Section 45 of the EPBC Act relating to environmental assessment between Commonwealth of Australia and the State of New South Wales • *Biosecurity Act 2015* • *Fisheries Management Act 1994* (FM Act) • *Pesticides Act 1999* • *Protection of the Environment Operations Act 1997* • *National Parks and Wildlife Act 1974* • *State Environmental Planning Policy (Resilience and Hazards) 2021*
Standards	• AS/NZS ISO 14001: Environmental Management • AS 4373 Pruning of Amenity Trees • AS 4970 – Protection of trees on development sites
Guidelines and Specifications	• New South Wales Weed Control Handbook (DPI 2018) • Hygiene protocol for the control of disease in frogs (DECC 2008) • Managing Urban Stormwater: Soils and Construction, Volume 1 (Landcom 2004) • Managing Urban Stormwater: Soils and Construction Volume 2 (DECC 2008) (the “Blue Book”). • TfNSW D&C Specification G36 – Environmental Protection • TfNSW D&C Specification G40 – Clearing and Grubbing • TfNSW Biodiversity Guidelines (RTA 2011) • Department of Primary Industries ‘Policy and Guidelines for Fish Habitat Conservation and Management (DPI 2013) • DPI Water Guidelines for Controlled Activities on Waterfront Land • EPA Resource Recovery Order 2014 – Raw Mulch; • EPA Resource Recovery Exemption 2014 – Raw Mulch • Fish Passage Requirements for Waterway Crossings (Fairfull and Witheridge 2003) • Fishnote – Policy and Guidelines for Fish Friendly Waterway Crossings – November 2003 • Guide to providing maps and boundary data for EPBC Act projects (Commonwealth of Australia 2021) • Guideline for Biodiversity Offsets (Roads and Maritime Services 2016e) • Guidelines for biological survey and mapped data (Commonwealth of Australia, 2018) • Guidelines for Fish Habitat Conservation and Management – Update 2013 (DPI 2013) • Guidelines for riparian corridors on waterfront land (DPI Water 2012) • Guidelines for vegetation management plans on waterfront land (DPI Water, 2012) • Guidelines for watercourse crossings on waterfront land (DPI Water, 2012) • Guidelines for instream works on waterfront land (DPI Water, S2012) • Guidelines for outlet structures on waterfront land (DPI Water, 2012) • NSW Department of Primary Industries, Why Do Fish Need to Cross the Road (DPI Fisheries, 2003) • Biodiversity Assessment Method (BAM) (DPE 2020) • Risk Assessment Guidelines for Groundwater Dependent Ecosystems (DPI 2012)

Relevant provisions of the above legislation are explained in the Register of Legal and Other Requirements included in Appendix A of the CEMP.

3.2. Conditions of Approval – SSI-8896

The CoA relevant to this Plan are listed Table 3-2. A cross reference is also included to indicate where the condition is addressed in this Plan or other Project management documents.

Table 3-2: Condition of Approval relevant to the CBMSP

CoA	Condition Requirements	Document Reference
A1	In addition to meeting the specific performance measures and criteria in this approval, all reasonable and feasible measures must be implemented to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the construction and operation of the development, and any rehabilitation required under this approval.	Entire Plan
C2	The Proponent must ensure the development includes a wind break fence or similar on the western side of the proposed development disturbance area adjacent to Ocean Park Road to prevent sand blowing across the road into adjacent wetlands prior to the commencement of construction	Section 6.6.3
C11	Prior to the commencement of construction, the Proponent must submit a Construction Environmental Management Plan (CEMP) to the to the Planning Secretary for approval. The CEMP must include, but not be limited to, the following: (d) Biodiversity Management Sub-Plan (see condition C14)	Entire Plan
C14	The Proponent must prepare a Biodiversity Management Sub-Plan (CBMSP) that must address, but not be limited to, the following:	Entire Plan
	a) a native vegetation rehabilitation management plan for the land west of Ocean Park Road as shown at Appendix 3). This should include: i. details of weed monitoring and (if required, removal). ii. management of potential groundwater drawdown impacts and how these will be monitored and managed iii. plan to minimise weed invasion as a result of hydrological changes	Section 6.6
	b) a detailed Chytrid fungus management plan that includes procedures to minimise and monitor the spread of the fungus	Section 6.2 Appendix A
	c) a monitoring and management plan for the fence (or similar) required under Condition C2. The monitoring and management of the fence (or similar) is to occur for a period of three years from the establishment of the fence (or similar). to monitor and manage sand blowing on the road and into the adjacent wetland area; detail of the installation of measures to be implemented on the western side of Ocean Park Road to prevent access and damage to vegetation.	Section 6.6.3 Table 6-1
C25	Prior to the commencement of vegetation clearing, the class and number of ecosystem credits in the table below at Condition C26 must be retired to offset the residual biodiversity impacts of the development. The retirement of these credits must be carried out in accordance with the NSW Biodiversity Offsets Scheme and can be achieved by: a) acquiring or retiring 'biodiversity credits' within the meaning of the Biodiversity Conservation Act 2016 b) making payments into an offset fund that has been developed by the NSW Government; or c) funding a biodiversity conservation action that benefits the entity impacted and is listed in the ancillary rules of the biodiversity offset scheme	Section 6.4
C26	Evidence of the retirement of credits or payment to the Biodiversity Conservation Fund in satisfaction of condition C25 must be provided to the Planning Secretary prior to carrying out development that will impact on biodiversity values.	Section 6.4

CoA	Condition Requirements	Document Reference
D18	Tree Protection - For the duration of the construction works: a) street trees must not be trimmed or removed unless it forms a part of this development approval or prior written approval from Council is obtained or is required in an emergency to avoid the loss of life or damage to property. b) all street trees immediately adjacent to the property boundary must be protected at all times during construction in accordance with Council's tree protection requirements. Any street tree, which is damaged or removed during construction due to an emergency, must be replaced, to the satisfaction of Council. c) all trees on the site that are not approved for removal must be suitably protected during construction; and d) if access to the area within any protective barrier is required during the works, it must be carried out under the supervision of a qualified arborist. Alternative tree protection measures must be installed, as required. The removal of tree protection measures, following completion of the works, must be carried out under the supervision of a qualified arborist and must avoid both direct mechanical injury to the structure of the tree and soil compaction within the canopy or the limit of the former protective fencing, whichever is the greater.	Table 6-1

3.3. Revised Environmental Management Measures

Relevant REMMs are listed in Table 3-3. This includes reference to required outcomes, the timing of when the commitment applies and cross reference to indicate where the requirement is addressed in this Plan or other Project management documents.

Table 3-3: Revised Environmental Management Measures relevant to this CBMSP

Ref #	Impact	Measure	Timing	CBMSP Reference
TFB1	General	Site induction: All workers will be provided with an environmental induction prior to starting to work on-site. This will include information on the ecological values of the area surrounding the Project area, key weed threats and measures to be implemented to protect biodiversity, particularly focussing on erosion management, and potential weed and pathogen spread.	Pre-construction, Construction	Table 6-1
TFB2	General	Biodiversity offsetting would be undertaken in accordance with the findings of the BDAR.	Pre-construction	Undertaken by HWC
TFB3	General	Limit disturbance of vegetation to the minimum necessary to undertake the works.	Pre-construction	Table 6-1
TFB4	Proximity of adjacent native vegetation	Prior to the commencement of any work adjoining areas of native vegetation, clearly delineate the construction area marking the limits of clearing to avoid unintended clearing of adjacent native vegetation. Fencing and signage must be maintained for the duration of the construction period. Fencing will be designed to allow fauna to exit the site during clearing activities.	Pre-construction, Construction (daily inspections of exclusion zones during works in area)	Table 6-1
TFB5	Proximity of adjacent native vegetation	Install appropriate temporary fencing during the construction phase to exclude native ground fauna from adjacent native habitat entering construction areas (whether they are recorded during pre-construction survey or not). Fencing will remain in place until the completion of all construction activities including revegetation.	After completion of clearing activities/construction works	Table 6-1
TFB6	Proximity of adjacent native vegetation	Stockpiles of fill or vegetation will be placed within existing cleared areas (and not within areas of adjoining native vegetation).	Pre-construction,	Table 6-1

Ref #	Impact	Measure	Timing	CBMSP Reference
TFB10	Introduction and/or spread of weeds and pathogens	Develop a weed species management sub-plan as part of Project CEMP to manage weeds and pathogens during the construction phase of the Project.	Pre-construction, construction	Section 6.3
TFB11	Introduction and/or spread of weeds and pathogens	The location and extent of any priority and/or high threat environmental weeds within the site will be identified by a suitably qualified ecologist during pre-clearance surveys. The introduction and spread of weed species will be minimised by restricting access to areas of native vegetation and communicating the responsibilities of all Project personnel at site inductions and during regular toolbox meetings. All priority weeds identified on the Project area will be controlled and removed in accordance with the requirements of the Biosecurity Act 2015 and Council's relevant Weed Control Manuals: Appropriate pesticides will be applied if required and a record of such application made in the pesticide application register. All noxious and environmental weeds will be cleared and stockpiled separately to all other vegetation, removed from site and disposed of at an appropriately licenced disposal facility. When transporting weed waste from the site to the waste facility, trucks must be covered to avoid the spread of weed-contaminated material. Disposal must be documented, and evidence of appropriate disposal must be kept.	Pre-construction, construction	Section 6.3
TFB12	Introduction and/or spread of weeds and pathogens	All machinery entering the Project area must be appropriately inspected, and washed down and disinfected as required prior to work on site to prevent the potential spread of weeds, Cinnamon Fungus (*Phytophthora cinnamomi*) and Myrtle Rust (*Pucciniales fungi*) in accordance with the national best practice guidelines for Phytophthora (O'Gara et al, 2005) and the Myrtle Rust factsheet (DPI, 2015b) for hygiene control.	Pre-construction, construction	Table 6-1 Appendix A
TFB13	Introduction and/or spread of weeds and pathogens	Incorporate control measures in the design of the Project to limit the spread of weed propagules off site. Sediment control devices, such as sediment fences, will assist in reducing the potential for spreading weeds.	Pre-construction, construction	Table 6-1 Section 6.3
TFB14	Introduction and/or spread of weeds and pathogens	All machinery entering the Project area must be appropriately inspected and washed down and disinfected to prevent introduction or spread of Chytrid fungus as per the Office of Environment and Heritage *Hygiene protocol for the control of disease in frogs* (DECC, 2008b).	Pre-construction, construction	Table 6-1
TFB16	Fauna encounters during vegetation clearing	Pre-clearance surveys of vegetated areas and the beach areas will be undertaken to check for nests prior to construction commencing.	Pre-construction	Table 6-1
TFB17	Fauna encounters during vegetation clearing	The construction contractor is to contact the Project ecologist for advice if any unexpected fauna are found during the construction period (i.e. before, during or following clearing of native vegetation where the Project ecologist is not on site).	Construction	Table 6-1
TFB18	Fauna encounters during	A procedure to manage unexpected threatened species finds will be included in the CEMP and is to	Pre-construction,	Appendix B

