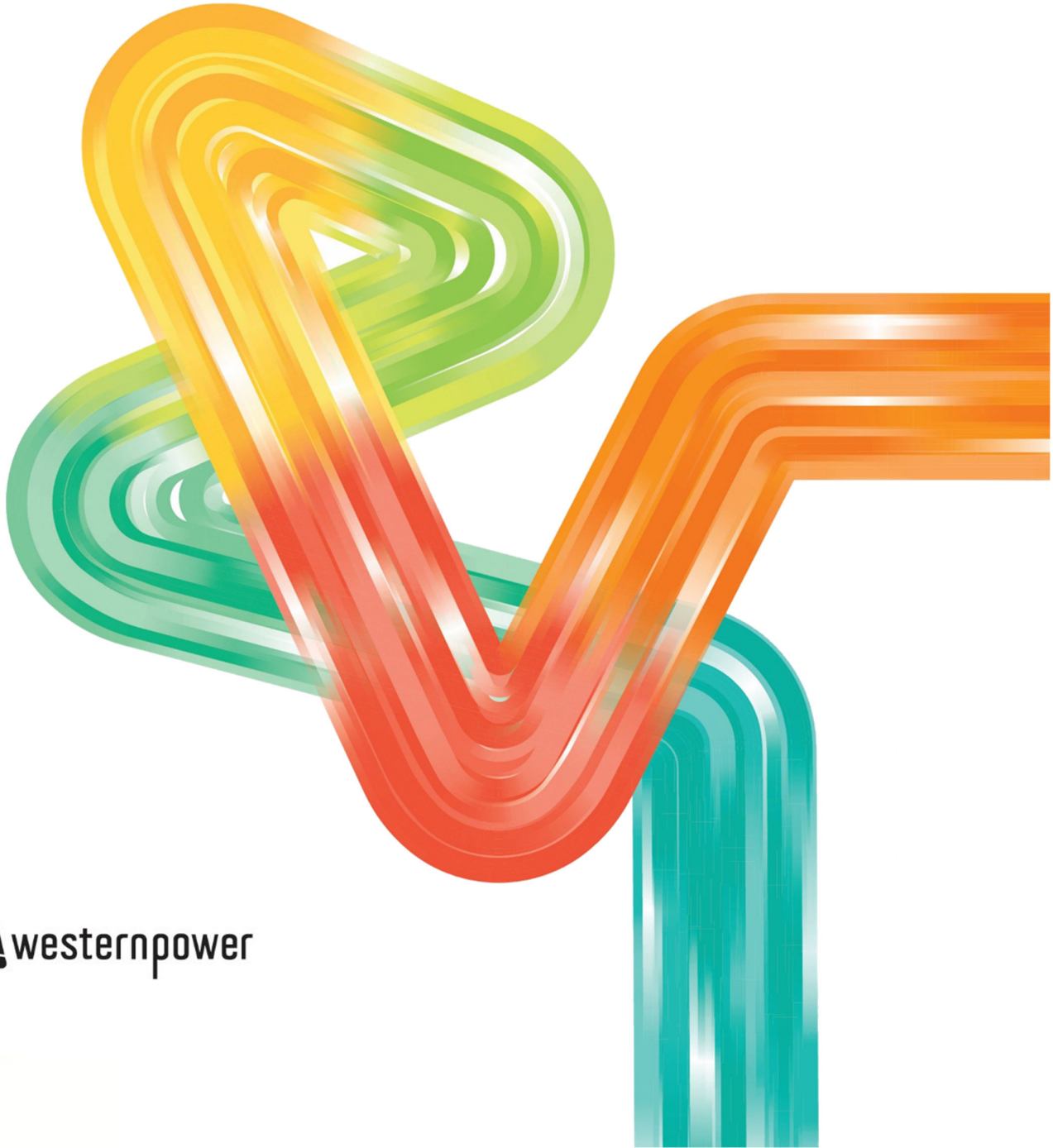
Inland Waters Environmental Management Plan

Northern Terminal - Neerabup Terminal 330kV Transmission Line

Protected

21 November 2025



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0	01/07/2025	GHD Pty Ltd Draft S3
1.0	21/08/2025	Western Power v1
1.1	20/11/2025	Updates following DWER review

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Abbreviations and Acronyms

Abbreviation/ Acronym	Definition
AECOM	AECOM Australia Pty Ltd
ASSMP	Acid Sulfate Soil Management Plan
CCW	Conservation Category Wetlands
CEMP	Construction Environmental Management Plan
COE	Clean on entry
CSEP	Community and Stakeholder Engagement Plan
DBCA	Department of Biodiversity, Conservation and Attractions (WA)
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Cth)
DE	Development Envelope
DEC	Department of Environment and Conservation (former WA)
DEE	Department of the Environment and Energy (former Cth)
DER	Department of Environmental Regulation (former WA)
DEWHA	Department of the Environment, Water, Heritage and the Arts (former Cth)
DFES	Department of Fire and Emergency Services (WA)
DPIRD	Department of Primary Industries and Regional Development (WA)
DPLH	Department of Planning Lands and Heritage (WA)
DWER	Department of Water and Environmental Regulation (WA)
EA	Environmental Advisor
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EPA	Environmental Protection Authority
EP Act	*Environmental Protection Act 1986* (State)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
FCT	Floristic community type
FVEMP	Flora and Vegetation Environmental Management Plan
GHD	GHD Pty Ltd
HMP	Hygiene Management Plan
IBRA	Interim Biogeographic Regionalisation for Australia
IWEMP	Inland Waters Environmental Management Plan
km	Kilometre
kV	Kilovolt
m	Metre
mAHD	Metres Australian Height Datum
mbgl	Metres Below Ground Level
MNES	Matters of National Environmental Significance
NBT	Neerabup Terminal
NT	Northern Terminal

Abbreviation/ Acronym	Definition
Part IV	Part IV under the *Environmental Protection Act 1986* (State)
PEC	Priority Ecological Communities
PFO	Project Field Officer
PDWSA	Public drinking water source areas PDWSA
RFI	Request for further information
SOP	Standard operating procedure
TBC	To be confirmed
TEC	Threatened Ecological Communities
The Proposal	Northern Terminal to Neerabup Terminal 330 kV Transmission Line
WA	Western Australia
WONS	Weeds of National Significance
WP	Western Power employees
WQPN	Water Quality Protection Note

1. Executive summary

This Inland Waters Environmental Management Plan (IWEMP) is submitted by Electricity Networks Corporation (Western Power), to support environmental referrals under the *Environmental Protection Act 1986* (EP Act) and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for the Northern Terminal to Neerabup Terminal 330 kV Transmission Line (the Proposal), located 13 km north of Perth in Western Australia (WA). This plan has been prepared in accordance with the WA Environmental Protection Authority (EPA) *Instructions: How to prepare Environmental Protection Act 1986 Part IV environmental management plans* (EPA, 2024) and Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) *Environmental Management Plan Guidelines* (DCCEEW, 2024).

Table 1 Inland Waters Environmental Management Plan summary

Proposal name	Clean Energy Link North Northern Terminal to Neerabup Terminal 330 kV transmission line
Proponent name	Electricity Networks Corporation (Western Power)
Ministerial Statement number	TBC – Proposal is under assessment
Purpose of the EMP	The purpose of this IWEMP is to outline Western Power's management approach to protect the environmental values of Inland Waters, potentially directly and indirectly, impacted by the Proposal. These measures aim to manage and mitigate potential impacts on inland water values
Key environmental factor/s, outcome/s and/or objectives	EPA Objective: To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected. Outcomes: Implementation of the plan aims to deliver the following outcomes: • No Proposal attributable impacts to groundwater or surface water quality at medium and high-risk tower locations (Appendix A) at the conclusion of construction works • No clearing of more than 4.62 ha of Conservation Category, 13.50 ha of Multiple Use and 6.95 ha of Resource Enhancement Geomorphic Wetlands within the Development Envelope (DE) • No clearing of greater than 9.73 ha of native vegetation that is growing in or associated with a water course or wetland • Revegetation of temporary clearing areas. Objectives: Implementation of the IWEMP aims to achieve the following objective-based provisions: • Minimise changes to groundwater quality at tower locations where dewatering occurs when compared to preconstruction baseline conditions. • Minimise indirect impacts of disturbance and dewatering of acid sulphate soils (ASS) at tower locations where dewatering may occur during construction of the Proposal • Minimise indirect impacts from sediment deposition that may occur due to construction and the operational maintenance activities
Condition clauses (if applicable)	TBC – Proposal is under assessment
Proposed construction date	TBC – Proposal is under assessment
EMP required pre-construction?	Yes ☑ No ☐

2. Context, scope and rationale

2.1 Proposal

Western Power proposes to construct a new double circuit 330 kV transmission line between the Northern Terminal in Malaga and the Neerabup Terminal in Pinjar (the Proposal), a distance of approximately 29 km (Figure 1). The Proposal is referred to as the "NT-NBT 330 kV Line" and is located approximately 13 km north of Perth in the City of Swan and City of Wanneroo. The purpose of the Proposal is to reinforce the North Region transmission network to remove constraints on existing connected energy generation, provide additional capacity to connect large-scale renewable energy generation and meet future demand. The proposed transmission line will be located parallel to the existing 330 kV transmission line between the Northern and Neerabup terminals.

