

Vegetation Clearing Assessment Report

Yanchep TX Capacity Reinforcement Works

Western Power Project No.: T0624343/ WSP Project No.: PS218119

November 2025



Western Power

363 Wellington Street

Perth WA 6000

GPO Box L921 Perth WA 6842

T: 13 10 87 | Fax: 08 9225 2660

TTY 1800 13 13 51 | TIS 13 14 50

Electricity Networks Corporation

ABN 18 540 492 861

enquiry@westernpower.com.au

Document Control**Document version history**

Version	Date	Amendment	Author/Reviewer
A	27/03/2025	Initial version	
B	7/05/2025	Updated clearing boundary	
0	19/05/2025	Final version following review	
0.1	23/07/2025	Review of Final version	

1. Project Information

Project Area		
Project name: Yanchep Substation TX Capacity Reinforcement Works		Contract/Work Order No: T0624343
Main purpose of clearing	Permanent/Temporary	Clearing area (ha)
New transformer and additional assets to be installed to reinforce the power network.	Permanent ☒	0.15 ha
	Temporary ☐	
New infrastructure such as buildings, fences, gates, posts, boards, scaffolding, hurdles, other erections and structures to support the construction or operation of electricity infrastructure.		
Native vegetation clearing for the purposes of upgrading any of the above activities where such activities are not exempt from requiring a clearing permit		
Proposed start date: 01/02/2026		Expected completion date: 01/04/2026
Method of clearing: Mechanical and manual		Machinery to be used: Excavation, truck & chipper, bobcat, service vehicles.
Project details: The project involves the installation of a new transformer in Yanchep Substation. The works are a necessary upgrade to overcome imminent capacity shortfall. Vegetation clearing around the existing substation infrastructure will be required to facilitate the expansion.		
Guardian Permit ID reference number: PER-0001574		Permit/Exemption number: CPS1918/11

2. Map/photos

T0624343 Yanchep Substation Clearing Area



Image 1: Map of proposed clearing area at Yanchep Substation.

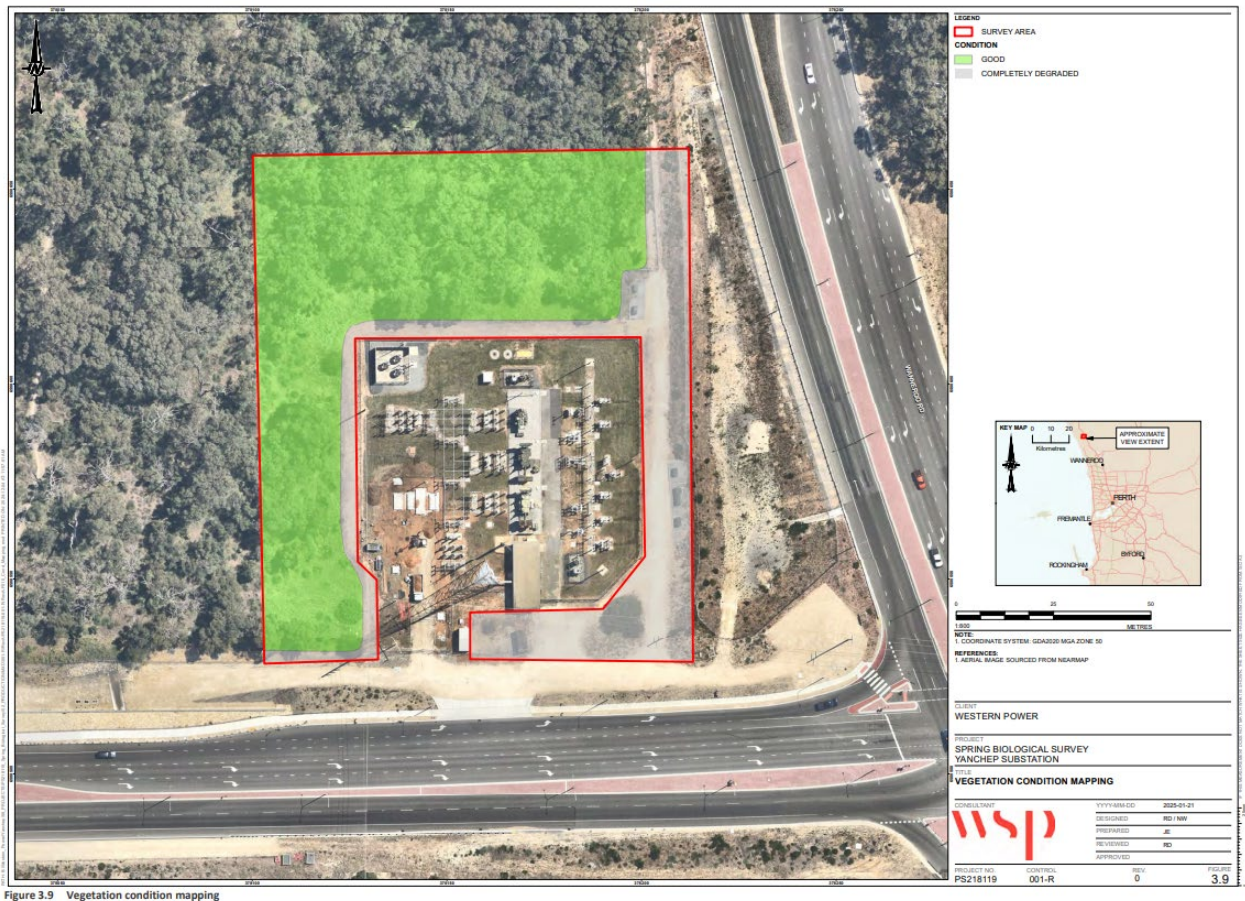


Figure 3.9 Vegetation condition mapping

Image 2: Map of vegetation condition surveyed at Yanchep Substation (Spring 2024).