Ref #	Impact	Measure	Timing	CBMSP Reference
	vegetation clearing	be implemented in the event of any unexpected threatened species finds during clearing.		
TFB19	Fauna encounters during vegetation clearing	A post-clearing report will be prepared by the construction contractor and provided to Hunter Water documenting all animals that are handled, or otherwise managed, within the site. Data to be recorded includes: • Date and time of the sighting and details of the observer. • Species. • Number of individuals recorded. • Adult/juvenile. • Condition of the animal (living/dead/injured/sick). • Management action undertaken (e.g. captured, handled, taken to vet) • Results of any management actions (e.g. released, euthanised, placed with carer).	Construction	Section 7.5
TFB20	Impacts to fauna from night lighting	Night lighting will be used within the land based compound during any night works in consideration of best practice lighting design principles as per Figure 4 of the National Light Pollution Guidelines for Wildlife (DCCEEW, 2023	Pre-construction	Table 6-1
TFB21	Native vegetation	Hunter Water would prepare a Native Vegetation Management Plan prior to works starting. The plan would outline the replacement planting required to compensate for the removal of native vegetation along the proposed pipeline route. The plan would include vegetation types and densities as well as locations of planting or other biodiversity improvement works (such as weed management).	Pre-construction	Brine Pipeline Native Revegetation Management Plan
TFB22	Native vegetation	The construction contractor must engage a suitably qualified bush regenerator with demonstrated experience in native revegetation in coastal areas. The bush regenerator must undertake progressive rehabilitation of the disturbance footprint (including laydown and compound areas) to maximise potential for re-establishment of native vegetation and to minimise the potential for long-term weed issues post-construction. Areas where native vegetation or invasive weeds are removed must be revegetated with species identified in the Native Vegetation Management Plan prepared separately by Hunter Water. The CEMP must detail the bush regeneration contractor to be engaged, stabilisation timeframes and species.	Construction	Table 6-1
TFB23	Vegetation impacts	There would be no clearing of vegetation on the northern side of Ocean Creek Road during construction of the Proposed Modification to avoid impacts to PCT 3788.	Construction	Table 6-1

Note: Identifying references are for the purpose of identifying the specific mitigation measures and are identification numbers only.

4. Existing Environment

This section summarises the existing conditions within and adjacent to the Project, based on information contained in the Environmental Assessment Documentation.

4.1. Landscape Context

The Project area is located within the Sydney Basin bioregion and Wyong sub-bioregion. It is located on the Sydney – Newcastle Barriers and Beaches NSW soil landscape, which commonly underlies coastal beaches to inland sand dunes and coastal lagoons. The Project area generally occurs on low-lying coastal lands between Nine Mile Beach and the eastern edge of Lake Macquarie on the Belmont peninsula. Table 4-1 summarises the relevant biodiversity landscape features identified in the Environmental Assessment Documentation.

Table 4-1: Biodiversity Landscape Features

Landscape Feature	Description
Interim Biogeographic regionalisation of Australia (IBRA) bioregion	Sydney Basin bioregion (Wyong sub-region)
NSW Landscape Regions (Mitchell landscapes)	Sydney – Newcastle Barriers and Beaches
Rivers, streams and estuaries	The Project area does not contain any rivers, streams or estuaries. Several un-named first order streams are located to the south of the Project area and one un-named fourth order stream is mapped to the north of the Project area. Estuarine habitats are located around the margins of Belmont Lagoon and Lake Macquarie to the west of the Project area.
Wetlands	The Project area contains one wetland area. There are no Ramsar wetlands in the buffered assessment area. One wetland listed in the Directory of Important Wetlands in Australia (DIWA) is located directly adjacent to the west of the Project area, however, it does not occur within the Project area: - Lake Macquarie Coastal Wetlands (NSW189). The Project area is situated to the east of Coastal Wetlands mapped under the Coastal Management SEPP as part of the original EIS (note that this SEPP has now been replaced by the Resilience and Hazards SEPP) and occurs within the eastern margins of the Belmont Lagoon Coastal Wetland and subsequent proximity area for Coastal Wetlands. The mapped Coastal Wetlands broadly corresponds to the DIWA Lake Macquarie Coastal Wetlands (NSW189).
Connectivity Features	The western extent of the Project area is located just within a key fauna corridor mapped under the Key Habitats and Corridors (KHC) Project (Scotts, 2003; DECCW, 2011). The regional corridor identified by the KHC project is named Nine Mile Beach and captures wetland and swamp forest habitats associated with the DIWA Lake Macquarie Coastal Wetlands (NSW189). The focal species identified for this corridor is the Brush-tailed Phascogale (Phascogale tapoatafa). The site of the drought response desalination plant includes vegetation mapped as “corridor of partially cleared remnant native vegetation” identified as a rehabilitation corridor on the Lake Macquarie City Council Native Vegetation & Corridors 2015 (Map 1). This corridor corresponds to the patch of Bitou Bush Scrub located in the southern portion of the site and along the eastern boundary of the site
Areas of geological significance or soil hazard features	There are no karst, caves, crevices, cliffs or other areas of geological significance located within the Project area or buffer area surrounding the Project area. Soil landscapes for the Project area are characterised by quaternary coastal sediments on long recurved quartz sand beaches between rocky headlands and back by sand dunes. Acid sulphate soil risk mapping indicates that there is a high to medium probability of occurrence of acid sulphate soils across the south-west portion of the Project area. Where the acid sulphate soil risk is high, associated Aeolian processes on sandplains and swamps occur. Estimated depth to acid sulphate soils include 1-2 metres and 2-4 metres. The remainder of the Project area carries a low probability of occurrence of acid sulphate soils, with a depth to acid sulphate soils estimated at greater than 4 metres.

Landscape Feature	Description
Areas of outstanding Biodiversity value	There are no areas of outstanding biodiversity value mapped within the Project area.
Percentage native vegetation cover	24 – 34%

4.2. Terrestrial Flora

The floral assemblage within the Project area is dominated by exotic species, with 70% (or 42 species) of the recorded species richness comprising exotic species. In addition to this, the vegetation cover is also dominated by high threat weeds as classified by the Biodiversity and Conservation Division (BCD, formerly the NSW Office of Environment and Heritage, OEH). Bitou Bush and Kikuyu are both high threat weeds and are the dominant species within the Project area. No threatened species listed under the BC or EPBC Acts were recorded or are considered likely to occur within the Project area.

Bitou Bush, Fireweed, Lantana, Asparagus Fern and Prickly Pear are also present across the project area and are considered weeds of national significance as declared by the National Weed Strategy.

4.3. Terrestrial Fauna

The Project area provides very limited habitat for native fauna. It is dominated by highly invasive high threat weed species Bitou Bush and Kikuyu. These have respectively formed a scrub thicket and a dense matting grassland on the foredunes. The Project area also lacks aquatic, wetland and forested habitats. The foraging and sheltering resources provided by such habitat types are therefore limited or absent from the Project area, including hollow-bearing trees, blossom and nectar resources.

The Project area is situated directly adjacent to larger patches of habitat comprising a mixture of swamp sclerophyll forests, coastal woodland, coastal shrubland and wetlands. These surrounding habitats are associated with the Belmont Wetlands State Park and Belmont Lagoon and represent a larger network of fragmented vegetation patches along the coast.

Fauna surveys undertaken at the site identified no threatened species listed under the BC Act or EPBC Act, and none are considered likely to utilise the habitats within the Project area. Fauna species recorded within the Project area include:

- Welcome Swallows (Hirundo neoxena)
- Australian Magpies (Cracticus tibicen)
- Blackshouldered Kite (Elanus axillaris)
- Silver Gulls (Chroicocephalus novaehollandiae)

The above species are commonly associated with cleared areas on forested or woodland fringes, or with vacant lands of urban and coastal areas.

4.4. Plant Community Types

To the west of the Project area, native vegetation represented by swamp forest, wet heath, rush land and estuarine vegetation associated with Belmont Lagoon and the greater Lake Macquarie Coastal Wetlands still occurs. Vegetation mapping for the area is provided in Figure 4-2. Despite the likely presence of threatened ecological communities in the wider locality, no threatened ecological communities listed under the BC Act and EPBC Act have been identified within the Project area.

Two (2) Plant Community Types (PCTs) were identified within the construction footprint and are summarised below in Table 4-2.

Table 4-2: Plant Community Types within the Project area

PCT No.	PCT Name	Area Within Construction Footprint (ha)
PCT 3788	Coastal Foredune Wattle Scrub (3788_moderate-good) (syn. Coast Banksia-Coast Wattle dune scrub of the Sydney Basin Bioregion and South East Corner Bioregion (772_ moderate good))	0.20
PCT 1204	Spinifex Beach strand grassland of the Sydney Basin Bioregion and South East Corner Bioregion	0.29
Bitou Bush Scrub	Not a PCT	4.72
Exotic Grassland	Not a PCT	4.72
Cleared	NA	5.40

4.5. Threatened Ecological Communities

No Threatened Ecological Communities (TECs) listed in NSW under the former *Threatened Species Conservation Act 1995* (repealed by the *Biodiversity Conservation Act 2016* [BC Act]) were recorded or are considered likely to occur within the Project area.

4.6. Coastal Wetlands

Coastal Wetlands mapped under the Resilience and Hazards SEPP are located immediately the west of the Proposed Modification and occurs within the eastern margins of Belmont Lagoon, refer to Figure 4-2The mapped Coastal Wetlands broadly corresponds to the National Directory of Important Wetlands (DIWA) Lake Macquarie Coastal Wetlands (NSW189). The vegetation within the 11 kV footprint for the Proposed Modification and the area to the south/east side of the access road is not mapped as Coastal Wetland under the Resilience and Hazards SEPP but is identified as a proximity area to Coastal Wetlands.