The Proposal is currently being assessed under the WA *Environmental Protection Act 1986* (EP Act) by the WA EPA (2410) and under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) by the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) (2024/09799). On the 21/02/2024, the State and Commonwealth identified that the assessment would be assessed as an Accredited Assessment between WA and the Commonwealth. Approval has not yet been received.

In July 2025, Western Power submitted a request to amend a Proposal under s43A of the EP Act and s156 of the EPBC Act. The amendment included changes to the Proposal Development Envelope and Disturbance Footprint.

The Proposal Development Envelope (PDE) consists of the boundaries of all involved land parcels where consent has been granted for development of the Proposal and wherein all infrastructure will be contained. The PDE is 217.24 ha, and includes the following three overarching construction elements:

- The Transmission Corridor (174.13 ha)
- The Northern Terminal (19.56 ha)
- The Neerabup Terminal (11.71 ha).

The Proposal's Disturbance Footprint (Impact Area) is 205.39 ha within the PDE and includes:

- 124.63 ha of native vegetation to be cleared
- 60.76 ha of non-native vegetation to be cleared
- 20 ha of already cleared/previously disturbed areas.

The Proposal involves the following components:

- Construction of steel lattice towers, steel poles or hybrid of both options.
- Installation of 330 kV overhead conductors, grounding wires and communications wires.
- Construction of a permanent maintenance access track.
- Establishment of a 60 m-wide vegetation clearance zone (i.e., 30 m either side of the line route). Maximum vegetation height in this zone will be 3 m.
- Connection to existing transmission lines and to Northern and Neerabup terminals.

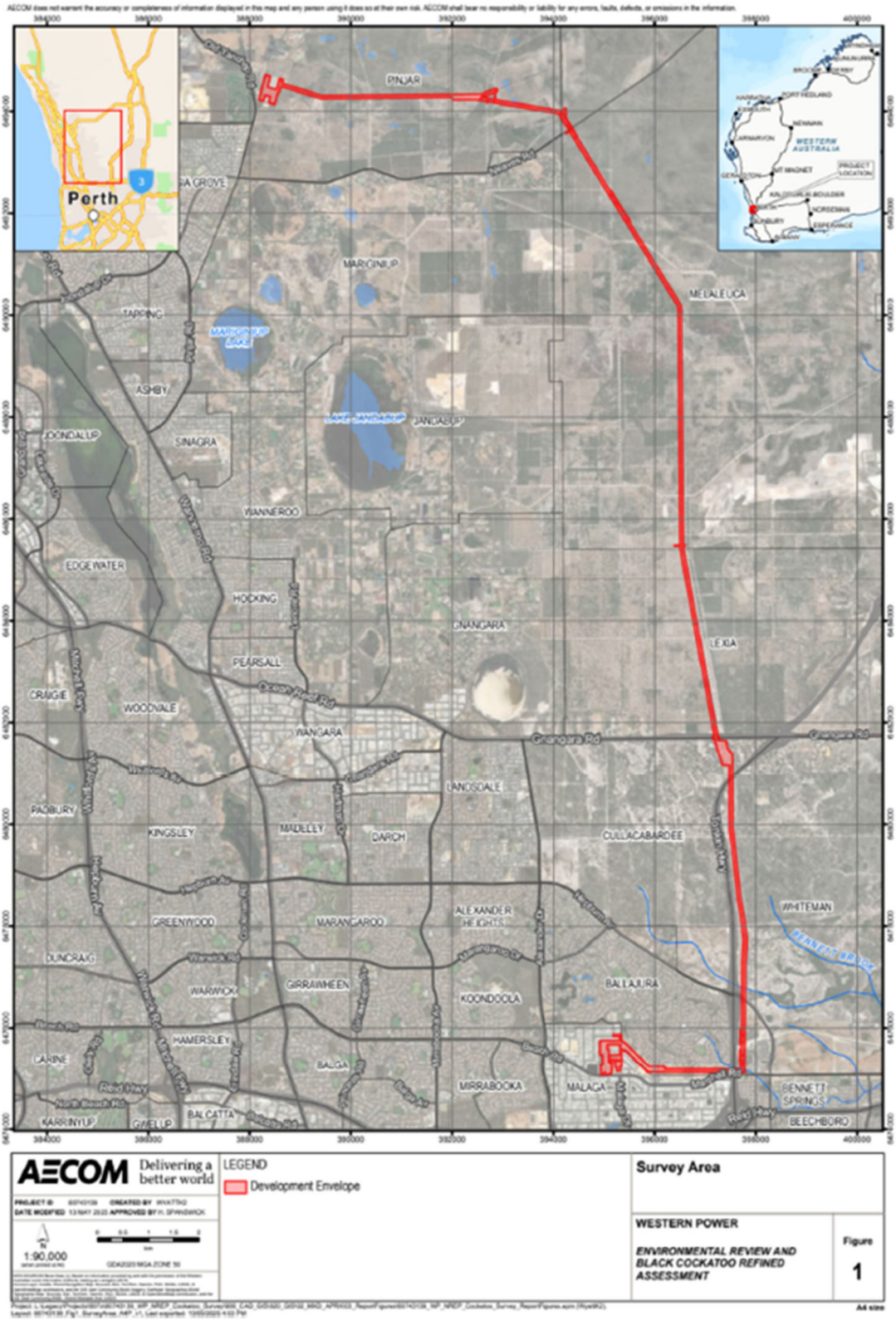

Figure 1 Project Location

Where ongoing access and maintenance is not required, clearing will be temporary and regrowth will be allowed. Where regrowth is allowed, the height will be limited to a maximum of 3 m. Furthermore, any existing vegetation located in the new 60 m wide maintenance corridor with the potential to reach a height greater than 3 m will also be permanently cleared to establish a safe clearance zone to the powerlines. Western Power is dedicated to rehabilitating areas of temporary clearing. For safety reasons, plant species that grow taller than 3 m will not be planted.

The Proposal will be operated and maintained by Western Power. The operations and maintenance will be carried managed though Western Power's Health, Safety and Environment Management System as described in Section 3.

This Inland Waters Environmental Management Plan (IWEMP) has been developed as an overarching management plan for construction and operation of the Proposal to:

- Define Inland Waters environmental management outcomes for the Proposal
- Described groundwater dependent ecosystems potentially impacted by the Proposal
- Described aquatic fauna potentially impacted by the Proposal
- Detail management actions to achieve the environmental outcomes
- Detail monitoring requirements
- Detail reporting requirements.

This IWEMP has been prepared in accordance with Instructions on how to prepare *Environmental Protection Act 1986 Part IV Environmental Management Plans* (EPA, 2024). It also includes specific measures relating to relevant MNES.

2.2 Key Environmental Factors

The EPA uses environmental principles, factors and associated objectives as the basis for assessing a proposal's impact on the environment. The EPA's Statement of Environmental Principles, Factors, Objectives and Aims of EIA (EPA, 2023) outlines how relevant environmental factors should be considered during the environmental impact assessment (EIA) process.

This IWEMP should be read in conjunction with the Flora and Vegetation Environmental Management Plan and Terrestrial Fauna Environmental Management Plan.

2.2.1 Legislative requirements

Existing State and Commonwealth environmental and heritage legislation relevant to the Proposal is listed in Table 2.

Table 2 Relevant Commonwealth and State legislation

Legislation	Relevance	Specific trigger	Regulatory authority
Commonwealth legislation			
Environment Protection and Biodiversity Conservation Act 1999	Protection of environmental matters of national significance.	Potential impact on protected flora species and ecological communities.	Department of Climate Change, Energy, the Environment and Water (DCCEEW)
State legislation			

Legislation	Relevance	Specific trigger	Regulatory authority
Agriculture and Related Resources Protection Act 1976	Obligations for control, destruction and notification of gazetted noxious plants and animals.	Presence and/ or introduction of Declared plants within the DE.	Department of Primary Industries and Regional Development (DPIRD)
Biosecurity and Agriculture Management Act 2007	Provides biosecurity and agriculture management for the state.	Presence and/ or introduction of Declared plants.	DPIRD
Biodiversity Conservation Act 2016	Provides for the conservation and protection of wildlife (flora and fauna). Special provisions and schedules cover protection and management of gazetted rare flora and fauna.	All areas of native vegetation.	DBCA
Bush Fire Act, 1954	Regulates matters relating to vegetation management in Bush fire prone areas.	Management of Bush fire Risk.	Department of Fire and Emergency Services (DFES)
Contaminated Sites Act 2003 and *Contaminated Sites Regulations 2006*	Regulates matters relating to the identification, assessment, recording, management and clean-up of contaminated sites.	Excavation and disturbance of areas containing contaminated material.	Department of Water and Environmental Regulation (DWER)
Environmental Protection Act 1986	Prevention, control and abatement of pollution and conservation protection and enhancement of environment.	Entire DE.	DWER/ EPA
Environmental Protection (Clearing of Native Vegetation) Regulations 2004	Manages the clearing of native vegetation within the state to ensure it is managed appropriately and is not excessive.	All areas of native vegetation.	DWER
Metropolitan Water Sewerage and Drainage Act 1909	Governs the provision of water, sewerage, and drainage services in the metropolitan area. It allows for the construction and maintenance of necessary infrastructure, as well as the protection of water resources	Potential impact on PDWSA	DWER
Rights in Water and Irrigation Act 1914	Provides for the regulation, management, use and protection of water resources	Water extraction licencing requirements 5C and 26D dewatering exemption.	DWER

