



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 9190/1
Permit Holder:	Chevron Australia Pty Ltd
Duration of Permit:	From 23 July 2021 to 22 July 2027

The permit holder is authorised to clear native vegetation subject to the following conditions of this permit.

PART I – CLEARING AUTHORISED

1. Clearing authorised (purpose)

The permit holder is authorised to clear native vegetation for the purpose of removing infrastructure as part of the Thevenard Island Decommissioning Program.

2. Land on which clearing is to be done

Lot 350 on Deposited Plan 37322 (Crown Reserve 33174), Thevenard Island
Lot 134 on Deposited Plan 217262, Thevenard Island

3. Clearing authorised

The permit holder must not clear more than 0.95 hectares of native vegetation within the area cross-hatched yellow in Figures 1-4 of Schedule 1.

4. Period during which clearing is authorised

The permit holder must not clear any native vegetation after 22 July 2026.

PART II – MANAGEMENT CONDITIONS

5. 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.

6. Weed 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*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no known 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.

7. Fauna management – marine turtle habitat

No clearing within *suitable nesting habitat* for *marine turtle species* is to be undertaken during *turtle nesting season*.

8. Fauna management – nesting habitat for migratory and marine birds

- (a) Immediately prior to undertaking any clearing authorised under this permit within the combined areas cross-hatched yellow on Figures 1-4 of Schedule 1, the permit holder must engage a *fauna specialist* to inspect the permit area to identify *active nest/s* being utilised by *migratory and marine bird species* listed below:
 - (i) *Onychoprion anaethetus* (Bridled tern),
 - (ii) *Pandion cristatus* (Osprey),
 - (iii) *Sterna dougallii* (Roseate tern),
 - (iv) *Sternula albifrons* (Little tern),
 - (v) *Sternula nereis nereis* (Fairy tern), and
 - (vi) *Thalasseus bergii* (Crested tern).
- (b) Where *active nest/s* are identified under condition 8(a), the permit holder must engage a *fauna specialist* to monitor the *active nest/s* and determine when it is no longer in use for that breeding season.
- (c) Where possible, works should be rescheduled, and *active nest/s* should not be cleared whilst it is in use for that breeding season as determined by the fauna specialist under condition 8(b). If disturbance of *active nest/s* cannot be avoided, disturbance of *active nest/s* must be undertaken in accordance with a fauna taking license issued under the *Biodiversity Conservation Act 2016* and *Biodiversity Conservation Regulations 2018*.

9. Revegetation and rehabilitation (temporary works)

The permit holder must *revegetate* and *rehabilitate* areas cleared for *temporary works* by laying stockpiled vegetative material and topsoil on the cleared area(s) within six months of the area no longer being required for the purpose for which it was cleared, unless the *CEO*, in writing, advises the permit holder to the contrary.

10. Revegetation and rehabilitation (shipping marker track)

Within six months of the area no longer being required for the purpose for which it was cleared, the permit holder must *revegetate* and *rehabilitate* the area cross-hatched red in

Figure 3 of Schedule 1 by scarifying the track and redistributing topsoil from within the clearing permit area to the scarified area, excluding the area of the track that is located within the existing cleared airstrip.

PART III - RECORD KEEPING AND REPORTING

11. 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); (e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 5; (f) actions taken to minimise the risk of the introduction and spread of weeds in accordance with condition 6; and (g) actions taken to manage and mitigate impacts to marine turtle habitat in accordance with condition 7.
2.	In relation to nesting habitat for <i>migratory and marine bird</i> management pursuant to condition 8 of this Permit	<ul style="list-style-type: none"> (a) the time(s) and date(s) of inspection(s) by the <i>fauna specialist</i>; (b) the location of the <i>active nest/s</i> 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; (c) the location of any fauna species listed in condition 8(a), if identified, recorded using a GPS unit set to GDA94, expressing the geographical coordinates in Eastings and Northings or decimal degrees; (d) the name and amount of each fauna species identified; (e) a description of the inspection

No.	Relevant matter	Specifications
		<p>methodology employed by the <i>fauna specialist</i>;</p> <p>(f) where <i>active nest/s</i> are determined by the <i>fauna specialist</i> to be occupied by any fauna species listed in condition 8(a):</p> <p>(i) the time and date that it was determined to be no longer occupied; and</p> <p>(ii) a description of the evidence by which it was determined to be no longer occupied; and</p> <p>(g) the time and date that the <i>active nest/s</i> were cleared, once no longer in use for that breeding season.</p>
3.	In relation to the revegetation and rehabilitation of areas pursuant to conditions 9 and 10 of this Permit	<p>(a) the size of the area <i>revegetated</i> and <i>rehabilitated</i>;</p> <p>(b) the date(s) on which the <i>revegetation</i> and <i>rehabilitation</i> was undertaken; and</p> <p>(c) the boundaries of the area <i>revegetated</i> and <i>rehabilitated</i> (recorded digitally as a shapefile).</p>

12. Reporting

- (a) The permit holder must provide to the *CEO*, on or before 30 June of each calendar year, a written report containing:
- (i) the records required to be kept under condition 11; and
 - (ii) records of activities done by the permit holder under this permit between 1 January and 31 December of the preceding calendar year.
- (b) If no clearing authorised under this permit has been undertaken, a written report confirming that no clearing under this permit has been undertaken, must be provided to the *CEO* on or before 30 June of each calendar year.
- (c) The permit holder must provide to the *CEO*, no later than 90 calendar days prior to the expiry date of the permit, a written report of records required under condition 11, where these records have not already been provided under condition 12(a).

DEFINITIONS

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

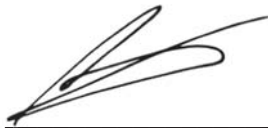
Table 2: Definitions

Term	Definition
active nest/s	means nests of <i>migratory and marine bird species</i> with evidence of current use for nesting, including the presence of the species entering, brooding, or leaving the nest, and/or the presence of eggs, chicks or young.

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.
direct seeding	means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species.
fauna specialist	means a person who holds a tertiary qualification specialising in environmental science or equivalent, and has a minimum of 2 years work experience in fauna identification and surveys of fauna native to the region being inspected or surveyed, or who is approved by the CEO as a suitable fauna specialist for the bioregion, and who holds a valid fauna licence issued under the <i>Biodiversity Conservation Act 2016</i> .
fill	means material used to increase the ground level, or to fill a depression.
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).
local provenance	means native vegetation seeds and propagating material from natural sources within 50 kilometres and the same IBRA subregion of the area cleared.
marine turtle species	means one or more of the following species: (a) <i>Chelonia mydas</i> (Green turtle); (b) <i>Eretmochelys imbricata</i> (Hawksbill turtle); and (c) <i>Natator depressus</i> (Flatback turtle).
migratory and marine bird species	means one or more of the following species: (a) <i>Onychoprion anaethetus</i> (Bridled tern); (b) <i>Pandion cristatus</i> (Osprey); (c) <i>Sterna dougallii</i> (Roseate tern); (d) <i>Sternula albifrons</i> (Little tern); (e) <i>Sternula nereis nereis</i> (Fairy tern); and (f) <i>Thalasseus bergii</i> (Crested tern).
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.
rehabilitate/ed/ion	means actively managing an area containing native vegetation in order to improve the ecological function of that area.
revegetate/ed/ion	means the re-establishment of a cover of <i>local provenance</i> native vegetation in an area using methods such as natural regeneration, <i>direct seeding</i> and/or planting, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area.
suitable nesting habitat	means habitat known to support nesting by <i>marine turtle species</i> within the known current distribution of the species. This often includes sandy beaches, intertidal zones and dune vegetation.
turtle nesting season	means the period between October and April, where <i>marine turtle species</i>

Term	Definition
	are known to nest.
weeds	<p>means any plant –</p> <ul style="list-style-type: none"> (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



