



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: CPS 8462/2
File Number: DWERVT2666-5
Duration of Permit: From 09 July 2019 to 09 July 2023

PERMIT HOLDER

BHP Nickel West Pty Ltd

LAND ON WHICH CLEARING IS TO BE DONE

Lot 89 on Deposited Plan 411084, Kwinana Beach and East Rockingham

AUTHORISED ACTIVITY

The permit holder must not clear more than 2.5 hectares of native vegetation within the area hatched yellow in Figure 1 of Schedule 1.

CONDITIONS

1. Avoid, minimise, and reduce impacts and extent of clearing

In determining the native vegetation authorised to be cleared under this permit, the permit holder must apply the following principles, set out in descending order of preference:

- (a) avoid the clearing of native vegetation;
- (b) minimise the amount of native vegetation to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

2. Weed and dieback management

When undertaking any clearing authorised under this permit, the permit holder must take the following measures to minimise the risk of introduction and spread of *weeds* and *dieback*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no known *dieback* or *weed*-affected soil, *mulch*, *fill*, or other material is brought into the area to be cleared; and

- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

3. Records that must be kept

The permit holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 1.

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	<ul style="list-style-type: none"> (a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings; (c) the date that the area was cleared; (d) the size of the area cleared (in hectares); and (e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 1; and (f) actions taken to minimise the risk of the introduction and spread of weeds and dieback in accordance with condition 2.

4. Reporting

The permit holder must provide to the *CEO* the records required under condition 3 of this permit when requested by the *CEO*.


DEFINITIONS

In this permit, the terms in Table have the meanings defined.

Table 2: Definitions

Term	Definition
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the <i>Environmental Protection Act 1986</i> .
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
dieback	means the effect of <i>Phytophthora</i> species on native vegetation.
department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	<i>Environmental Protection Act 1986</i> (WA)
fill	means material used to increase the ground level, or to fill a depression.
mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
weeds	means any plant – (a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i> ; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.

END OF CONDITIONS



Meenu Vitarana

A/MANAGER

NATIVE VEGETATION REGULATION

*Officer delegated under Section 20
of the Environmental Protection Act 1986*

6 July 2021

SCHEDULE 1

The boundary of the area authorised to be cleared is shown in the map below (Figure 1).