2.2.2 Related documents

The IWEMP has been prepared with respect to the following guidance documentation:

- DCCEEW (2024). Environmental management plan guidelines. Department of Climate Change, Energy, the Environment and Water.
- DER. (2015). Treatment and management of soil and water on acid sulfate soil landscapes. Department of Environmental Regulation.
- DoW. (2009). Water Quality Protection Note No 36 – Protecting public drinking water source areas, Department of Water.
- DoW. (2012). Water Quality Protection Note No 13 – Dewatering of Soils at Construction Sites, Department of Water.
- DoW. (2016). Water Quality Protection Note No 4 – Sensitive water resources, Department of Water.
- DWER. (2018). Water Quality Protection Note No 56 – Tanks for fuel and chemical storage near sensitive water resources, Department of Water and Environmental Regulation
- DWER. (2018). A Guide to Preparing Revegetation Plans for Clearing Permits, Department of Water and Environmental Regulation.
- DWER (2022). Gnangara groundwater allocation plan, Department of Water and Environmental Regulation.
- DWER (2021). Water Quality Protection Note 25 Land use compatibility tables for public drinking water source area.
- EPA (2024). How to Prepare *Environmental Protection Act 1986* Part IV Environmental Management Plans. Environmental Protection Authority.

2.3 Condition requirements

Environmental approvals have not been granted, and no approval conditions have been set. This IWEMP will be updated upon receipt of environmental approval, to ensure approval conditions are captured and adequately addressed.

2.4 Rationale and approach

This IWEMP adopts management provisions to achieve environmental objectives for key environmental factors, based on consideration of:

- Legislative requirements
- Environmental management objective/s
- Related documents
- Survey and study findings
- Key assumptions and uncertainties
- Risks to environmental values, including MNES
- Scientific information on the site and region
- Intensity, duration, magnitude and footprint of anticipated impacts
- Timeframe for mitigation.

2.4.1 Environmental management outcomes and objectives

The Key environmental objective relating to Inland Waters as outlined by the EPA is: "*To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected*" (EPA, 2018).

The key outcomes of this IWEMP are based on the findings of the EIA (AECOM, 2024) to achieve the following:

- No Proposal attributable impacts to groundwater or surface water quality at medium and high-risk tower locations at the conclusion of construction works
- No clearing of more than 4.62 ha of Conservation Category, 13.50 ha of Multiple Use and 6.95 ha of Resource Enhancement Geomorphic Wetlands within the Development Envelope (DE)
- No clearing of greater than 9.73 ha of native vegetation that is growing in or associated with a water course or wetland
- Revegetation of temporary clearing areas.

2.4.2 Rationale and approach

The EIA undertaken by AECOM (2024) and the Inland waters assessment and ASS and Dewatering Management undertaken by Tetra Tech Coffey (2025) identified residual impacts from the Proposal which will be managed based on application of the following mitigation hierarchy:

- Avoidance: informed by Inland Waters survey where possible, Conservation Category Geomorphic Wetlands have been avoided where possible in the design phase.
- Minimisation: measures taken to reduce the duration, intensity and/ or extent of impacts
- Rehabilitation: measures taken to rehabilitate, remediate or restore impacted areas.

The IWEMP is based on the studies and surveys summarised in Section 2.4.3.

A qualitative risk assessment has been undertaken in accordance with the DCCEEW (2024) *Environmental Management Plan Guidelines* for each potential impact and the significance of each risk was evaluated as part of the preparation of the Environmental Review Document for the Proposal

The management approach adopted by this IWEMP includes a combination of objective-based and outcome-based management provisions. Objective-based provisions have been adopted on a risk-based approach. Outcome-based provisions have been developed to achieve the environmental outcomes expected including monitoring and evaluation of success of management actions.

2.4.3 Survey and study findings

Surveys

A detailed Inland Waters Assessment and ASS and Dewatering management study (Tetra Tech Coffey, 2025) was undertaken within the DE in May 2025, the report presents a desktop evaluation of potential impacts to the hydrology and water quality of groundwater and wetlands along the alignment of Proposal. The environmental risk-impact assessment across the proposed tower construction locations was undertaken by identifying and mapping the environmental factors such as the presence of acid sulfate soils (ASS), vegetation communities and Geomorphic Wetlands, with reference to shallow depth to water table across the region.

This IWEMP has been prepared based on the results of previous documents and reports prepared for the Proposal including:

- AECOM (2023) NREP 1-NT-NBT 330kV Line Flora, Vegetation and Fauna Assessment.

- AECOM (2024) Environmental Impact Assessment - Northern Terminal (NT) to Neerabup Terminal (NBT).
- Tetra Tech Coffey. (2025). NT to NBT 330kV Double Circuit Transmission Line NREP, Inland Water Assessment and ASS and Dewatering Management.
- AECOM (2025). Environmental Review Document – Northern Terminal to Neerabup Terminal 330kV Line

Desktop Assessment Findings

Groundwater

The Proposal is located on the Gnangara Mound, a basin of water holding sands and graves that form aquifers used for drinking and irrigation waters. A review of the DWER Perth Groundwater Atlas indicates that the groundwater level elevation surrounding the Proposal area ranges between 29 – 63 mAHD within the Gnangara Mound.

Geotechnical investigations by WSP in December 2023 recorded groundwater levels across the Proposal's Development Envelope ranging between 0.8 and 5.8 m below ground level (mbgl).

At a regional scale, the groundwater is generally fresh within the Proposal area with salinity less than 500 mg/L Total Dissolved Solids (TDS) (Tetra Tech Coffey, 2025).

Surface Water

A review of the Geomorphic Wetlands of the Swan Coastal Plain dataset published by the DBCA identified a total of 15 geomorphic wetlands intersect the PDE.

These wetlands comprise all three types of geomorphic wetland (Resource Enhancement, Multiple Use Wetland and Conservation Category Wetland), including three CCWs (UFI 8439, UFI 13956 and UFI 8077). The PDE intersects 25.09 ha of DBCA mapped wetlands, including:

- Conservation - 4.64 ha
- Resource Enhancement – 6.95 ha
- Multiple Use – 13.50 ha

The Proposal also passes over the upper reaches of a tributary of the Bennett Brook. Bennett Brook, or *Korndiny Karla Boodja*, is a culturally significant Aboriginal Heritage site associated with mythological and ceremonial connections.

Groundwater and Surface water quality

Groundwater quality data was sourced from groundwater wells monitored under the State Observation Bore Network (SOBN).

Table 3 presents the result of the available online physiochemical parameters and compares to the ANZECC water quality guidelines for wetlands (Tetra Tech Coffey, 2025).

Table 3 Regional groundwater and surface water quality data

Parameters	Average groundwater quality	Average surface water quality	ANZECC Guidelines
pH	5.4	5.1	7.0 – 8.5
Electrical Conductivity (mS/cm)	0.41	1.45	0.3 – 1.5
Fe (mg/L)	4.9	5.8	N/A

Parameters	Average groundwater quality	Average surface water quality	ANZECC Guidelines
NH4+ (mg/L)	-	-	0.04
NO_2 (mg/L)	<0.01	-	N/A
NO_X (mg/L)	<0.04	0.07	0.1
Total Nitrogen (mg/L)	0.73	0.84	1.5
Reactive Phosphorus (mg/L)	0.04	<0.05	0.03
Total Phosphorus (mg/L)	0.04	0.01	0.06

Analysis of the monitored physical parameters indicates that groundwater and surface water is fresh, acidic with low levels of oxygen, and the results are considered consistent with the nature of soils in the region. The total nitrogen is mainly in the organic form as expected due to the extent of the native vegetation on-site and limited agricultural activities (Tetra Tech Coffey, 2025).

Groundwater Dependent Ecosystems

The Proposal is located within the SCP, an area consisting of aeolian, alluvial and colluvial deposits of Holocene or Pleistocene age. A complex series of seasonal and freshwater wetlands and alluvial flats are located in the region, along with sand dune and sandplains with deep sand, semi-wet and wet soils, vegetated by Banksia-Paperback woodlands and mixed heathlands. Groundwater dependent ecosystems (GDEs) are included among the Proposal's mapped vegetation communities. GDEs rely on subsurface water to sustain ecological processes and include wetlands, riparian zones and deep-rooted vegetation communities, such as the Banksia Woodlands of the Swan Coastal Plain TEC, mapped for 4.44 ha within the Proposal's Impact Area, including:

- **BaBeAn:** high diversity woodland recorded in Gnangara State Forest surrounding Neaves Road in Melaleuca area.
- **BaXpPo:** high diversity woodland recorded in Gnangara State Forest surrounding Neaves Road and east of Seismic Road in Melaleuca area, supports denser understory than BaBeAn.
- **EtHsLb:** Banksia and Eucalypt woodland occurring sporadically in Gnangara State Forest and Whiteman Park area, includes historically cleared areas that's floristically appear to be regenerating towards a natural state of Banksia woodland.

