GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 8876/1
Permit Holder:	Regional Power Corporation T/A Horizon Power
Duration of Permit:	22 August 2020 – 22 August 2025

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I –CLEARING AUTHORISED

1. Purpose for which clearing may be done
Clearing for the purpose of facilitating the construction of a laydown/storage area, liquefied natural gas storage facility, access ways and associated infrastructure.

2. Land on which clearing is to be done
Lot 502 on Deposited Plan 413859, Chadwick

3. Area of Clearing
The Permit Holder must not clear more than 1.56 hectares of native vegetation within the area cross-hatched yellow on attached Plan 8876/1.

4. Application
This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

PART II –MANAGEMENT CONDITIONS

5. Avoid, minimise and reduce the impacts and extent of clearing
In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in 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.

6. Dieback and weed control
When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the 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 *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.

PART III - RECORD KEEPING AND REPORTING

7. Record keeping

The Permit Holder must maintain the following records in relation to the clearing of native vegetation authorised under this Permit:

(a) 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 or decimal degrees;
(b) the date(s) that the area was cleared;
(c) the size of the area cleared (in hectares);
(d) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 5 of this Permit; and
(e) actions taken to minimise the risk of the introduction and spread of *dieback* and *weeds* in accordance with condition 6 of this Permit.

8. Reporting

The Permit Holder must produce the records required under condition 7 of this Permit when required by the *CEO*.

DEFINITIONS

The following meanings are given to terms used in this Permit:

CEO means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*;

dieback means the effect of *Phytophthora* species on native vegetation;

fill means material used to increase the ground level, or fill a hollow;

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;

weed/s means any plant -

(a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; 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.

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Ryan Mincham
MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

30 July 2020

Plan 8876/1

Legend

CPS layers
- CPS areas approved to clear

base layers
- Road Centrelines
- Cadastre - LGATE 218
- Local Government Authority (LGA) Boundaries (LGATE-233)

Image

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Officer delegated under section 20 of the Environmental Protection Act 1986

GOVERNMENT OF WESTERN AUSTRALIA

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1. Application details and outcome

1.1. Permit application details

Permit number:	CPS 8876/1
Permit type:	Purpose permit
Applicant name:	Regional Power Corporation T/A Horizon Power
Application received:	17 April 2020
Application area:	1.56 hectares (ha) of native vegetation
Purpose of clearing:	Facilitating the construction of a laydown/storage area
Method of clearing:	Mechanical
Property:	Lot 502 on Deposited Plan 413859, Chadwick
Location (LGA area/s):	Esperance
Localities (suburb/s):	Chadwick

1.2. Description of clearing activities

The vegetation applied to be cleared is contained within a single rectangular area on the northern part of Lot 502 on Deposited Plan 413859, Chadwick (see Figure 1, Section 1.5).

The 1.56 ha of vegetation proposed to be cleared is contiguous with a 5.5 ha area of remnant vegetation east and north-east of the application area. The southern boundary of the application area directly abuts an industrial property which has been cleared, while the western boundary of the application area lies within 20 metres of existing railway lines. A large area of fragmented remnant vegetation is located west of the application area that is contiguous with the coastal vegetation west of Esperance.

The clearing of 1.56 ha of vegetation is for the purpose of facilitating the construction of a laydown/storage area, liquified natural gas storage facility, access ways and associated infrastructure for a proposed new 25 megawatt (MW) power station.

Figure 1 (see Section 1.5)

1.3. Decision on application and key considerations

Decision:	Granted
Decision date:	30 July 2020
Decision area:	1.56 hectares (ha) of native vegetation, as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Water and Environmental Regulation (DWER) on 17 April 2020. DWER advertised the application for public comment and no submissions were received.

In undertaking the assessment, the Delegated Officer had regard for the site characteristics (see Appendix A), relevant datasets (see Appendix D), information within a flora and fauna biological survey provided by the applicant (see Appendix E for relevant extracted information), the clearing principles set out in Schedule 5 of the EP Act (see Appendix B), and any other matters considered relevant to the assessment (see Section 3).