T0624343 Yanchep Substation 10km Study Area

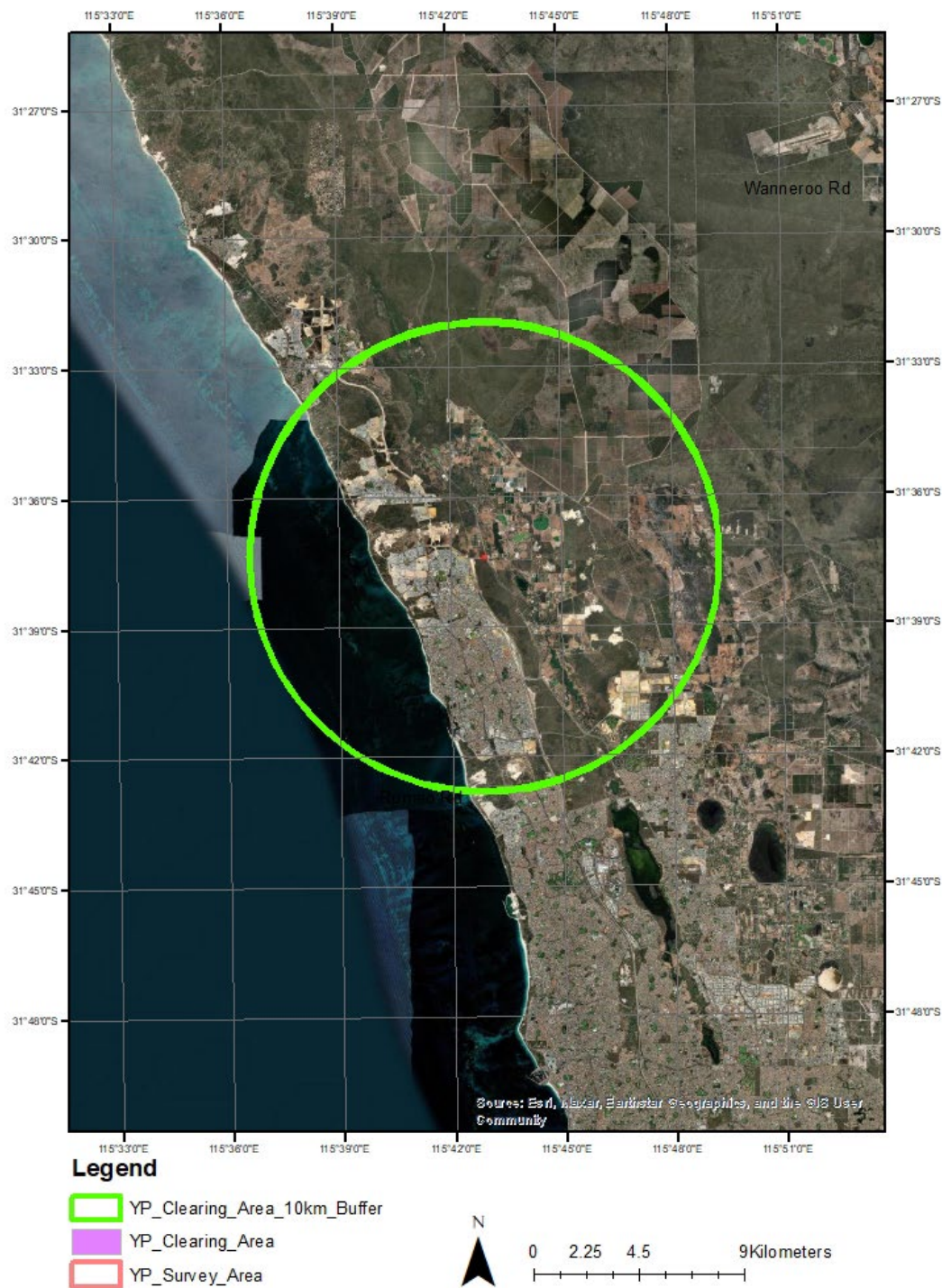


Image 3: Map of 10km Study Area at Yanchep Substation.



Image 4: Vegetation proposed to be removed at the entrance to Yanchep Substation (www.google.com/maps).



Image 5: Photo of 'good' vegetation proposed to be cleared northwest of substation consisting of a weedy understory.



Image 6: Photo of 'good' vegetation proposed to be cleared northeast of substation consisting of a weedy understory

3. Avoid, minimise and reduce extent and impact of clearing

Alternatives to clearing considered during the development of the project are outlined in Table 3.1.

Table 3.1 Alternatives to clearing

Alternative to Clearing	Applicable	Discussion
Directional drilling of underground cables instead of open trenching	No	Directional drilling is not applicable to the installation of a new transformer and associated assets.
Existing tracks are utilised where possible	Yes	Existing tracks are already present within and surrounding the Yanchep Substation. No additional tracks are required to access the proposed clearing area.
Utilising previously cleared areas where possible	Yes	The project expansion will utilise previous cleared areas to the South to minimise the expansion area to the North and reduce the clearing area footprint.
Consideration of alternative engineering and design solutions	Yes	The location of the substation expansion is constrained by conservation estate to the North and West and Wanneroo Road to the East. Expansion to the North rather than to the West minimises impacts to the vegetation as it can utilise an existing access road.
Other	Yes	The proposed clearing is required to expand an existing substation to support critical electricity infrastructure essential for regional supply, reliability, and future demand growth. The infrastructure provides public benefit by ensuring safe, secure, and reliable power delivery to residential, commercial, and industrial users.

4. Site context

4.1 Location

Property:

1. Lot 9245 (2K) and part Lot 6270 (16K) Romeo Road, Carabooda.

Conservation Estates:

1. Neerabup National Park (DBCA Legislated Lands and Waters area)
2. Bush Forever (Site no. 383)

Local Government:

1. City of Wanneroo

4.2 Vegetation description

Beard et al. (2013) mapping is used to determine the current extent of remnant vegetation remaining when compared to pre-European vegetation extent. The proposed clearing area is within the Spearwood-998 vegetation association, which consists predominantly of medium Tuart woodland.

Hedde (Hedde, Loneragan, & Havel, 1980) mapped the vegetation within the proposed clearing area as 'Cottesloe Complex – Central and South' which is described as a mosaic of woodland of *Eucalyptus gomphocephala* (tuart), open forest of tuart - *Eucalyptus marginata* (Jarrah) - *Corymbia calophylla* (Marri) and closed heath on the limestone outcrops.

A detailed flora and vegetation survey undertaken on 23 and 24 October 2024 confirmed 0.14 ha of vegetation within the proposed clearing area (0.15 ha) comprised of a mixed Eucalypt woodland of tuart, jarrah and marri with a condition rating of 'good' in accordance with *Technical Guidance Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2020). The remaining 0.01 ha of the proposed clearing area comprises of 'completely degraded' vegetation (Image 2).

4.3 Summary of results of surveys

In Spring 2024, WSP conducted detailed surveys of flora and vegetation, basic fauna, and targeted Black Cockatoo surveys within a total area of 0.92 ha, which included the proposed clearing area (0.15 ha) (WSP, 2024). A summary of the results of these surveys is as follows:

- No evidence of conservation significant flora or fauna was recorded during the survey.
- A small patch of potential Tuart Threatened Ecology Community (TEC) (0.13 ha) was recorded within the survey area which is likely to be part of a larger patch in the surrounding vegetation. The potential patch of Tuart TEC does not meet the minimum condition and/or size threshold to be classified as a TEC patch (WSP, 2024).
- A total of 15 black cockatoo potential nesting trees were identified, none of which contained suitable hollows for nesting. Two of these potential nesting trees are in the proposed clearing area. A total of 0.61 ha of native foraging habitat was recorded within the survey areas with 0.14 ha occurring in the proposed clearing area.

A Phytophthora Dieback Assessment was undertaken within a 0.92 ha area which included the proposed clearing area in January 2025 by Terratree (Terratree, 2025). A summary of the results of this assessment is as follows:

- No phytophthora was detected within the overall area.
- The native vegetation contains susceptible species and is at risk of dieback infestation from poorly cleaned machinery during clearing works.

5. Spatial assessment

Public datasets were analysed, and the following layers are indicated as having the potential for clearing impacts within a local search area radius of 10 km (WSP, 2024).

DBCA managed tenure	☒	Bush Forever	☒	CAWS Act Area	☐	Native Vegetation Clearing Regs ESAs	☒
Conservation listed fauna	☒	Conservation listed flora	☐	Western Power ESA sites	☐	Native vegetation remaining	☒
Threatened ecological communities	☒	Acid Sulfate Soils	☒	PDWSA	☐	Ramsar or Important Wetlands	☐
Geomorphic or other mapped wetlands	☐	Disease Risk Areas	☐	Erosion risk	☒	Offset areas	☐
Watercourses	☐	Land Degradation	☐		☐		
Other ☐ Details: - DBCA WA Threatened and Priority Ecological Community database - DBCA WA Herbarium database - DBCA threatened and priority flora database - Water Erosion Risk DPRID-013 - Geomorphic Wetlands, Swan Coastal Plain DBCA-019 - Region Scheme Special Areas DPLH-022 - Hydrography, Linear DWER-031 - Public Drinking Water Source Areas DWER-033 - Vegetation Complexes Swan Coastal Plain DBCA-046 - Acid Sulfate Risk Map Swan Coastal Plain DWER-055 - 10 metre contours DPIRD-073							

6. Assessment of vegetation clearing impacts

The proposed clearing has been assessed against each of the clearing principles in accordance with the Department of Water and Environmental Regulation guideline “*A guide to the assessment of applications to clear native vegetation under Part V Division 2 of the Environment Protection Act 1986*” (DER, 2014). Variance categories are outlined in Table 5.1 and results of the clearing assessment outlined in Table 5.2.