Richard Newman
DIRECTOR
NATIVE VEGETATION PROTECTION

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

30 June 2021

Schedule 1

The boundary of the area authorised to be cleared is shown in the maps below (

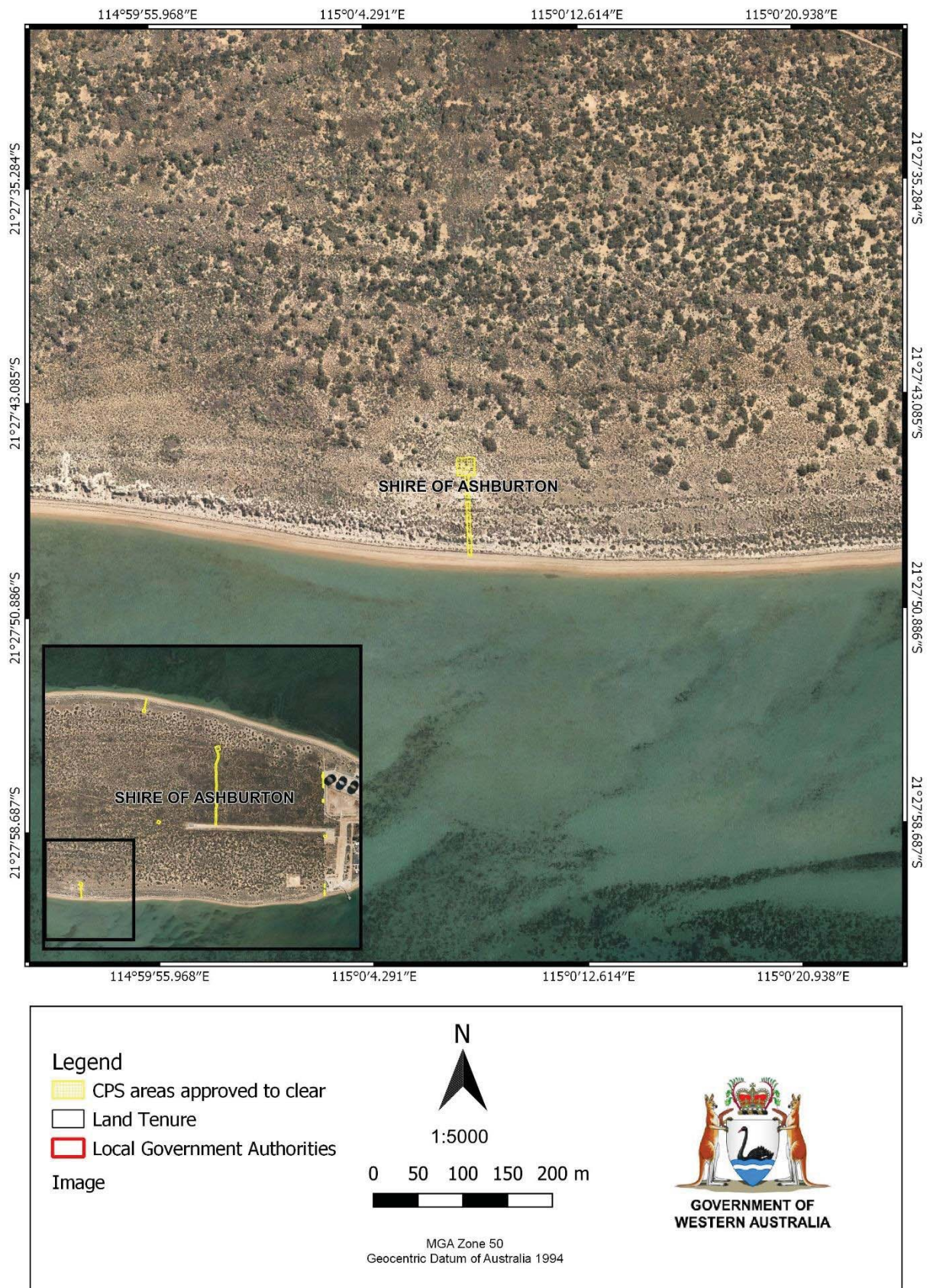


Figure 1-4).

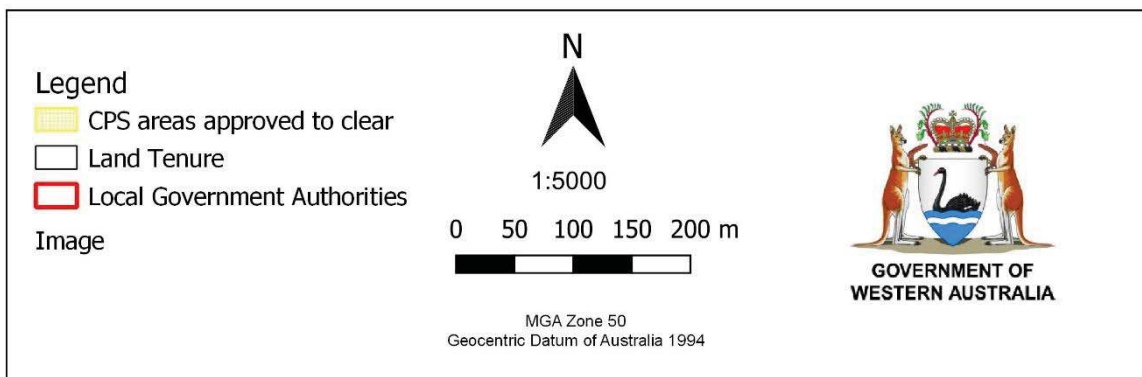


Figure 1: Map of the boundary of the area within which clearing may occur

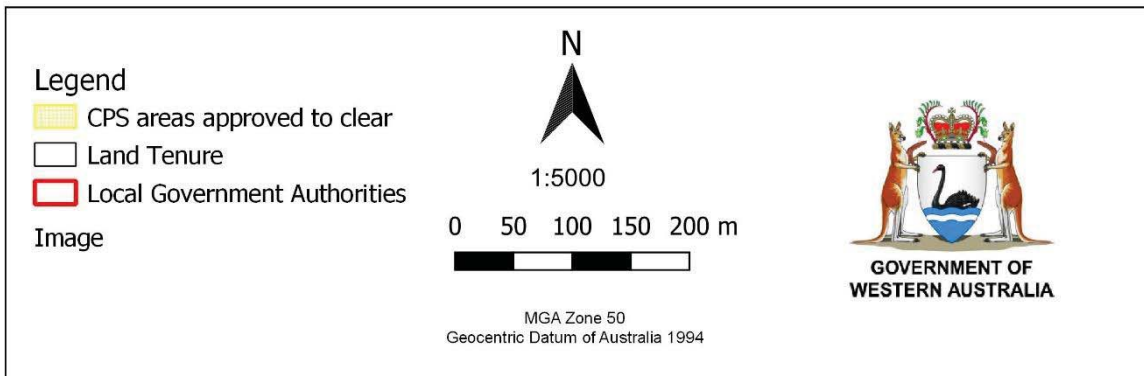
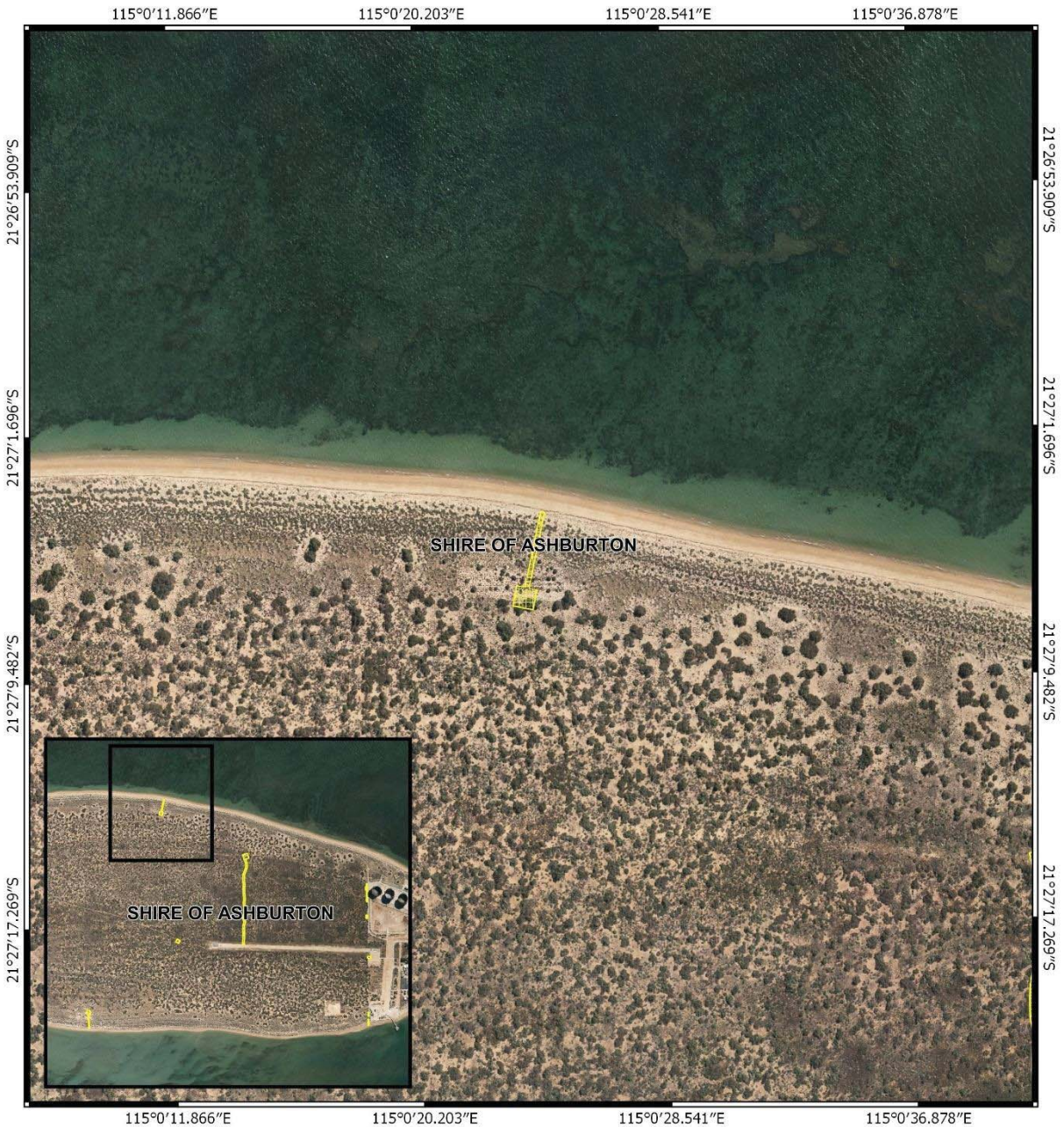