In determining to grant a clearing permit subject to conditions, the Delegated Officer found that the proposed clearing is not likely to lead to an unacceptable risk to the environment.

1.5. Site map

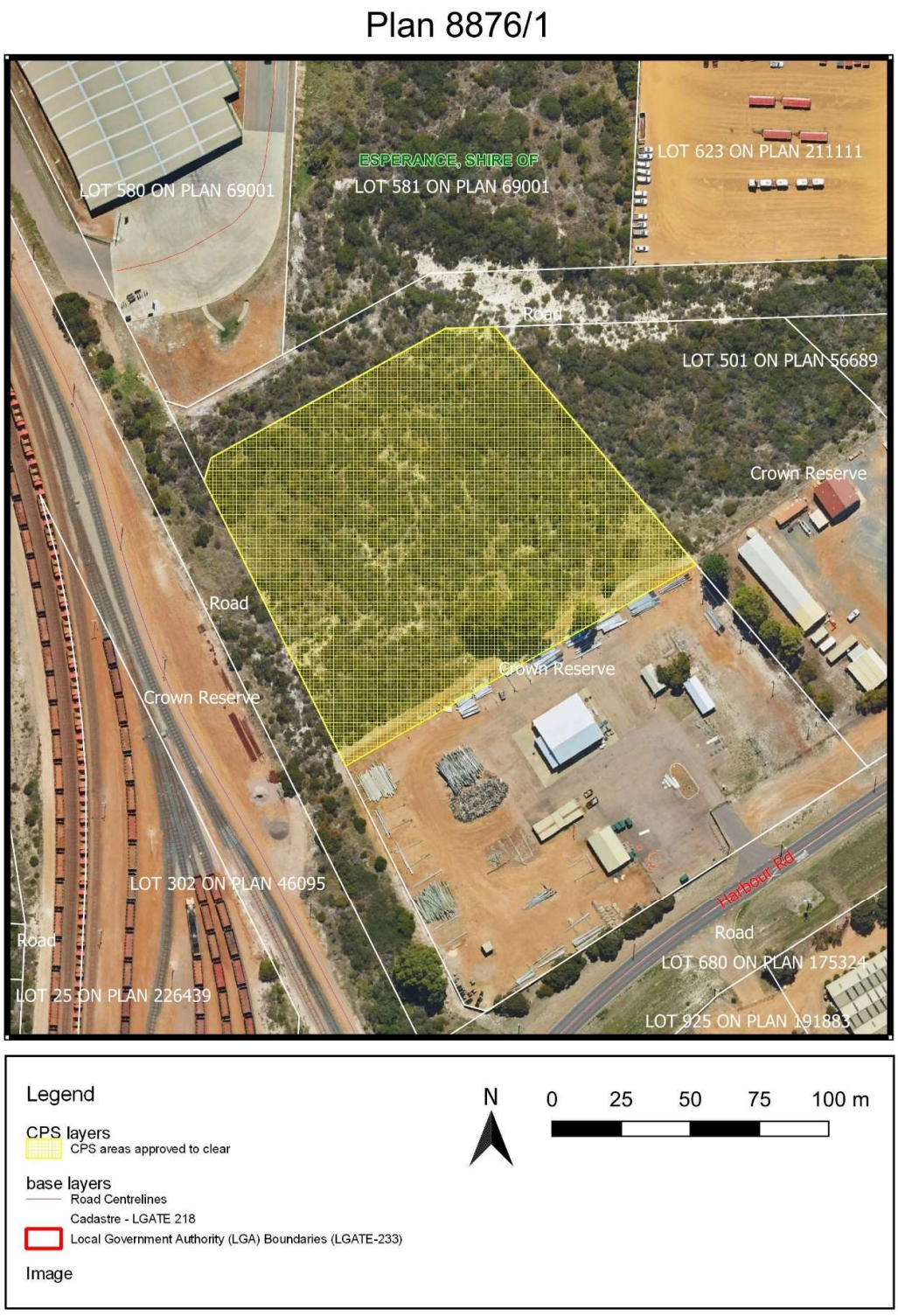

Figure 1. Map of the application area.

The area cross-hatched yellow indicates the area authorised to be cleared.