4.7. Aquatic Biodiversity

No freshwater or estuarine habitats occur within the Project area. In the wider area, the Project area (at the desalination plant site) is surrounded by swamp and wetland vegetation associated with Belmont Lagoon and the greater Lake Macquarie Coastal Wetlands (NSW189) and mapped as Coastal Management SEPP Coastal Wetlands. Estuarine habitats comprising mangroves, saltmarsh and seagrass meadows are located around the margins of Belmont Lagoon and Lake Macquarie to the west of the Project area. The aquatic habitats associated Belmont Lagoon is separated from the Project area by Ocean Park Road and a vegetated corridor of approximately 200 m width.

4.8. Groundwater Dependent Ecosystems

Both the seaward side of the foredunes, Belmont Lagoon as well as terrestrial vegetation to the west of Ocean Park Road is likely to contain vegetation that represents high potential terrestrial Groundwater Dependent Ecosystems (GDEs). The associated vegetation identified as being a high potential terrestrial GDE is Plant Community Type (PCT) 1644 Coast Tea Tree – Old Man Banksia coastal shrubland on foredunes of the Central and lower North Coast, which is related to PCT 772. Native communities related to PCT 1644 Coast Tea Tree – Old Man Banksia coastal shrubland on foredunes of the Central and lower North Coast do not occur within the Project area, as PCT 772 has been replaced by Bitou Bush Scrub and exotic grasslands. As such, no GDEs are present in the Project area.

Potential terrestrial and aquatic GDEs are mapped to the west of the Project area, identifying Belmont Lagoon as a moderate potential GDE. The potential terrestrial GDEs located between Belmont Lagoon and the Project area corresponds to a mix of coastal swamp forests, coastal heath forests and sand heath scrub described by the LMCC LGA vegetation mapping which includes PCT 1724 Broad-leaved Paperbark - Swamp Oak - Saw Sedge swamp forest on coastal lowlands of the Central Coast and Lower North Coast.

4.9. Weeds and Pathogens

The condition of the dune is considered poor with evidence of recreational activities (i.e. pedestrian and vehicle tracks). Vegetation along the foredunes consists largely of exotic species (i.e. Bitou Bush) and exotic grassland dominated by Kikuyu. Bitou Bush is the dominant vegetation type across large sections of the foredunes and is a prominent vegetation feature of the Project site.

A list of High Threat Weeds (HTW) recorded within the Project area is presented in Table 4-3. Six of these high threats weed species are also priority weed species declared for the Hunter region, to which Lake Macquarie LGA belongs. The species, their relevant weed objectives (HLLS, 2017) and related regulatory measures are also summarised in the approved EIS. Details on the weed management objectives are provided in Table 7-5 for the EIS. Weeds will be managed in accordance with the measures discussed in Section 6.1 and Section 6.3.

Table 4-3: High Threat Weeds recorded in the Project Area

Scientific Name	Common Name	Weed Status	Weed of National Significance?
Galenia pubescens var. pubescens	Galenia	NA	No
Asparagus aethiopicus	Asparagus fern	Priority weed - Asset protection (State)	Yes
Chrysanthemoides monilifera subsp. rotundata	Bitou Bush	Priority weed – Containment (State)	Yes
azania rigens	Treasure Flower	NA	No
Senecio madagascariensis	Fireweed	Priority weed - Asset protection (State)	Yes
Opuntia stricta	Prickly Pear	Priority Weed - Additional species of concern (Regional)	Yes
Ipomoea cairica	Coastal Morning lory	NA	No
Cenchrus clandestinus	Kikuyu Grass	NA	No
Chloris gayana	Rhoades Grass	NA	No
Ehrharta erecta	Panic Veldtgrass	NA	No
Hyparrhenia hirta	Coolatai Grass	Priority weed - Asset protection (State)	No
Paspalum dilatatum	Paspalum	NA	No
Stenotaphrum secundatum	Buffalo Grass	NA	No
Lantana camara	Lantana	Priority weed - Asset protection (State)	Yes

A Pathogen Control Procedure (PCP) has also been prepared (refer to Appendix A) detailing procedures associated with minimising and monitoring the potential spread of potential pathogens at the site. This plan also identifies control measures to manage risk associated with the potential spread.

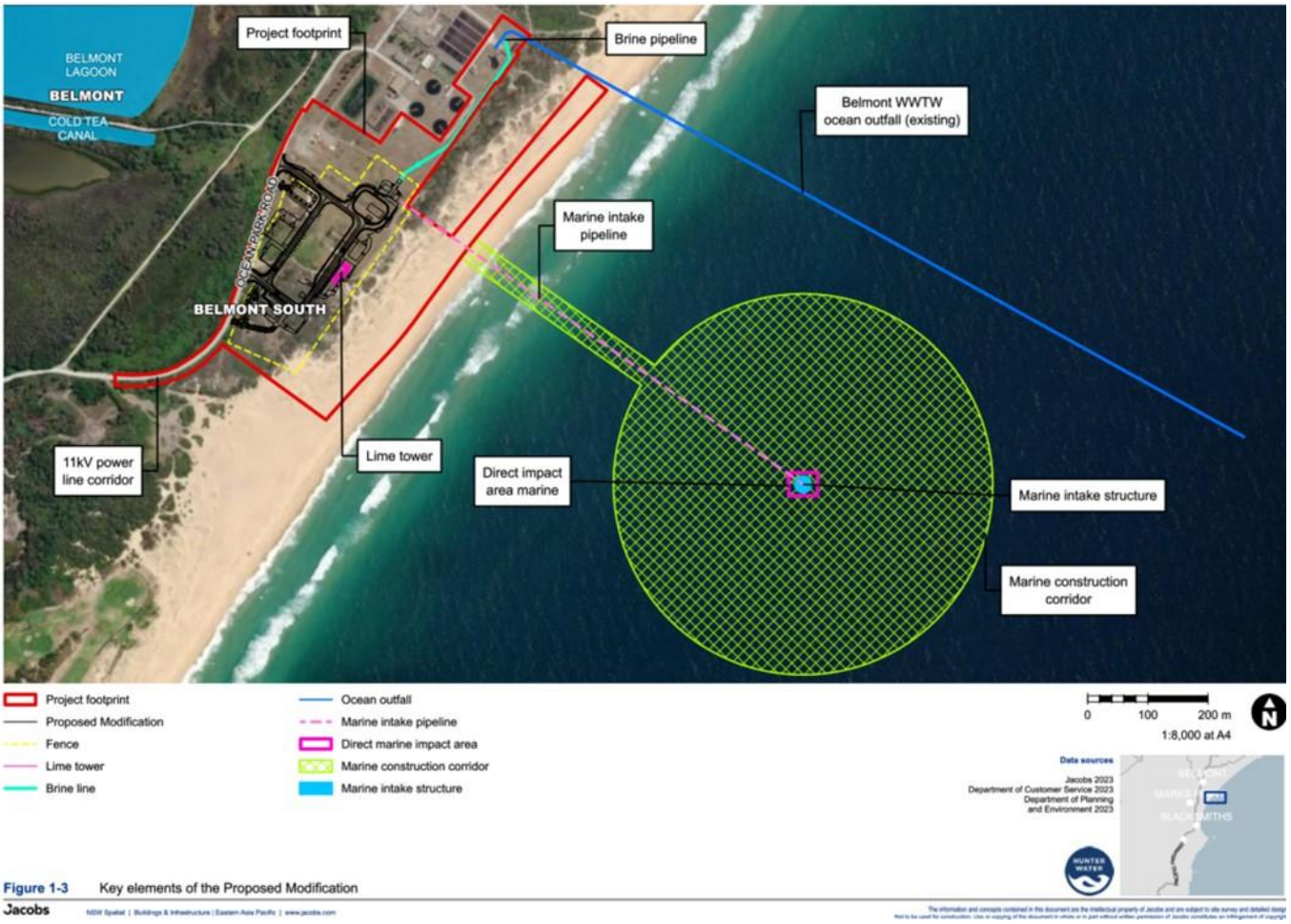

Figure 4-1: Project Locality

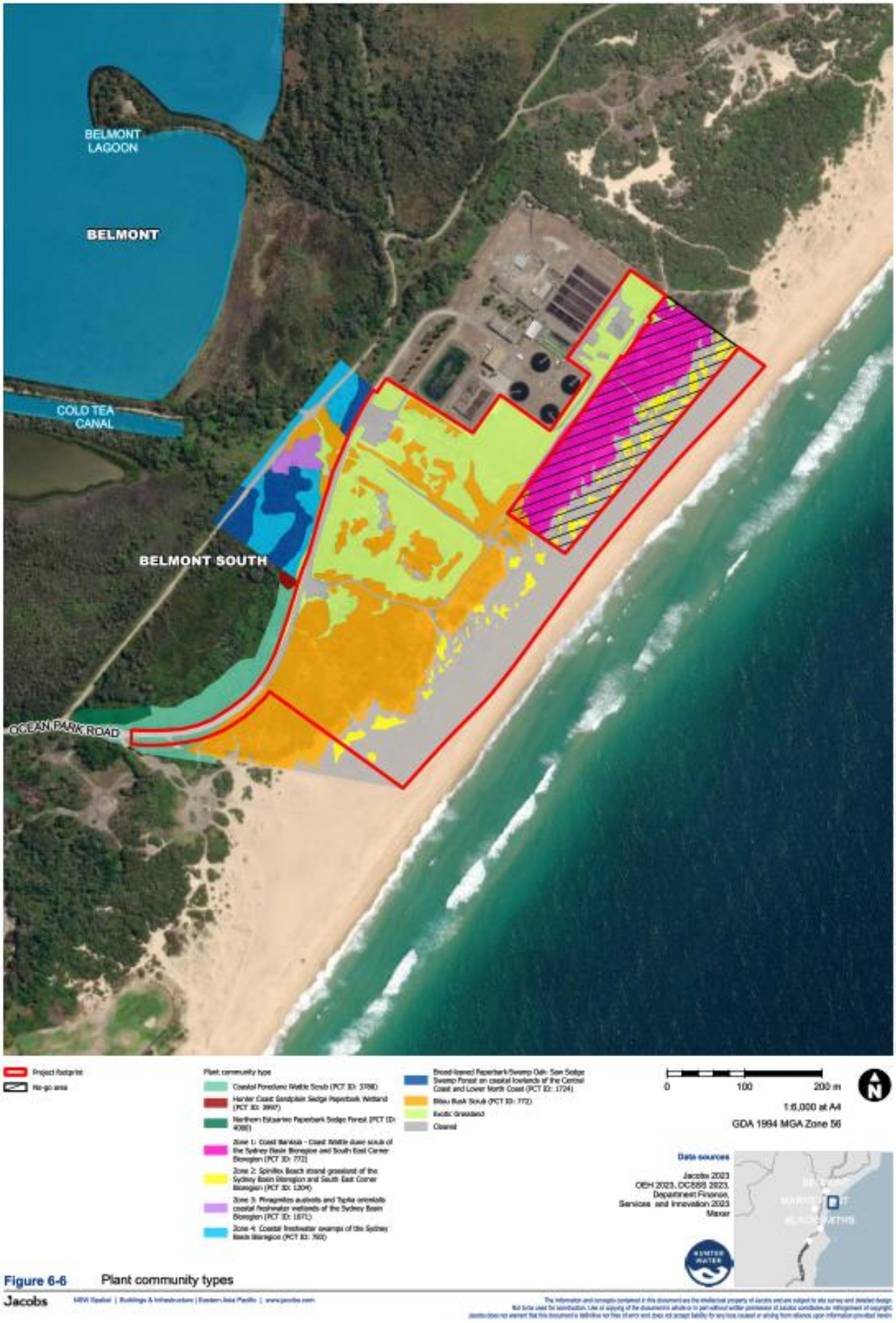

Figure 4-2: Vegetation and Plant Community Types

5. Environmental Aspects and Impacts

5.1. Construction Activities

Key aspects of the Project that could result in impacts to terrestrial and aquatic flora and fauna include:

- Earthworks, including handling, storage of excavated materials
- Vegetation Clearing
- Excavation of drainage and service trenches
- Works around watercourses and water bodies
- Disturbance of soils (including acid sulphate soils), consequential erosion and the mobilisation of sediment and other potential contaminants into stormwater systems and the receiving environment
- Use of chemicals/fuels (potential for spills)
- Litter and pollutants associated with building materials or waste being mobilised by wind and stormwater runoff into waterways
- Vehicle movements introducing new and spreading existing weed species, pathogens, diseases and other pests
- Mobilisation of dust or other particulates
- Light spill during nightworks
- Noise and vibration affecting fauna behaviour.

5.2. Ecological Impacts

5.2.1. Direct Impacts

The Project is located primarily in non-native vegetation comprising Bitou Bush Scrub and exotic grasslands. Construction of the Project would minimise direct clearing of native vegetation and threatened species habitat. Access to the Project area will be along Ocean Park Road and will not require clearing of native vegetation. The existing access road to the Project area has no formal drainage infrastructure.

No aquatic habitat will be directly impacted by the Project and aquatic habitats associated with Belmont Lagoon are unlikely to be impacted by the Project as they occur at a distance of at least 120 m from the Project area and are buffered by a corridor of swamp forest, wet heath and bushland vegetation.

Permanent impacts to wetland and swamp vegetation in the west of the Project area would be largely avoided as they would be limited to the removal of a very small area of vegetation to allow for the installation of three power poles. There may also be some temporary impacts to wetland vegetation associated with the connection of electricity cable between the new poles as this cable would be pulled by hand through a small area of wetland vegetation with may result it temporary disturbance associated with the trampling of vegetation. Direct impacts are detailed further in Table 5-1.

5.2.2. Indirect Impacts

Table 5-1 details the type of indirect impacts to biodiversity values that may occur as a result of the Project. Impacts to biodiversity were described in the Environmental Assessment Documentation. Likely and/or potential indirect impacts associated with the Project include:

- Further spread of highly invasive weed species along the foredunes and into adjacent native vegetation during construction, namely high threat weed species recorded within the Project area. This includes Bitou Bush, Lantana, Coolatai Grass, Kikuyu and Coastal Morning Glory.
- Unintended damage caused by construction plant and machinery to native vegetation adjacent to the Project area.
- Increased surface run-off from construction of hardstand areas into adjacent wetland and swamp vegetation, with potential to transport pollutants or contaminants from the Project area.
- Potential introduction, or further spread of pathogens into adjacent wetland and swamp vegetation, particularly Chytrid fungus (Batrachochytrium dendrobatidis) as it is found in soil and water.

Table 5-1: Potential impacts associated with the Project

Potential Ecological Impact	Description
Erosion and Sedimentation	Mobilisation of sands from the dunes due to onshore winds during the construction period, when vegetation would be removed, and earthworks would take place. Deposition of sand to west of the Project area could smother some areas of native vegetation in adjacent/nearby wetland and swamp habitats associated with Belmont Lagoon.
Smothering of adjacent native vegetation due to mobilisation of sand from wind erosion	The loss of dune vegetation often triggers dune erosion as beach sand is easily mobilised by high-speed winds, and large amounts of sand can be transported away from the foredune. Deposition of mobilised sands downwind of the foredunes can smother the surrounding vegetation.
Introduction and spread of high threat or priority weeds and pathogens	**Weed Invasion** Disturbance associated with vegetation clearing, earthworks, vehicle traffic and general day to day operations of the Project during construction increases the potential for the spread, introduction and establishment of these high threat weed species. **Pathogens** Construction activities within the Project area also have the potential to introduce or spread pathogens such as Phytophthora (Phytophthora cinnamomi), Myrtle Rust (Uredo rangelii) and Chytrid fungus (Batrachochytrium dendrobatidis) into adjacent native vegetation through vegetation disturbance and increased visitation. Phytophthora and Myrtle Rust may result in the dieback or modification of native vegetation and damage to fauna habitats. Chytrid fungus affects both tadpoles and adult frogs and can significantly affect entire populations once introduced. No evidence of these pathogens was observed during surveys undertaken for the Project.
Potential impacts on aquatic habitats, including key fish habitat	**Direct impacts on aquatic environments** The Project is unlikely to have direct impacts on aquatic habitats or riparian vegetation. There are no aquatic or riparian habitats within the Project area. **Indirect impacts on water quality and adjacent sensitive receivers** The Project has potential to impact on water quality within wetland habitats and swamp vegetation during construction within and adjacent to the Project area. These include: • accidental spillage or leaks of hydrocarbons or chemicals • Sediment-laden runoff to low-lying wetland and swamp areas **Acid Sulfate Soils** Disturbance of acid sulfate soils could also potentially impact aquatic habitats. The disturbance of acid sulfate soils can form sulphuric acid when soils react with oxygen in the air. Sulphuric acid can leach into surrounding environments, causing soils to become very acid and toxic and impacting waterways and soil health resulting in environmental and agricultural degradation. Although no actual acid sulfate soil materials were recorded within the Project area, soils sampled presented potential for acid sulfate soils.
Potential for fauna injury and mortality during construction	The Project area provides very limited habitat for native fauna. However common and mobile species may move through the Project area from time to time and most of the fauna species likely to be observed within the Project area are bird species.

5.2.3. Prescribed Impacts

Given the scale and context of the Project, there is unlikely to be any substantial impacts on threatened species and their habitats beyond those associated with the removal of a very small area of native vegetation and potential indirect impacts on adjacent vegetation. There is no evidence that the vegetation and other habitat resources in the Project area would have any particular value to any threatened biota. The Project is unlikely to result in any other significant direct or indirect impacts to threatened biota including impacts on aquatic habitat in the vicinity of the Project area.

5.2.4. Potential Serious and Irreversible impacts (SAII)

The Project area does not contain or support any habitat for potential SAII entities.

5.2.5. Potential Impacts on Groundwater Dependent Ecosystems

There is potential for drawdown to occur below vegetation mapped as a high potential GDE, corresponding to PCT 1724 Broad-leaved Paperbark - Swamp Oak - Saw Sedge swamp forest on coastal lowlands of the Central Coast and Lower North Coast and is predicted to reduce water table levels by up to 0.5 m. The drawdown would act on the water table up to a distance of approximately 30 m to the west of Ocean Park Road. The drawdown has potential to affect the cover of the understorey vegetation for the period of the drawdown, as sedges and various ground ferns characterising coastal swamp and heath forests are generally influenced by the degree of waterlogging in the soils. However, the predicted drop in water table levels by up to 0.5 m is considered unlikely to significantly impact on the composition or the persistence of such vegetation communities.

5.2.6. Impacts on Matters of National Environmental Significance

There are no Matters of National Environmental Significance (MNES) entities (i.e. threatened ecological communities, threatened species, migratory species) considered likely to occur within the Project area. Direct impacts on MNES caused by the construction and operation of the Project are therefore considered to be unlikely.

6. Environment Mitigation Measures

6.1. Biodiversity Mitigation and Management Measures

In accordance with the CoA, mitigation measures will be implemented with the aim of achieving specific measures and requirements to address contract specifications, CoA and REMMs in relation impacts to biodiversity. These measures are outlined in Table 6-1.

Table 6-1: Biodiversity management and mitigation measures

Ref	Measure / Requirement	Timing / Frequency	Responsibility	Reference / Source
BIO01	Site induction: All workers will be provided with an environmental induction prior to starting work on-site. This will include information on the ecological values of the area surrounding the Project area, key weed threats and measures to be implemented to protect biodiversity, particularly focussing on erosion management, and potential weed and pathogen spread.	Pre-construction, Construction	Environmental Manager (or delegate)	REMM TFB1
BIO02	Limit disturbance of vegetation to the minimum necessary to undertake the works.	Pre-construction	Environmental Manager (or delegate)	REMM TFB3
BIO03	Prior to the commencement of any work adjoining areas of native vegetation, clearly delineate the construction area marking the limits of clearing to avoid unintended clearing of adjacent native vegetation. Fencing and signage must be maintained for the duration of the construction period. Fencing will be designed to allow fauna to exit the site during clearing activities.	Pre-construction, Construction (daily inspections of exclusion zones during works in area)	Environmental Manager (or delegate)	REMM TFB4
BIO04	Install appropriate temporary fencing during the construction phase to exclude native ground fauna from adjacent native habitat entering construction areas (whether they are recorded during pre-construction survey or not). Fencing will remain in place until the completion of all construction activities including revegetation.	After completion of clearing activities/construction works	Environmental Manager (or delegate)	REMM TFB5
BIO05	Stockpiles of fill or vegetation will be placed within existing cleared areas (and not within areas of adjoining native vegetation).	Pre-construction,	Environmental Manager (or delegate)	REMM TFB6
BIO06	Complete weed management in accordance with Section 6.3	Pre-construction, construction	Environmental Manager (or delegate)	REMM TFB11
BIO07	All machinery entering the Project area must be appropriately inspected and washed down and disinfected as required prior to work on site to prevent the potential spread of weeds, Cinnamon Fungus (*Phytophthora cinnamomi*) and Myrtle Rust (*Pucciniales fungi*) in accordance with the national best practice guidelines for Phytophthora (O'Gara et al, 2005) and the Myrtle Rust factsheet (DPI, 2015b) for hygiene control.	Pre-construction, construction	Environmental Manager (or delegate)	REMM TFB12