Figure 2: Map of the boundary of the area within which clearing may occur

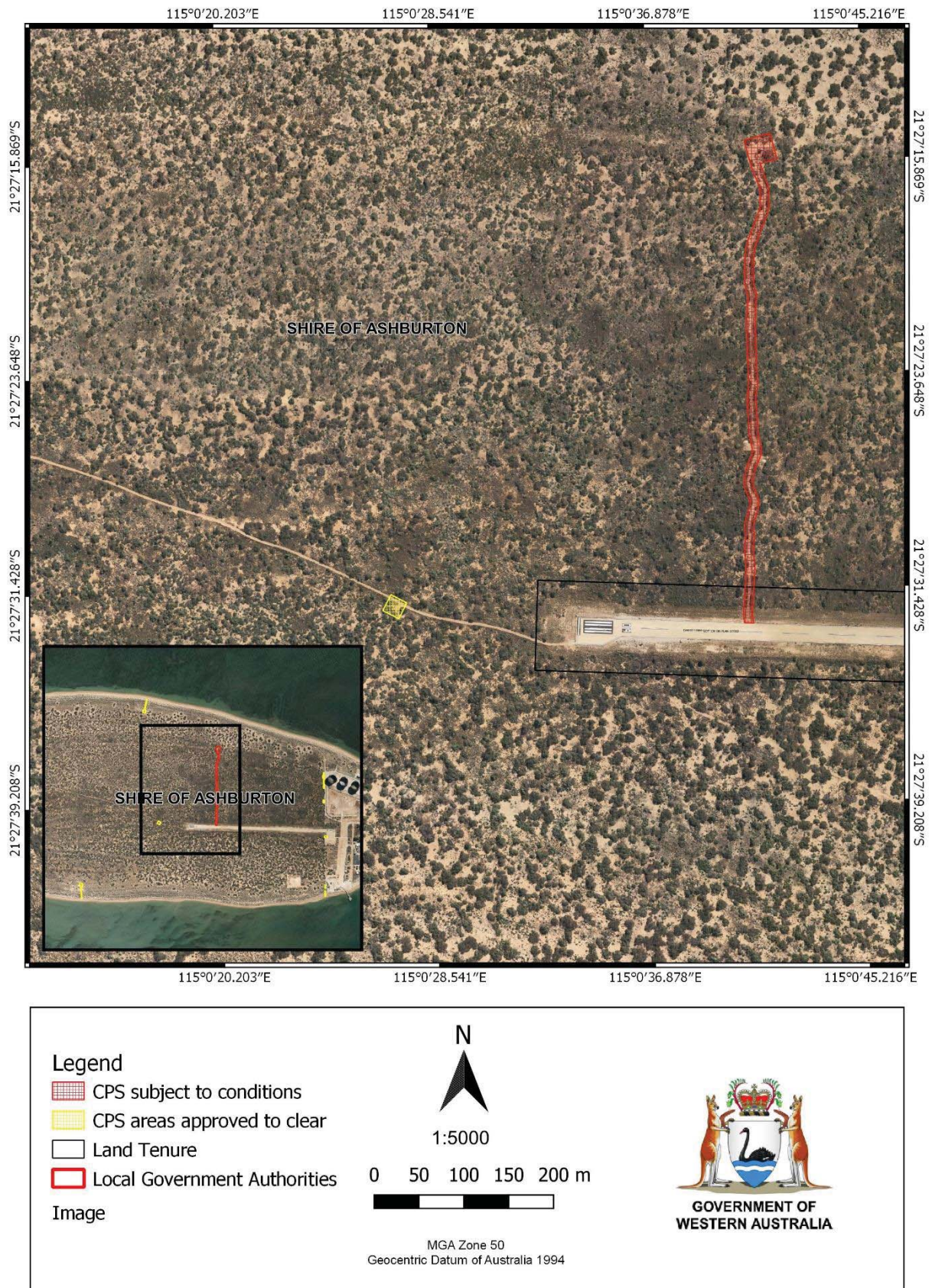


Figure 3: Map of the boundary of the area within which clearing may occur

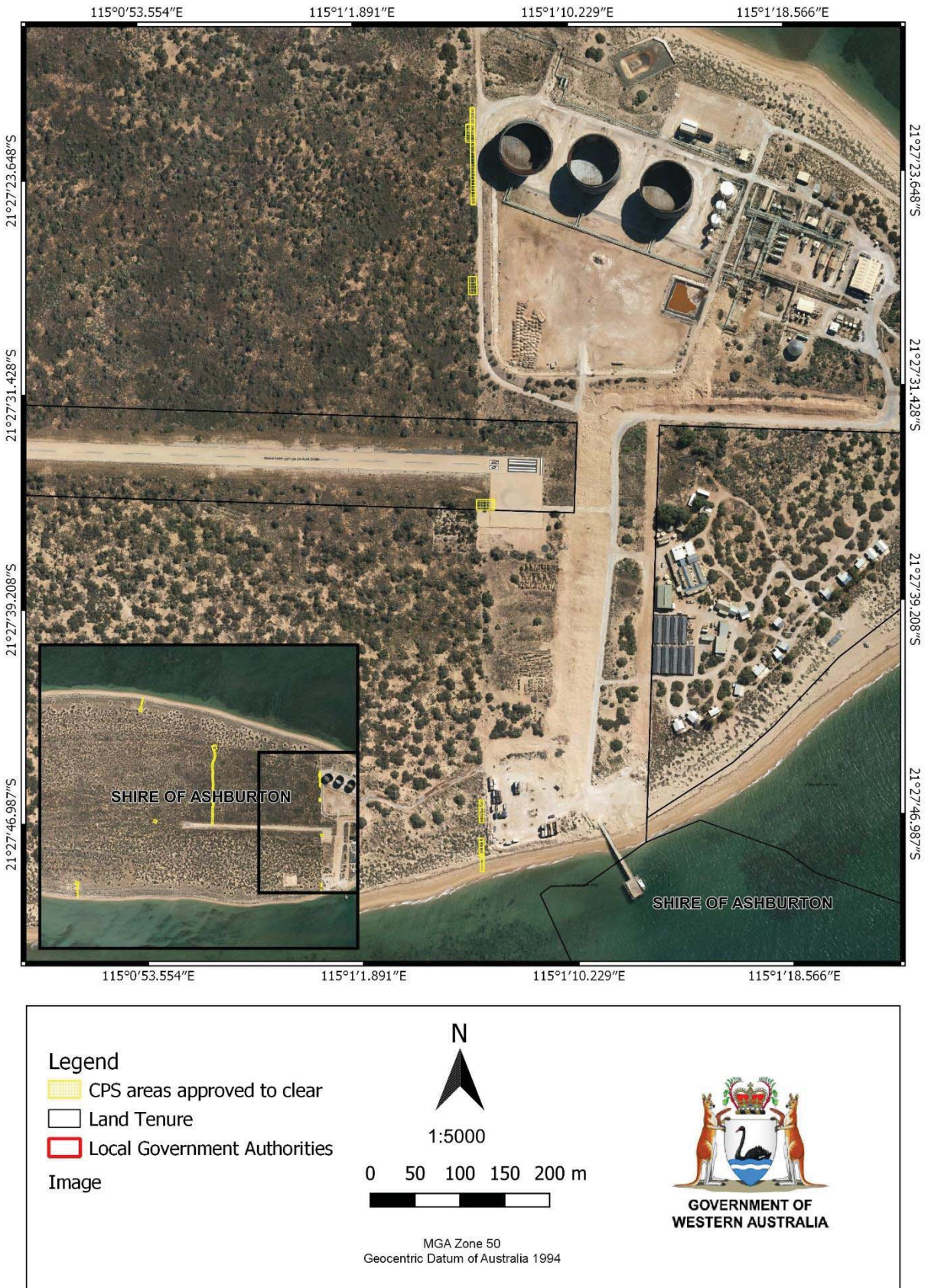


Figure 4: Map of the boundary of the area within which clearing may occur



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9190/1
Permit type:	Purpose permit
Applicant name:	Chevron Australia Pty Ltd
Application received:	19 January 2021
Application area:	0.95 hectares of native vegetation
Purpose of clearing:	Thevenard Island Decommissioning Program
Method of clearing:	Mechanical
Property:	Lot 350 on Deposited Plan 37322 (Crown Reserve 33174) Lot 134 on Deposited Plan 217262
Location (LGA area/s):	Shire of Ashburton
Localities (suburb/s):	Thevenard Island

1.2. Description of clearing activities

The vegetation proposed to be cleared is distributed across eight separate areas throughout Thevenard Island (see Figure 1, Section 1.5). The application is to selectively clear vegetation to facilitate the removal of infrastructure as part of the Thevenard Island Decommissioning Program. The infrastructure to be removed includes a shipping marker, a buried firewater pipeline, groundwater monitoring bores and water source wells, where clearing footprints have been delineated to account for the potential disturbance and clearing of vegetation that may result from the removal activities and vehicle access to removal sites.

1.3. Decision on application

Decision:	Granted
Decision date:	30 June 2021
Decision area:	0.95 hectares of native vegetation, as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit 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 21 days and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix B), relevant datasets (see Appendix F.1), the findings of the Thevenard Island Terrestrial Ecological Monitoring Program (see Appendix E), the clearing principles set out in Schedule 5 of the EP Act (see Appendix C), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also took into consideration that the purpose of the clearing is to facilitate the removal of infrastructure as part of the Thevenard Island Decommissioning program and that the application area would remain a conservation area following the decommissioning of infrastructure.

The assessment identified that the proposed clearing has the potential to result in the introduction and spread of weeds into adjacent vegetation within Thevenard Island Nature Reserve, which could impact on the quality of the adjacent vegetation and its habitat values. The assessment also identified that the proposed clearing has the potential to result in direct impacts to migratory and marine bird and marine turtle nest sites or nesting individuals, if present at the time of the clearing. However, given the extent of the proposed clearing, the abundance of adjacent suitable habitat within Thevenard Island Nature Reserve and the fact that the vegetation within the application area is well-represented throughout Thevenard Island, the proposed clearing was not considered likely to constitute a significant residual impact to the adjacent vegetation or any other biological, conservation, or land and water resource values.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing is unlikely to have long-term adverse impacts on environmental values and can be minimised and managed to be unlikely to lead to an unacceptable risk to the environment.

The Delegated Officer decided to grant a clearing permit subject to conditions to:

- Avoid, minimise and reduce the impacts and extent of clearing,
- Avoid clearing of suitable nesting habitat for marine turtle species during turtle nesting season,
- Undertake pre-clearing inspections for migratory bird nest sites and avoid the clearing of any active nests for the duration of the breeding season,
- Take hygiene steps to minimise the risk of the introduction and spread of weeds,
- Revegetate and rehabilitate areas cleared for temporary works by laying stockpiled vegetative material and topsoil on the cleared areas, and
- Revegetate and rehabilitate areas cleared for access and removal of a shipping marker by scarifying the existing track and redistributing topsoil on cleared areas.