6.1 Clearing assessment

Clearing permit principles full assessment	Determination
a) Native vegetation should not be cleared if it comprises a high level of biodiversity. Assessment: The site does not occur within a Biodiversity Hotspot identified by the Threatened Species Scientific Committee. A desktop assessment identified that the native vegetation within the proposed clearing area forms part of Bush Forever site 383 and is likely part of a TEC (Tuart Woodlands and forests of the Swan Coastal Plain). Additionally, the Banksia Woodlands of the Swan Coastal Plain ecological community (Endangered) may occur within the clearing area and the Honeymyrtle shrubland on limestone ridges of the Swan Coastal Plain Bioregion (Critically Endangered) is likely to occur in the proposed clearing area. It is to be noted that the biological survey found that the vegetation within the survey area did not meet the criteria of the Banksia Woodland TEC. A potential Tuart TEC patch was mapped within the overall survey area (WSP, 2024). However, it does not occur in the proposed clearing area. The survey also confirmed no presence of Banksia Woodlands of the Swan Coastal Plain ecological community (Endangered) or Honeymyrtle shrubland on limestone ridges of the Swan Coastal Plain Bioregion (Critically Endangered) within the survey area (WSP, 2024). The 2024 field survey (WSP, 2024) determined that 0.61 ha of native vegetation that occurs within the overall survey area is considered ‘Good’ condition while 0.31 ha is considered ‘Completely Degraded’. Approximately 0.14 ha of native vegetation occurs in the proposed clearing area and is considered ‘Good’ in accordance with <i>Technical Guidance Flora and Vegetation Surveys for Environmental Impact Assessment</i> (EPA, 2020). The remaining 0.01 ha of the proposed clearing area comprises of ‘completely degraded’ vegetation (Image 2). Fourteen threatened and 16 priority plant species were identified as potentially occurring within the proposed clearing area, and/or within 10 km of the proposed area. The likelihood of occurrence assessment deemed two threatened species, <i>Melaleuca</i> sp. Wanneroo (EN) and <i>Eucalyptus argutifolia</i> (VU), as potentially occurring in the proposed clearing area (WSP, 2024). No threatened or priority flora was recorded during the detailed flora survey undertaken by WSP (WSP, 2024), therefore reducing the likelihood of threatened or priority flora to occur within the proposed clearing area. Within the proposed clearing area, 0.14 ha of native vegetation is classified as black cockatoo foraging habitat. Two Black Cockatoo habitat trees occur within the proposed clearing area including a Marri tree (<i>Corymbia calophylla</i>) and a <i>Eucalyptus</i> sp, that do not contain suitable hollows for nesting. As only 0.14 ha of native vegetation classified as ‘good’ is proposed to be cleared, it is unlikely to have a significant impact on local biodiversity as similar vegetation occurs adjacent and in the local area. Native species richness for both flora and fauna is also relatively low with higher richness likely to occur in larger remnants of native vegetation. Although the proposed clearing is unlikely to have a significant impact on local biodiversity it comprises of Bush Forever vegetation and black cockatoo foraging habitat, therefore the proposed clearing area may be at variance with this clearing principle.	May be at variance
b) Native vegetation should not be cleared if it comprises whole or part of, or is necessary for the maintenance of, a significant habitat for fauna. Assessment: No conservation significant fauna has been recorded within the proposed clearing area according to the DBCA threatened and priority database. A desktop assessment identified 65 conservation significant fauna species as potentially occurring within the proposed clearing area and/or within a 10 km of the proposed clearing area.	Is at variance

A total of nine native fauna species were recorded during the field survey representing eight bird and one reptile species. No fauna of conservation significance was observed. No evidence of conservation significant fauna was recorded during the field survey undertaken by WSP (2024).

The likelihood of occurrence assessment undertaken by WSP (WSP, 2024) deemed Carnaby's Black Cockatoo (*Zanda latirostris*) (EN) highly likely to occur. Forest Red-tail Black Cockatoo (*Calyptorhynchus banksii naso*)(VU) and Quenda (*Isoodon fusciventer*) (P4) possible to occur.

Fork-tailed Swift (*Apus pacificus*) (MI) and Peregrine Falcon (*Falco peregrinus*) (OS) are also possible to occur in the proposed clearing area. However, the Fork-tailed Swift (*Apus pacificus*) is a predominantly aerial species that occurs over a large portion of Western Australia and the likelihood the species will interact with the terrestrial habitat within the clearing area is low to negligible.

The Peregrine Falcon (*Falco peregrinus*) is unlikely to breed within the proposed clearing area as they prefer to nest in cliff face recesses but have been known to utilise abandoned nests of other birds. As the proposed clearing area is unlikely to contain suitable breeding and nesting habitat and the foraging opportunities are limited compared to the extent of the surrounding vegetation, the likelihood the species will interact within the proposed clearing area is low to negligible.

The Quenda (P4) is a small marsupial that persists on the Swan Coastal Plain. Several DBCA records of the species occur in the local area with the closest record approximately 500 m away. No evidence of Quenda was recorded during the survey. The Quenda is a ground dwelling species and the Eucalypt woodland within the proposed clearing area could potentially support individuals, however a high degree of disturbance and weedy grasses covering a large extent of the habitat recorded during the survey indicates a low to negligible likelihood the species will interact with this vegetation within the clearing area.

The proposed clearing area contains two potential nesting trees for black cockatoos, it includes a Marri (*Corymbia calophylla*) and a *Eucalyptus sp*, however the trees do not contain suitable hollows necessary for black Cockatoo breeding habitat. It is unlikely that the project area has been used recently for roosting as no evidence of roosting by black cockatoos was recorded during the survey. However, tall trees within the survey area may be used for roosting periodically. The closest known roost (WANCARR001) occurs approximately 2 km north and is associated with Carnaby's Black Cockatoo. The nearest water body to the proposed clearing area in Carabooda Lake which is approximately 450m northeast. This is not a permanent water source and is subject to seasonal changes. Therefore, the clearing area is unlikely to provide suitable roosting habitat for black cockatoo during the drier seasons.

Approximately 0.14 ha of the proposed clearing area was recorded as high-quality black cockatoo foraging habitat. The most abundant foraging species recorded during the survey was Marri (*Corymbia calophylla*), which is regularly consumed by both Carnaby's Black Cockatoo and Forest Red-tailed Black Cockatoo (DAWE, 2022). One Marri (*Corymbia calophylla*) tree is within the proposed clearing area. While being high quality, the foraging habitat extent within the proposed clearing area is relatively small covering well under one hectare. The mapped foraging habitat is part of a larger patch of vegetation that extends outside the boundaries of the proposed clearing area covering over 11 hectares. Beyond that, additional foraging habitat occurs throughout Carabooda and Nowergup. The relatively small extent and location of vegetation proposed to be cleared on the edge of the Neerabup Conversation estate is unlikely to create a break in ecological linkages or have any significant impact on black cockatoo habitat. Although some minor disturbances may occur the proposed clearing area is at variance with this clearing principle.

c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.

Not likely to be at variance

Assessment:

No threatened flora was recorded within the proposed clearing area or surrounding survey area.

The likelihood of occurrence assessment deemed no threatened flora species as potentially occurring in the proposed clearing area (WSP, 2024). Additionally, no threatened flora was recorded during the detailed flora survey undertaken by WSP (WSP, 2024). The native vegetation community recorded during the survey is not necessary for the continued existence of a threatened flora species.

The clearing area is not likely to be at variance with this clearing principle.

d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.

Not likely to be at variance

Assessment:

A desktop assessment identified that the native vegetation within the proposed clearing area is likely part of the threatened ecological community (TEC), Tuart Woodlands and forests of the Swan Coastal Plain (Critically Endangered - EPBC Act). Additionally, the Banksia Woodlands of the Swan Coastal Plain ecological community (Endangered – EPBC Act) is likely to occur within the proposed clearing area and the Honeymyrtle shrubland on limestone ridges of the Swan Coastal Plain Bioregion (Critically Endangered – EPBC Act) is likely to occur in the proposed clearing area.

The field survey identified a small patch of potential Tuart TEC within the overall survey area (WSP, 2024). The patch is approximately 0.134 ha in size but according to condition thresholds and categories, the patch recorded within the survey area does not meet the criteria to be considered part of a TEC. The patch does not occur within the proposed clearing area and no recorded Tuart (*Eucalyptus gomphocephala*) trees occur within the proposed clearing area. The patch is located 9m from the northern edge of the proposed clearing area and therefore provides a buffer to maintain ecological processes and function and protect the potential Tuart TEC patch.

The vegetation within the survey area also did not meet the criteria of the Banksia Woodland TEC, the Banksia Woodlands of the Swan Coastal Plain ecological community or Honeymyrtle shrubland on limestone ridges of the Swan Coastal Plain Bioregion.

Given the potential Tuart TEC does not meet the criteria to be considered part of a TEC, no recorded Tuart (*Eucalyptus gomphocephala*) trees occur within the proposed clearing area and a buffer is maintained between the proposed clearing area and the potential Tuart TEC patch, the clearing area is not likely to be at variance with this clearing principle.

e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.	Not likely to be at variance
--	-------------------------------------

Assessment:

Hedde/Mattiske Vegetation complex	Scale	Pre-European extent (ha)	Current extent (ha)	Percent remaining	% Current Extent remaining in protected areas
Cottesloe Central and South	Local Government Authority (LGA)	13,302	4,310	32.4	17.5

The native vegetation within the proposed clearing area is mapped as comprising the Cottesloe – Central and South complex (Western Australian Government, 2021). The City of Wanneroo’s latest Local Biodiversity Plan states that 32.4% of this vegetation complex remains within the LGA boundary (City of Wanneroo, 2025).