The Banksia Woodlands TEC is a partial GDE, with groundwater drawdown and changes to hydrological regimes having been identified as a key threat to the ecological community (DCCEEW, 2016), particularly during dry seasonal periods when surface water availability is limited. The TEC relies on access to groundwater to maintain physiological function and ecological resilience and changes to groundwater regimes can result in altered species composition and increased vulnerability to secondary stressors such as disease and fire (DBCA, 2023).

Four vegetation communities were classified as native vegetation that is growing in or associated with a water course or wetland, these communities and the proposed extents to be cleared are outlined in Table 4.

Table 4 Mapped vegetation growing in or associated with a water course or wetland within the DE

Vegetation Community	Extent to be cleared (ha)
KmHg	1.57
MpHaDb	3.85

MpKgDs	0.43
MpXpCe	3.89
Total	**9.74**

Inland Waters Assessment Findings

Detailed Risk Impact Assessment

The detailed assessment considered dewatering impact from the following different foundation construction methods:

1. Bored pile with dewatering without hydraulic containment
2. Bored and cased pile with hydraulic containment and dewatering from bottom only
3. Driven piling with pile cap excavation and shallow dewatering

It is noted that construction method 1 (bored pole with dewatering without hydraulic containment) is not proposed for these works given the findings of the preliminary dewatering assessment, and as such the results are not presented or discussed further in the following section.

In the absence of site-specific groundwater levels and seasonal water table fluctuation data at each tower location, it was considered unnecessary to estimate the dewatering impact at each tower location individually. Doing so would result in estimation of radius of cone of depression and dewatering abstraction rate at each location with high uncertainty given the absence of finer resolution of groundwater level data (Tetra Tech Coffey, 2025). The 70 tower locations have been grouped into three classes with varying depth to water table to provide ranges of dewatering estimates for each group:

- 0-5 mbgl
- 5-10 mbgl
- 10-15 mbgl

The preliminary risk impact categorisation for each tower locations were then reassessed and the risk impact categorisation was updated based on the detailed risk impact assessment and revised dewatering estimates for construction methods 2 and 3 (Tetra Tech Coffey, 2025).

The results indicate that if either construction method 2 or 3 is used for the towers, the following environmental impact risk levels apply:

- 50 towers present a low to very low risk of environmental impact
- 18 towers present a medium risk of environmental impact
- 2 towers present a high risk of environmental impact

The risk categories are defined as:

- High – cone of depression >100m and interacting with one or more environmental factors
  - Wetlands or ASS, damage to environment likely
- Medium – cone of depression >50m an interacting with one or more environmental factors

  - Wetlands or ASS, damage to environment likely
- Low – cone of depression between 5-10m and limited interaction with one or more environmental factors
  - Wetlands or ASS, damage to environment minimal
- Very low – cone of depression less than 5m and minimal interaction with environmental factors
  - Wetlands or ASS, damage to environment unlikely

Detailed data for towers with a medium risk of environmental impact or above are provided in Appendix A.

Impacts to GDES from Dewatering

Tower locations 17 and 21 are proposed to be constructed within the potential GDE, Banksia Woodland TEC. Construction methods 2 and 3 result in a maximum modelled cone of drawdown of approximately 12 m. The clearing footprint for each tower pad will be up to 50 by 50 m^2. It is therefore considered unlikely that dewatering will pose a significant risk to mapped GDEs as the drawdown contours do not extend outside of the cleared footprint, meaning any potentially impacted vegetation from the effects of drawdown will have been cleared for construction.

Acid Sulfate Soils

The Inland Waters assessment determined the risk levels in relation to the potential presence of ASS . ASS may present a risk when completing development work involving ground disturbance or changes to groundwater levels within land classified as at risk of ASS. Risk mapping is a preliminary risk assessment method and can only provide an indication that ASS may be present at the site. Risk maps do not describe the actual severity of ASS in a particular area. Further investigation for medium and high risk towers (Appendix A) is required to determine the presence of ASS and if concentrations pose a risk to the environment.

2.4.4 Key assumptions and uncertainties

Key assumptions include:

- Environmental survey reports have not been independently verified. These surveys were undertaken by suitably qualified individuals experienced in Flora and Vegetation survey and plant ecology and are therefore assumed to have accurately recorded the presence and locations of TECs. It is acknowledged that flora and vegetation survey results may change over time.
- Environmental survey reports have not been independently verified. The assessments were undertaken by suitably qualified individuals experienced in hydrology and hydrogeology and geotechnical assessments and are therefore assumed to have accurately assessed the presence and locations of sensitive water resources and ASS. It is acknowledged that inland water assessment results may change over time.
- The full extent of the DE has been adequately surveyed in the Environmental Impact Assessment undertaken by AECOM in 2022 (AECOM, 2023). Should there be any changes to the DE further surveys may be warranted.

Key uncertainties include:

- Construction methodology for tower footings has not been finalised.
- Excavation dimensions for footings
- Site investigations undertaken after a dry winter period; groundwater levels could rise about 1.5 m higher than measured following periods of heavy rainfall.
- No baseline groundwater or surface water quality monitoring has been completed.

- Approximate depth to water table was used in the dewatering risk assessment for tower construction sites.
- Actual severity of ASS has not been measured at disturbance locations.
- Local hydrogeological conditions such as connectivity to surficial aquifer, proximity of surface water bodies, precipitation.
- The extent of external factors outside of Western Powers control such as extreme rainfall events, drought or fire will impact on vegetation.
- The EIA (AECOM, 2024) has considered cumulative impacts of other Proposals based on information available in the public domain and may not represent the full extent of potential disturbance which is not publicly available.

3. Environmental management plan components

Western Power has a corporate Health, Safety and Environment Management System to manage their activities in a sustainable manner, having regard to their workforce, communities and the environment. Western Power acknowledges the preservation of our environment is a key issue. Western Power has endeavoured to do whatever they can to reduce the impact the company has on its surroundings.

3.1 Roles and responsibilities

The Principal Contractor (PC), subcontractors, and all Western Power employees (WP) involved with the construction new 330kV transmission line must conform to this IWEMP.

The PC must submit a Construction Environmental Management Plan (CEMP) based on the recommendations outlined in this IWEMP, prior to the commencement of any work. All personnel on the project will be responsible for environmental management. All personnel coming on site are required to undergo an environmental management induction and training to inform them of the environmental risks associated with the works and educate them of their responsibilities to minimise environmental risks, in line with the relevant environmental legislation.

Western Power personnel

The responsibilities of the WP personnel are outlined below.

- Overall responsibility for administration of the contract regarding all environmental and land management issues for line removal and new line installation.
- Advising the PC regarding implementation of the IWEMP
- Monitoring, inspection and audit during clearing and construction
- Actively identifying environmental issues as they arise
- Investigation of environmental incidents
- Liaison with government authorities and any regulatory reporting.

Specialised Consultants

Specialised Consultants may be hired by Western Power throughout the construction period to undertake various functions, including auditing of IWEMP compliance.

Principal Contractor

The PC has responsibility for environmental, and land issues associated with the vegetation clearing and construction of the new 330 kV tower transmission line. The PC shall comply with this IWEMP in carrying out its activities. This definition also applies to any works within the project area; track upgrades, and reinstatement of damage to land/ property.

3.2 Communication

Environmental information will be communicated to Western Power staff and contractors via the following means:

- Site inductions
- Toolbox meetings

- Training
- Pre-start meetings
- On-site notice boards
- Environmental Bulletins
- Incident investigations and reporting.

Western Power has communicated with government departments, local government and neighbouring residents during the design and planning stages of the Proposal and will continue to consult as the Proposal develops.

3.3 Environmental awareness training and inductions

Western Power will ensure all personnel, including contractors, complete a site induction. The induction will include an environmental component which will address the following:

- Requirements of relevant environmental management documentation
- Significant environmental values to be protected
- Control strategies for the management of environmental risk in day-to-day activities
- Roles and responsibilities for implementing management, monitoring and reporting for environmental factors
- Applicable legislative responsibilities and requirements associated with non-compliance
- Where applicable, spill response and fire and emergency response training.

Western Power will retain records of personnel and subcontractor training and inductions within a training register.

3.4 Environmental incidents/ non-compliances

Western Powers procedure for incident/ near miss/ occurrence of non-compliance is as follows EDM 7024742:

- Raise an incident report (within 60 minutes of incident occurring)
- All work activities directly causing an environmental incident, including any breach of the IWEMP, are to cease upon identification of the incident, and shall not recommence until correct work procedures adopted.
- All necessary corrective actions are to be implemented.
- Where appropriate, remedial action will be taken to minimise any impacts of the Proposal on the environment (e.g. eradication of weeds introduced by construction or maintenance activities).
- Following completion of the Proposal, an audit will be conducted to determine the extent to which the IWEMP has been complied with.
- Audit findings will be provided to the DWER where relevant issues are identified.