1.5. Site maps

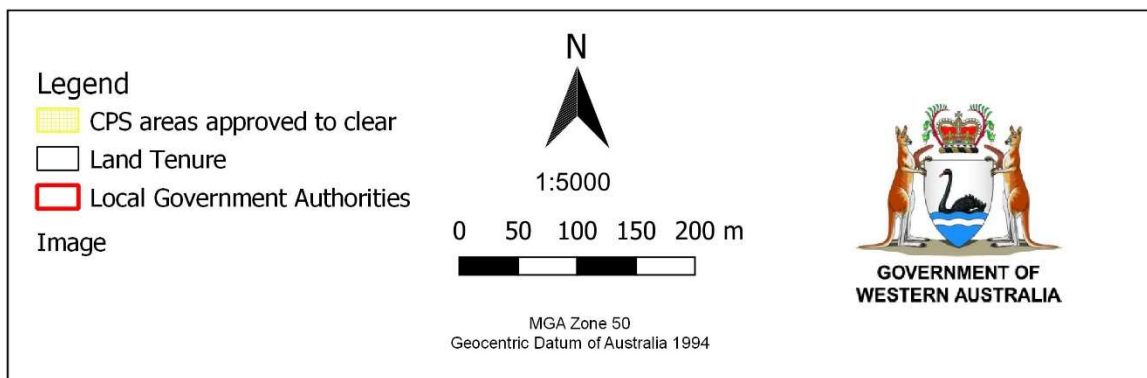


Figure 1 The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

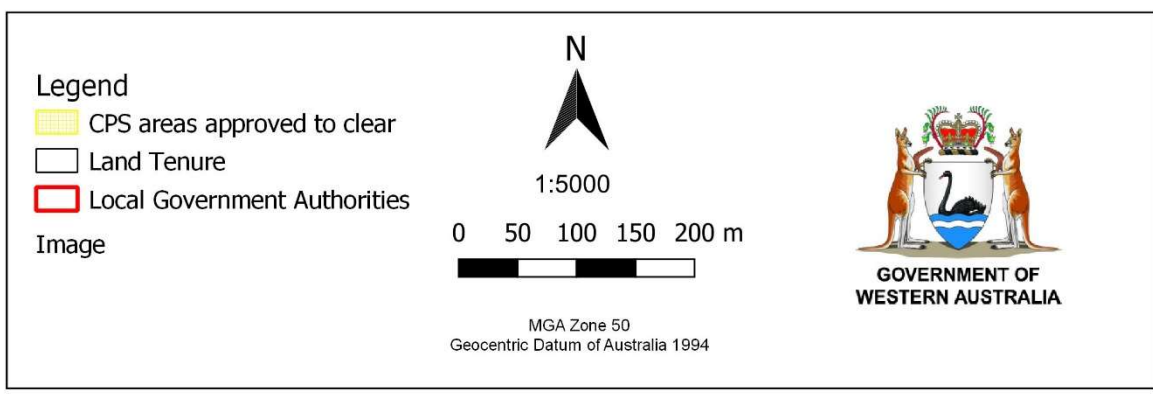
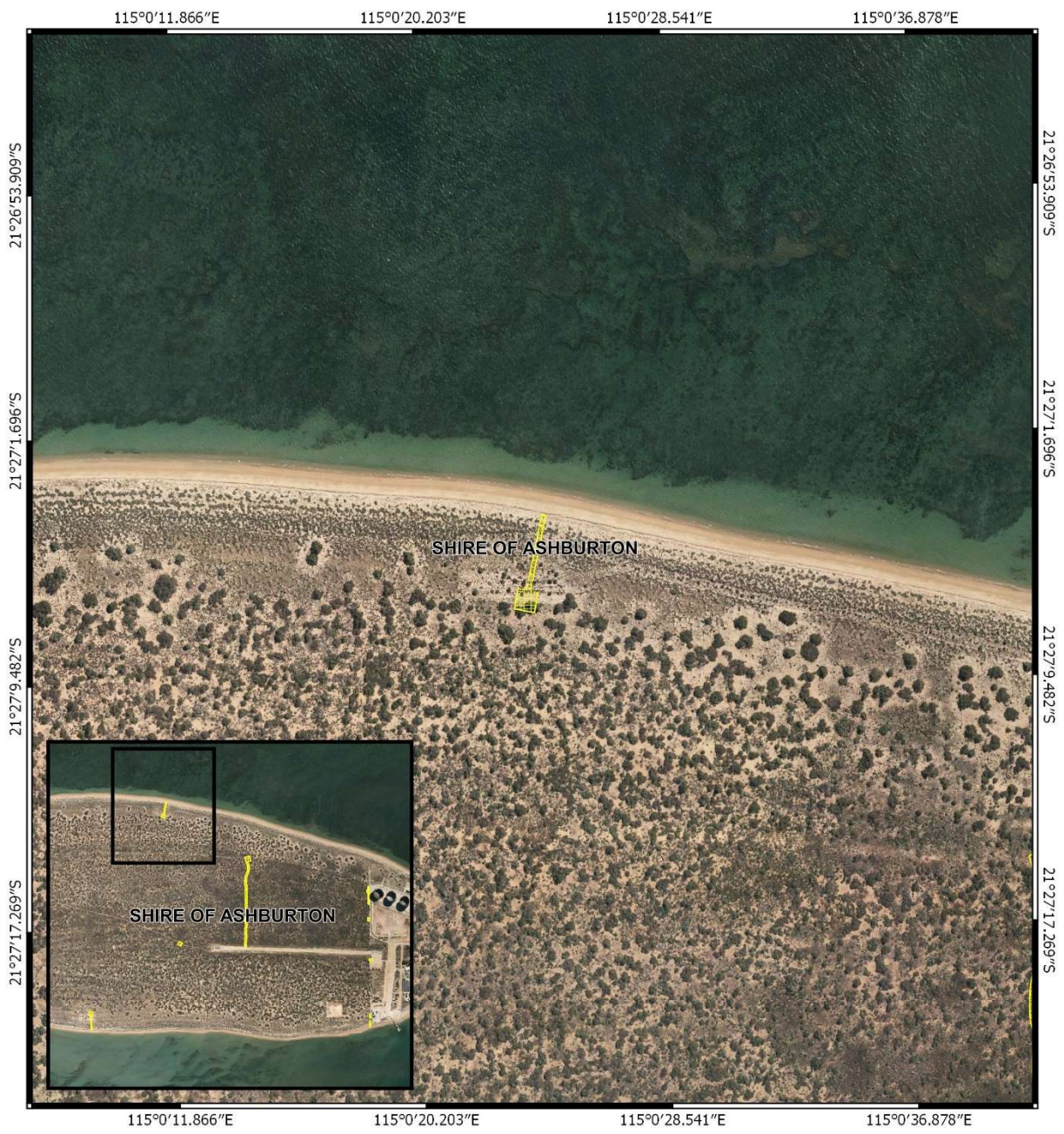
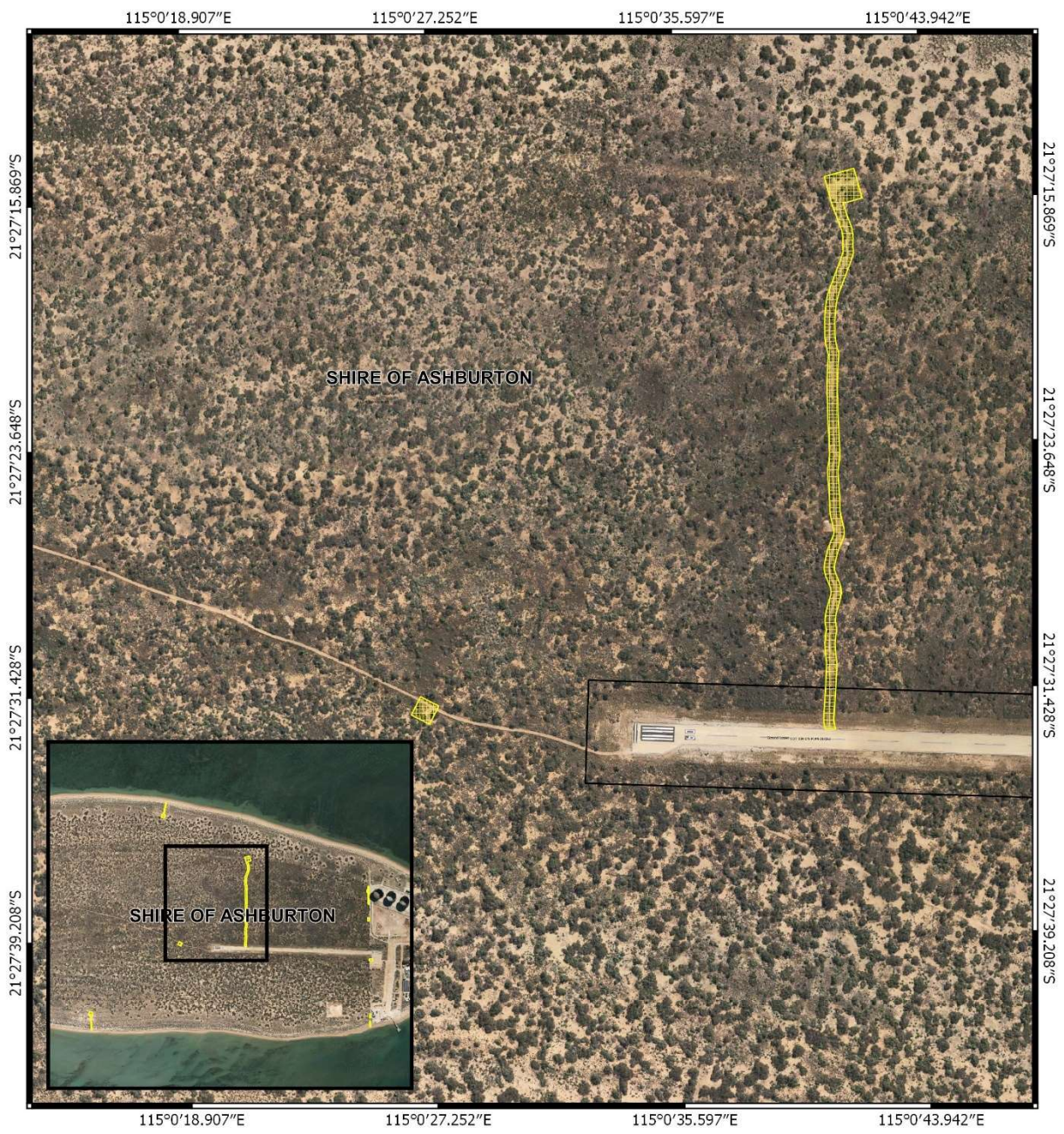


Figure 2 The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.