Pre-European Vegetation Association	Scale	Pre-European extent (ha)	Current extent (ha)	Percent remaining	% Current Extent remaining in DBCA reserves (proportion of Current extent)
Vegetation Association No. 998	Statewide	48.293.94	17,666.85	36.58	13.74
	IBRA Bioregion SWA	48.293.94	17,666.85	36.58	13.74
	IBRA Sub-region SWA02	48.293.94	17,666.85	36.58	13.74

The native vegetation within the proposed clearing area is mapped as comprising the Spearwood 998 pre-European vegetation association (DPIRD_006). DBCA’s Statewide Vegetation Statistics state that 36.58% of this vegetation complex remains within Western Australia as of 2018. As the pre-European extent remains above the 30% retention threshold set by the National Objectives and Targets for Biodiversity Conservation and above the 10% thresholds for the metro area, the proposed clearing area is not considered to be an area that has been extensively cleared. Additionally, as the proposed clearing area is located on the edge of a substantial vegetated area, it is unlikely that the proposed clearing will further fragment the existing ecological linkages or reduce ecological functioning. Therefore, the proposed clearing area is not considered to be a significant remnant in an area that has been extensively cleared.

Given the above the proposed clearing area is not likely to be at variance with this clearing principle.

f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	Not likely to be at variance
---	-------------------------------------

Assessment:

No wetlands or water features occur within the proposed clearing area. The closest wetland (Carabooda Lake) is located approximately 450 m to the northeast.

No surface water or wetland was observed during the field survey by WSP (WSP, 2024).

The vegetation proposed to be cleared is not representative of riparian vegetation and is therefore not likely to be at variance to this principle.

g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	Not likely to be at variance
Assessment: The likelihood of appreciable land degradation from clearing native vegetation in the project area appears low based on the geological and topographical context. The area is situated within the Spearwood Soil Landscape System on the Swan Coastal Plain, characterised by well-drained sand dunes and plains (WSP, 2024). The proposed clearing area occurs in a low water erosion risk area. The proposed clearing area is not located within a wetland, which minimizes the risk of acid sulfate soils (ASS), a significant concern for land degradation in nearby areas like Carabooda Lake. While clearing native vegetation can impact biodiversity and ecological processes, the specific conditions of the proposed clearing area suggest that appreciable land degradation is unlikely. The clearing area is not likely to be at variance with this clearing principle.	
h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.	Is at variance
Assessment: The proposed clearing area occurs within the northern portion of Bush Forever site 383 and Neerabup National Park conservation estate and is within a DBCA Legislated Lands and Waters area. The overall survey area included 0.61 hectares of native vegetation, which is classified as “good” condition in accordance with <i>Technical Guidance Flora and Vegetation Surveys for Environmental Impact Assessment</i> (EPA, 2020) due to moderate native species diversity, despite having a substantial weed cover ranging from 20% to 50%. The eastern section of the survey area and a total of 0.31 ha was deemed "completely degraded" due to the absence of native species and the prevalence of bare ground, fire breaks, and non-native species like pasture grasses and weeds. Close to 93% of the proposed clearing area comprises of remnant vegetation associated with Bush Forever site 383, the remaining 7% consists of completely degraded vegetation. Approximately 0.06 ha of the proposed clearing area is within the DBCA managed Neerabup National Park conservation estate, the remaining 0.09 ha of the proposed clearing area is within the Western Power property boundary. The proposed clearing area is on the periphery of Neerabup National Park conservation estate, and it is unlikely that the proposed clearing will further fragment connectivity between the conservation area and other native vegetation areas. The proposed clearing area will unlikely create a primary barrier for faunal movement or disconnect ground dwelling fauna from remnant patches of vegetation. It is possible the clearing on the edge of the Neerabup National Park could increase the risk of edge effects and the risk of weed invasion. To prevent risk of weed invasion to the native vegetation surrounding the proposed clearing area an action will be implemented to treat and remove invasive weed species post construction through a vegetation management plan. The construction footprint has been designed to minimise the clearing of native vegetation as much as practically possible to allow for the construction of infrastructure upgrades within the Western Power property boundary and an access path within the DBCA managed Neerabup National Park. The vehicle turnaround areas will be implemented in previously cleared areas next to the substation. The relatively small extent of the proposed clearing area is well represented in 11 ha of surrounding vegetation and is of equal condition. Therefore, the impact to the environmental values to this conservation area is minimal and is not considered significant. Although impact to the environmental values to this conservation area is not considered significant, the proposed clearing area has the potential to increase the risk of edge effects, therefore the clearing area is at variance with this clearing principle.	
i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.	Not likely to be at variance
Assessment: The proposed clearing area is not located on a Public Drinking Water Source Area (PDWSA). No surface water features occur within the clearing area. No surface water was observed within the proposed clearing area during the field survey (WSP, 2024). The area to be cleared is relatively small and is unlikely to have any effect on groundwater.	

The clearing area is not likely to be at variance to this principle.

j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Not likely to be at variance

Assessment:

No wetlands or water features occur within the proposed clearing area. The closest wetland (Carabooda Lake) is located approximately 450 m to the northeast. The proposed clearing area elevation is approximately 10m above the closest wetland.

No surface water was observed within the proposed clearing area during the field survey (WSP, 2024). The area comprises sandy soils therefore there is a low risk of waterlogging. The area to be cleared is relatively small and is unlikely to have any effect on water levels.

The clearing area is not likely to be at variance with this clearing principle.

7. Planning instrument or other relevant matters

A Development Application is being undertaken to seek development approval with the City of Wanneroo and The Western Australian Planning Commission (WAPC) for the clearing of native vegetation within Bush Forever site 383.

A Phytophthora Dieback Assessment was completed in January 2025 that did not detect dieback within the proposed clearing area, though the area remains at risk due to susceptible species. A Disturbance Approval system (DAS) notice will be submitted for works within DBCA managed land along with a DBCA endorsed dieback management plan (DMP) and DMP site map.

8. Clearing Permit Details

Western Power manages impacts of clearing through the implementation of an internal Vegetation Clearing Permit. The Western Power Vegetation Clearing Permit outlining the relevant clearing conditions is available in [ID98-750882832-35013](#).

9. Post assessment requirements

Post assessment	Outcome	Justification / Further Action Required
Are submissions required?	Exemption will be sought from DWER	Western Power will be seeking an exemption from DWER.
Could the area be affected by dieback?	Yes	The area has an average annual rainfall of greater than 400mm and is south of the 26 th parallel of latitude. A dieback survey has been completed and found no existing presence of dieback.
Has advice been received from DWER or an environmental specialist that the area may be susceptible to a pathogen other than dieback?	No	No other pathogens known to occur in the area.
Is a Vegetation Management Plan required?	Yes	The clearing may be at variance to principle (a) will be at variance to clearing principles (b) and (h).
Is rehabilitation/revegetation required?	No	Vegetation to be cleared is under 0.5 ha and permanent.
Is a Dieback Management Plan required?	Yes	A dieback management plan has been prepared and will be submitted to DBCA as part of the DAS application.
Is an offset required?	Exemption will be sought from DWER	Western Power will be seeking an exemption from DWER.
What is the clearing risk rating?	High	Clearing to be undertaken under CPS 1918/11 AND is at variance with clearing principles (b) and (h)

10. References

- City of Wanneroo. (2025). *Local Biodiversity Strategy 2018/19 – 2023/24*. Retrieved from https://www.wanneroo.wa.gov.au/downloads/file/1193/local_biodiversity_strategy
- DAWE. (n.d). *Approved Conservation Advice (incorporating listing advice) for the Tuart (Eucalyptus gomphocephala) woodlands and forest of the Swan Coastal Plain ecological community*. Department of Agriculture, Water and the Environment. Retrieved from <https://environment.gov.au/biodiversity/threatened/communities/pubs/153-conservation-advice.pdf>
- DEE. (2019). *Tuart Woodlands and Forests of the Swan Coastal Plain: A Nationally Significant Ecological Community*. Department of the Environment and Energy. Commonwealth of Australia. Retrieved from <https://www.dcceew.gov.au/sites/default/files/documents/tuart-woodlands-forests-swan-coastal-plain-guide.pdf>
- DER. (2014). *A guide to the assessment of applications to clear native vegetation, under Part V Division 2 of the Environmental Protection Act 1986*. Government of Western Australian Department of Environment Regulation. Retrieved from https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf
- DER. (2014). *A guide to the assessment of applications to clearing native vegetation*. Government of Western Australia. Retrieved from https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf
- DPLH. (n.d). *Bush Forever*. Department of Planning, Lands and Heritage. Retrieved from <https://www.wa.gov.au/system/files/2021-06/FS-Bush-Forever.pdf>
- Hedde, E., Loneragan, O., & Havel, J. (1980). Vegetation of the Darling System. In D. o. Environment, *Atlas of Natural Resources, Darling System, Western Australia*.
- Terratree. (2025). *Phytophthora Dieback Assessment of Yanchep Substation*. Terratree.
- Western Australian Government. (2021). Vegetation Complexes - Swan Coastal Plain (DBCA-046) dataset.
- WSP. (2024). *Yanchep TX Capacity Reinforcement Works, Western Power Project No.:T0624343 | WSP Project No.: PS218119, Biological Surveys Report*. Western Power.