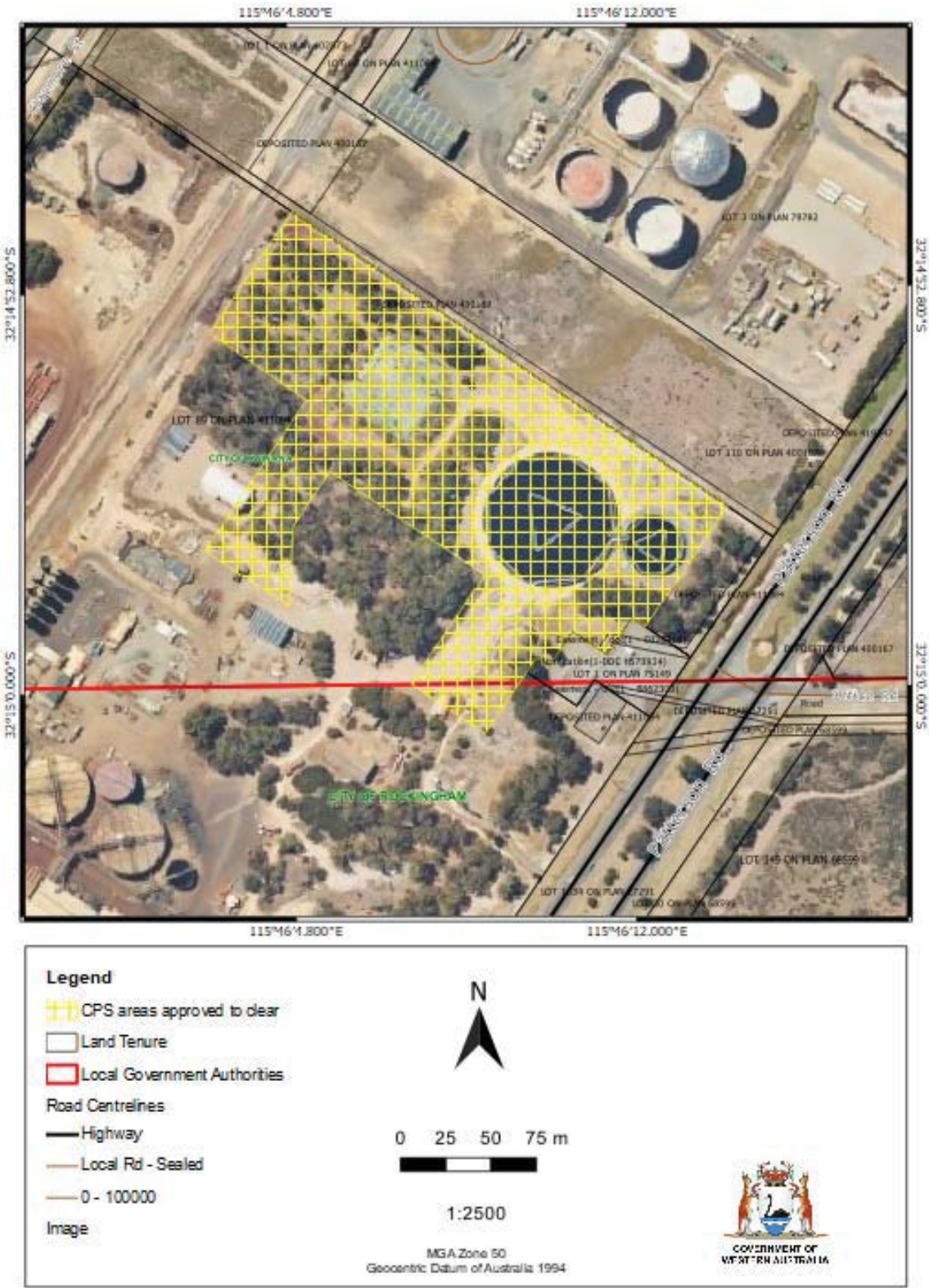


Figure 1: Map of the boundary of the area within which clearing may occur



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 8462/2
Permit type:	Area permit
Applicant name:	BHP Nickel West Pty Ltd
Application received:	7 May 2021
Application area:	2.5 hectares of native vegetation
Purpose of clearing:	constructing effluent storage tanks and supporting infrastructure
Method of clearing:	Mechanical
Property:	Lot 89 on Plan 411084, Kwinana Beach and East Rockingham
Location (LGA area/s):	City of Kwinana
Localities (suburb/s):	Kwinana Beach and East Rockingham

1.2. Description of clearing activities

This amendment is to extend the duration of the existing permit CPS 8462/1 to facilitate the constructing effluent storage tanks and supporting infrastructure (see Figure 1, Section 1.5). CPS 8462/1 allowed for the clearing of 2.5 hectares of vegetation. The entire clearing permit footprint sought under CPS 8462/2 is 2.5 hectares with no change to the footprint of CPS 8462/1.

Aerial imagery indicate that some clearing (less than 0.1 hectares) had already occurred under CPS 8462/1, within the eastern portion of the application area.

1.3. Decision on application

Decision:	Granted
Decision date:	6 July 2021
Decision area:	2.5 hectares of native vegetation, as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit amendment application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Water and Environmental Regulation (DWER) advertised the application for 7 days and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix A), relevant datasets (see Appendix E.1), the findings of a flora, black cockatoo and vegetation survey, the clearing principles set out in Schedule 5 of the EP Act (see Appendix B), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3).