3.5 Compliance reporting and inspections

Western Power will undertake reporting in accordance with regulatory and legislative requirements. It is expected the Proposal will operate in accordance with the EP Act (Part IV and Part V) and EPBC Act approvals, which will specify annual environmental and compliance reporting requirements.

A pre-construction inspection, particularly in significant environmental areas, shall be conducted to assess site conditions prior to the commencement of the works. The site shall also be inspected by Western Power during vegetation clearing and construction activities to identify any breaches of the IWEMP.

Monthly compliance reports for the IWEMP shall be submitted to Western Power, including all relevant Environmental Incident reports, Clean on Entry (COE) and weed/ hygiene registers. Reporting requirements are summarised in Table 5 and Table 6. Relevant Western Power Works Instructions are included in **Error! Reference source not found.**.

3.6 Inland Waters Environmental Management Plan provisions

3.6.1 Objective-based provisions

Objective-based provisions have been developed to achieve the environmental objectives that the IWEMP expects to achieve for the Inland Waters EPA Factor during construction and operation of the Proposal. Management targets and actions have developed to meet and achieve the EPA objective based on a risk-based approach. Table 5 outlines the overarching outcomes-based provisions and response actions for construction and operation of the Proposal.

3.6.2 Outcome-based provisions

Outcome-based provisions have been developed to achieve the environmental outcomes expected for the Inland Waters EPA Factor during construction and operation of the Proposal. Trigger criteria are indicators that have been selected for monitoring to provide a warning that if exceeded the outcome may not be achieved and Threshold criteria are indicators that have been selected to represent the limit of acceptable impact beyond which the environmental outcome is not being met and where there is likely to be a significant impact on the environment (EPA, 2024). Table 6 outlines the overarching outcomes-based provisions and response actions for construction and operation of the Proposal.

Table 5 Objective-based Provisions – Inland Waters

EPA Factor:	Inland Waters				
EPA Objective:	**To protect Inland Waters so that biological diversity and ecological integrity are maintained**				
Key environmental values:	**Surface water and groundwater**				
Key impacts and risks:	**Potential impacts from construction activities to groundwater and surface water quantity and quality**				
Management target	**Management actions**	**Monitoring**	**Timing**	**Responsibilities**	**Reporting**
Management target 1: Minimise as far as practicable impacts to surface water and groundwater quality as a result of construction of the Proposal.	**Management action 1.1** Undertake baseline surface water quality monitoring at wetlands in proximity to tower locations in Appendix A Table 10.	– Surface water quality monitoring to include the following analytes: • pH • Electrical conductivity • Total dissolved solids • Total acidity • Total alkalinity • Chloride • Sulfate • Dissolved iron • Dissolved aluminium • Dissolved manganese – If Al> 1mg/L then additional analysing for AS, Cd, Cr, Cu, Pb, Hb, Ni, Se, Zn)	Once during: Pre-construction	Principal Contractor	– Baseline surface water quality report submitted to WP within 14 days of receipt of results.
	Management action 1.2: Undertake baseline groundwater quality and levels monitoring at tower locations in Appendix A Table 10 and 11, if dewatering is to occur at the specified tower location as part of construction works.	– Groundwater quality monitoring is to include the following field parameters: • pH, • electrical conductivity • groundwater standing water level (mbgl) – Groundwater quality monitoring to include the following analytes: • pH, • electrical conductivity, • total dissolved solids, • total acidity, • total alkalinity, • dissolved aluminium, • dissolved iron • dissolved manganese – If Al> 1mg/L then additional analysing for AS, Cd, Cr, Cu, Pb, Hb, Ni, Se, Zn)	Once during: Pre-construction	Principal Contractor	– Baseline groundwater quality report submitted to WP within 14 days of receipt of results.
	Management action 1.3: Undertake soil testing to determine the magnitude and extent of potential ASS at tower locations in Appendix A Table 10 and 11 prior to any excavation works.	– ASS extent and magnitude testing	Once during: Pre-construction	Principal Contractor	– Baseline ASS reporting submitted to WP within 14 days of receipt of results.
	Management action 1.4: Develop an ASS Management Plan for high-risk areas identified from the baseline ASS soil assessment.	– Provision of ASS Management Plan developed using baseline ASS investigation results.	Once during: Pre-construction	Principal Contractor	– Submission of ASS Management Plan to WP prior to commencement of construction of towers.

EPA Factor:	Inland Waters				
EPA Objective:	To protect Inland Waters so that biological diversity and ecological integrity are maintained				
Key environmental values:	Surface water and groundwater				
Key impacts and risks:	Potential impacts from construction activities to groundwater and surface water quantity and quality				
Management target	Management actions	Monitoring	Timing	Responsibilities	Reporting
	Management action 1.5: Wash down facilities for mechanical plant or vehicles are to be located a minimum of 100 m away from any surface water course or wetland and designed to direct any wastewater to a designated sump for containment.	– Inspection of active work areas	Monthly during: Construction	Principal Contractor	– Monthly Contractor compliance report for submission to Western Power – Annual reporting by WP to EPA and DCCEEW during construction works as part of approval conditions.
	Management action 1.6: No refuelling, repair or maintenance of plant and equipment, or any on-site use or storage of chemicals within mapped wetlands or water courses.	– Inspection of active work areas – Induction/Training addresses fuel and chemical handling and storage requirements	Monthly during: Construction	Principal Contractor	
	Management action 1.7: All service vehicles and equipment must carry a spill kit	– Monthly inspection of vehicles and equipment	Monthly during: Construction	Principal Contractor	
	Management action 1.8: Vehicles and equipment will be regularly serviced and maintained.	– Daily pre-start checks of all vehicles and equipment – Maintenance records	Monthly during: Construction	Principal Contractor	
	Management action 1.9: Spill kits will be located in proximity to any work areas involving the use, storage and/or handling of hydrocarbons and/or chemicals	– Induction/ training – Monthly inspection of active work areas.	Monthly during: Construction	Principal Contractor	
	Management action 1.10: Any hydrocarbons, chemicals and/or fuel transfer points are to be appropriately bunded or secondarily contained.	– Induction/ training – Monthly inspection of active work areas.	Monthly during: Construction	Principal Contractor	
	Management action 1.11: All personnel will be trained in Spill Response	– Spill response training – Review of induction and training records	As required during: Construction Operations	Principal Contractor	
	Management action 1.12: Erosion and sediment controls will be installed during construction to prevent sediment runoff into surface water, geomorphic wetlands and TEC areas.	– Inspection of active work areas	Monthly during: Construction	Principal Contractor	
	Management action 1.13: Drainage along the access track should be designed taking slope angle and length into account to prevent erosion.	– Inspection of active work areas	Monthly during: Construction As required during: Operations	Principal Contractor during construction WP during operations	
	Management action 1.14: If dewatering occurs at any of the towers listed in Appendix A Table 10 and 11, undertake field monitoring of groundwater at the tower location where dewatering is occurring.	– Groundwater quality monitoring is to include the following field parameters: • pH, • electrical conductivity • groundwater standing water level (mbgl) • Abstraction volume • Abstraction rate	Daily for the duration of the dewatering.	Principal Contractor	– Dewatering report including monitoring results for the tower location submitted to WP within 14 days of conclusion of dewatering for each tower location where dewatering occurs. – Annual reporting by WP to EPA and DCCEEW during construction works as part of approval conditions.

EPA Factor:	Inland Waters				
EPA Objective:	To protect Inland Waters so that biological diversity and ecological integrity are maintained				
Key environmental values:	Surface water and groundwater				
Key impacts and risks:	Potential impacts from construction activities to groundwater and surface water quantity and quality				
Management target	**Management actions**	**Monitoring**	**Timing**	**Responsibilities**	**Reporting**
Management target 2: Minimise direct impacts to Conservation Wetlands resulting from clearing activities during the construction of the Proposal.	**Management action 2.1:** Prior to commencing any clearing or construction works within the mapped boundary of Conservation Wetlands, the Principal Contractor will conduct a design and constructability review with the intent to minimise the amount of clearing required of Conservation Wetland s (UFI 8439, UFI 13956 and UFI 8077)	– Pre-construction review of final alignment and clearing areas	Prior to construction	Western Power	– Annual reporting by WP to EPA and DCCEEW during construction works as part of approval conditions.