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 1.3), the Delegated Officer has also given regard to the objects and principles under section 4A of the EP Act, particularly:

1. the precautionary principle;
2. the principle of intergenerational equity;
3. 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)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (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. Assessment of environmental impacts

In assessing the application in accordance with section 51O of the EP Act, the Delegated Officer has examined the application and site characteristics (Appendix A) and considered whether the clearing poses a risk to environmental values. The assessment against the Clearing Principles is contained in Appendix B.

This assessment identified that the clearing required the further consideration of potential impacts to four fauna species and potential impacts on ecological linkage function to areas of remnant vegetation either side of the application area. The detailed consideration and assessment of the clearing impacts against these specific environmental values is provided below.

3.1.1. Environmental value: biological values (fauna) – Clearing Principle (b)

Assessment:

Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) (P1):

A biological survey of the application area was conducted on 1 October 2018 by GHD. The mixed shrubland habitat within the application was observed as not providing suitable foraging, roosting or breeding habitat for the Carnaby's Black Cockatoo. However, the planted Pinus spp., and two tuart trees which have been planted within the project area provide suitable foraging habitat. No evidence of foraging or roosting was observed during the survey and neither of the tuart trees contained hollows as determined from a ground-level visual inspection (GHD, 2018). It is noted that the project area is not located within the known breeding range for the Carnaby's Black Cockatoo (DSEWPaC 2012). Based on the above, the application area is not considered to represent significant habitat for this species.

Western Brush Wallaby (*Notamacropus irma*) (P4):

The Western Brush Wallaby (*Notamacropus Irma*) may occur within the application area, however, only one has been recorded within the local area (in 1954) and this record is now within an entirely cleared residential area over 1.7 kilometres to the south. There are 5565 records of the species over a large range over 790 kilometres east to west and over 680 kilometres north to south.

Given the large range and population records, as well as the fact that the last reported sighting of the species in the local area is over 60 years ago, it is unlikely that this species still occurs in the vicinity of the application area. The area proposed to be cleared is not considered to represent significant habitat for this species.

Southern Death Adder (*Acanthophis antarcticus*) (P3):

The Southern Death Adder (*Acanthophis antarcticus*) may occur within the application area, with the closest record in the local area being 2.11 kilometres to the south. The last recorded sighting of the species is over 50 years ago (1 October 1965) within what is now a cleared, residential area and it is considered unlikely that this species still occurs

in the vicinity of the application area. There are 165 records of the species over a range of 1220 kilometres east to west and the species occurs in a range of habitats over 100 kilometres inland from the coast.

Given the large range, number of recorded sightings and the low quality of fauna habitat within the application area, the area proposed to be cleared is not considered to represent significant habitat for this species.

Peregrine falcon (*Falco peregrinus*) (Other Specially Protected)

The Australian Museum website states that the Peregrine Falcon (*Falco peregrinus*) 'is found in most habitats, from rainforests to the arid zone, and at most altitudes, from the coast to alpine areas. It requires abundant prey and secure nest sites and prefers coastal and inland cliffs or open woodlands near water, and may even be found nesting on high city buildings' (Australian Museum, 2019). The nearest record is approximately 5.76 kilometres from the application area. This species is widespread and highly mobile with a range of approximately 2300 kilometres from north to south and 1550 kilometres from east to west, with 1786 records of the species across the state.

The application area may comprise suitable habitat for this species, however, noting the broad habitat preferences, relatively small area proposed to be cleared and the large range and number of records of the species, the application area is not considered to represent significant habitat for this species.

Outcome: Based on the above assessment, the Delegated Officer has determined that the proposed clearing is considered acceptable in relation to this environmental value.

Conditions: No fauna management conditions are required.

3.1.2. Environmental value: significant remnant vegetation and conservation areas – Clearing Principles (e) and (h)

Assessment:

Clearing of the project area will reduce the connectivity of remnant vegetation in the east-west direction (GHD, 2018). However, as the vegetation is of limited habitat value or floristic importance, the value of the ecological linkages is reduced. The vegetation parcel to the east of the application area is bounded by commercial and residential areas to the north and south and the coastline to the east, limiting in its ecological linkage value in a regional context with regard to the south coast macro corridor ecological linkage.