The assessment has not changed since the assessment for CPS 8462/1, except in the case of principle (a) as consideration was given to the presence of the Commonwealth listed Tuart Woodlands TEC, listed as endangered under the *Environment Protection and Biodiversity Conservation Act 1999*. The Delegated Officer determined that the

proposed clearing of 2.5 hectares of Degraded to Completely Degraded condition vegetation is unlikely to have a significant impact on the Tuart TEC and is not likely to lead to an unacceptable risk to environmental values.

1.5. Site map

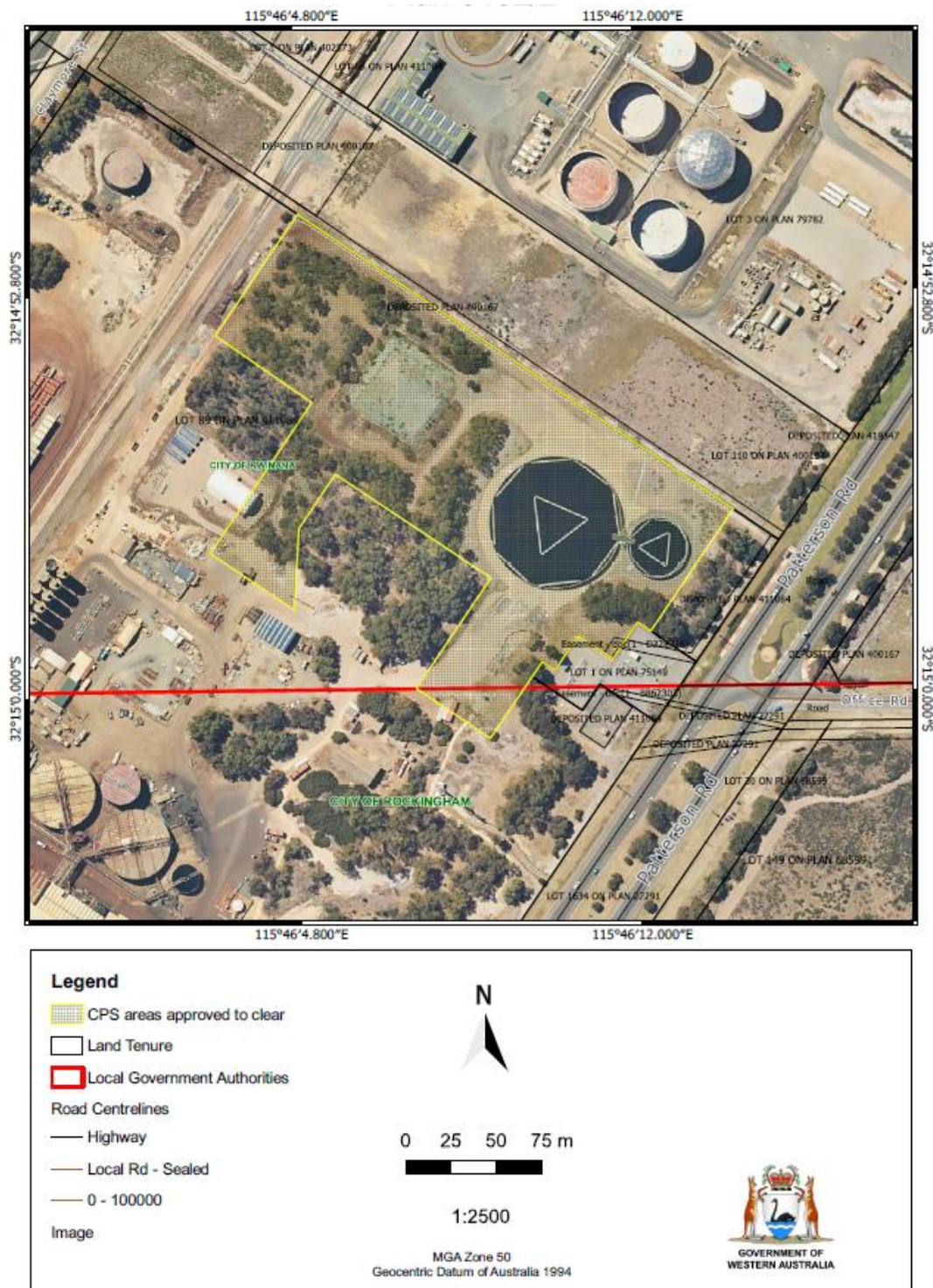


Figure 1: Map of the application area

The area crosshatched yellow indicate the area authorised to be cleared under the granted clearing permit.

2 Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the polluter pays principle
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Soil and Land Conservation Act 1945* (WA)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

Evidence was submitted by the applicant with the application for CPS 8462/1, explaining the following:

- Alternatives for this project were considered, including utilising the existing pond facilities at Baldivis. However, it was determined that the construction of a storage pond at the Kwinana site would allow for more effective site water management, with the process liquors being easily accessible and available to be reutilised, during the major plant shut down.
- The area within the KNR site is highly utilised and largely taken up with the existing process facilities, laydown areas, buildings and other supporting infrastructure. There is limited available open areas of sufficient size for the construction of a storage pond required for the shutdown. The proposed location of the effluent storage pond is one of the last open areas of the site which could accommodate a pond of this size without impeding on any existing infrastructure or essential process areas of site. The pond location and size design were modified to avoid, were practicable, clearing of remnant vegetation and potential black cockatoo habitat trees (>500 millimetres diameter at breast height).

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

3.2. Assessment of impacts on environmental values

A review of current environmental information (Appendix A) reveals that the assessment against the clearing principles has not changed significantly from the Clearing Permit Decision Report CPS 8462/1. However, the assessment for CPS 8462/2 notes the consideration of Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain of Western Australia. This community was listed effective 4 July 2019 and was not considered under CPS 8462/1. Consideration of this value is described under 3.2.1 below.