Legend	N 	
 CPS areas approved to clear	1:5000	GOVERNMENT OF WESTERN AUSTRALIA
 Land Tenure	0 50 100 150 200 m	
 Local Government Authorities		
Image	MGA Zone 50 Geocentric Datum of Australia 1994	

Figure 3 The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

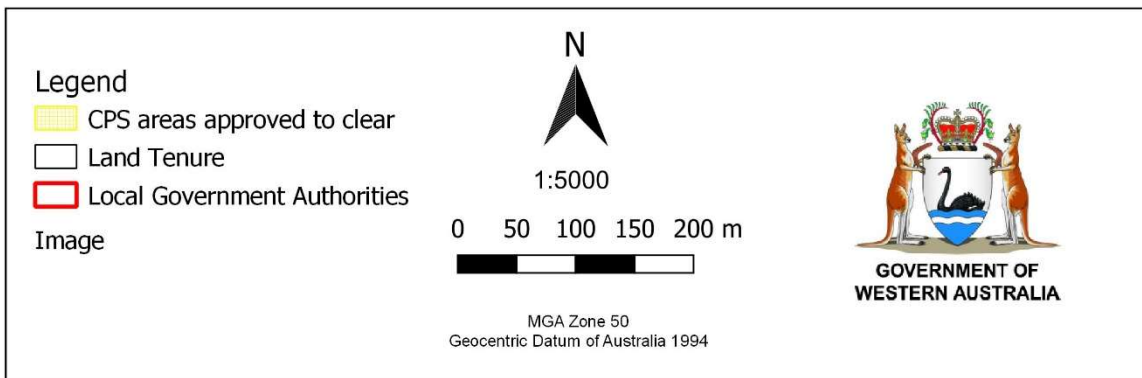


Figure 4 The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

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 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)
- *Contaminated Sites Act 2003* (WA) (CS Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)

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

Supporting documentation was submitted by the applicant, demonstrating that disturbance to vegetation within Thevenard Nature Reserve has been minimised by ensuring that previously cleared areas and access tracks will be utilised for vehicle access to removal sites, where possible (Chevron, 2021b). The applicant has advised that the total clearing area delineates the entire area required for removal works at each site and represents the worst-case extent of clearing (Chevron, 2021b). The applicant has indicated that the clearing of native vegetation will be avoided in the first instance and that clearing will only be undertaken where incidental during removal activities or where necessary for the removal of infrastructure or vehicle access (Chevron, 2021b). As an example of this, the applicant has advised that groundwater monitoring bores will be removed by hand if feasible, negating the need for vehicle access to the bore sites and reducing the extent of clearing required (Chevron, 2021b). The applicant has also advised that the Thevenard Island Retirement Phase Environment Plan will be implemented during clearing activities, which includes provisions for managing the spread and introduction of weeds, ground disturbance and vegetation disturbance, fauna interactions and rehabilitation activities (Chevron, 2021a).

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

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix B) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles (see Appendix C) identified that the impacts of the proposed clearing present a risk to biological values (fauna, flora and vegetation), conservation areas, and land and water resources. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

3.2.1. Biological values (flora and vegetation) - Clearing Principle (a)

Assessment

Flora

A review of available databases indicates that a total of 7 rare flora species have been recorded within the local area (see Appendix B), all are listed as Priority (P) species by the Department of Biodiversity Conservation and Attractions (DBCA). No records of flora species listed as threatened under the state BC Act or Commonwealth EPBC Act were identified in the local area or are known to occur on Thevenard Island (DBCA, 2020).

Based on habitat preferences, only one of the above species, *Carpobrotus* sp. Thevenard Island (M. White 050) (P3), is known to naturally occur on Thevenard Island and has the potential to be found within the application area (see Appendix B.3). *Carpobrotus* sp. Thevenard Island (M. White 050) is a perennial succulent herb associated with sandy soils in coastal heath and dune vegetation or in low mixed Acacia shrubland (Western Australian Herbarium, 1998-). The Inland ridge 1 (Ir1), Coastal plain 2 (Cp2), Coastal plain 4 (Cp4), and Coastal foredune 1 (Cf1) vegetation types within the application area are likely to provide suitable habitat for *Carpobrotus* sp. Thevenard Island (M. White 050).

Flora and vegetation monitoring on Thevenard Island has been undertaken triennially since 1987 as part of the Thevenard Island Terrestrial Ecological Monitoring Plan (TEMP), required under Ministerial Statement 009 for the Saladin Oilfield Development (Astron, 2020). Under the Thevenard Island TEMP, flora and vegetation monitoring includes measures of floristic cover and species richness, diversity, and assemblages along 33 transects of 20 to 25 metres in length distributed across Thevenard Island (Astron, 2020). Since 1987, the Thevenard Island TEMP has recorded one naturally occurring rare flora species on Thevenard Island; *Carpobrotus* sp. Thevenard Island (M. White 050) (Astron, 2020). One other priority species, *Abutilon* sp. Onslow (F. Smith s.n. 10/9/61) was recorded on Thevenard Island during monitoring in 2000 and 2004, however this occurrence was known to have been introduced from the mainland (Astron, 2020). No other conservation significant flora species have been recorded on Thevenard Island as part of the TEMP (Astron, 2020).

Carpobrotus sp. Thevenard Island (M. White 050) has been recorded as occurring within monitoring transects in all survey years since the commencement of the Thevenard Island TEMP in 1987, with the exception of 1999 (Astron, 2020). However, there are no records of *Carpobrotus* sp. Thevenard Island (M. White 050) within the application area itself. During monitoring in 2020, *Carpobrotus* sp. Thevenard Island (M. White 050) was recorded in 10 transects, including one rehabilitated transect, and appears to be widespread throughout the dune and coastal vegetation on Thevenard Island (Figure 2; Astron, 2020). The occurrence of *Carpobrotus* sp. Thevenard Island (M. White 050) within a rehabilitated transect indicates that the species could also be successfully returned to disturbed sites (Astron, 2020).



Figure 2. Locations of *Carpobrotus* sp. Thevenard Island (M. White 050) identified in 2020 during monitoring under the Thevenard Island Terrestrial Ecological Monitoring Plan (TEMP) (Astron, 2020).

Given the above, there is the potential for *Carpobrotus* sp. Thevenard Island (M. White 050) to occur within the application area and for individuals to be impacted by the proposed clearing. However, it is noted that no individuals are known to occur within the application area itself and that the application area includes eight separate areas of between 0.019 and 0.611 hectares within a 450-hectare continuous tract of native vegetation that comprises potentially suitable habitat for *Carpobrotus* sp. Thevenard Island (M. White 050). Further, the species is known to occur from 12 records on the mainland between Ashburton and Northampton, of which 5 records occur within secure conservation estate (Western Australian Herbarium, 1998-). The species is also known to occur in dune areas and coastal platforms on North Muiron, South Muiron, Serrurier, Eva, Locker, Round, Large and Bessieres Islands off the Pilbara (DBCA, 2020). Given the extent of the proposed clearing, the distribution and extent of existing records, the potential for the species to be returned to disturbed areas, and the extent of suitable habitat on Thevenard Island, while the vegetation within the application area may provide suitable habitat for *Carpobrotus* sp. Thevenard Island (M. White 050), it is not considered likely to provide significant habitat or to be essential for the continuation of the species.

Vegetation

The Thevenard Island TEMP identified one priority ecological community occurring within Thevenard Island; Coastal dune native tussock grassland dominated by *Whiteochloa airoides* (P3). This community is described as tussock grassland of *Whiteochloa airoides* occurring on the landward side of foredunes, hind dunes or remnant dunes with white or pinkish white medium sands with marine fragments, with occasional *Spinifex longifolius* tussock or *Triodia epactia* hummock grasses and scattered low shrubs of *Olearia dampierii* subsp. *dampierii*, *Scaevola spinescens*, *S. cunninghamii*, *Trianthema turgidifolia* and *Corchorus* species (*C. walcottii*, *C. laniflorus*) (DBCA, 2021a). While the Coastal foredune 1 (Cf1) vegetation type within the application contains some of the indicator species of the Coastal dune native tussock grassland dominated by *Whiteochloa airoides* PEC, this community is dominated by *Spinifex longifolius* with intermittent occurrences of *Whiteochloa airoides* and *Eulalia aurea* and is unlikely to be representative of the PEC (Astron, 2020). Further, the Thevenard Island TEMP identified that the occurrence of this community on Thevenard Island is small and isolated, occurring over 2 kilometres west of the application area (Astron, 2020). No other threatened or priority ecological communities listed under the state BC Act and/or Commonwealth EPBC Act are known to occur on Thevenard Island. Given the findings of the Thevenard Island TEMP and the vegetation composition of the application area, it is not considered likely that the proposed clearing will impact on any conservation significant ecological community.

Conclusion

Based on the above assessment, the proposed clearing is not considered likely to represent conservation significant ecological communities, significant habitat for any threatened or priority flora species or to be critical for the continuation of these species. For the reasons set out above, it is considered that impacts to conservation significant flora species are unlikely to result from the proposed clearing and that this does not constitute a significant residual impact.

Conditions

No flora or vegetation management conditions required.

3.2.2. Biological values (fauna) - Clearing Principles (a) and (b)

Assessment

A review of available databases indicates that a total of 72 conservation significant fauna species have been recorded within the local area (see Appendix B.4). These species were listed under the state BC Act and/or Commonwealth EPBC Act, as Priority species by DBCA, or are migratory species listed under International Agreements (MI).

Of the conservation significant fauna species recorded within the local area, the following have the potential to be found within the application area based on habitat preferences:

- 19 species of migratory waterbird protected under International Agreements, which may inhabit the intertidal, coastal foredune and coastal plain habitats within the application area for foraging or roosting, or as transient habitat during migration (Commonwealth of Australia, 2015b). The majority of these migratory species do not breed in Australia and the application area is not expected to comprise suitable breeding habitat for these species, with the exception of *Onychoprion anaethetus* (Bridled tern), *Pandion cristatus* (Osprey), *Sterna dougallii* (Roseate tern), *Sternula albifrons* (Little tern) and *Thalasseus bergii* (Crested tern).
- *Calidris canutus* (Red knot) (Endangered under EPBC Act and Vulnerable under BC Act) typically inhabit intertidal mudflats, sand flats and sandy beaches of sheltered coasts, estuaries, or terrestrial saline wetlands near the coast (TSSC, 2016a). The intertidal zone within the application area may provide suitable roosting and foraging habitat for this species, as well as transient habitat during migration. The red knot is not known to breed in Australia, and the application area is not considered likely to provide suitable breeding habitat for this species (TSSC, 2016a).