Outcome:

Based on the above assessment, the Delegated Officer has determined that the proposed clearing is considered acceptable in relation to this environmental value.

Conditions: No management conditions required.

3.2. Relevant planning instruments and other matters

The Shire of Esperance advised DWER that local government approvals are not required, and the clearing is consistent with the Shire's Local Planning Scheme. The Shire did not have any objections to the clearing (A1904774).

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.

Appendix A – Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to DWER at the time of this assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix B.

1. Site characteristics

Site characteristic	Details
Local context	The proposed clearing area is part of a 1.56 ha patch of native vegetation which is surrounded by industrial developments and a railway immediately to the west. The application area is located approximately 2 kilometres north of Esperance town centre.

Site characteristic	Details
	Spatial data indicates the local area (20 km radius of the proposed clearing area) retains approximately 41.5% of the original native vegetation cover.
Vegetation description	The flora and vegetation survey identified the vegetation within the proposed clearing area as consisting of *Spyridium globulosum* shrubland on an undulating coastal dune system with grey sandy soil (GHD, 2018). The full survey descriptions and mapping are available in (Appendix E). This is broadly consistent with the vegetation mapped by Beard (1973) mapped vegetation type: • Beard Esperance Plains, which is described as shrublands; mallee & acacia scrub on south coastal dunes (Shepherd et al, 2001)
Vegetation condition	The flora and vegetation survey (GHD, 2018) indicates the vegetation within the proposed clearing area to range in condition from Good to Degraded (Keighery, 1994), described as: • 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. to • 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. The full Keighery condition rating scale is provided in Appendix C, below.
Soil description	The soil is mapped as: Tooregullup 5 Subsystem Described as: level plain with moderately inclined dune ridges and associated swales with occasional swamps, calcareous deep sands, associated pale deep sands and minor calcareous shallow sands. **Geology:** Quaternary coastal sands mostly calcareous and unconsolidated. **Vegetation:** Shrubland and coastal heath of Melaleuca, Banksia, Acacia and Eucalyptus species. **Location:** southern coastal part of the Esperance Sandplain Zone.
Land degradation risk	The risks of acidity, alkalinity and salinity are all negligible. The risk of water repellence is high, however, the risks of acidity, wind and water erosion, waterlogging, flooding, alkalinity and salinity are all negligible. Considering that the risks of erosion, waterlogging and flooding are low, it is unlikely that water repellent soil will cause significant land degradation.
Waterbodies	The desktop assessment and aerial imagery indicate that the closest wetland or significant waterbody is within Lake Warden Nature Reserve, located over 2 kilometres north of the application area. The coastline is approximately 1.7 kilometres east of the application area.
Conservation areas	The desktop assessment and aerial imagery indicate that the closest conservation area is the Lake Warden Nature Reserve.

Site characteristic	Details
Climate and landform	**Rainfall:** 700. **Evapotranspiration:** 400. **Geology:** Granite and gneiss. **Acid Sulfate Soil Risk:** No. **Groundwater Salinity (Total Dissolved Solids):** 500-1000 mg/L. **Landform:** Level plain with moderately inclined dune ridges and associated swales with occasional swamps. Topography is between 10-20 metres above sea level (Department of Primary Industries and Regional Development, Accessed 2020).

2. Flora, fauna and ecosystem analysis

With consideration for the site characteristics set out above, relevant datasets (Appendix A), and biological survey information (Appendix E), conservation significant flora, fauna species and ecological communities are not likely to be impacted by the clearing.