Ref	Measure / Requirement	Timing / Frequency	Responsibility	Reference / Source
BIO08	Incorporate control measures in the design of the Project to limit the spread of weed propagules off site. Sediment control devices, such as sediment fences, will assist in reducing the potential for spreading weeds.	Pre-construction, construction	Environmental Manager (or delegate)	REMM TFB13
BIO09	All machinery entering the Project area must be appropriately inspected and washed down and disinfected to prevent introduction or spread of Chytrid fungus as per the Office of Environment and Heritage *Hygiene protocol for the control of disease in frogs* (DECC, 2008b). This mitigation measure applies to the clearing and grubbing and earthworks phases of construction only, due to the risk associated with the movement of vehicles and soil / vegetation clearance activities	Pre-construction, construction	Environmental Manager (or delegate)	REMM TFB14
BIO10	Pre-clearance surveys of vegetated areas and the beach areas will be undertaken to check for nests prior to construction commencing.	Pre-construction	Environmental Manager (or delegate)	REMM TFB16
BIO11	The construction contractor is to contact the Project ecologist for advice if any unexpected fauna are found during the construction period (i.e. before, during or following clearing of native vegetation where the Project ecologist is not on site).	Construction	Environmental Manager (or delegate)	REMM TFB17
BIO12	Night lighting will be used within the land based compound during any night works in consideration of best practice lighting design principles as per Figure 4 of the National Light Pollution Guidelines for Wildlife (DCCEEW, 2023	Construction	Environmental Manager (or delegate)	REMMTFB20
BIO13	JH will engage a suitably qualified bush regenerator with demonstrated experience in native revegetation in coastal areas. The bush regenerator must undertake progressive rehabilitation of the disturbance footprint (including laydown and compound areas) to maximise potential for re-establishment of native vegetation and to minimise the potential for long-term weed issues post-construction. Areas where native vegetation or invasive weeds are removed must be revegetated with species identified in the Native Vegetation Management Plan prepared separately by Hunter Water. The CEMP must detail the bush regeneration contractor to be engaged, stabilisation timeframes and species.	Construction	Environmental Manager (or delegate)	REMM TFB22
BIO14	There would be no clearing of vegetation on the northern side of Ocean Creek Road during construction of the Proposed Modification to avoid impacts to PCT 3788. Fencing will be installed in accordance with Section 6.6.3.	Construction	Environmental Manager (or delegate)	REMM TFB23
BIO115	Street trees must not be trimmed or removed unless it forms a part of this development approval or prior written approval from Council is obtained or is required in an emergency to avoid the loss of life or damage to property.	Construction	Environmental Manager (or delegate)	CoA D18
BIO16	All street trees immediately adjacent to the property boundary must be protected at all times during construction in accordance with Council's tree protection requirements. Any street tree, which is damaged or removed during construction due to an emergency, must be replaced, to the satisfaction of Council.	Construction	Environmental Manager (or delegate)	CoA D18

Ref	Measure / Requirement	Timing / Frequency	Responsibility	Reference / Source
BIO17	All trees on the site that are not approved for removal must be suitably protected during construction. If access to the area within any protective barrier is required during the works, it must be carried out under the supervision of a qualified arborist. Alternative tree protection measures must be installed, as required. The removal of tree protection measures, following completion of the works, must be carried out under the supervision of a qualified arborist and must avoid both direct mechanical injury to the structure of the tree and soil compaction within the canopy or the limit of the former protective fencing, whichever is the greater.	Construction	Environmental Manager (or delegate)	CoA D18

6.2. Management of Pathogens

Potential pathogens within the construction footprint will be managed in accordance with the Pathogen Control Procedure (PCP) outlined in Appendix A of this Plan. The PCP provides details regarding the management of potential pathogens and associated control practices to be implemented throughout the construction phase, to minimise the threat to native fauna, remnant vegetation within the Project site and throughout the local area.

The PCP applies to the earthworks phase of construction only, due to the risk associated with movement of vehicles and soil / vegetation clearance activities.

6.3. Weed Management

6.3.1. Weeds of National Significance and Priority Weeds

Numerous weeds were recorded throughout the Project site and include environmental weeds and weeds with formal control measures.

During field surveys, 14 species are listed under the NSW *Biosecurity Act 2015* as priority weeds for the Hunter region (DPI 2023) of which five (5) are also listed as Weeds of National Significance (WoNS) (Australian Weeds Committee, 2018). The weeds listed as WoNS are outlined below in Table 6-2.

There are several other weeds present within the Project site. Active management of these species is not required under the *Biosecurity Act 2015* however, their extent of occurrence and incidences of new infestations will be recorded as part of regular environmental inspections.

6.3.2. Weed Management Process for the Project

Priority weeds and WoNS will be treated to satisfy the requirements of the general biosecurity duty whereby the potential spread of exotic species present within the Project site will be prevented, and the presence of weeds in the construction footprint and adjoining areas will be reduced. Weed occurrence and extent will be mapped during pre-clearance surveys and regular inspections, with infestations to be treated on an ongoing basis.

Weed management actions to be undertaken include:

- Pre-clearing surveys undertaken by the Project Ecologist will identify weeds requiring specific management prior to and during vegetation clearing. The location and extent of any priority and/or high threat environmental weeds within the site will be identified by a suitably qualified ecologist during pre-clearance surveys
- Weeds of national significance and priority weeds will be identified and mapped within a pre-clearing report, which will also outline appropriate control methods for specific areas and weed species.
    - All priority weeds identified on the Project area will be controlled and removed in accordance with the requirements of the *Biosecurity Act 2015* and Council's relevant Weed Control Manuals:
    - Appropriate pesticides will be applied if required and a record of such application made in the pesticide application register.
- Control methods include hand removal, herbicide application, and mechanical removal. Weeds requiring hand or mechanical removal, including contaminated topsoil, will require disposal at an approved green waste management facility.
- All noxious and environmental weeds will be cleared and stockpiled separately to all other vegetation, removed from site and disposed of at an appropriately licenced disposal facility.
- When transporting weed waste from the site to the waste facility, trucks must be covered to avoid the spread of weed-contaminated material.
- Disposal must be documented, and evidence of appropriate disposal must be kept.
- Avoid applying pesticides:
    - Within 24 hours of rain or when rain is imminent

  - When winds will cause drift of pesticides into non-target areas.

- Any machinery arriving to site will be inspected to ensure they are free of soil or vegetative matter. Machinery involved in weed management activities will be inspected and if necessary, cleaned to remove any plant material or soil, prior to the commencement of construction.
- The Project site will be regularly monitored for weed invasion during weekly site inspections, and any other inspections or audits undertaken as part of CEMP requirements. The presence of weed infestations will be reported as part of the inspection process and include actions to be undertaken to manage these infestations.
- No specific treatment is proposed for other weed species that do not pose a threat to areas of remnant native vegetation.

Table 6-2: Weeds of national significance and priority weeds for the Hunter region recorded onsite

Scientific Name	Common Name	Duty under Biosecurity Act 2015	Weed Status	Photo
Asparagus aethiopicus	Asparagus fern	Must not be imported into the state, sold, bartered, exchanged or offered for sale. Land managers should mitigate the risk of the plant being introduced to their land. Land managers should mitigate spread of the plant from their land. A person should not buy, sell, move, carry or release the plant into the environment. Land managers should reduce the impact of the plant on assets of high economic, environmental and/or social value.	WoNS, Priority weed - Asset protection (State)	
Chrysanthemoides monilifera subsp. rotundata	Bitou Bush	May not be imported into New South Wales, sold, bought or otherwise distributed. The plant must be eradicated from the land and the land must be kept free of the plant. The plant must be fully and continuously suppressed and destroyed. The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority.	WoNS, Priority weed – Containment (State)	
Senecio madagascariensis	Fireweed	Must not be imported into the state, sold, bartered, exchanged or offered for sale.	WoNS, Priority weed - Asset protection (State)	

Scientific Name	Common Name	Duty under Biosecurity Act 2015	Weed Status	Photo
Opuntia stricta	Prickly Pear	Must not be imported into the state, sold, bartered, exchanged or offered for sale. Land managers should mitigate the risk of the plant being introduced to their land. Land managers should mitigate spread of the plant from their land. A person should not buy, sell, move, carry or release the plant into the environment. Land managers should reduce the impact of the plant on assets of high economic, environmental and/or social value.	WoNS, Priority Weed - Additional species of concern (Regional)	
Hyparrhenia hirta	Coolatai Grass	Land managers should mitigate the risk of the plant being introduced to their land. Land managers should mitigate spread of the plant from their land. A person should not buy, sell, move, carry or release the plant into the environment. Land managers should reduce the impact of the plant on assets of high economic, environmental and/or social value.	Priority weed - Asset protection (State)	

Scientific Name	Common Name	Duty under Biosecurity Act 2015	Weed Status	Photo
Lantana camara	Lantana	Must not be imported into the state, sold, bartered, exchanged, or offered for sale. Land managers should mitigate the risk of the plant being introduced to their land. Land managers should mitigate spread of the plant from their land. A person should not buy, sell, move, carry or release the plant into the environment. Land managers should reduce the impact of the plant on assets of high economic, environmental and/or social value.	WoNS, Priority weed - Asset protection (State)	

6.4. Biodiversity Offset and Ecosystem Credits

Impacts associated with the Project that will require offsetting include the removal or disturbance of native vegetation and associated habitat for threatened biota.

In accordance with CoA C25 and C26, the biodiversity offset, and ecosystem credit obligations are to be fulfilled by HWC prior to the commencement of vegetation clearing.

6.5. Environment Control Maps

Environment Control Maps will be prepared for each construction site and provide detailed content on the type and location of protection measures, monitoring requirements, site specific environmental obligations and environmentally sensitive areas. It is the practical application of the proposed control measures and an important tool to communicate these to all personnel including subcontractors. Further information regarding Environmental Control Map(s), is included in the CEMP main document.

6.6. Native Vegetation Management Plan – West of Ocean Park Road

The below sections discuss vegetation management actions specific to the land west of Ocean Park Road as shown in Figure 6-1. Figure 6-1 provides the extent to which this Native Vegetation Plan applies (as shown in orange).