Table 6 Outcome-based Provisions – Inland Waters

EPA Factor:	Flora and Vegetation				
EPA Objective:	To protect Inland Waters so that biological diversity and ecological integrity are maintained				
Outcome:	Clearing of no more than: • 4.64 ha of CCWs • 6.95 ha of Resource enhancement wetlands • 13.50 ha of Multiple Use wetlands • 9.74 ha of vegetation growing in or in association with a water course or wetland. Groundwater and surface water quality reflect baseline levels, post-construction, if dewatering has occurred.				
Key environmental values:	Native vegetation including conservation wetlands, groundwater and surface water resources and Conservation category wetlands				
Key impacts and risks:	Potential direct impacts to wetland values as a result of clearing. Potential impacts to surface water and groundwater quality as a result of dewatering.				
Indicators: **Trigger criteria** **Threshold criteria**	**Response actions:** **Trigger level actions** **Threshold contingency actions**	**Monitoring**	**Timing**	**Responsibilities**	**Reporting**
Trigger criterion 1A: Total clearing area of native vegetation that is growing in or associated with a water course or wetland is equal to 8.7 ha (90% of total approved clearing area) **Trigger criterion 1B:** Total clearing area of native vegetation that is growing in or associated with a water course or wetland is equal 9.74 ha (100% of total approved clearing area)	**Trigger level action 1A:** The following response actions will be implemented: – Review Clearing register and validate extent of current cleared areas – Review future planned clearing to confirm proposed works will not exceed Threshold criterion 1. The following response actions may be implemented: – Re-survey planned clearing boundaries Where a single clearing event will result in Trigger 1B criterion being met, the PC is exempt from implementing the Trigger 1A level actions. This is only applicable where the single clearing event is undertaken within one workday (12-hour period) and the clearing is of a continuous patch of native vegetation. **Trigger level action 1B:** The following response actions will be implemented: – Cease any clearing works within 24 hours of identification of trigger. Clearing cannot recommence without written approval from WP. – Review Clearing register and validate extent of current cleared areas – Review any future planned clearing to confirm it is not of native foraging habitat.	**Monitoring in response to Trigger level action 1A:** – Fortnightly review of Clearing Register – Fortnightly inspections of clearing boundaries of active clearing areas adjacent to and/or within vegetation growing in or associated with a watercourse or wetland **Monitoring in response to Trigger level action 1B:** – Weekly review of Clearing Register – Weekly inspections of clearing boundaries of active clearing areas adjacent to and/or within vegetation growing in or associated with a watercourse or wetland	As per Monitoring column during: Construction	Principal Contractor	– Monthly Contractor compliance report for submission to Western Power. – Annual reporting by WP to EPA and DCCEEW during construction works as part of approval conditions.

EPA Factor:	Flora and Vegetation				
EPA Objective:	To protect Inland Waters so that biological diversity and ecological integrity are maintained				
Outcome:	Clearing of no more than: • 4.64 ha of CCWs • 6.95 ha of Resource enhancement wetlands • 13.50 ha of Multiple Use wetlands • 9.74 ha of vegetation growing in or in association with a water course or wetland. Groundwater and surface water quality reflect baseline levels, post-construction, if dewatering has occurred.				
Key environmental values:	Native vegetation including conservation wetlands, groundwater and surface water resources and Conservation category wetlands				
Key impacts and risks:	Potential direct impacts to wetland values as a result of clearing. Potential impacts to surface water and groundwater quality as a result of dewatering.				
Indicators: **Trigger criteria** **Threshold criteria**	**Response actions:** **Trigger level actions** **Threshold contingency actions**	**Monitoring**	**Timing**	**Responsibilities**	**Reporting**
	– Resurvey planned clearing boundaries – PC is to notify WP by Close of Business on the day Trigger 1B is identified. The following response actions may be implemented: – Use of a line spotter when clearing within 10 m of boundary lines				
Threshold criterion 1: Total clearing area of native vegetation that is growing in or associated with a water course or wetland is greater than 9.74 ha	**Threshold contingency action 1:** The following contingency actions will be implemented: – All clearing is to cease within 24 hours of identification of threshold exceedance. Clearing cannot recommence without written authorisation from WP. – Survey the extent of the exceedance impact area – Review Clearing Register and validate extent of current cleared areas – Conduct an investigation into cause of exceedance and implement any remedial actions identified during course of investigation – Review any future planned clearing to confirm it is not of native foraging habitat. – Resurvey planned clearing boundaries – Develop revegetation plan for exceedance area or incorporate exceedance area into an existing, relevant revegetation plan The following contingency actions may be implemented: – Utilise hard barricading for clearing boundaries in lieu of flagging tape Use of a line spotter when clearing within 10 m of boundary lines	– Daily review of Clearing Register – Daily inspections of clearing boundaries of active clearing areas adjacent to and/or within vegetation growing in or associated with a watercourse or wetland	As per Monitoring column during: Construction	Principal Contractor	– Contractor is to notify WP of threshold exceedance within 24 hours via WP Incident Hotline on 1300 225 597 (1300 CALL WP) – Contractor is to provide WP with an incident investigation report within 14 days of incident notification – Notification to external regulatory bodies (EPA and DCCEEW) will be done in accordance with the conditions specified in associated approvals, once finalised, by WP. – Annual reporting by WP to EPA and DCCEEW during construction works as part of approval conditions.
Trigger criterion 2A: Total clearing area of CCWs is equal to 4.0 ha (90% of total approved clearing area) **Trigger criterion 2B:** Total clearing area of CCWs is equal to 4.64 ha (100% of total approved clearing area)	**Trigger level action 2A:** The following response actions will be implemented: – Review Clearing register and validate extent of current cleared areas – Review future planned clearing to confirm proposed works will not exceed Threshold criterion 1. The following response actions may be implemented: – Re-survey planned clearing boundaries Where a single clearing event will result in Trigger 2B criterion being met, the PC is exempt from implementing the Trigger 2A level actions. This is only applicable where the single clearing event is undertaken within one workday (12-hour period) and the clearing is of a continuous patch of native vegetation.	**Monitoring in response to Trigger level action 2A:** – Fortnightly review of Clearing Register – Fortnightly inspections of clearing boundaries of active clearing areas adjacent to and/or within CCWs **Monitoring in response to Trigger level action 2B:** – Weekly review of Clearing Register – Weekly inspections of clearing boundaries of active clearing areas adjacent to and/or within CCWs	As per Monitoring column during: Construction	Principal Contractor	– Monthly Contractor compliance report for submission to Western Power. – Annual reporting by WP to EPA and DCCEEW during construction works as part of approval conditions.

EPA Factor:	**Flora and Vegetation**				
EPA Objective:	**To protect Inland Waters so that biological diversity and ecological integrity are maintained**				
Outcome:	**Clearing of no more than:** • **4.64 ha of CCWs** • **6.95 ha of Resource enhancement wetlands** • **13.50 ha of Multiple Use wetlands** • **9.74 ha of vegetation growing in or in association with a water course or wetland.** **Groundwater and surface water quality reflect baseline levels, post-construction, if dewatering has occurred.**				
Key environmental values:	**Native vegetation including conservation wetlands, groundwater and surface water resources and Conservation category wetlands**				
Key impacts and risks:	**Potential direct impacts to wetland values as a result of clearing.** **Potential impacts to surface water and groundwater quality as a result of dewatering.**				
Indicators: **Trigger criteria** **Threshold criteria**	**Response actions:** **Trigger level actions** **Threshold contingency actions**	**Monitoring**	**Timing**	**Responsibilities**	**Reporting**
	Trigger level action 2B: The following response actions will be implemented: – Cease any clearing works within 24 hours of identification of trigger. Clearing cannot recommence without written approval from WP. – Review Clearing register and validate extent of current cleared areas – Review any future planned clearing to confirm it is not of native foraging habitat. – Resurvey planned clearing boundaries – PC is to notify WP by Close of Business on the day Trigger 2B is identified. The following response actions may be implemented: – Use of a line spotter when clearing within 10 m of boundary lines				
Threshold criterion 2: Total clearing area of CCWs is greater than 4.64 ha	**Threshold contingency action 2:** The following contingency actions will be implemented: – All clearing is to cease within 24 hours of identification of threshold exceedance. Clearing cannot recommence without written authorisation from WP. – Survey the extent of the exceedance impact area – Review Clearing Register and validate extent of current cleared areas – Conduct an investigation into cause of exceedance and implement any remedial actions identified during course of investigation – Review any future planned clearing to confirm it is not of native foraging habitat. – Resurvey planned clearing boundaries – Develop revegetation plan for exceedance area or incorporate exceedance area into an existing, relevant revegetation plan The following contingency actions may be implemented: – Utilise hard barricading for clearing boundaries in lieu of flagging tape Use of a line spotter when clearing within 10 m of boundary lines	– Daily review of Clearing Register – Daily inspections of clearing boundaries of active clearing areas adjacent to and/or within CCWs	As per Monitoring column during: Construction	Principal Contractor	– Contractor is to notify WP of threshold exceedance within 24 hours via WP Incident Hotline on 1300 225 597 (1300 CALL WP) – Contractor is to provide WP with an incident investigation report within 14 days of incident notification – Notification to external regulatory bodies (EPA and DCCEEW) will be done in accordance with the conditions specified in associated approvals, once finalised, by WP. – Annual reporting by WP to EPA and DCCEEW during construction works as part of approval conditions. –
Trigger criterion 3A: Total clearing area of Resource Enhancement wetlands is equal to 6.2	**Trigger level action 3A:** The following response actions will be implemented: – Review Clearing register and validate extent of current cleared areas	**Monitoring in response to Trigger level action 3A:** – Fortnightly review of Clearing Register	As per Monitoring column during:	Principal Contractor	– Monthly Contractor compliance report for submission to Western Power.