3.2.1. Biological values - Clearing Principle (a)

Assessment

The application area is within 500 meters of a mapped occurrence of the Tuart woodlands of the Swan Coastal Plain TEC. A review of the surveys provided with the original application (CPS 8462/1) noted that the vegetation types mapped within the application area contained Tuart trees. The assessment of CPS 8462/1 had not considered the Tuart TEC as the listing of the TEC had occurred after the grant of CPS 8462/1.

In assessing CPS 8462/2 the applicant was requested to provide a survey of the application area to assess the vegetation against the key diagnostic criteria for the Tuart TEC.

The survey (Biologic, 2020) assessed the vegetation within the application area and the remainder of the vegetation within Lot 89 on Plan 411084 and identified four patches of vegetation that meet the initial diagnostic criteria of the TEC. The survey further investigated the patches in terms of patch size and condition and found that the four patches do not meet the criteria for inclusion as the TEC but notes that the patches have a local level of significance.

DWER considers the local value of the patches but also recognises the isolation of the vegetation within the local area given it is between major roads and is within an industrial area.

Given this, and the Degraded to Completely Degraded condition of this vegetation, the proposed clearing is considered unlikely to have a significant impact on the Tuart TEC. It is noted that the Tuart TEC is also a state listed Priority Ecological Community (PEC). The description, area and condition thresholds that apply to the EPBC-listed TEC of the same name, also apply to this Priority ecological community. As such, the application area does not meet the criteria for a PEC.

Conclusion

Based on the above assessment, the proposed clearing will result in the loss of some vegetation with local values but is not considered that the vegetation contains a high amount of biodiversity.

3.3. Relevant planning instruments and other matters

The City of Kwinana were notified of the proposed amendment but did not provide comment. The City's comments on the original application (CPS 8462/1) noted that local government approvals are not required, and that the proposed clearing is consistent with the Shire's Local Planning Scheme.