Species / Ecological Community	Distance of closest record to application area (kilometres)	Suitable soil type? (flora, ecological community)	Suitable vegetation type? (flora, ecological community)	Suitable habitat features (fauna)	Are surveys adequate to identify? (Y, N, N/A)
Ecological Communities					
Proteaceae Dominated Kwongkan Shrubland (P3). (Comm Cat Endangered) TEC.	0.0 (mapped but not present, GHD, 2018).	Y	N (species present are not representative, GHD, 2018)	N/A	Y
Fauna					
Dibbler (*Parantechinus apicalis*).	18.67 (on island off south coast)	N/A	N/A	N	Y
Letter-winged kite (*Elanus scriptus*).	11.3	N/A	N/A	N	Y
Malleefowl (*Leipoa ocellata*).	4.6	N/A	N/A	N	Y
Peregrine falcon (*Falco peregrinus*).	5.7	N/A	N/A	Y	Y
Quenda, southwestern brown bandicoot (*Isoodon obesulus*).	6.4	N/A	N/A	N	Y
Recherche atelomastix millipede (*Atelomastix dendritica*).	14.66 (on island off south coast)	N/A	N/A	Y	N
Southern death adder (*Acanthophis antarcticus*). P3.	2.27 (date recorded 1 October 1965).	N/A	N/A	Y	N
Western brush wallaby (*Macropus irma*).	1.71	N/A	N/A	Y	Y
Carnaby's Black Cockatoo (White-tailed black cockatoo) (*Calyptorhynchus latirostris*).	1.38	N/A	N/A	Y	Y
Flora					
Banksia prolata subsp. calcicola (P4)	1.68	Y	Y	N/A	Y

Species / Ecological Community	Distance of closest record to application area (kilometres)	Suitable soil type? (flora, ecological community)	Suitable vegetation type? (flora, ecological community)	Suitable habitat features (fauna)	Are surveys adequate to identify? (Y, N, N/A)
Grevillea baxteri (P4)	1.5	Y	N	N/A	Y
Hopkinsia adscendens (P3)	1.9	Y	No	N/A	Y

Appendix B – Assessment against the Clearing Principles

Assessment against the Clearing Principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: The proposed clearing area does not contain locally or regionally significant flora, fauna, habitats or assemblages of plants (GHD, 2018). The results of the biological survey indicate that the application area does not comprise a high level of biological diversity.	Not likely to be at Variance.	No
Principle (b): *"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."* Assessment: The proposed clearing area may contain suitable habitat for the Carnaby's Black Cockatoo, Southern Death Adder, Western Brush Wallaby and the Peregrine Falcon.	Not likely to be at variance.	Yes, further consideration required. Refer to section 3 principle (b).
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: The proposed clearing area is unlikely to contain habitat for flora species listed as threatened under the BC Act (GHD, 2018).	Not likely to be at variance.	No
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."* Assessment: The proposed clearing area does not contain species indicative of any threatened ecological community (GHD, 2018).	Not likely to be at variance.	No
Environmental values: significant remnant vegetation and conservation areas		
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."* Assessment:	Not likely to be at variance.	Yes, further consideration required. See

Assessment against the Clearing Principles	Variance level	Is further consideration required?
The extent of the mapped vegetation type and surveyed native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia. Vegetation in the proposed clearing area is not considered to be part of a significant ecological linkage in the local area, however, clearing of the application area may reduce the connectivity and ecological linkage between neighbouring vegetated areas.		section 3 principle (e).
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."* Assessment: The nearest conservation area is greater than 2 kilometres from the application area and separated by multiple roads and an industrial area. The proposed clearing is not likely to have an impact on the environmental values of conservation areas.	Not likely to be at variance.	No
Environmental values: land and water resources		
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."* Assessment: Given no watercourses or wetlands are recorded within 2 kilometres of the proposed clearing area, the clearing is unlikely to impact on, or off-site hydrology and water quality.	Not likely to be at variance.	No
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The mapped soils are not susceptible to wind and water erosion, nutrient export, and salinity. Noting the location of the proposed clearing and the condition of the vegetation, the proposed clearing is not likely to have an appreciable impact on land degradation.	Not likely to be at variance.	No
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."* Assessment: Given no watercourses, wetlands or Public Drinking Water Sources Areas are recorded within 2 kilometres of the proposed clearing area, the clearing is unlikely to impact surface or ground water quality.	Not likely to be at variance.	No
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: 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. Given no watercourses or wetlands are recorded within 2 kilometres of the proposed clearing area, the clearing is unlikely to contribute to waterlogging.	Not likely to be at variance.	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.