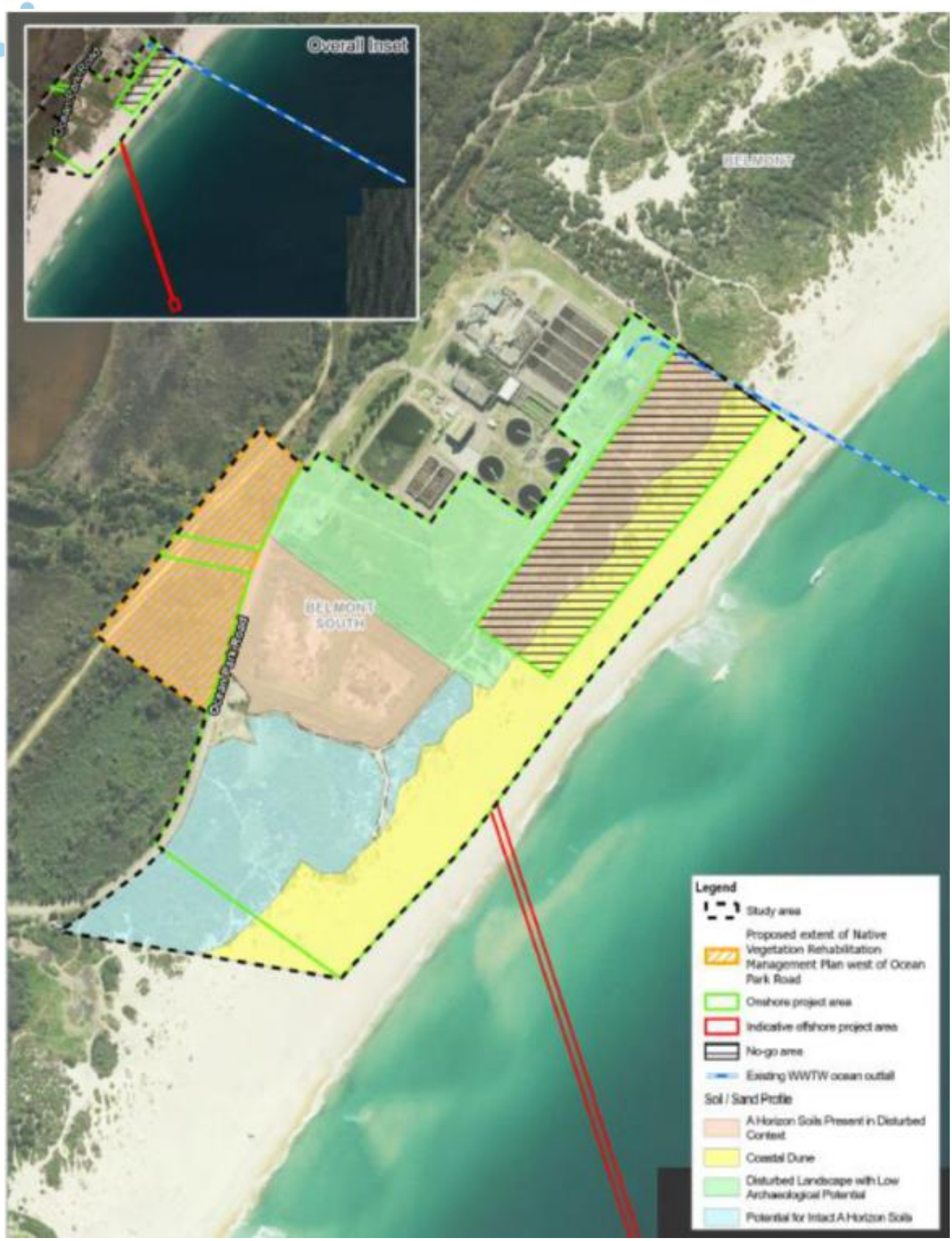

Figure 6-1 - Native Vegetation Plan Area

6.6.1. Weed Management

As discussed in Section 5.2.5, the drawdown has potential to affect the cover of the understorey vegetation for the period of the drawdown, as sedges and various ground ferns characterising coastal swamp and heath forests are generally influenced by the degree of waterlogging in the soils, which may result in weed growth.

As a result of the above potential impacts, JH will:

- Undertake a weed survey prior to commencement of construction in the land to the west of Ocean Park Road to establish baseline conditions of weeds in this area. Potential groundwater drawdown is predicted to potentially impact on the water table up to approximately 30 m to the west of Ocean Park Road.
- Undertake ongoing weed monitoring in the area shown in Figure 6-1. monitoring will be undertaken on a 6 monthly basis during construction to monitor for weed proliferation as a result of drawdown. This will be undertaken in conjunction with groundwater drawdown monitoring.
- If weed monitoring detects an increase in weeds, and this monitoring is found to coincide with a lowering of groundwater table, then weed management will be undertaken by HW.
- Areas where invasive weeds are removed will be revegetated with species identified in the Landscape Management Plan and be reflective of species likely to occur within the Plant Community Type in the area west of Ocean Park Road.

6.6.2. Groundwater Drawdown Monitoring

Based on the assessment documentation, the likelihood of significant drawdown over longer timescales is considered unlikely and any short-term impacts are predicted to be up to 0.5 m depth. Groundwater level monitoring will be undertaken via a continuous logger installed in bores GW105 or GW108 to monitor for potential drawdown impact.

Following the completion of dewatering activities, if groundwater level in GW105 or GW108 persists for longer than one month at 1 m or more below the historical range of groundwater level for these bores, JH will investigate the potential for possible groundwater drawdown impact. This will involve discussions with HWC, the ER and specialist advice (as necessary) to determine the root cause of the decreased level within the groundwater table, assessing other potential factors such as climatic conditions or water being drawn by other sources. The need for additional monitoring will be investigated, and, if necessary and having ruled out other potential factors, incident reporting processes will be triggered if drawdown levels continue to be greater than predicted.

The location of these bores, further monitoring details and details of a Trigger Action Response Plan (TARP) are provided in the CGMP.

6.6.3. Fencing and Access Management

In accordance with CoA Condition C2, JH are required to construct a wind break fence or similar on the western side of the proposed development disturbance area adjacent to Ocean Park Road to prevent sand blowing across the road into adjacent wetlands prior to the commencement of construction. In addition, JH are required to construct a fence on the western side of Ocean Park Road to prevent access to the wetland area, as required by Condition C14d.

In order to meet the intent of these conditions, JH will construct a fence on the western side of Ocean Park Road. This fence will be installed via the following specifications, to minimise sand blowing into the wetlands from the dunes / worksite locations, as well as minimise unauthorised access to the area:

- 50% porous shade cloth with top-wire and driven stakes will be installed via a ditchwitch or by hand, at a height of approximately 1 metre
- Signage, and flagging as necessary, will be installed to identify the sensitive protected vegetation to the west of the project, as well as other areas identified in the EIS and by ecological assessment

In addition, as per REMM TFB21, there would be no clearing of vegetation on the northern side of Ocean Creek Road during construction of the Proposed Modification to avoid impacts to PCT 3788. While some trimming may be required for installation of the fence, no vegetation clearing will be undertaken by JH west of Ocean Park Road, as required by REMM TFB21.

No personnel will be allowed to the west of the fence line without specific authorisation to do so, in limited circumstances such as for groundwater monitoring or weed / biodiversity monitoring situations. The fence will be installed early in the phase of works to minimise access to the area by unauthorised personnel.

The fence will be inspected as part of the weekly environmental inspection to confirm their applicability for use and any maintenance requirements.

In accordance with CoA C14c, the monitoring and management of the fence (or similar) is to occur for a period of three years from the establishment of the fence (or similar).

7. Compliance Management

7.1. Roles and Responsibilities

The Project Team's organisational structure and overall roles and responsibilities are outlined in CEMP. Implementation of this plan is the responsibility of the JH Project Environmental Manager (or delegate).

7.2. Training

All project personnel, including contractors working on site will undergo site induction training and pre-start briefings relating to Biodiversity. The induction training and pre-start briefings will address elements including:

- Existence and requirements of this sub-plan
- Applicable and relevant legislative requirements
- EPL conditions (as required)
- Roles and responsibilities for management of Biodiversity
- Weed control measures and actions to be taken should weeds be identified
- Typical construction activities and their associated environmental impacts.
- Procedure to be implemented in the event of an incident or exceedance in monitored exceedance limits.
- Mitigation and management measures relevant to Biodiversity

Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in the management of biodiversity. Daily pre-start meetings conducted by the Superintendent / Site Supervisor will inform the site workforce of any relevant environmental issues that could potentially be impacted by, or impact on, the day's activities. Further details regarding staff induction and training are outlined in the CEMP.

7.3. Monitoring and Inspection

Inspections of mitigation measures, and activities which have the potential for biodiversity impacts will occur for the duration of the Project. Requirements and responsibilities in relation to monitoring and inspections are documented in the CEMP.

Monitoring will include, but not be limited to weekly environmental checklist, and those listed in Section 6.6.

The Project will review the work or activity as soon as practicable and, where possible modify the work or activity to prevent any recurrence. Lessons learnt will be communicated to relevant personnel in toolbox talks.

All environmental monitoring equipment (if required) will be maintained and calibrated according to the manufacturer's specifications, and appropriate records will be kept. Non-conformance reporting protocols detailed in the CEMP.

7.4. Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental controls, compliance with this sub plan, CoA and other relevant approvals, licenses, and guidelines. These audits will be undertaken at planned intervals to provide information on whether the Project:

- Is meeting its compliance obligations.
- Conforms to this sub-plan.
- Determines if this Sub-plan is effectively implemented and maintained.

The approach to internal and independent audits, including audit requirements and the auditing schedule and management of environmental incidents are detailed in the CEMP.

7.5. Reporting

Reporting requirements relevant to the management of biodiversity and associated activities are identified in Table 7-1: Reporting requirements . Requirements and responsibilities for reporting are further described in the CEMP.

Accurate records will be maintained substantiating all construction activities associated with the Project or relevant to the conditions of approval, including measures taken to implement this CBMSP. Records will be made available to DPHI upon request, within the timeframe nominated in the request.