Appendix A Vegetation Management Plan

1. Introduction

The Vegetation Management Plan (VMP) has been prepared in accordance with condition 6 of CPS 1918/11.

2. Scope of the Project Activities

Western Power is proposing to install a new substation transformer and additional assets at the Yanchep Substation to overcome imminent capacity shortfall. Vegetation clearing around the existing substation infrastructure will be required to facilitate the expansion. The proposed clearing area is 0.15 ha in size and is situated in Carabooda, within the City of Wanneroo, approximately 40 km north-northwest of Perth, Western Australia.

A clearing assessment was undertaken by WSP and found that the proposed clearing may be at variance with principle (a) and at variance for principles (b) and (h) of the ten clearing principles outlined in Schedule 5 of the *Environmental Protection Act 1986* (WSP, 2025).

3. Scope of the Vegetation Management Plan

The VMP highlights the project management issues and provides actions required to be undertaken before, during and following project completion. The aim of the VMP is to provide management actions to avoid, mitigate and/or manage the clearing impacts, to allocate areas of responsibility required for the implementation of management actions identified and to provide timeframes for completion and monitoring actions.

4. Non-Compliance

All non-compliances related to this VMP will follow Western Power's incident management procedure and will be logged in Guardian.

Project Component	Management Action	Evidence Action completed	Responsible Person	Completion Timeframe
Standard Actions				
Clearing	At the pre-start meeting provide clear maps indicating the areas approved to be cleared to the crew undertaking the works	Record sheet to be signed at pre-start meeting by all personnel.	Site Supervisor	Prior to clearing commencing
	All access and laydown areas will be clearly delineated on plans	Plans to be captured in the Volt.	Site Supervisor	Prior to clearing commencing
	Have a copy (electronic or hard copy) of the Clearing permit and VMP on site during the clearing activities	One compliance inspection will occur prior to clearing.	Site Supervisor	Once clearing has been completed
	Clearing of vegetation shall not exceed the approved limits of clearing. All vegetation to be cleared will be demarcated on site prior to the commencement of project activities	One compliance inspection will occur prior to clearing. Representative photos will be taken.	Site Supervisor/Environmental Representative	Prior to clearing commencing
	Any vegetation cleared beyond the extent of approvals shall be rehabilitated to the pre-clearing condition	Clearing incident reported. Photo evidence of rehabilitation confirmed after 24 months.	Site Supervisor/Environmental Representative	Reported immediately after the event. Rehabilitated within 24 months
	Cleared vegetation will be respread in the neighbouring areas after project activities are completed	One compliance inspection will occur after clearing.	Site Supervisor	Once clearing has been completed

Specific Actions				
Principle b	Clearing will progress slowly in one direction to ensure fauna has opportunity to move on	One compliance inspection will occur prior to clearing.	Site Supervisor/Environmental Representative	Prior to and during clearing activities.
	In the event that sick, injured or orphaned native wildlife are located on the project site, the WILDCARE Helpline ((08) 9474 9055) will be contacted for assistance and an incident will be lodged in Guardian.	Any incidents will be reported and investigated.		
	Feeding, disturbance, harassing of fauna or the presence of firearms or pets is prohibited on site.			
Principle h	Implement weed hygiene and control measures to prevent new weed infestations from occurring within the project area and the spread of existing weeds.	One compliance inspection of weed infestations between August and October within one year post clearing. Action to be implemented in Guardian record system.	Site Supervisor/Environmental Representative	Completion construction
	Remove or kill any weeds growing in project area that are likely to spread and result in environmental harm to adjacent area of native vegetation that are in good or better condition.	To be undertaken if required during or following compliance inspection. Action to be implemented in Guardian record system.		

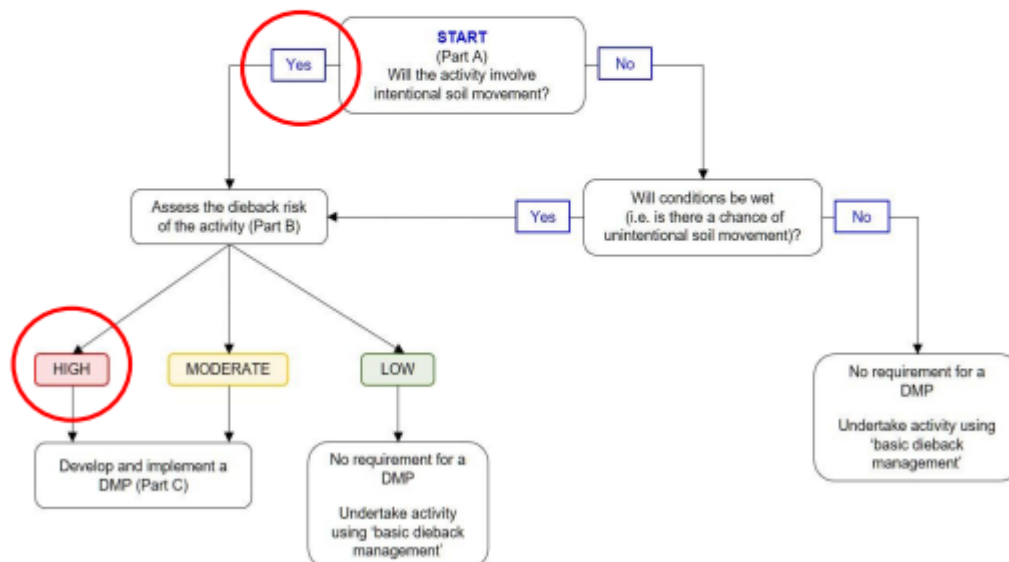
	Clean earth moving machinery of soil and vegetation prior to entry and exit to proposed clearing area.	A clean of entry (COE) point and hygiene inspection area will be implemented at South entry to Yanchep substation. Inspections will be recorded in the vehicle and equipment environmental inspection register.	All personnel and contractors	Prior to, during and post clearing activities.
	Ensure that no known dieback-affected soil, mulch, fill or other material is brought into an area that is dieback free;			
	Have a copy (electronic or hard copy) of the Dieback Management Plan (DMP) endorsed by DBCA, which indicates COE locations and risk management tactics, on site during the clearing activities. Implement controls stated in the DMP.	Inspection of risk management tactics will be recorded in the DMP form (Appendix B).	Site Supervisor/Environmental Representative	Prior to, during and post clearing activities.
Standard Record Keeping				
Record Keeping-Clearing	Maintain the following records for the cleared area: - Location of clearing area as a shapefile - Size of clearing (ha) - Date(s) on which clearing was done	Clearing data via CPS 1918/11 Condition 12a submitted to Environment team.	WP Project Owner	Data to be submitted within 30 days of project clearing activities being completed
Record Keeping - Clearing	Copies of all Vehicle Environmental Inspection Registers used to check that clearing machinery is free of soil and vegetative material must be maintained.	Copies of completed registers submitted to WP Project Owner	Site Supervisor	Copies of completed registers are to be submitted within 30 days of project clearing activities being completed
Record Keeping-Other	Maintain the other records in accordance with 12d (dieback/pathogen/weeds)	Data via CPS 1918/11 Condition 12d managed by Environment team. Copy of completed DMP form (Appendix B).	Environment Representative	Data to be submitted within 30 days of project activities being completed

Appendix B – Dieback Management Plan (DMP) and Site Map

 Department of Biodiversity, Conservation and Attractions	PHYTOPHTHORA DIEBACK RISK ASSESSMENT & MANAGEMENT PLAN FORM	FEM079
---	--	--------

PART A: DISTURBANCE ACTIVITY

The decision tree below will help determine if the activity constitutes a disturbance and requires a risk assessment (Part B), and the risk assessment will determine if a DMP is required (Part C).