No Aboriginal sites of significance have been mapped within the application area. It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972 (WA)* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

End

Appendix A. Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	<p>The area proposed to be cleared is part of a string of small remnants within an industrial area within the intensive land use zone of Western Australia. It is adjacent to multiple industrial sites and main supply routes.</p> <p>Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 34 per cent of the original native vegetation cover.</p>
Ecological linkage	The application area is not part of any mapped or informal linkages.
Conservation areas	The application area is located within 1.6 kilometres of a conservation area, Bushforever site 349. An unnamed reserve vested for the purpose of conservation and recreation is located approximately 2.5 kilometres south east of the application area.
Vegetation description	<p>Vegetation survey (Biologic, 2019) indicate the vegetation within the proposed clearing area consists of the following vegetation types:</p> <ul style="list-style-type: none"> • Eg: <i>Eucalyptus gomphocephala</i> low to mid trees over disturbed understorey consisting of introduced grasses, herbs and managed lawns/ gardens • EgAf: <i>Eucalyptus gomphocephala</i> mid trees over <i>Agonis flexuosa</i> low trees over introduced grasses and herbs • EgR: <i>Eucalyptus gomphocephala</i> mid open woodland over <i>Acacia cyclops</i>, <i>Acacia xanthina</i> and <i>Spyridium globulosum</i> scattered tall over <i>Rhagodia baccata</i> low open chenopod shrubland with introduced grasses and herbs • Esp: <i>Eucalyptus gomphocephala</i>, <i>Eucalyptus camaldulensis</i> and other naturalised low to mid trees over varying understorey consisting of native (<i>Melaleuca lanceolata</i>, <i>Callitris preissii</i>) and non-native (*<i>Schinus terebinthifolia</i>) shrubs and introduced grasses and herbs • *Ta: *<i>Tamarix aphylla</i> low trees over disturbed understorey dominated by introduced grasses and herbs <p>The full survey descriptions and maps are available in Appendix D.</p> <p>This is inconsistent with the mapped vegetation type(s):</p> <ul style="list-style-type: none"> • Beard 3048, which is described as Mixed heath with scattered tall shrubs <i>Acacia</i> spp., Proteaceae and Myrtaceae. (Shepherd et al, 2001) • Quindalup complex, which is described as Coastal dune complex consisting mainly of two alliances - the strand and fore-dune alliance and the mobile and stable dune alliance. Local variations include the low closed forest of <i>Melaleuca lanceolata</i> (Rottnest Teatree) - <i>Callitris preissii</i> (Rottnest Island Pine), the closed scrub of <i>Acacia rostellifera</i> (Summer-scented Wattle) and the low closed <i>Agonis flexuosa</i> (Peppermint) forest of Geographe Bay (Heddl et al., 1980). <p>The mapped vegetation types retain approximately 29 and 60 per cent of the original extent (Government of Western Australia, 2019) respectively.</p>
Vegetation condition	<p>Vegetation survey (Biologic, 2019) indicate the vegetation within the proposed clearing area is in Degraded to completely degraded (Keighery, 1994) condition, described as:</p> <ul style="list-style-type: none"> • Degraded - Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very