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.
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 – References and databases

1. GIS datasets

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

- Aboriginal Heritage Places (DPLH-001)
- 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)
- IBRA Vegetation Statistics
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Regional Parks (DBCA-026)
- Soil and Landscape Mapping – Best Available

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)

2. References

Australian Museum (2019) Peregrine Falcon, Animal Factsheets. Updated 20 March 2019. Australian Museum. URL: https://australian.museum/learn/animals/birds/peregrine-falcon. Accessed June 2020.

Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.

Department of Biodiversity, Conservation and Attractions (DBCA) (2007-) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. URL: http://naturemap.dpaw.wa.gov.au/. Accessed June 2020.

Department of Primary Industries and Regional Development (DPIRD, 2020) Natural Resource Information Mapping Western Australia's Natural Resources. Department of Primary Industries and Regional Development. URL: https://maps.agric.wa.gov.au/nrm-info/. Accessed June 2020.

Government of Western Australia (2019) 2018 South West Vegetation Complex Statistics. Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions, Perth: URL: https://catalogue.data.wa.gov.au/dataset/dbca

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

GHD (2018), GHD - Esperance Power Station Biological Survey, December 2018.

Mattiske, E.M. and Havel, J.J. (1998) Vegetation Complexes of the South-west Forest Region of Western Australia. Maps and report prepared as part of the Regional Forest Agreement, Western Australia for the Department of Conservation and Land Management and Environment Australia.

Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.

Shire of Esperance, (A1904774) (2020), CPS 8876-1 – Shire of Esperance response to Direct Interest information request e-mail.

Western Australian Herbarium (1998). FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions. https://florabase.dpaw.wa.gov.au/ Accessed June 2020.

Appendix E – Information used in assessment

Information from the flora and fauna survey report (GHD, 2018) was used in assessing the clearing permit application and is described below.

One vegetation type was recorded within the project area, excluding cleared and highly degraded areas. This vegetation type consists of a *Spyridium globulosum* shrubland on an undulating coastal dune system with grey sandy soil. A more detailed description of this vegetation type is as follows:

Spyridium globulosum, Acacia cochlearis and *Leucopogon parviflorus* tall shrubland over *Templetonia retusa, Phyllanthus calycinus* and *Rhagodia baccata* low open shrubland over **Ehrharta* spp., **Lagurus ovatus* and **Eragrostis curvula* tussock grassland over *Lepidosperma squamatum* and *Tetraria* sp. Mt Madden open sedgeland over *Desmocladus flexuosus*, **Asparagus asparagoides* and **Euphorbia terracina* herbland.

The natural structure of the vegetation present has been altered and lacked floristic diversity, with introduced grasses and herbs dominating the lower layers. Half of the project area (the front part of Lot 502), has previously been cleared for the Horizon Power depot and is fenced around the entire boundary. There is a small number of planted trees and shrubs present within the depot site, including Eucalypt species and Pine trees.

The vegetation present within the project area broadly aligns with the vegetation mapped by Beard (1973).

Photos below show vegetation on site:

	
Photo:1	Photo: 2

The areas containing remnant native vegetation ranged from Good to Degraded condition with disturbance to the site largely a result of adjacent clearing, fire, weed invasion and rabbits. The ground cover throughout the site was dominated by introduced grasses and herbaceous species. It was also observed that a line of shrubs had been damaged and appeared to have been pushed over/slashed. Areas within the project area that have previously been cleared or are completely dominated by weeds (lacking a native upper and lower storey) were rated as Completely Degraded.

No Commonwealth or State listed Threatened Ecological Communities or Priority Ecological Communities were identified within the project area.

The vegetation survey confirmed that the Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia TEC does not occur within or immediately surrounding the project area. This TEC is characterised by Proteaceae species having 30% or greater cover of Proteaceae species across all layers where these shrubs occur (DoE 2014). The vegetation within the project area lacked Proteaceae taxa. A total of 56 flora taxa representing 30 families and 50 genera was recorded from the project area. This total comprised of 36 native taxa and 20 introduced (or planted) taxa. The dominant families included Poaceae (8 taxa), Fabaceae (5 taxa) and Cyperaceae (5 taxa). The full list of flora identified within the project area compiled by site matrix is provided in Appendix E.