- *Calidris ferruginea* (Curlew sandpiper) (Critically Endangered under EPBC Act and Vulnerable under BC Act) is found on intertidal mudflats of estuaries, lagoons, mangroves, as well as beaches, rocky shores and around lakes, dams and floodwaters (DoE, 2015a). The intertidal zone, coastal foredune and coastal plain habitat within the application area may provide suitable roosting and foraging habitat for this species, as well as transient habitat during migration. The curlew sandpiper is not known to breed in Australia, and the application area is not considered likely to provide suitable breeding habitat for this species (DoE, 2015a).
- *Calidris tenuirostris* (Great knot) (Critically Endangered under EPBC Act and BC Act) inhabit intertidal mudflats and sandflats in sheltered coasts, including bays and estuaries (TSSC, 2016b). They forage on the moist mud, and often roost on beaches or in nearby low vegetation, such as mangroves or dune vegetation (TSSC, 2016b). The intertidal zone, coastal foredune and coastal plain habitat within the application area may provide suitable roosting and foraging habitat for this species, as well as transient habitat during migration. The great knot is not known to breed in Australia, and the application area is not considered likely to provide suitable breeding habitat for this species (TSSC, 2016b).
- *Charadrius leschenaultii* (Greater sand plover) (Vulnerable under EPBC Act and BC Act) is known to occur in littoral and estuarine habitats, typically on sheltered sandy, shelly or muddy beaches with large intertidal mudflats or sandbanks (TSSC, 2016c). The intertidal zone within the application area may provide suitable roosting and foraging habitat for this species, as well as transient habitat during migration. The greater sand plover is not known to breed in Australia, and the application area is not considered likely to provide suitable breeding habitat for this species (TSSC, 2016c).
- *Charadrius mongolus* (Lesser sand plover) (Endangered under EPBC Act and BC Act) usually occurs in coastal littoral and mudflats in estuaries or beaches, but has also been recorded at inland sites in muddy areas around lakes, soaks and bores (TSSC, 2016d). The intertidal zone habitat within the application area may provide suitable roosting and foraging habitat for this species, as well as transient habitat during migration. The lesser sand plover is not known to breed in Australia, and the application area is not considered likely to provide suitable breeding habitat for this species (TSSC, 2016d).
- *Chelonia mydas* (Green turtle) (Vulnerable under EPBC Act and BC Act) is a migratory marine reptile associated with shallow, benthic foraging habitats such as tropical tidal and sub-tidal coral and rocky reef habitats, or inshore seagrass beds or mangrove heath (DoEE, 2017). Thevenard Island is noted as a minor nesting site for green turtles and the intertidal zone within the application area may provide suitable nesting habitat for this species (DoEE, 2017).
- *Eretmochelys imbricata* (Hawksbill turtle) (Vulnerable under EPBC Act and BC Act) is a migratory marine reptile associated with tropical tidal and sub-tidal coral and rocky reef habitat (DoEE, 2017). Thevenard island is not a recorded nesting site for hawksbill turtles but occurs within 50 kilometres of confirmed nesting areas and within the species' range (DoEE, 2017).
- *Leggadina lakedownensis* (Lakeland Downs mouse) (Priority 4) occupies *Acacia* shrublands and low shrubs on deep sandy soils on Thevenard Island (CALM, 2002). The species is nocturnal, residing in burrows during the day and foraging on invertebrates and plant material at night (CALM, 2002). The inland ridge and coastal plain habitats within the application area may provide suitable habitat for this species.
- *Limosa lapponica menzibieri* (Bar-tailed godwit, northern Siberian) (Critically Endangered under EPBC Act and BC Act) typically inhabit coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays (TSSC, 2016e). The intertidal zone habitat within the application area may provide suitable roosting and foraging habitat for this species, as well as transient habitat during migration. The bar-tailed godwit is not known to breed in Australia, and the application area is not considered likely to provide suitable breeding habitat for this species (TSSC, 2016e).
- *Natator depressus* (Flatback turtle) (Vulnerable under EPBC Act and BC Act) is a migratory marine reptile associated with soft sediment habitats that support benthic invertebrates (DoEE, 2017). Thevenard Island is noted as a minor nesting site for flatback turtles and the intertidal zone within the application area may provide suitable nesting habitat for this species (DoEE, 2017).
- *Numenius madagascariensis* (Eastern curlew) (Critically Endangered under EPBC Act and BC Act) is found on intertidal mudflats and sandflats, often with beds of seagrass, on sheltered coasts, especially estuaries, mangrove swamps, bays, harbours and lagoons (DoE, 2015b). The intertidal zone habitat within the application area may provide suitable roosting and foraging habitat for this species, as well as transient habitat during migration. The eastern curlew is not known to breed in Australia, and the application area is not considered likely to provide suitable breeding habitat for this species (DoE, 2015b).
- *Sternula nereis nereis* (Fairy tern) (Vulnerable under EPBC Act and BC Act) utilises a variety of habitats including offshore, estuarine, or lacustrine (lake) islands, wetlands, beaches and spits (DSEWPC, 2011). The intertidal zone and coastal foredune habitat within the application area may provide suitable nesting, roosting and foraging habitat for this species, as well as transient habitat during migration.
- *Tringa brevipes* (Grey-tailed tattler) (Priority 4) is known to occur in sheltered coasts with reefs or rock platforms or with intertidal mudflats, including embayments, estuaries, and coastal lagoons, especially those fringed with mangroves (Higgins and Davies, 1996). The intertidal zone habitat within the application area

may provide suitable roosting and foraging habitat for this species, as well as transient habitat during migration. The grey-tailed tattler is not known to breed in Australia, and the application area is not considered likely to provide suitable breeding habitat for this species (Higgins and Davies, 1996).

Waterbirds

As outlined above, the intertidal zone, coastal foredune and coastal plain habitat within the application area is likely to provide suitable foraging and roosting habitat for a number of conservation significant waterbirds. This is supported by the Thevenard Island TEMP, which has identified 24 conservation significant avian fauna occurring on Thevenard Island since monitoring commenced in 1987, including a number of those listed above (Astron, 2020). However, it is acknowledged that the total area of suitable foraging and roosting habitat proposed to be cleared is approximately 0.112 hectares, comprising approximately 0.07 per cent of all intertidal zone, coastal foredune and coastal plain habitat on Thevenard Island. It is also noted that a number of these waterbirds are migratory and utilise sandy beaches and coastal dune habitat on the mainland and other Pilbara inshore islands for foraging and roosting (DBCA, 2020). Noting the extent of the proposed clearing and that abundant suitable foraging and roosting habitat is available on Thevenard Island and nearby Pilbara inshore islands, it is not considered likely that the application area represents significant roosting or foraging habitat for any conservation significant waterbird species.

The application area may provide suitable nesting habitat for a subset of the aforementioned conservation significant waterbirds, including the bridled tern, osprey, roseate tern, little tern, crested tern, and fairy tern (Commonwealth of Australia, 2015b). The five species of tern (bridled tern, roseate tern, little tern, crested tern, and fairy tern) typically nest in the intertidal zone of sheltered coastal environments where the substrate is sandy and vegetation is low and sparse (DSEWPC, 2011; Higgins and Davies, 1996). Therefore, it is likely that suitable nesting habitat for these species on Thevenard Island is limited to the intertidal zone and coastal foredune habitats. The total area of suitable nesting habitat proposed to be cleared is approximately 0.024 hectares and comprises approximately 0.03 per cent of all suitable nesting habitat for these five species of tern on Thevenard Island. It is also noted that the five species of tern are known to utilise the intertidal zone and sandy beaches of other Pilbara inshore islands as nesting habitat (DBCA, 2020). Noting the extent of the proposed clearing and that abundant suitable nesting habitat is available on Thevenard Island and nearby Pilbara inshore islands, it is not considered likely that the proposed clearing will significantly impact nesting habitat for the bridled tern, roseate tern, little tern, crested tern, or fairy tern. However, it is acknowledged that the proposed clearing has the potential to result in direct impacts to nest sites and nesting individuals, if present at the time of the clearing. The applicant has advised that the Thevenard Island Retirement Phase Environment Plan contains measures for mitigating impacts to active bird nests, including pre-clearing inspections for nests and ensuring that no active nests are disturbed (Chevron, 2021a; Chevron, 2019). Given the potential for direct impacts to nesting habitat, a condition requiring pre-clearing inspection for nests and the avoidance of active nests during the breeding season of these species has been applied to the clearing permit and is expected to mitigate this risk.

Regarding the osprey, this species constructs nests in a variety of natural and artificial sites including in trees and shrubs, and on cliffs or rock platforms, coral cays, deserted beaches, or pylons (Commonwealth of Australia, 2015a). Therefore, it is likely that the range of habitat types present within the 0.95-hectare application area would provide suitable nesting habitat for this species. This is supported by the Thevenard Island TEMP, which has recorded sightings of osprey in all survey years since the commencement of monitoring in 1987, including records of 14 osprey nests during monitoring in 2020, of which four were active nests containing eggs (Astron, 2020). However, it is acknowledged that no osprey nests have been recorded within the application area itself and that the clearing area represents approximately 0.2 per cent of all suitable nesting habitat present on Thevenard Island. It is also noted that ospreys are not considered to be as easily disturbed at nest sites as other raptor species, and that nest abandonment by ospreys resulting from disturbance is infrequent (Commonwealth of Australia, 2015a). Further, the osprey is known to nest in suitable habitat on up to 40 Pilbara inshore islands (DBCA, 2020) and it is not expected that the application area represents nesting habitat that is important for the species. Noting the extent of the proposed clearing and that abundant suitable nesting habitat is available on Thevenard Island and nearby Pilbara inshore islands, it is not considered likely that the proposed clearing will impact significant nesting habitat for the osprey. However, it is acknowledged that the proposed clearing has the potential to result in direct impacts to nest sites, if present at the time of the clearing. The provisions of the Thevenard Island Retirement Phase Environment Plan and conditions placed on the clearing permit will ensure that impacts to active osprey nests are avoided and minimised during the proposed clearing.

It is acknowledged that the application area may also contribute to the ecological linkage values of Thevenard Island for migratory avian fauna moving between foraging, roosting and nesting areas. However, noting the extent of the proposed clearing and that over 400 hectares of continuous native vegetation will persist on Thevenard Island, it is not likely that the proposed clearing will reduce vegetation connectivity or significantly impact fauna species utilising Thevenard Island for movement or migration between areas of suitable habitat.