EPA Factor:	Flora and Vegetation				
EPA Objective:	To protect Inland Waters so that biological diversity and ecological integrity are maintained				
Outcome:	Clearing of no more than: • 4.64 ha of CCWs • 6.95 ha of Resource enhancement wetlands • 13.50 ha of Multiple Use wetlands • 9.74 ha of vegetation growing in or in association with a water course or wetland. Groundwater and surface water quality reflect baseline levels, post-construction, if dewatering has occurred.				
Key environmental values:	Native vegetation including conservation wetlands, groundwater and surface water resources and Conservation category wetlands				
Key impacts and risks:	Potential direct impacts to wetland values as a result of clearing. Potential impacts to surface water and groundwater quality as a result of dewatering.				
Indicators: **Trigger criteria** **Threshold criteria**	**Response actions:** **Trigger level actions** **Threshold contingency actions**	**Monitoring**	**Timing**	**Responsibilities**	**Reporting**
ha (90% of total approved clearing area) **Trigger criterion 3B:** Total clearing area of Resource Enhancement wetlands is equal to 6.95 ha (100% of total approved clearing area)	– Review future planned clearing to confirm proposed works will not exceed Threshold criterion 1. The following response actions may be implemented: – Re-survey planned clearing boundaries Where a single clearing event will result in Trigger 3B criterion being met the PC is exempt from implementing the Trigger 3A level actions. This is only applicable where the single clearing event is undertaken within one workday (12-hour period) and the clearing is of a continuous patch of native vegetation. **Trigger level action 3B:** The following response actions will be implemented: – Cease any clearing works within 24 hours of identification of trigger. Clearing cannot recommence without written approval from WP. – Review Clearing register and validate extent of current cleared areas – Review any future planned clearing to confirm it is not of native foraging habitat. – Resurvey planned clearing boundaries – PC is to notify WP by Close of Business on the day Trigger 3B is identified. The following response actions may be implemented: Use of a line spotter when clearing within 10 m of boundary lines	– Fortnightly inspections of clearing boundaries of active clearing areas adjacent to and/or within Resource Enhancement Wetlands **Monitoring in response to Trigger level action 3B:** – Weekly review of Clearing Register – Weekly inspections of clearing boundaries of active clearing areas adjacent to and/or within Resource Enhancement Wetlands	Construction		– Annual reporting by WP to EPA and DCCEEW during construction works as part of approval conditions. –
Threshold criterion 3: Total clearing area of Resource Enhancement wetlands is greater than 6.95 ha.	**Threshold contingency action 3:** The following contingency actions will be implemented: – All clearing is to cease within 24 hours of identification of threshold exceedance. Clearing cannot recommence without written authorisation from WP. – Survey the extent of the exceedance impact area – Review Clearing Register and validate extent of current cleared areas – Conduct an investigation into cause of exceedance and implement any remedial actions identified during course of investigation – Review any future planned clearing to confirm it is not of native foraging habitat. – Resurvey planned clearing boundaries	– Daily review of Clearing Register – Daily inspections of clearing boundaries of active clearing areas adjacent to and/or within Resource Enhancement Wetlands	As per Monitoring column during: Construction	Principal Contractor	– Contractor is to notify WP of threshold exceedance within 24 hours via WP Incident Hotline on 1300 225 597 (1300 CALL WP) – Contractor is to provide WP with an incident investigation report within 14 days of incident notification – Notification to external regulatory bodies (EPA and DCCEEW) will be done in accordance with the conditions specified in associated approvals, once finalised, by WP. – Annual reporting by WP to EPA and DCCEEW during construction works as part of approval conditions.

EPA Factor:	Flora and Vegetation				
EPA Objective:	To protect Inland Waters so that biological diversity and ecological integrity are maintained				
Outcome:	Clearing of no more than: • 4.64 ha of CCWs • 6.95 ha of Resource enhancement wetlands • 13.50 ha of Multiple Use wetlands • 9.74 ha of vegetation growing in or in association with a water course or wetland. Groundwater and surface water quality reflect baseline levels, post-construction, if dewatering has occurred.				
Key environmental values:	Native vegetation including conservation wetlands, groundwater and surface water resources and Conservation category wetlands				
Key impacts and risks:	Potential direct impacts to wetland values as a result of clearing. Potential impacts to surface water and groundwater quality as a result of dewatering.				
Indicators: **Trigger criteria** **Threshold criteria**	**Response actions:** **Trigger level actions** **Threshold contingency actions**	**Monitoring**	**Timing**	**Responsibilities**	**Reporting**
	– Develop revegetation plan for exceedance area or incorporate exceedance area into an existing, relevant revegetation plan The following contingency actions may be implemented: – Utilise hard barricading for clearing boundaries in lieu of flagging tape Use of a line spotter when clearing within 10 m of boundary lines				–
Trigger criterion 4A: Total clearing area of Multiple Use wetlands is equal to 12.0 ha (90% of total approved clearing area) **Trigger criterion 4B:** Total clearing area of Multiple Use wetlands is equal to 13.50 ha (100% of total approved clearing area)	**Trigger level action 4A:** The following response actions will be implemented: – Review Clearing register and validate extent of current cleared areas – Review future planned clearing to confirm proposed works will not exceed Threshold criterion 1. Where a single clearing event will result in Trigger 4B criterion being met, the PC is exempt from implementing the Trigger 3A level actions. This is only applicable where the single clearing event is undertaken within one workday (12-hour period) and the clearing is of a continuous patch of native vegetation. The following response actions may be implemented: – Re-survey planned clearing boundaries **Trigger level action 4B:** The following response actions will be implemented: – Cease any clearing works within 24 hours of identification of trigger. Clearing cannot recommence without written approval from WP. – Review Clearing register and validate extent of current cleared areas – Review any future planned clearing to confirm it is not of native foraging habitat. – Resurvey planned clearing boundaries – PC is to notify WP by Close of Business on the day Trigger 4B is identified. The following response actions may be implemented: Use of a line spotter when clearing within 10 m of boundary lines	**Monitoring in response to Trigger level action 4A:** – Fortnightly review of Clearing Register – Fortnightly inspections of clearing boundaries of active clearing areas adjacent to and/or within Multiple Use wetlands **Monitoring in response to Trigger level action 4B:** – Weekly review of Clearing Register – Weekly inspections of clearing boundaries of active clearing areas adjacent to and/or within Multiple Use Wetlands	As per Monitoring column during: Construction	Principal Contractor	– Monthly Contractor compliance report for submission to Western Power. – Annual reporting by WP to EPA and DCCEEW during construction works as part of approval conditions. –
Threshold criterion 4: Total clearing area of Multiple Use wetlands is greater than 13.50 ha.	**Threshold contingency action 4:** The following contingency actions will be implemented:	– Daily review of Clearing Register – Daily inspections of clearing boundaries of active clearing areas adjacent to and/or within Multiple Use Wetlands	As per Monitoring column during: Construction	Principal Contractor	– Contractor is to notify WP of threshold exceedance within 24 hours via WP Incident Hotline on 1300 225 597 (1300 CALL WP)

EPA Factor:	**Flora and Vegetation**				
EPA Objective:	**To protect Inland Waters so that biological diversity and ecological integrity are maintained**				
Outcome:	**Clearing of no more than:** • **4.64 ha of CCWs** • **6.95 ha of Resource enhancement wetlands** • **13.50 ha of Multiple Use wetlands** • **9.74 ha of vegetation growing in or in association with a water course or wetland.** **Groundwater and surface water quality reflect baseline levels, post-construction, if dewatering has occurred.**				
Key environmental values:	**Native vegetation including conservation wetlands, groundwater and surface water resources and Conservation category wetlands**				
Key impacts and risks:	**Potential direct impacts to wetland values as a result of clearing.** **Potential impacts to surface water and groundwater quality as a result of dewatering.**				
Indicators: **Trigger criteria** **Threshold criteria**	**Response actions:** **Trigger level actions** **Threshold contingency actions**	**Monitoring**	**Timing**	**Responsibilities**	**Reporting**
	– All clearing is to cease within 24 hours of identification of threshold exceedance. Clearing cannot recommence without written authorisation from WP. – Survey the extent of the exceedance impact area – Review Clearing Register and validate extent of current cleared areas – Conduct an investigation into cause of exceedance and implement any remedial actions identified during course of investigation – Review any future planned clearing to confirm it is not of native foraging habitat. – Resurvey planned clearing boundaries – Develop revegetation plan for exceedance area or incorporate exceedance area into an existing, relevant revegetation plan The following contingency actions may be implemented: – Utilise hard barricading for clearing boundaries in lieu of flagging tape Use of a line spotter when clearing within 10 m of boundary lines				– Contractor is to provide WP with an incident investigation report within 14 days of incident notification – Notification to external regulatory bodies (EPA and DCCEEW) will be done in accordance with the conditions specified in associated approvals, once finalised, by WP. – Annual reporting by WP to EPA and DCCEEW during construction works as part of approval conditions. –
Trigger criterion 5: Dewatering has occurred at least one of the tower locations listed in Appendix A Table 10 and 11.	**Trigger level action 5:** The following response actions will be implemented: – Post-construction monitoring of groundwater quality to be undertaken. – Preparation of report including baseline and post-construction groundwater quality data and an assessment of whether Proposal construction dewatering activities have had a significant impact on groundwater quality within the DE. – Report is to be prepared by a suitably qualified hydrogeologist.	– Groundwater quality monitoring is to include the following field parameters: • pH, • electrical conductivity • groundwater standing water level (mbgl) – Groundwater quality monitoring to include the following analytes: • pH, • electrical conductivity, • total dissolved solids, • total acidity, • total alkalinity, • dissolved aluminium, • dissolved iron • dissolved manganese	Once during: Post-construction	Principal Contractor	– Report to be submitted to WP within 30 days of receipt of post-construction groundwater monitoring results.