Details of disturbance activity

Region/District of activity:	Swan Coastal District	Date of activity: (give date range if a prolonged activity)	
Location of site of activity: (Forest Block, Reserve or coordinates)	Yanchep Substation and Neerabup National Park	Disease Risk Area: (yes or no)	No
Vegetation type/complex:	Eucalypt woodlands and Banksia woodlands		
Description of the activity: (timber harvesting, road upgrade etc.)	Yanchep Substation expansion		
Proponent of the activity: (DBCA, FPC, MRWA, Water Corp. etc.)	Western Power		
Departmental objective for dieback management:	To minimise the potential for the introduction or spread of dieback associated with planned disturbance activities.		

Indicate what parts of the form have been completed for the activity described above:

Part	Purpose	Requirement	Tick parts completed
B	Risk Assessment	To be completed if decision tree in Part A indicates that intentional or unintentional soil movement will occur during the activity.	✓
C	DMP	To be completed if risk is assessed in Part B to be 'High' or 'Moderate'	✓
		Dieback Management Plan No. <i>Allocated by District</i>	

PART B: RISK ASSESSMENT

Step 1: MOISTURE conditions

Higher moisture during a disturbance activity increases the likelihood that soil will stick to a carrier (e.g. vehicles, equipment and/or footwear). Tick the box adjacent to the moisture conditions that are forecast for the period of the activity. If the activity will continue for an extended period, planning should consider the highest possible risk (wettest) conditions that may occur. If the activity is planned for dry conditions but the conditions change to become wetter prior to or during the activity, a contingency plan is required.

Dry soil	where dust forms when exposed soil is disturbed	✓
Moist soil	where soil is damp but does not stick to tyres, equipment and/or footwear	✓
Wet soil	where soil and moisture combine so that soil sticks to tyres, equipment and/or footwear	✓

Step 2: Determine the LIKELIHOOD of introducing or spreading dieback

Circle the description in each column that best describes the activity. An activity may fit between descriptions, in which case write a description into the appropriate blank cell.

The overall likelihood rating is determined by the criteria with the highest rating.

Disturbance type (e.g. action)	Introduction of raw material	Access	Complexity of activity	Extent of activity	Duration of activity	Drainage	Unmanaged access	Likelihood rating
Heavy earth moving, tracked vehicles	Infested or unknown raw material	Access crosses water (irrespective of frequency)			Activity area disturbed & map expired so impossible to revalidate boundaries		Increased public access in area of high public use	Very likely
Soil disturbance over a distance		Activity requires frequent access to site	Highly complex	Vehicle traverses several mini-catchments	Activity extends over several wet seasons	Surface water increased		Likely
Soil disturbance at single points	Crushed rock with no organic fraction		Complex - Clearing of native vegetation	Vehicles and machinery traverses Yanchep Substation and Neerabup National Park	Activity occurs during a single wet season		Increased public access, but access restricted and/or site remote	Possible
Rubber tyred vehicle, bicycle	'High confidence' uninfested raw material	Activity requires infrequent access to site		Single mini-catchment	Entry in short timeframe under dry conditions	Minimal increase in surface water		Unlikely
Human, animal traffic	No introduced raw materials		Not complex	Point or human traffic	Single entry in short timeframe under dry conditions		Activity does not alter frequency of access to site	Very unlikely

Step 3: Determine the CONSEQUENCE of introducing or spreading dieback

Determine the potential CONSEQUENCE that introducing or spreading dieback may cause by going through the table below systematically and circling the description in each column that best estimates the consequence.

The overall consequence rating is determined by the criteria with the highest rating.

Area put at risk	Predicted impact	Biodiversity and sensitive areas at risk	Consequence rating
Ongoing potential ¹ to completely infest all protectable areas in activity landscape unit ²	Predicted very high impact: (majority of species at the activity area are susceptible and/or introducing dieback will result in extinction of species or populations) or Wet areas which contain any <i>Banksia</i> species or jarrah	>1 threatened/priority plant or animal species, critical habitat, TEC and/or Ramsar wetlands that is susceptible to dieback and/or Old-growth jarrah forest	Severe
Potential to infest all protectable areas in activity landscape unit ¹	Predicted high impact: (many susceptible species and/or introducing the pathogen will result in loss of populations or localised extinction of species) or Where predicted impact cannot be determined, jarrah forest on upland areas	At least one threatened/priority plant or animal species, critical habitat, TEC and/or Ramsar wetlands that is susceptible to dieback and/or Sensitive neighbouring property	Significant
Potential to infest more than 5% of any protectable area or 4 ha's (whichever is greater – assessor may set a lower minimum protectable area where appropriate)	Predicted moderate impact: (moderate numbers of susceptible species and/or introducing the pathogen will result in a reduction in species/populations)		Intermediate
	Predicted low impact (low numbers of susceptible species)	Fauna Habitat Zones	Minor
No protectable areas estimated within any related landscape unit and/or The area is already infested ³	No susceptible species and/or the activity area is in the 'excluded' category. or Introducing dieback will have no impact discernible outside natural variation ³	No threatened/priority plant or animal species; critical habitat; TEC; and/or Ramsar wetlands that are susceptible to dieback. or As the activity area is already infested there will be no increased risk to threatened species and communities present ³	Insignificant

¹ Ongoing potential for an area to become infested occurs when the disturbance activity involves construction of permanent infrastructure e.g. roads or camp sites especially high in the landscape

² Landscape unit is an area bounded by features such as creeks, ridges, saddles, open roads and/or freehold land

³ Provide a map showing evidence that area is infested and attach to the risk assessment

Step 4: Determine the overall dieback RISK rating

- Refer to the table below that corresponds to the soil MOISTURE conditions (Step 1)
- Circle where the LIKELIHOOD rating (Step 2) intersects the CONSEQUENCE rating (Step 3)

This is the overall dieback RISK rating for the activity.

DRY SOIL		CONSEQUENCE				
LIKELIHOOD	Disturbance examples	Insignificant	Minor	Intermediate	Significant	Severe
Very likely	tracked machines ripping, pushing soil	Low	Moderate	High	High	High
Likely	snigging/light surface skim over distance	Low	Moderate	Moderate	High	High
Possible	installing posts, exploration drilling	Low	Low	Moderate	Moderate	High
Unlikely	driving with rubber tyres	Low	Low	Low	Moderate	Moderate
Very unlikely	walking	Low	Low	Low	Low	Low

MOIST SOIL		CONSEQUENCE				
LIKELIHOOD	Disturbance examples	Insignificant	Minor	Intermediate	Significant	Severe
Very likely	tracked machines ripping, pushing soil	Low	High	High	High	High
Likely	snigging/light surface skim over distance	Low	Moderate	High	High	High
Possible	installing posts, exploration drilling	Low	Moderate	Moderate	High	High
Unlikely	driving with rubber tyres	Low	Low	Low	Moderate	High
Very unlikely	walking	Low	Low	Low	Moderate	Moderate

WET SOIL		CONSEQUENCE				
LIKELIHOOD	Disturbance examples	Insignificant	Minor	Intermediate	Significant	Severe
Very likely	tracked machines ripping, pushing soil	Low	High	High	High	High
Likely	snigging/light surface skim over distance	Low	High	High	High	High
Possible	installing posts, exploration drilling	Low	Moderate	High	High	High
Unlikely	driving with rubber tyres	Low	Moderate	Moderate	High	High
Very unlikely	walking	Low	Low	Low	Moderate	Moderate

Step 5: Can the RISK be reduced by altering the activity or conditions?

If the risk rating is 'High' consideration should be given to:

- Cancelling the activity which avoids the risk; or
- Postponing the activity until conditions are dry for activities scheduled during moist or wet conditions.

If cancelling or postponing is not possible the activity should be re-assessed to determine if the risk can be reduced by altering some of the parameters of the activity. For example, tyred machinery generally causes less soil disturbance and are easier to clean, compared to tracked machines which cause more damage and pick up soil in the cleats which is hard to remove. Refer to the appendices for further guidance on reducing risk associated with an activity.



Step 6: Determine requirements based on RISK rating

Tick the box adjacent to the RISK rating of the activity as determined by the risk table.