Marine Turtles

As outlined above, the intertidal zone may provide suitable nesting habitat for the green turtle, hawksbill turtle and flatback turtle. Thevenard Island is noted as a minor nesting site for the green turtle in Western Australia, with major breeding sites including Lacepedes, Montebello, Barrow, Muiron, and Browse Islands and the Northwest Cape (DoEE, 2017). Major nesting sites for the green turtle outside of Western Australia include a variety of islands across the southern Great Barrier Reef, Coringa-Herald National Nature Reserve and Lihou Reef National Nature Reserve in the Coral Sea, Raine Island and Moulter Cay in the northern Great Barrier Reef, a variety of islands in the Gulf of Carpentaria, various islands in the Cobourg Peninsula, Ashmore and Cartier Reefs, Scott Reef and Browse Island, and North Keeling Island (DoEE, 2017). Thevenard Island is also noted as a minor nesting site for the flatback turtle in the Pilbara region, with major nesting sites including Barrow Island, Mundabullangana Station, and Delambre Island (DoEE, 2017). Major nesting sites outside of the Pilbara include a variety of islands in eastern Queensland, Cape Domett, various islands in the Arafura Sea, and Eco Beach and Eighty Mile Beach in the south-west Kimberley (DoEE, 2017). Thevenard Island is not a recorded nesting site for hawksbill turtles, with major nesting sites in Western Australia including the Dampier Archipelago (Rosemary Island), Delambre Island and Montebello Islands, and other major nesting sites including various islands in northern Queensland and north-east Arnhem Land (DoEE, 2017). However, as the greater Thevenard Island Nature Reserve is noted to provide protection for breeding stock (DoEE, 2017), Thevenard Island is considered to provide potential nesting habitat for this species.

The total area of suitable nesting habitat for the green turtle, hawksbill turtle and flatback turtle contained within the application area is 0.011 hectares and comprises approximately 0.03 per cent of all suitable nesting habitat present on Thevenard Island. It is also acknowledged that the Thevenard Island TEMP has not recorded observations or evidence of nesting by any marine turtle species since monitoring commenced in 1987 (Astron, 2020). Noting the above and the extent and distribution of major nesting habitat for these species, it is not considered likely that the clearing of 0.011 hectares of minor nesting habitat within the application area represents a significant risk to the continuation of the green turtle, hawksbill turtle or flatback turtle. Given the extent of the proposed clearing and that Thevenard Island is not known to provide major nesting habitat for any conservation significant marine turtle species, it is not considered likely that the proposed clearing will significantly impact nesting habitat for the green turtle, hawksbill turtle and flatback turtle. However, it is acknowledged that the proposed clearing has the potential to result in direct impacts to nest sites or nesting individuals, if present at the time of the clearing. The applicant has advised that no clearing will be undertaken within suitable nesting habitat during the turtle nesting season, as per the Thevenard Island Retirement Phase Environment Plan (Chevron, 2021a; Chevron, 2019).

Mammals

One conservation significant mammal species, the Lakeland Downs mouse, is known to occur on Thevenard Island (Astron, 2020; DBCA, 2020). The Thevenard Island population of the Lakeland Downs mouse was previously thought to be a distinct species endemic to the island but is now known to be a larger form of the species present on the mainland and Mackerel Islands (Cooper, et al., 2003; Moro, et al., 1998). The Thevenard Island TEMP has confirmed that the Lakeland Downs mouse is widespread throughout the inland ridge vegetation of Thevenard Island, but that population numbers are highly variable and dependent on resource availability (Astron, 2020). It is noted that the application area comprises eight separate areas of between 0.019 and 0.611 hectares, surrounded by a continuous tract of native vegetation that provides approximately 435 hectares of suitable habitat for the Lakeland Downs mouse. The total area of suitable habitat for the Lakeland Downs mouse proposed to be cleared is approximately 0.83 hectares and comprises approximately 0.19 per cent of all suitable habitat for this species on Thevenard Island. Noting the extent of the proposed clearing and that abundant suitable habitat for the Lakeland Downs mouse is located adjacent to the application area, it is expected that any individuals present at the time of clearing will be able to disperse into adjacent suitable habitat and are unlikely to be significantly impacted by the clearing. Given the extent of suitable habitat on Thevenard Island, the extent of the proposed clearing, and that the species has a scattered distribution on the mainland across northern Australia, it is not expected that the application area comprises significant habitat for the Lakeland Downs mouse or is critical for the continuation of the species.

Conclusion

Based on the above assessment, the application area is not considered likely to represent significant habitat for any conservation significant fauna species or to be critical for the continuation of these species. However, it is acknowledged that the proposed clearing has the potential to result in direct impacts to migratory and marine bird or marine turtle nest sites or nesting individuals, if present at the time of the clearing. For the reasons set out above, it is considered that impacts to threatened or priority fauna species can be managed to be environmentally acceptable through fauna management conditions placed on the permit and that this does not constitute a significant residual impact.

Conditions

To address the above impacts, the following management measures will be required as a condition on the clearing permit:

- Fauna management – marine turtle habitat, which ensures no clearing within suitable nesting habitat is undertaken during turtle nesting season, and
- Fauna management – nesting habitat for migratory and marine birds, which requires pre-clearing inspection for active nest sites and the avoidance of any active nests for the duration of the breeding season.

3.2.3. Conservation areas - Clearing Principle (h)

Assessment

The application area is located within the Thevenard Island Nature Reserve and the proposed clearing will result in the loss of 0.95 hectares of native vegetation within a conservation area. As described in previous sections, the application area may also provide suitable habitat for a priority flora species and for several conservation significant fauna species. Therefore, the proposed clearing may result in impacts to the environmental values of Thevenard Island Nature Reserve through the loss of native vegetation that comprises locally important habitats.

However, it is noted that the application area includes eight separate areas of between 0.019 and 0.611 hectares within a 450-hectare continuous tract of native vegetation in Thevenard Island Nature Reserve. The vegetation types present within the application area are also well-represented across Thevenard Island, with the vegetation present within the application area comprising less than one per cent of each mapped vegetation type within Thevenard Island Nature Reserve (Astron, 2020). The applicant has committed to stockpiling vegetative material and excavated soil in the permit area during temporary clearing for the removal of infrastructure (Chevron, 2021a). All areas temporarily cleared during the removal of infrastructure will be rehabilitated through reshaping the surface of the land so that it is consistent with the surrounding five metres of uncleared land and laying the retained topsoil and vegetative material (Chevron, 2021a). The applicant has also committed to rehabilitating the area disturbed for access and removal of the Thevenard Island shipping marker, through scarifying the existing track and redistributing topsoil on cleared areas (Chevron, 2021a). Noting the extent of the proposed clearing, the abundance of similar habitat across Thevenard Island, and that rehabilitation of temporary cleared areas will be conditioned on the permit, it is not expected that the proposed clearing will significantly impact on the environmental values or flora and fauna habitat present within Thevenard Island Nature Reserve.

The *Pilbara inshore islands nature reserves and proposed additions draft management plan* (the Draft Island Management Plan) acknowledges the decommissioning of oil facilities and associated infrastructure being undertaken on Thevenard Island (DBCA, 2020). The Draft Island Management Plan recommends that the portion of Thevenard Nature Reserve that is leased for oil and gas facilities is surrendered to DBCA and maintained as part of the reserve, following the decommissioning of infrastructure and rehabilitation of disturbed areas (DBCA, 2020). The applicant has committed to rehabilitating all temporarily cleared areas with topsoil and vegetative material stockpiled during clearing activities (Chevron, 2021a). Given the purpose of the proposed clearing is to facilitate the Thevenard Island Decommissioning program and that all temporarily cleared areas will be rehabilitated following clearing, it is considered that the proposed clearing is compatible with the provisions of the Draft Island Management Plan.

While the loss of 0.95 hectares is not considered to represent a significant impact to the environmental values of Thevenard Island Nature Reserve, it is acknowledged that the proposed clearing has the potential to facilitate the spread of weeds into adjacent vegetation due to the presence of invasive weeds such as *Cenchrus ciliaris* (buffel grass) within the application area (Astron, 2020). The applicant has advised that the Thevenard Island Retirement Phase Environment Plan includes provisions for limiting the spread of weeds and preventing the introduction of new weeds, including that all vehicles, clothing, footwear and tools are thoroughly cleaned down prior to entering the nature reserve (Chevron, 2021a; Chevron, 2019). Noting the extent of the proposed clearing, the applicant's mitigation measures, and that invasive weed species are widespread throughout Thevenard Island Nature Reserve (Astron, 2020), a weed and dieback management condition is considered to minimise this risk.

Conclusion

Based on the above assessment, the proposed clearing is unlikely to result in significant impacts to the environmental values of Thevenard Island Nature Reserve but may facilitate the spread of weeds into adjacent vegetation within a conservation area. For the reasons set out above, it is considered that the impacts of the proposed clearing can be managed to be environmentally acceptable by taking steps to minimise the risk of the introduction and spread of weeds and rehabilitating all areas cleared for temporary works and does not constitute a significant residual impact.

Conditions

To address the above impacts, the following management measures will be required as a condition on the clearing permit:

- Dieback and weed control, which ensures protocols are put in place to limit the introduction and transportation of dieback- and weed-affected materials,
- Revegetation and rehabilitation (temporary works), which ensures that all areas cleared for temporary works are rehabilitated by laying stockpiled vegetative material and topsoil on the cleared areas within six months of the area no longer being required for the purpose for which it was cleared, and
- Revegetation and rehabilitation (shipping marker track), which ensures that the area disturbed for access and removal of the Thevenard Island shipping marker is rehabilitated through scarifying the existing track and redistributing topsoil over the disturbed areas, excluding the existing cleared airstrip.

3.2.4. Land and water resources (land degradation) - Clearing Principle (g)

Assessment

According to available information, the coastal, sandy soils present within the application area may be susceptible to land degradation resulting from wind erosion, particularly if surface vegetation is removed (DBCA, 2020). However, the application area includes eight separate areas of between 0.019 and 0.611 hectares within a 450-hectare continuous tract of native vegetation. Noting the extent of the proposed clearing, it is expected that the effects of wind erosion will be buffered by adjacent, retained vegetation and that these effects within the cleared area will be short-term and localised. It is also acknowledged that any areas cleared for temporary works will not be left exposed to weathering and will be rehabilitated through reshaping of the ground and laying of retained topsoil and vegetative material (Chevron, 2021a). Therefore, it is not expected that the proposed clearing will result in appreciable land degradation.