Characteristic	Details
	<p>frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.</p> <ul style="list-style-type: none"> Completely degraded - The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs. <p>The full Keighery (1994) condition rating scale is provided in Appendix C. The full survey descriptions and mapping are available in Appendix D.</p>
Climate and landform	The annual average rainfall is approximately 738 millimetres (Perth metro area).
Soil description	The soil is mapped as Quindalup South Qf3 Phase which is described as: relict foredunes forming a plain which is topographically lower than Qf2 with prominent ridges and swales. Swamps frequently occupy the swales. Deep calcareous sands with variable organic matter.
Land degradation risk	The mapped soils within the application area have a low risk of land degradation.
Waterbodies	The desktop assessment and aerial imagery indicated that there are no waterbodies or wetlands within the application area.
Hydrogeography	The application area is within the Cockburn Groundwater Area, proclaimed under the <i>R/VI Act 1914</i> .
Flora	According to available databases, 14 conservation significant flora species have been found within the local area. Of the species recorded within the local area, two are Priority 1 species, five species are Priority 3 species, four species are Priority 4 species, and three species are Threatened.
Ecological communities	According to available databases, the nearest mapped occurrence of an ecological community is the Tuart (<i>Eucalyptus gomphocephala</i>) woodlands and forests of the Swan Coastal Plain at approximately 445 meters from the application area.
Fauna	Available databases note there are 53 conservation significant fauna recorded within the local area. Many of these species are migratory bird species and marine species. The original assessment for CPS 8462/1 noted 58 fauna species were recorded within the local area. The variety in the number of species recorded is due to the desktop for CPS 8462/1 using the Naturemap database which includes data from a number of sources, the assessment for CPS 8462/2 used only a DBCA database with verified records only.

A.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Swan Coastal Plain	1,501,221.93	579,813.47	38.62	222,916.97	14.85
Vegetation complex					
Quindalup Complex**	54,573.87	33,011.64	60.49	5,994.64	10.98
Local area					
10km radius	-	-	31	-	-
*Government of Western Australia (2019a)					
**Goernment of Western Australia (2019b)					

A.3. Land degradation risk table

Risk categories	Quindalup South Qf3 Phase
Wind erosion	10-30% of map unit has a high to extreme wind erosion risk
Water erosion	<3% of map unit has a high to extreme water erosion risk
Salinity	<3% of map unit has a moderate to high salinity risk or is presently saline
Subsurface Acidification	<3% of map unit has a high subsurface acidification risk or is presently acid
Flood risk	<3% of the map unit has a moderate to high flood risk
Water logging	3-10% of map unit has a moderate to very high waterlogging risk
Phosphorus export risk	3-10% of map unit has a high to extreme phosphorus export risk

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> <i>“Native vegetation should not be cleared if it comprises a high level of biodiversity.”</i></p> <p><u>Assessment:</u> The area proposed to be cleared does not contain locally or regionally significant flora, fauna, habitats, assemblages of plants.</p> <p>The application area contains an overstorey of <i>Eucalyptus gomphocephala</i> and is in close proximity to mapped occurrences of Tuart (<i>Eucalyptus gomphocephala</i>) woodlands and forests of the Swan Coastal Plain ecological community (TEC/PEC).</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (b):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.”</i></p> <p><u>Assessment:</u> The area proposed to be cleared contains trees with hollows which have been assessed under CPS 8462/1. Given that the surveys provided with CPS 8462/1 are within two years currency, it is considered they are adequate in assessing fauna habitat.</p>	Not likely to be at variance (as per CPS 8462/1)	No
<p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u> The area proposed to be cleared is unlikely to contain habitat for flora species listed under the BC Act. Given that the surveys provided with CPS 8462/1 are within two years currency, it is considered they are adequate in assessing this principle.</p>	Not likely to be at variance (as per CPS 8462/1)	No
<p><u>Principle (d):</u> <i>“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.”</i></p> <p><u>Assessment:</u> The area proposed to be cleared does not contain species that can indicate a threatened ecological community.</p>	Not likely to be at variance (as per CPS 8462/1)	No
Environmental value: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u> The extent of the mapped vegetation types and the native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.</p>	Not likely to be at variance (as per CPS 8462/1)	No
<p><u>Principle (h):</u> <i>“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.”</i></p> <p><u>Assessment:</u> Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of any nearby conservation areas.</p>	Not likely to be at variance (as per CPS 8462/1)	No
Environmental value: land and water resources		