High	- Complete Part C based on valid comprehensive dieback interpretation with Regional Manager (or delegate) approval before implementation, and sign-off after close-out - Green Card training¹ for all proponents and contractors involved in activity	☒
Moderate	- Complete Part C based on valid comprehensive dieback interpretation OR conditional dieback occurrence information with Regional Manager (or delegate) approval before implementation, and sign-off after close-out - Green Card training¹ for proponent and contractors involved in activity	☐
Low	- Part C not required. Activity can proceed using basic dieback management - Green Card training¹ for all proponents and contractors involved in activity	☐

¹ Green Card training is mandatory for nominated departmental staff

Step 7: Risk Assessment sign-off

	Full Name	Position	Signature	Date
Risk Assessment conducted by:	Norman Lai	Senior Ecologist and Dieback Interpreter		24/02/2025
Risk Assessment checked by: (Regional Manager or delegate)	Melissa Evans	District Manager		4/07/2025

Additional comments or conditions:

Supported noting no confirmed occurrence of dieback presence at the location - ME

PART C: DIEBACK MANAGEMENT PLAN

Dieback Management Plan No. <i>Allocated by District</i>	
---	--

Step 1: Dieback occurrence information & map (supervising officer/proponent)

Valid comprehensive occurrence information		or	Conditional occurrence information	
Interpreter report/map no. and/or name	Is the assessment evidence DHSO endorsed? Norman Lai		Source	

Step 2: DMP meeting (supervising officer/proponent)

Date:		Convened by:	
Attended by:			

Step 3: Risk management tactics (supervising officer/proponent)

Tactic no.	TACTICS TO BE DEPLOYED <i>Refer to the Appendices in the Phytophthora Dieback Management Manual for guidance</i>	To be implemented (if required)	Implemented (initiated when complete)	Checked (initiated when checked)
MOISTURE CONDITIONS				
1	Moisture conditions as per Part B/Step1 dry ☒ moist ☐ wet ☒			
2	Contingency in event that conditions become wetter than those planned for before or during the activity: - postpone/cease activity - fall back to low risk area (e.g. infested area) - risk reassessed and new DMP developed based on wetter conditions	☒ ☒ ☒		
PROTECTABLE AREAS (and other management boundaries)				
3	Protectable area (and management unit boundaries within them) have been established in the field and are identified as P 1 to P on the attached dieback management map	☒		
4	Management boundaries (unrelated to Protectable Areas) have been established in the field and identified on the management map e.g. mini-catchments, impact etc.	☒		
HYGIENE				
5	Clean on Entry (COE) points and No Soil Movement (NSM) roads identified on map and signs installed in-field (record COE numbers in appropriate boxes): COE road access COE NSM <input checked="" type="text" value="2"/> COE entering vegetation / protectable areas	☒		
6	COE gates installed and indicated on map against COE no.			

Tactic no.	TACTICS TO BE DEPLOYED <i>Refer to the Appendices in the Phytophthora Dieback Management Manual for guidance</i>	To be implemented (if required)	Implemented (initiated when complete)	Checked (initiated when checked)
7	turnarounds for COE points, numbered and marked on map			
8	COE points will be closed to Type when the operation is to cease for weeks, and on completion of all activities all temporary COE will be closed to Type by the proponent			
9	Cleandown points established in field and indicated on map How is effluent to be managed for wet cleandown?			
10	Machines and vehicles with portable hygiene kits	✓		
11	Records kept (circle relevant): COE clean down NSM	✓		
12	Management points (if applicable) numbered on map. Provide detail below on the decision or action that must be taken at each management point: M1: M2:			
TRAINING AND COMMUNICATION				
13	Staff/contractors with Green Card training	✓		
14	DMP briefings (circle relevant): at commencement weekly daily other	✓		
DISTURBANCE				
15	Machinery type(s): Bulldozer Machine Nos: 	✓		
RAW MATERIALS				
16	Type: Supplier/Source:			
17	Status (attach evidence):			
ACCESS				
18	Disease Risk Area permit obtained if required (attach copy)			
19	Access route planned to place least amount of protectable area downslope at risk, and shown on map			
20	Road maintenance uses tactics to mitigate harm to protectable areas: use interpreted boundaries			
21	push soil downslope only			
22	clean bucket, shovel, auger after digging culverts/holes			
23	use uninfested/low risk material to patch road			
24	roads to be closed, each road closure is numbered and marked on map			
25	Each road closure has been constructed to effectively control access			
26	Roads effectively closed/rehabilitated within weeks of end of activity			
27	located in infested/unprotectable categories when possible			
28	Road construction uses tactics to mitigate harm to protectable areas: low in profile			
29	high crown for better drainage			
30	deep roadside drains & coarse material to minimise erosion			
31	mitre/offshoot drain preferentially located towards base of the slope			

Tactic no.		To be implemented (<i>if required</i>)	Implemented (<i>initiated when complete</i>)	Checked (<i>initiated when checked</i>)		
	TACTICS TO BE DEPLOYED <i>Refer to the Appendices in the Phytophthora Dieback Management Manual for guidance</i>					
32	'Green bridge' implemented (mark on map)					
33	Activity to be undertaken using split-phase (provide detail):					
DURATION						
34	Duration of activity >1 year, engage Interpreter to recheck the boundaries					
EXTENT						
35	Divide area into management units for work in dry, moist or wet (circle relevant)					
36	Select factors to be used to split dry, moist and wet soil management units	1	Protectability			
37		2	Presence of biodiversity values			
38		3	Predicted impact			
39		4	Potential for spread			
40		5	Machine/vehicle floatation			
41		6	Access prone to bogging			
42		7	Ability to control unmanaged access			
43		8	Distance from roads			
44	Operate to mini-catchments					
DRAINAGE						
45	Drainage directed away from protectable areas, and drainage points numbered and marked on map					
46	Imported water	Source:				
47		Disinfectant type and dosage:				
WEEDS						
48	In areas infested with Declared/Prohibited or very high to moderate priority weeds, which are marked on the map, the proponent (circle appropriate): a) will not enter area b) will clean down machinery when leaving area					
ADDITIONAL CONDITIONS						

Step 4: Dieback management map checklist (supervising officer/proponent)

Tactics decided on above should be clearly marked on the map using the symbols in brackets. Each point will have a unique no. (e.g. COE1; COE2; X1) and the total number recorded below (e.g. total 2 COE points; 1 road closure)
Note: staff and contractors in the field must be briefed and supplied with a management map

DMP No. recorded on management map	Road drainage points (D): No.
Protectable areas and/or management units	Roads/areas with 'No Soil Movement' (NSM): No.
'Clean on Entry' points (COE): No.	Road closures (X): No.
COE with gates (COE with gates): No.	Turnarounds and roads for rehab. (map legend)
Management points (M): No.	Access route (map legend)
Clean down locations (W): No.	

Step 5: Proponent sign-off (external i.e. non-DBCA proponent)

I, the undersigned, agree to implement the above DMP:

Full Name	Position	Agency/Organisation	Signature	Date

Step 6: DMP approval (Regional Manager or delegate)

I, the undersigned, have reviewed the Risk Assessment and approved the DMP:

Full Name	Position	Signature	Date
Comment (if required)			

Step 7: DMP close-out (supervising officer/proponent)

All tactics identified in the DMP were implemented as approved? Yes No

Full Name	Position	Signature	Date
Comment (if required)			

Step 8: DMP sign-off (Regional Manager or delegate)

I, the undersigned, am satisfied that the DMP has been implemented and closed-out as approved:

Full Name	Position	Signature	Date
Comment (if required)			

 Department of Biodiversity, Conservation and Attractions	PHYTOPHTHORA DIEBACK RISK ASSESSMENT & MANAGEMENT PLAN FORM	FEM079
---	--	--------

Step 9: Document management checklist

Records ticked below are filed in the following location:

	Dieback occurrence information (Interpretation report and map) have been uploaded to DAS . If a DAS is not required, then forward FEM079 and occurrence information to Forest Management Branch at femweb@dbca.wa.gov.au
	Dieback Management Map
	Dieback Risk Assessment and Management Plan form (Parts A, B and C)
	COE and clean down records
	Disease Risk Area permit



Appendix C – Yanchep TX Capacity Reinforcement Works Western Power Project No.: T0624343 | Biological Surveys Report

Executive Summary

Western Power propose to install a New Station Transformer and additional assets at the Yanchep Substation to overcome imminent capacity shortfall (the project). To achieve this, vegetation clearance will likely be required.

The survey area is located in Carabooda, Western Australia and is approximately 0.92 ha in area. The proposed works will involve the expansion of the substation, subsequently requiring the clearing of native vegetation.

This report includes a desktop assessment of environmental values including flora, vegetation, and fauna; and a technical report on the results of a biological field survey.