Table 7-1: Reporting requirements

Item	Frequency	Standards	External Reporting	Responsibility
Incident and non-compliance reports	At each occurrence	Reporting of incidents and non-compliances in accordance with CoA, EPL (and associated PIRMP). Written notification processes defined in CoA A28-A30 and Appendix 1.	Appropriate authority dependant on nature of the incident (e.g. EPA, DPHI)	Environment Manager (or delegate) / HWC
Complaint register	Daily (ER, HWC) as received. DPHI as requested	Reporting of complaints, in accordance with the CoA, through the complaints register, to HWC and the ER for any complaints received (on the day they are received). Communication, notification and complaints handling requirements regarding Biodiversity matters will be managed through the Complaints Management System administered by HWC	ER DPHI (as requested by the Secretary)	Environment Manager (or delegate)
Weekly environmental inspection	Weekly	Inspection of the environmental controls and implementation including the measures outlined in Section 6	HWC ER	Environment Manager (or delegate)
Pre clearing report	Pre clearance	Weeds of national significance and priority weeds will be identified and mapped within a pre-clearing report, which will also outline appropriate control methods for specific areas and weed species.	HWC ER	Environment Manager (or delegate)
Post Clearing Report	Following clearing	A post-clearing report will be prepared by the construction contractor and provided to Hunter Water documenting all animals that are handled, or otherwise managed, within the site. Data to be recorded includes: • Date and time of the sighting and details of the observer. • Species • Number of individuals recorded.	HWC ER	Environment Manager (or delegate)

Item	Frequency	Standards	External Reporting	Responsibility
		• Adult/juvenile • Condition of the animal (living/dead/injured/sick). • Management action undertaken (e.g. captured, handled, taken to vet). • Results of any management actions (e.g. released, euthanised, placed with carer).		

7.6. Complaints Management

HWC will maintain a Complaints Register for the Project in accordance with the requirements of CoA B6. JH will provide any relevant complaints to HWC for inclusion.

HWC has established a Project email (desal@hunterwater.com.au), postal address (36 Honeysuckle Drive Newcastle), and free-call number for Project enquiries and complaints (1800 968 051). Phone calls will be monitored during standard construction hours and while the Project is undertaking Out of Hours Works. All contact will be acknowledged, and responses provided in accordance with the timeframes outlined in the approved Communication Strategy.

The telephone number will be available for the duration of the work and from 12 months following completion of construction. All approaches from the community and stakeholders will be registered in the Project's Consultation Manager Stakeholder database managed by the Project community team.

The telephone number, postal and email address will be published on all the Project collateral (including the website), site signage and hoarding, and social media.

Records of all complaints received will include the following details as minimum (refer to CEMP for full requirements):

- Date and time of the complaint.
- Method by which the complaint was made.
- Any personal details of the complainant provided by the complainant or, if no such details were provided, a note to that effect.
- Number of people in the household affected in relation to the complaint.
- The nature of the complaint
- Means by which the complaint as addressed and whether resolution was reach, with or without mediation.
- If no action taken, reasons why.

The Project will circulate an updated copy of the complaints register by 5:00pm the day that the complaint has been received. The complaints register will be provided to HWC, and the ER. Personal details will not be included in the complaints register unless otherwise agreed to or requested by the complainant.

This information will be included in a Complaints Register, in accordance with CoA B6. The information contained within the register will be made available to the Planning Secretary upon request.

An initial response to complaints will be provided in accordance with the Project Communication Strategy defined complaint response times, generally as follows:

- Complaint received by call, text, or personal contact:

  - Within 2 hours during standard construction hours and during out-of-work when construction is occurring.
  - Otherwise, within 24 hours.
- Written complaint:
  - Acknowledged within 8 hrs.
  - Proposed action within 24 hrs (verbal or written where no phone number has been provided).
  - Detailed written response within 10 business days.

All complaints will be closed off in the stakeholder database. At all times the stakeholder will be kept informed of when they will receive a response.

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

Where requested by the Planning Secretary, the ER will assist in the resolution of community complaints.

7.7. CBMSP Version Control

The processes described in the CEMP may result in the need to update or revise this Plan. Only the Environment Manager (or delegate) has the authority to approve changes to the requirements of this Plan. Minor amendments to the Plan may be approved by the ER in accordance with the CEMP and are to be implemented for the duration of construction and for any longer period specified by the Planning Secretary, whichever is the greater. Amendments not considered minor by the ER need to be approved by the Planning Secretary.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure detailed in the CEMP.

APPENDIX A – Pathogen Control Procedure

Belmont Desalination Plant

Pathogen Control Procedure

Document Number: CS1135-WT-BEL-EN-PRO-0011

Revision Number: 0

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Revisions and Distribution

Revisions

Draft issues of this document are identified as Revision A, B, C, etc. Upon initial issue (generally Contract Award) this will be changed to a sequential number commencing at Revision 0. Revision numbers will continue at Revision 1, 2, etc.

Rev	Date	Prepared By [Name]	[Signature]	Reviewed By [Name]	[Signature]	Approved By [Name]	[Signature]	Remarks
A	14.05.2024	S. Grunsell	SG	A. Grant J. Nisbet	AG JN	J Nisbet	JN	HWC and ER Submission
B	12.08.2024	B. Rice	BR	A Grant J Nisbet	AG JN	S MacNish	SM	Update post modification
0	26.09.2024	S. Grunsell	SG	A Grant J Nisbet	AG JN	S MacNish	SM	Update post HWC and ER review

Distribution List

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Project Director	S MacNish
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Tables

Terms and Abbreviations

Term/Abbreviation	Definition/Expanded text
AMS	Activity Method Statements
CS	Communications Strategy
CEMP	Construction Environmental Management Plan
CoA	Conditions of Approval
CEMP	Construction Environmental Management Plan
D&C	Design and Construct
DPHI	Former Department of Planning, Industry and Environment, now Department of Planning, Housing and Infrastructure
EIS	Environmental Impact Statement
EMP	Emergency Management Plan
EMS	Environmental Management System
Environmental Assessment Documentation	Hunter Water Corporation Belmont Desalination Plant Environmental Impact Statement, prepared by GHD dated 2019. Hunter Water Corporation Belmont Desalination Plant Amendment Report and Submissions Report prepared by GHD dated 2020. Hunter Water Corporation Belmont Desalination Plant Modification Report Environmental Impact Statement prepared by Jacobs dated 2024. Hunter Water Corporation Belmont Desalination Plant Modification Report – Submissions Report prepared by Jacobs dated May 2024
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPA	Environment Protection Authority
EPL	Environment Protection Licence
ER	Environmental Representative
HWC	Hunter Water Corporation
JH	John Holland
LMCC	Lake Macquarie City Council
LGA	local government area
REMM	Revised Environmental Management Measures
SEPP	State Environmental Planning Policy
SSI	State Significant Infrastructure
Submissions Report	The Proponent's response to issues raised in the submission received in relation to the application for approval of the SSI under the EP&A Act.
WWTW	Waste Water Treatment Works

Appendix A – Pathogen Control Procedure

Plan Profile

Management System	The Project will use John Holland's Environmental Management System (EMS) and core Project plans to support Project delivery. Additional functional plans have been developed for the Project.
Name	Pathogen Control Procedure (PCP)
Authorisation	All personnel employed on the Project will perform their duties in accordance with the requirements of this Plan and in compliance with Project system procedures and any specific Project instructions. This Plan is authorised by the Project Director.
Review and update	This Plan will be regularly reviewed, developed, and updated: • For changes in design or construction sequence, staging, methodology or resourcing • To consider progress of the Project Company's Work • For changes in access to the Project Site • To consider changes directed by the Environmental Representative and HWC under the D&C Deed.

1. Introduction

1.1. Context

This Pathogen Control Procedure (PCP) is an appendix to the Construction Biodiversity Management Sub-Plan (CBMSP) and forms part of the Construction Environmental Management Plan (CEMP) for the Belmont Desalination Plant Project (the Project).

The PCP has been prepared to address the requirements of the Conditions of Approval (CoA) and the measures listed in the Environmental Assessment Documentation.

1.2. Purpose

Construction activities within the Project area also have the potential to introduce or spread pathogens such as Phytophthora (Phytophthora cinnamomi), Myrtle Rust (Uredo rangelii) and Chytrid fungus (Batrachochytrium dendrobatidis) into adjacent native vegetation through vegetation disturbance and increased visitation.

Phytophthora and Myrtle Rust may result in the dieback or modification of native vegetation and damage to fauna habitats. Chytrid fungus affects both tadpoles and adult frogs and can significantly affect entire populations once introduced. No evidence of these pathogens was observed during surveys undertaken for the Project.

This PCP details the pathogen management and control practices to be implemented throughout the construction phase of the Project, to minimise the threat to native fauna, remnant vegetation within the Project site and other remnant vegetation in the local area.

1.3. Scope

The Project footprint is mainly comprised of native vegetation communities in varying condition states, although there are areas which are highly modified and dominated by exotic vegetation. Vegetation, including weeds and exotics, will be cleared to facilitate construction of the Project. This procedure, in conjunction with the management measures listed in the CBMSP, focusses on pathogen management throughout the construction phase.

Pathogen management within the Project site will be developed in consultation with the Project Ecologist to ensure the most appropriate methods are developed.

Pathogen management will only be undertaken while active clearing and grubbing and active earthworks are being undertaken, due to the increased risk of introduction / spread of pathogen contamination during this phase of the development.

2. Induction and training

All Project personnel are to be inducted on the existence of this Procedure during the Project Induction and in more detail as required in Site Inductions and regular Toolbox Talks. Records of all training, including inductions, will be maintained. Records will include the name and role of the attendee as well as the name of the course.

3. General Procedure

Pre-clearing surveys will assess the Project site to determine the likely presence of pathogens. To assist management of potential pathogen spread (Table 3-1), the Project Ecologist will assign a risk level to areas within the construction footprint based on the following criteria:

- High Risk – Myrtle rust identified on host plants OR, extensive evidence of tree dieback potentially attributed to Phytophthora
- Medium Risk – Small instances of tree dieback (more than three trees in close proximity) potentially affected by Phytophthora OR, small drainage lines within potential impact area containing suitable frog habitat (i.e. potential risk of exposure to Chytrid virus)
- Low Risk – No tree dieback evident, AND no evidence of myrtle rust on host plants AND low potential for surface water to persist and maintain frog habitat.

Table 3-1: Pathogen management measures

Activity	Pathogen Management	Responsibility
Construction scheduling and works programs	Plan works to commence in low risk areas and move to medium risk areas and last in high risk areas.	Project Environment Manager
Vehicles and machinery hygiene	Vehicles and machinery should arrive onsite free of sources of potential contaminants including vegetative material and mud. Appropriate wash down facilities should be provided. Dust suppression operations to consider the sourcing of suitable water resources where introduction of Chytrid virus is possible. As per REMM TFB14, all machinery entering the Project area must be appropriately inspected and washed down and disinfected to prevent introduction or spread of Chytrid fungus as per the Office of Environment and Heritage *Hygiene protocol for the control of disease in frogs* (DECC, 2008b).	Project Environment Manager
Access restrictions	Access to medium and high risk zones where pathogens listed above are identified should be restricted with the specific control measures implemented for the disposal of material or hygiene in these zones. Medium and high risk pathogen zones, are to be marked on relevant plans, with wash down facilities provided to prevent potential pathogens spreading beyond the area.	Project Environment Manager
Transport of new material	Use a certified supply of plants that is disease-free. Soil and fill is to be sourced from suppliers that can provide certification that the material is free of disease.	Project Environment Manager
Identification and Testing	Instances of myrtle rust on host plants identified during construction are to be verified by an ecologist or the environment manager. If medium or high risk areas are identified in the pathogen risk zones AND cannot be avoided during construction, testing of soils or plant material is to be undertaken to confirm the presence or absence of Phytophthora.	Environmental Representative/ Ecologist
Disposal of material	In medium to high risk areas, plant material should be stockpiled separately and in the contaminated area before being burned onsite.	Project Environment Manager

4. Monitoring and Inspection

Monitoring of the pathogen management measures are to be evaluated against performance indicators, required to ensure the measures outlined in this plan are implemented and that performance criteria are satisfied as far as possible.