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u> Given no water courses or wetlands are recorded within the application area, the proposed clearing is unlikely to impact on- or off-site hydrology and water quality.</p>	Not at variance (as per CPS 8462/1)	No
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u> The mapped soils are not susceptible to forms of land degradation. Noting the location of the application area and the condition of the vegetation, the proposed clearing is not likely to have an appreciable impact on land degradation.</p>	Not at variance (as per CPS 8462/1)	No
<p><u>Principle (i):</u> <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.”</i></p> <p><u>Assessment:</u> Given no water courses or wetlands are recorded within 1.5 kilometres of the application area, the proposed clearing is unlikely to impact surface or ground water quality.</p>	Not likely to be at variance (as per CPS 8462/1)	No
<p><u>Principle (j):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u> The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding.</p> <p>Given no water courses or wetlands are recorded within 1.5 kilometres of the application area, the proposed clearing is unlikely contribute to waterlogging.</p>	Not likely to be at variance (as per CPS 8462/1)	No

Appendix C. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation’s ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Measuring vegetation condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.

Condition	Description
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix D. Biological survey information excerpts

3. Results

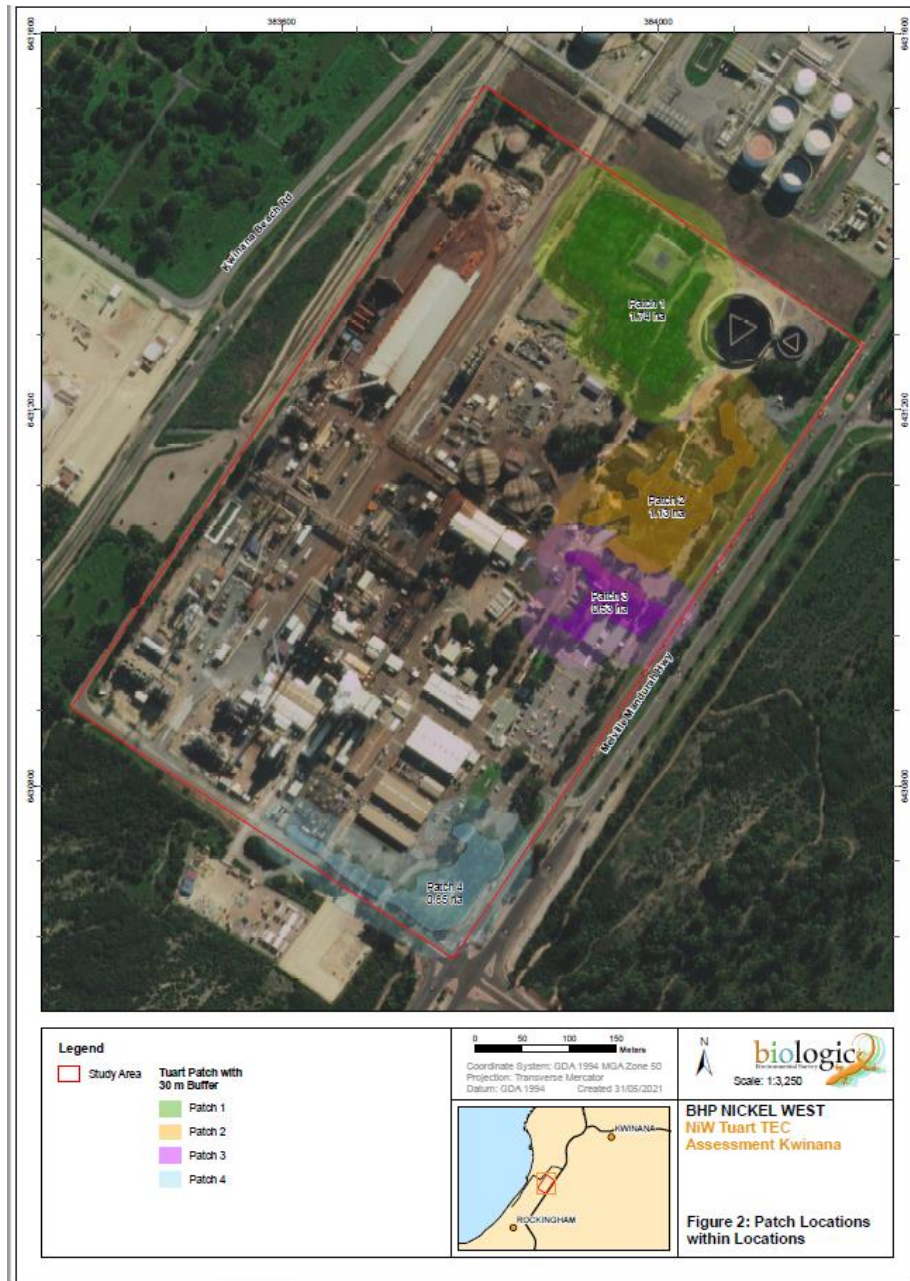
The four patches met the initial diagnostic characteristics, including:

- Occurring on the Swan Coastal Plain;
- Occurring on the Quindalup dune system;
- The primary defining feature of the presence of two or more alive tuart trees in the upper most canopy;
- The patches of vegetation supporting a low open woodland to low woodland of tuart trees;
- Native understorey flora present (although in limited density and diversity); and
- The size of the patches are greater than 0.5 hectares (ha), but less than 5 ha.

Of the four patches of tuart assessed to determine occurrence within the refinery boundaries (Figure 2), none met the criteria for inclusion as the TEC. The key reason the patches of vegetation did not meet the criteria was the condition of the patches and the limited native understorey present (Table 1) (Appendix A). The four patches were considered to be in Moderate to Poor condition, while the understorey diversity and density did not meet the criteria for listing as High condition. Furthermore, the size of the patches were limited, with none exceeding 5 hectares (ha) (Table 1) (Appendix A).

Table 1: TEC requirements and criteria summary within the Study Area (TSSC, 2019).

Patch ID	Relevant biotic thresholds criteria	Relevant patch size criteria	Discussion and conclusion
Patch 1	Moderate condition ≥50 % of all understorey vegetation cover is native or At least 4 native understorey species per 0.01 ha.	Patch is 1.74 ha, but 4 ha including the buffer zone.	This patch meets the minimum patch size requirements, however, it met the biotic threshold for moderate condition when considering understorey vegetation cover; and therefore is NOT CONSIDERED PART OF THE TEC . It may be considered a focus for local protection or restoration.
Patch 2	Moderate condition ≥50 % of all understorey vegetation cover is native or At least 4 native understorey species per 0.01 ha	Patch is 1.13 ha, but 3.4 ha including the buffer zone.	This patch meets the minimum patch size requirements, however, it met the biotic threshold for moderate condition when considering understorey vegetation cover; and therefore is NOT CONSIDERED PART OF THE TEC . It may be considered a focus for local protection or restoration.
Patch 3	Poor Condition as <50 % of all understorey vegetation cover is native and less than 4 native understorey species per 0.01 ha (10 m x 10 m plot or equivalent sample unit)	Patch is 0.53 ha, but 2.0 ha including the buffer zone.	This patch, just meets the minimum patch size requirements, however, it is considered as poor condition and contains lawn under maintenance so is NOT CONSIDERED PART OF THE TEC . It may be considered a focus for local protection or restoration.
Patch 4	Moderate condition ≥50 % of all understorey vegetation cover is native or At least 4 native understorey species per 0.01 ha	Patch is 0.85 ha, but 3 ha including the buffer zone	This patch meets the minimum patch size requirements, however, it met the biotic threshold for moderate condition when considering understorey vegetation cover; and therefore is NOT CONSIDERED PART OF THE TEC . It may be considered a focus for local protection or restoration.



Appendix E. Sources of information

E.1. GIS databases

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)

- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Wheatbelt Wetlands Stage 1 (DBCA-021)

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

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