A total of 18 introduced flora taxa were recorded in the project area. Of these, one species, Bridal Creeper (**Asparagus asparagoides*), is listed as a Declared Pest under the Biosecurity and Management Act 2007 and as a Weed of National Significance (WONS).

The project area comprised of two broad fauna habitat types, Mixed Shrubland and cleared/highly disturbed areas. The shrubland habitat is dominated by an upper storey of *Spyridium globulosum*, *Acacia cochlearis, A. saligna, A rostellifera, A. cyclops, Leucopogon parviflorus* and *Melaleuca pentagona* over an moderately open lower shrub layer and understorey of sedges and introduced grasses and herb species. The mixed shrubland provides shelter and food resources for native fauna. The sandy soils provide good habitat for burrowing reptiles and mammals however overall there is very little structural diversity present within the project area. This habitat type is considered to be well represented in the local area, as well as in the broader region. The habitat remaining within the project area has been subject to a number of disturbances including adjacent clearing, fire and invasive species including weeds and rabbits. The cleared/highly disturbed areas provide limited habitat value to fauna. Planted trees and shrubs as well as introduced grasslands provide some habitat value to fauna species such as foraging and refuge for birds.

The habitat present in the project area is currently bounded by a railway to the west, road and clearing/industrial development to the north, Harbour Road to the east and south and the Horizon Power depot along the southern boundary. Remnant native vegetation continues west of the railway and east of Harbour Road towards the coastline, however it is mostly cleared and developed to the north and south of the project area. Clearing of the project area will reduce the connectivity of remnant vegetation in the east-west direction.

No fauna species of conservation significance or evidence of their occurrence was recorded in the project area during the survey. The desktop assessment identified the likelihood of four fauna species of conservation significance occurring within the project area. No species of conservation significance are likely to be solely dependent on the vegetation remaining within the project area.

A total of 11 fauna species, including seven birds, three mammals and one reptile were recorded within the project area. Of these two species are introduced, the rabbit and domestic dog. All fauna species recorded during the survey are generally common and are known to occur in the area. A full list of fauna recorded during the survey is provided in the survey appendix.

Conservation significant fauna

No fauna species of conservation significance or evidence of their occurrence was recorded in the project area during the survey. The desktop assessment identified the likelihood of four fauna species of conservation significance occurring within the project area. Details on the significance of the habitat present for these species is detailed below. No species of conservation significance are likely to be solely dependent on the vegetation remaining within the project area.

Carnaby's Black Cockatoo

The mixed shrubland habitat does not provide suitable foraging, roosting or breeding habitat for the Carnaby's Black Cockatoo. However, the planted Pinus spp., and two tuart trees which have been planted within the project area provide suitable foraging habitat. No evidence of foraging or roosting was observed during the survey. Neither of the trees contained hollows as determined from a ground-level visual inspection. The project area is not located within the known breeding range for the Carnaby's Black Cockatoo (DSEWPaC 2012).

Western Brush Wallaby

The Western Brush Wallaby is likely to utilise the project area. The project area contains suitable habitat for the Western Brush Wallaby and may be used opportunistically for foraging and as a linkage between adjacent areas of native vegetation. There are two historical records of this species occurring within 5 km of the project area (1954 and 1966).

Southern Death Adder

The project area provides suitable habitat for this species. There is only one known record of this species occurring within 5 km of the project area which was recorded in 1965 (DBCA 2007- 2018). The Southern Death Adder may occur within the project area.

Chuditch / Western Quoll

The closest known records of Chuditch is over 50 km from the project area. This species has not been previously recorded in Esperance town. The project area is not considered significant habitat for the species. This species requires habitats that are of a suitable size and not excessively fragmented. It is unlikely the Chuditch would occur within the project area.

No flora of conservation significance was recorded within the project area. None of the conservation significant flora identified in the desktop searches are considered likely to occur given the lack of suitable habitat, disturbed nature of the project area. The project area was adequately searched during the survey.

Vegetation Type Map

Vegetation Condition Map