The desktop assessment was prepared using publicly available reports and spatial data to identify potential constraints associated with physical and biological environment of the survey area and surrounds. Prior to the field survey, assessment of the likelihood of occurrence of Threatened and Priority Ecological Communities (TEC/PEC) and species listed under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act), *Biodiversity Conservation Act 2016* (BC Act) or by the Department of Biodiversity, Conservation and Attractions (DBCA) were undertaken.

Desktop assessment results showed that one TEC, 'Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain' (listed as critically endangered under the EPBC Act and Priority 3 by DBCA) was highly likely to occur in the survey area. Additionally, the 'Banksia Woodlands of the Swan Coastal Plain' TEC (listed as endangered under the EPBC Act and Priority 3 by DBCA,) and the 'Northern Spearwood shrublands and woodlands (SCP 24)' PEC (listed as Priority 3 by DBCA) were both assessed as being possible to occur within the survey area. Prior to the field survey, the likelihood assessment concluded that two threatened flora species (*Melaleuca* sp. Wanneroo (G.J. Keighery 16705), listed as EN under both the EPBC Act and BC Act; and *Eucalyptus argutifolia*, listed as VU under both the EPBC Act and BC Act) and 13 priority flora species listed by DBCA are possible to occur in the survey area.

One threatened fauna species, Carnaby's Black Cockatoo (*Zanda latirostris*) listed as EN under both the EPBC Act and BC Act is likely to occur in the survey area and four conservation significant species Forest Red-tailed Black cockatoo (*Calyptrorhynchus banksii naso*) listed as VU and Pacific Swift (*Apus pacificus*) listed as MI under both the EPBC Act and BC Act, Peregrine Falcon (*Falco peregrinus*) listed as OS under the BC act and Quenda (*Isodon fusciventer*) listed as priority in WA are possible to occur.

Outcomes of the survey are summarised as follows:

- A total of 15 native and 13 non-native (weed) flora species were recorded within survey area during the field assessment representing 20 families and 26 genera.
- No threatened or priority flora taxa were recorded within the survey area.
- One vegetation community was mapped within the survey area.
- The condition of vegetation within the survey area was mapped as being in "good" condition as they contain basic vegetation structure over weeds.
- A 0.13 ha patch of potential Tuart Woodland of the SCP TEC was recorded within the survey area. This patch does not meet the minimum condition and/or size threshold to be classified a TEC patch.
- No conservation significant fauna species were recorded.
- Fifteen black cockatoo habitat trees were recorded within the survey area. None contained suitable hollows for black cockatoo nesting.
- A total of 0.61 ha of high-quality black cockatoo foraging habitat was recorded.

4. Discussion

4.1 Flora and vegetation

Flora, including native vegetation occurs across most of the site. The vegetation shows no evidence of alteration from fire, but this is not considered to be a sign of degradation.

4.1.1 Threatened and priority flora

No threatened and priority flora listed for protection under the Commonwealth EPBC Act or Western Australian BC Act were identified from the survey area. The field survey was undertaken in September (Spring) and was considered sufficient to determine that these species are unlikely to occur.

4.1.2 Plant community

One vegetation community was identified and mapped across the survey area. The survey area is situated on brown clay soil, supporting *Eucalyptus* woodlands vegetation containing multiple low shrub species and non-native grasses. Consequently, impacts associated with identifying key environmental issues and constraints associated with the survey area would have a minimal impact on the vegetation present given that the woodlands and species present are well represented both at the local and regional scale.

4.1.3 Vegetation condition

The vegetation generally comprises of 50% cover of non-native species. Assigning condition using a categorical scale is always most difficult when vegetation qualities are close to the road verge boundaries. The method applied to assess vegetation condition was robust, as it combined the standard qualitative, categorical scheme of Keighery (1994). The Mixed Eucalypt woodland vegetation community within the survey area was mapped as being in "good" condition. The other areas within the survey area, either cleared or planted was mapped as being in "completely degraded condition".

4.1.4 Threatened and priority ecological communities

Tuart Woodlands and Forests of the Swan Coastal Plain (TEC) overlapped within the survey area. However, assessments for the potential Tuart Woodlands and Forests of the Swan Coastal Plain were conducted within survey area, due to the presence of *Eucalyptus gomphocephala* (Tuart) that are ≥ 15 cm DBH to consider potential classification as a TEC. However, to constitute the Tuart Woodlands TEC, a patch of Tuart Woodlands vegetation must also meet thresholds for condition and minimum patch size. The total size of the potential Tuart Woodland patch is less than 0.5 ha (0.134 ha) within the survey area. Therefore, the potential Tuart Woodland patch within the survey area does not meet the criteria for the acceptance as "Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plain" TEC.

4.1.5 Invasive species

Thirteen introduced species (weeds) were recorded from the survey area, all of which are common within the agricultural region of Western Australia. None of the weed species recorded are listed as WoNS (Australian Weeds Committee 2012) or as a Declared pest plant in Western Australia (Department of Agriculture and Food Western Australia, 2016). The survey area was degraded with weed foliage cover (almost 50%) with little remnant vegetation remaining, much of which consisted of a canopy of native trees over an understorey of weeds and other shrubs. Assessment to identify key environmental issues and constraints associated with the project is unlikely to significantly increase the weed cover or result in additional weed species in the survey area.

4.2 Fauna

4.2.1 Fauna habitat

Eucalypt woodland vegetation within the survey area provides foraging, roosting and nesting opportunities primarily for avian species. The understorey retains some native structure with grass trees providing potential shelter for ground dwelling animals. However, there is a high degree of disturbance with weedy grasses covering a large extent of the habitat. This habitat and surrounding vegetation may be able support a small number of ground dwelling fauna such as Quenda (P4) but the lack of connectivity with large remnants in Wanneroo and Alkimos restrict its use by native mammals and reptiles.

The remaining area within the survey area is highly disturbed with little habitat value. This is likely only used by common species on an occasional basis and wouldn't be critical to the survival of any species.

4.2.2 Conservation significant fauna

No conservation significant fauna species were recorded during the survey. However, the following five species of conservation significance may occur in the survey area:

- Fork-tailed Swift (MI) is a predominantly aerial species that occurs over a large portion of Western Australia. This species would unlikely interact with the terrestrial habitat but could occur in the airspace above the site.
- Peregrine Falcon (OS) is a large raptor that occurs throughout Australia. This species is unlikely to breed within the survey area as they prefer to nest in cliff face recesses but have been known to utilise abandoned nests of other birds. The survey area may provide opportunities for foraging.
- Quenda (P4) is a small marsupial that still persists on the Swan Coastal Plain. Several DBCA records of the species occur in the local area with the closest record approximately 500 m away. No evidence of Quenda was recorded during the survey. However, the Eucalypt woodland habitat within the survey area could support individuals inhabiting the vegetation at the north-west corner of Romeo Road and Wanneroo Road.
- Carnaby's Black Cockatoo (EN) and Forest Red-tailed Black Cockatoo (VU) are discussed in the following section.

4.3 Black Cockatoos

Suitable habitat, such as foraging, roosting and nesting sites are critical for the survival and conservation of black cockatoos. Substantial clearing of native vegetation on the Swan Coastal Plain has led to a significant reduction in available roosting and nesting sites and foraging habitat (DAWE, 2022).

4.3.1 Breeding

The survey area does not currently provide nesting opportunities for black cockatoos as no suitable nesting hollows were recorded during the field survey. It is possible that suitable hollows develop within the habitat trees recorded in the future, but this may take many years.

4.3.2 Roosting

It is unlikely that the project area has been used recently for roosting as no evidence of roosting by black cockatoos was recorded. However, tall trees within the survey area may be used for roosting periodically. The closest known roost (WANCARR001) occurs approximately 2 km north and is associated with Carnaby's Black Cockatoo.

4.3.3 Foraging

The survey area provides a high-quality foraging resource for black cockatoos. The most abundant foraging species recorded, Marri, is regularly consumed by both Carnaby's Black Cockatoo and Forest Red-tailed Black Cockatoo (DAWE, 2022). Marri is supported by other common native foraging species such as Jarrah, Tuart, Sheoak and Bull Banksia providing a diverse range of food sources for local black cockatoos.

While being high quality, the foraging habitat extent within the survey area is relatively small covering under one hectare. The mapped foraging habitat is part of a larger patch of vegetation that extends outside the boundaries of the survey area covering over 11 hectares. Beyond that, additional foraging habitat occurs throughout Carabooda and Nowergup.