EPA Factor:	Flora and Vegetation				
EPA Objective:	To protect Inland Waters so that biological diversity and ecological integrity are maintained				
Outcome:	Clearing of no more than: • 4.64 ha of CCWs • 6.95 ha of Resource enhancement wetlands • 13.50 ha of Multiple Use wetlands • 9.74 ha of vegetation growing in or in association with a water course or wetland. Groundwater and surface water quality reflect baseline levels, post-construction, if dewatering has occurred.				
Key environmental values:	Native vegetation including conservation wetlands, groundwater and surface water resources and Conservation category wetlands				
Key impacts and risks:	Potential direct impacts to wetland values as a result of clearing. Potential impacts to surface water and groundwater quality as a result of dewatering.				
Indicators: **Trigger criteria** **Threshold criteria**	**Response actions:** **Trigger level actions** **Threshold contingency actions**	**Monitoring**	**Timing**	**Responsibilities**	**Reporting**
		If Al> 1mg/L then additional analysing for AS, Cd, Cr, Cu, Pb, Hb, Ni, Se, Zn)			
Threshold criterion 5: Post-construction dewatering assessment report indicates that there has been a significant impact to groundwater quality as a result of Proposal construction dewatering activities.	**Threshold contingency action 5:** The following contingency actions will be implemented: – Conduct investigation into the potential causes of the changes to groundwater quality and evaluate the extent of impacts. – Develop an ongoing monitoring program to continue to monitor any identified impacts. Duration, frequency and analytes to be tested to be advised by a suitably qualified hydrogeologist.	– As advised by suitably qualified hydrogeologist.	As advised, during: Post-construction	Western Power	– Notification to external regulatory bodies (EPA and DCCEEW) will be done in accordance with the conditions specified in associated approvals, once finalised, by WP. – Annual reporting by WP to EPA and DCCEEW during construction works as part of approval conditions.
Trigger criterion 6: Dewatering has occurred at least one of the tower locations listed in Appendix A Table 10.	**Trigger level action 6:** The following response actions will be implemented: – Post-construction monitoring of surface quality to be undertaken. – Preparation of report including baseline and post-construction surface water quality data and an assessment of whether Proposal construction dewatering activities have had a significant impact on surface water quality within the DE. – Report is to be prepared by a suitably qualified hydrogeologist.	– Surface water quality monitoring to include the following analytes: • pH • Electrical conductivity • Total dissolved solids • Total acidity • Total alkalinity • Chloride • Sulfate • Dissolved iron • Dissolved aluminium • Dissolved manganese If Al> 1mg/L then additional analysing for AS, Cd, Cr, Cu, Pb, Hb, Ni, Se, Zn)	Once during: Post-construction	Principal Contractor	– Report to be submitted to WP within 30 days of receipt of post-construction surface water monitoring results.
Threshold criterion 6: Post-construction dewatering assessment report indicates that there has been a significant impact to surface water quality as a result of Proposal construction dewatering activities.	**Threshold contingency action 6:** The following contingency actions will be implemented: – Conduct investigation into the potential causes of the changes to surface water quality and evaluate the extent of impacts. – Develop an ongoing monitoring program to continue to monitor any identified impacts. Duration, frequency and analytes to be tested to be advised by a suitably qualified hydrogeologist.	– As advised by suitably qualified hydrogeologist.	As advised, during: Post-construction	Western Power	– Notification to external regulatory bodies (EPA and DCCEEW) will be done in accordance with the conditions specified in associated approvals, once finalised, by WP. – Annual reporting by WP to EPA and DCCEEW during construction works as part of approval conditions.

4. Adaptive management

The adaptive management approach aims to reduce impacts by embedding a cycle of monitoring, reporting and implementing change (where required). This IWEMP applies the principles of adaptive management through monitoring, corrective actions and implementing changes.

4.1 Monitoring and corrective actions

Internal monitoring of the Environmental Factors outlined in this IWEMP will occur during construction and operation of the Proposal. Any non-conformances or incidents within this IWEMP will be investigated, rectified or mitigated as soon as possible to ensure minimal ongoing environmental harm. Where relevant, procedures will be amended or updated, and inductions and other workforce communication will be undertaken in a timely manner to minimise the risk of reoccurrences.

4.2 Management plan review

This IWEMP is intended to be dynamic and may be updated to reflect changes in management practices and the natural environment with time. This will also allow flexibility to adopt new technologies/ management measures.

Amendments to management actions will be completed when required. This will include revision/ amendment of management actions that are not achieving the desired outcomes, monitoring identifying additional impacts and management actions, changes to relevant legislation or improvements to practices to achieve a greater environmental outcome.

A summary of changes will be completed as per Appendix B for submission to EPA and DCCEEW.

5. Stakeholder consultation

5.1 Community and Stakeholder Engagement Plan

Western Power has prepared a Community and Stakeholder Engagement Plan (CSEP) to guide effective consultation for the Project. This CSEP has been designed to create a methodology for engagement throughout planning stages, through to operation of the Proposal. A strategic and holistic approach ensures effective and transparent engagement with stakeholders and will directly contribute to the success of the Proposal.

The stakeholder engagement process will involve:

- Building stakeholder understanding of the Proposal to contribute to stakeholder acceptance.
- Building trusted relationships with stakeholders to foster tolerance and compromise for the Proposal.
- Strengthening the reputation of Western Power as a positive contributor in communities.
- To achieve these goals, the objectives of engagement throughout all stages of the Proposal are to:
- Provide clear, objective, and timely information to stakeholders.
- Seek input and feedback from the key stakeholders to inform planning and development.

The CSEP includes processes to manage stakeholders who are critical to approval and development of the Proposal, those potentially directly or indirectly impacted, and those not impacted by the Proposal but potentially interested in being kept informed of Western Powers activities.

5.2 Ongoing consultation

Western Power will continue to engage with relevant stakeholders throughout the environmental approval process to ensure that all concerns are addressed. This includes decision making authorities, other relevant government authorities, the local community, and environmental non-government organisations. Western Power is committed to building effective relationships and working transparently with all stakeholders.

6. References

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Appendix A

Medium and High-Risk Tower Locations

Table 7 Medium and/or high-risk towers for Wetlands

Tower Number	Coordinates (GDA94)		Approx. depth to water table (mbgl)	Wetland Category	Environmental Risk Impact based on construction method 2 or 3
	Easting	Northing			
18	394551.64	6493294.40	2.8	CCW	Medium
19	394770.31	6492943.10	3.5	CCW	Medium
25	396097.07	6490811.59	1.1	RE	High
26	396289.24	6490502.85	1.7	MU	High
50	397509.16	6480656.78	3.7	MU	Medium
57	397764.61	6477725.83	3.7	MU	Medium
63	397741.69	6475148.31	2.3	RE	Medium
65	397409.01	6475149.80	3.4	RE	Medium

Table 8 Medium and high risk-towers for ASS

Tower Number	Coordinates (GDA94)		Approx. depth to water table (mbgl)	Environmental factor	Environmental Risk Impact based on construction method 2 or 3
	Easting	Northing			
24	395884.08	6491153.77	2.9	Class II	Medium
27	396499.91	6490164.41	2.3	Class II	Medium
28	396504.13	6489611.76	3.2	Class II	Medium
53	397569.88	6479421.33	3.1	Class II	Medium
54	397622.21	6478965.72	3.8	Class II	Medium
55	397669.47	6478554.22	3.5	Class II	Medium

Tower Number	Coordinates (GDA94)		Approx. depth to water table (mbgl)	Environmental factor	Environmental Risk Impact based on construction method 2 or 3
	Easting	Northing			
56	397715.15	6478156.45	3.4	Class II	Medium
61	397748.99	6475969.80	3.0	Class I	Medium
64	396177.51	6475198.70	3.4	Class I	Medium
66	395883.78	6475200.50	3.7	Class II	Medium
68	395644.19	6475435.75	3.3	Class II	Medium
69	396407.22	6475154.27	3.0	Class II	Medium

Appendix B

Changes to EMP table

Changes to EMP

Complexity of changes			**Minor revisions** ☐ **Moderate revisions** ☐	**Major revisions** ☐
Number of Key Environmental Factors			**One** ☐ **2-3** ☐	**> 3** ☐
Date revision submitted to EPA: DD/MM/YYYY				
Proponent's operational requirement timeframe for approval of revision **Reason for Timeframe:**			**< One Month** ☐ **< Six Months** ☐	**> Six Months** ☐ **None** ☐
Item no.	**EMP section no.**	**EMP page no.**	**Summary of change**	**Reason for change**
1.				
2.				
3.				