An adaptive management approach is to be employed in respect of the works forming part of this PCP. An adaptive management approach involves an integrated process of monitoring, reviewing and then responding to the health and condition of the measures to identify any alterations to the design and maintenance of works that may be required to ensure the objectives of the PCP are achieved.

4.1. Ongoing Monitoring

During the construction phase, monthly Environment Team inspections will include the review of weed and potential pathogen species in the Project area. If a new declared species is identified, the extent of the infestation will be determined immediately, and appropriate controls put in place as soon as practicable. The potential sources will be investigated and if possible, mitigation measures to avoid further infestations will be put in place. If required, quarantine measures will be put in place to stop the spread of the infestation.

4.2. Performance Indicators

Indicators of success of the PCP include:

- No new pathogen infestations within the Project site and in adjacent bushland as a result of the Project
- No pathogen infestation during rehabilitation of sites

APPENDIX B – Unexpected Threatened Species Finds Protocol

Belmont Desalination Plant

Unexpected Threatened Species Finds Protocol

Document Number: CS1135-WT-BEL-EN-PRO-0003

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Revisions and Distribution

Revisions

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CEMP	Construction Environmental Management Plan
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CEMP	Construction Environmental Management Plan
DPHI	Former Department of Planning, Industry and Environment, now Department of Planning, Housing and Infrastructure
EIS	Environmental Impact Statement
EMS	Environmental Management System
Environmental Assessment Documentation	Hunter Water Corporation Belmont Desalination Plant Environmental Impact Statement, prepared by GHD dated 2019. Hunter Water Corporation Belmont Desalination Plant Amendment Report and Submissions Report prepared by GHD dated 2020. Hunter Water Corporation Belmont Desalination Plant Modification Report Environmental Impact Statement prepared by Jacobs dated 2024. Hunter Water Corporation Belmont Desalination Plant Modification Report – Submissions Report prepared by Jacobs dated 2024
EP&A Act	Environmental Planning and Assessment Act 1979
EPA	Environment Protection Authority
EPL	Environment Protection Licence
ER	Environmental Representative
HWC	Hunter Water Corporation
JH	John Holland
LMCC	Lake Macquarie City Council
LGA	local government area
POEO Act	Protection of the Environment Operations Act 1997
REMM	Revised Environmental Management Measures
SEPP	State Environmental Planning Policy
SSI	State Significant Infrastructure
TEC	Threatened Ecological Community
WWTW	Waste Water Treatment Works
WRA	Work Risk Assessment

Appendix B – Unexpected Threatened Species Finds Protocol

Plan Profile

Management System	The Project will use John Holland's Environmental Management System (EMS) and core Project plans to support Project delivery. Additional functional plans have been developed for the Project.
Name	Unexpected Threatened Species Finds Protocol (UFP)
Authorisation	All personnel employed on the Project will perform their duties in accordance with the requirements of this Plan and in compliance with Project system procedures and any specific Project instructions. This Plan is authorised by the Project Director.
Review and update	This Plan will be regularly reviewed, developed, and updated: • For changes in design or construction sequence, staging, methodology or resourcing • To consider progress of the Project Company's Work • For changes in access to the Project Site • To consider changes directed by the Environmental Representative and HWC.

1. Introduction

1.1. Context

This procedure details the actions to be taken if any threatened species or threatened ecological communities (TEC), are unexpectedly encountered during the construction of the Belmont Desalination Plant (The Project). This procedure forms an appendix to the Construction Biodiversity Management Sub-Plan (CBMSP).

1.2. Purpose

This procedure details the management measures to be implemented throughout the construction phase of the Project, in the case of unexpected threatened species finds.

1.3. Scope

This procedure is applicable to all Work conducted by site personnel that have the potential to come into contact with threatened flora and fauna species and TECs, not previously identified as occurring within the project boundary as per the environmental assessment documentation.

2. Induction and Training

All site personnel (including sub-contractors) will be inducted on the potential threatened species and TEC occurring, or likely to occur, within the Project area and the requirements of this Procedure. Training will include inductions, toolbox talks, pre-starts and targeted training as required.

2.1. Roles and responsibilities

The Project Environmental Manager (or delegate) will be notified in the event of a potential unexpected threatened species or TEC find on site during the works. The Project Environmental Manager will then notify the HWC Environment Team of the potential unexpected find. The Project Environmental Manager will organise for the Project Ecologist to assess the find.

The Project Ecologist will advise on the nature of any find, including whether it should be considered “unexpected” in terms of the Planning Approval, whether the species is listed as a threatened species or forms part of a TEC, the “no-go” zone for any nearby works, any controls that should be put in place to manage the find and the likely impact to the threatened species or TEC from the proposed work. The Project Ecologist will develop any required management plan (or equivalent) for the management of any unexpected find. The Project Ecologist will report to the Project Environmental Manager.

It is noted that the Project Ecologist may call on technical specialists (i.e. specialists with certain types of species for instance) to assist in any identification and management of a threatened species/TEC. HWC will liaise between relevant government agencies in the event that an impact to a threatened species or TEC has occurred or is likely to occur. All site personnel are responsible for reporting any unexpected threatened species or TEC finds for the duration of the Project.

2.2. Review

This Procedure will be reviewed annually or earlier as needed in response to an unexpected find, audit finding, incident or near miss.

3. General Procedure

In the event an unexpected threatened species is encountered during site works, the following procedure must be followed.

Step 1. Stop work, protect threatened species or TEC and inform HWC

If an unexpected threatened species or TEC is encountered during excavation/construction activities:

- Immediately after encounter, stop all work in the immediate area of the find and notify the Project Environmental Manager, Project Manager and Site Supervisor. The Project Environmental Manager (or delegate) will notify HWC.
- The Project Manager or Site Supervisor will be responsible for establishing a 'no-go zone' around the find as soon as practical. The no-go zone will be established using high visibility fencing and signage where practicable. The location of the 'no-go zone', and any other necessary controls, will be confirmed with the Project Ecologist.
- The Project Environment Manager will report the unexpected find to HWC as a 'report-only'.

Step 2. Engage ecologist to undertake assessment and provide recommendations for management, notify Government agencies

- The Project Ecologist (or technical specialist) will survey the find and confirm whether the find constitutes an unexpected threatened species or TEC.
- If it is determined that the find is not unexpected, works in the vicinity of the species/community must only recommence once the identified measures from the approval, permit or appropriate safeguard are in place. After having done so no further action will be required. If an unexpected find is confirmed, continue with this process.
- The Project Ecologist will assess if there have been any impacts on the find from the Project Works to date and provide recommendations to be implemented until approvals can be sought.
- If the threatened species or TEC has been impacted an environmental incident report will be raised in accordance with the CEMP.
- The Planning Secretary and other relevant government agencies will be notified informally by telephone or email by HWC as soon as the ecologist confirms the find is unexpected.
- Other relevant agencies for notification may include BCD and DPI Fisheries.
- The Project Ecologist will assess the potential impacts on the find from Project Works and develop a draft management plan.
- The management plan will implement the following principles in order of the below hierarchy;
  - 1. Avoid impacts to the threatened species or TEC – this may include design changes, work practice changes or timing of works
  - 2. Minimise impacts – in circumstances where minor impacts cannot be avoided, the Project Ecologist/Contractor must still make efforts to reduce any impacts as far as reasonably possible. This includes design changes, changes to work practices, timing of works or relocating a find (where appropriate and possible). Offsetting may still be required for minimised impacts
  - 3. Offset – in circumstances where impacts cannot be avoided the impacts to the find are to be offset as appropriate to the type of find and will be in accordance with HWC requirements as the proponent.
- The management plan will be prepared with consideration to the relevant CEMP subplans, revised environmental mitigation measures, Minister's Conditions of Approval, and assessment documentation.
- The ecologist will submit this plan to the Project Manager and Project Environment Manager outlining all relevant issues and constraints.
- The Project Environmental Manager and Project Manager will review the management plan. The Plan will be submitted to HWC for review and approval.

Step 3. Can impacts be avoided?

- If the impacts to threatened species or TEC can be avoided, then work may resume.
- If the impacts cannot be avoided, move to step 4.

Step 4. Consult with the relevant agencies. Submit management plan for approval

- If required, a formal notification letter will be prepared by the Contractor and Project Ecologist.
- The draft notification letter will then be sent to HWC for review.
- The signed notification letter and management plan will be submitted to relevant government agencies by HWC.
- HWC will notify and consult with relevant government agencies on the proposed management of the unexpected find if required. This could include the opportunity for a site inspection.
- Any comments received by relevant government agencies will be considered and where required, the management plan will be modified. HWC will submit for the plan approval.

Step 5. Review CEMP and approval conditions

- The CEMP will be updated as appropriate with any changes resulting from the find and final Threatened Species/TEC management plan. The updated CEMP will incorporate additional conditions arising from any further approvals, such as Planning Approval Modifications, and consultation if relevant. If an update to the CEMP is required, approval will be sought from the ER or DPHI, in consultation with relevant government agencies, as appropriate.
- The Threatened Species/TEC management plan and updated CEMP will be implemented. This includes adding any changes to the CEMP in site induction material. Site workers will be updated during toolbox talks.

Step 6. Resume work

- Work in the associated location is not to recommence until approval to recommence work in the associated location has been issued by the Planning Secretary in consultation with HWC.
- The Contractor Project Manager will seek written clearance to resume project work from HWC Project Manager in consultation with the ecologist and relevant government agencies.
- Work will resume with any Threatened Species/TEC Management Plan and updated CEMP and sub-plans implemented if appropriate.

4. Records

Accurate records will be maintained substantiating all work activities associated with the Project or relevant to the conditions of approval, including measures taken to implement this procedure.