Conclusion

Based on the above assessment, the proposed clearing is unlikely to result in appreciable land degradation but may contribute to minor, localised wind erosion if cleared areas are left exposed to weathering. For the reasons set out above, it is considered that the impacts of the proposed clearing can be managed to be environmentally acceptable by ensuring all areas cleared for temporary works are rehabilitated and does not constitute a significant residual impact.

Conditions

To address the above impacts, the following management measure will be required as a condition on the clearing permit:

- Revegetation and rehabilitation (temporary works), which ensures that all areas cleared for temporary works are rehabilitated by laying stockpiled vegetative material and topsoil on the cleared areas within six months of the area no longer being required for the purpose for which it was cleared.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on the Department of Water and Environmental Regulation's website on 11 March 2021, inviting submissions from the public within a 21-day period. No submissions were received in relation to this application.

The Shire of Ashburton (the Shire) advised DWER that local government approvals are not required, and that the proposed clearing is consistent with the Shire's Local Planning Scheme No. 7 and the Deemed Provisions of the *Planning and Development (Local Planning Schemes) Regulations 2015* (Shire of Ashburton, 2021). The Shire did not have any objections to the proposed clearing (Shire of Ashburton, 2021).

Clearing of native vegetation and operational practices on Thevenard Island related to the oil refinery and associated infrastructure under the Saladin Oilfield Development was approved under Ministerial Statements 009 and 200 (Chevron, 2021b). However, the decommissioning of these facilities and infrastructure were not included in the provisions of the Ministerial Statements (Chevron, 2021b).

The applicant holds a Regulation 4 Lawful Authority under the provisions of the *Conservation and Land Management Regulations 2002* granted by the Department of Biodiversity, Conservation and Attractions (DBCA), which provides lawful authority for the applicant to undertake decommissioning and removal of infrastructure and materials within the Thevenard Island Nature Reserve (DBCA, 2021b). DBCA advised that it had no objections to the granting of a clearing permit for the application area to facilitate the removal of infrastructure as part of the Thevenard Island Decommissioning Program (DBCA, 2021b). DBCA advised that the following points should be considered during the assessment of the clearing permit application:

- What measures are proposed by the applicant to limit the spread of weeds and prevent new weeds entering the reserve?

- What significant fauna habitat exists within the application area, and what management measures will the applicant implement to avoid impacting on threatened species/habitat and species subject to international agreements during the decommissioning program?
- Where are the priority ecological communities mapped within Thevenard Nature Reserve located in relation to the application area?
- Will rehabilitation techniques be developed and implemented in relation to the decommissioning works? (DBCA, 2021b)

The above points have been addressed during the detailed assessment of the application in Section 3 or are outlined in Appendix B.

A review of available databases indicates that the application intersects one contaminated site classified as *Contaminated – remediation required* under the *Contaminated Sites Act 2003* due to the presence of petroleum hydrocarbons, heavy metals and contaminants in the soil and groundwater surrounding the existing oilfield operational facilities. DWER's Contaminated Sites Branch (Contaminated Sites) advised that the decommissioning of the oil refinery and related infrastructure and facilities on Thevenard Island is being undertaken in part as a prelude to planned programs of contamination remediation and rehabilitation of the landform (DWER, 2021). Contaminated Sites advised that a Remediation Action Plan that is supported by a series of site assessments, remediation trials, health risk assessment and Mandatory Auditor Reporting has been developed by the applicant to inform the decommissioning and subsequent programs (DWER, 2021). Contaminated Sites advised that, based on the available information, they had no concerns with respect to the proposed clearing (DWER, 2021).

Thevenard Island contains one Aboriginal site of significance that is 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. Additional information provided by applicant

Summary of comments	Consideration of comment
<p>The applicant provided details of additional management and mitigation measures on 24 May 2021, related to:</p> <ul style="list-style-type: none"> • Weed management, • Fauna management, and • Rehabilitation (Chevron, 2021a). 	<p>The additional supporting information provided was considered as follows:</p> <ul style="list-style-type: none"> • Fauna management measures proposed by the applicant were considered in the detailed assessment of impacts to biological values (see Section 3.2.2), and • Weed management and rehabilitation measures proposed by the applicant were considered in the detailed assessment of impacts to conservation areas (see Section 3.2.3).

Appendix B. Site characteristics

B.1. Site characteristics

Characteristic	Details
Local context	<p>The area proposed to be cleared is part of an expansive tract of native vegetation within Thevenard Island in the extensive land use zone of Western Australia. It is surrounded by remnant vegetation within the greater Thevenard Island Nature Reserve and is adjacent to previously cleared areas including an airstrip, tourist accommodation and an oil and gas processing facility which is in the process of being decommissioned. The proposed clearing area includes eight separate areas ranging in size from 0.019 to 0.611 hectares, which all comprise part of an approximately 450-hectare area of native vegetation within the Thevenard Island Nature Reserve. Spatial data indicates that the local area (50-kilometre radius from the centre of the area proposed to be cleared) retains approximately 97.54 per cent of the original native vegetation cover.</p>
Ecological linkage	<p>The application area is not mapped within any formal or informal ecological linkages. Noting that the application area includes eight separate areas of less than one hectare in size within an approximately 450-hectare expansive tract of native vegetation, the application area is not considered to comprise a significant ecological linkage within Thevenard Island.</p>
Conservation areas	<p>The majority of the application area is located within Thevenard Island Nature Reserve (Crown Reserve 33174), which is vested in the conservation estate of Western Australia and managed in perpetuity by the Department of Biodiversity Conservation and Attractions (DBCA).</p>
Vegetation description	<p>Vegetation within the Thevenard Island Nature Reserve has been historically mapped as consisting of three major vegetation associations:</p> <ul style="list-style-type: none"> • <i>Spinifex longifolius</i> coastal grassland on dunes, • <i>Acacia coriacea</i> central shrubland on ridge system, and • Mixed low shrubland and mixed grassland on coastal shelf (LeProvost et al., 1987). <p>As part of the Thevenard Island Terrestrial Ecological Monitoring Program (TEMP), vegetation mapping on Thevenard Island has been categorised into 13 detailed vegetation associations by correlating the aforementioned historical vegetation associations, landform units and the findings of ongoing ecological monitoring (Astron,</p>

Characteristic	Details
	<p>2020). The Thevenard Island Retirement Project Terrestrial Ecological Monitoring Report (Astron, 2020) indicates that the vegetation within the proposed clearing area consists of the following vegetation associations:</p> <ul style="list-style-type: none"> • Inland ridge 1 (Ir1), described as <i>Acacia coriacea</i> tall open shrubland over <i>Acacia sclerosperma</i> shrubland to open heath with mixed shrubs over *<i>Cenchrus ciliaris</i> tussock grassland, • Coastal plain 2 (Cp2), described as <i>Scaevola crassifolia</i> and <i>Scaevola cunninghamii</i> low shrubland to low open heath over <i>Eulalia aurea</i> very open tussock grassland, • Coastal plain 4 (Cp4), described as <i>Acacia coriacea</i> subsp. <i>coriacea</i> tall open shrubland over <i>Olearia</i> sp. Kennedy Range (B. Byrne 66), <i>Cynanchum viminale</i> subsp. <i>australe</i>, <i>Rhagodia preisseii</i> subsp. <i>obovata</i> low open to low shrubland over <i>Eulalia aurea</i> tussock grassland and <i>Carpobrotus</i> sp. Thevenard Island ground creeper, • Coastal foredune 1 (Cf1), described as <i>Spinifex longifolius</i> tussock grassland, sometimes with small populations of <i>Whiteochloa airoides</i> and <i>Eulalia aurea</i>, • Disturbed areas (D1), described as <i>Cenchrus ciliaris</i> (buffel grass) closed tussock grassland over open <i>Ipomoea pes-caprae</i>, <i>Canavalia rosea</i> liane, and • Intertidal zone (Astron, 2020). <p>The full survey descriptions, mapping and representative photographs are available in Appendix E.</p> <p>This is broadly consistent with the mapped Beard vegetation association 117, which is described as hummock grasslands, grass steppe; soft spinifex (Shepherd et al, 2001).</p>
Vegetation condition	<p>Vegetation association descriptions and monitoring photographs contained within the Thevenard Island Retirement Project Terrestrial Ecological Monitoring Report (Astron, 2020) indicate that the vegetation within the proposed clearing area ranges from Very Good to Poor (Trudgen, 1991) condition:</p> <ul style="list-style-type: none"> • Very Good, described as some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks, • Good, described as more obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds, and • Poor, described as still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds (Trudgen, 1991). <p>The full Trudgen (1991) condition rating scale is provided in Appendix D.</p> <p>The full survey descriptions and representative photographs are available in Appendix E.</p>
Climate and landform	<p>The climate of Thevenard Island is described as an arid, summer rainfall, sub-tropical zone, where climate is primarily controlled by the sub-tropical high-pressure belt that migrates southward from winter to summer. Mean annual rainfall is 308.4 mm, but seasonal and annual variability is high. The mean annual maximum temperature is 32.1°C and the mean annual minimum temperature is 19.2°C.</p>
Soil description and land degradation risk	<p>Thevenard Island is considered to have formed from the accumulation of Holocene sandy sediment and coral reefs resting on a Pleistocene limestone foundation (LeProvost et al., 1987). Soil on Thevenard Island consists of undulating dune systems with two predominant soil types:</p> <ul style="list-style-type: none"> • medium to coarse grainstone of skeletal quartz with some lithoclastic sand on fore dunes, and

Characteristic	Details
	<ul style="list-style-type: none"> muddy grainstone on ridges and coastal plain, with the coastal plain having a higher content of sand (Astron, 2020). <p>The sandy soils present within the greater Thevenard Island and the application area are vulnerable to wind erosion, particularly if surface vegetation is removed (DBCA, 2020). The soils are not expected to be susceptible to land degradation resulting from water erosion, salinity, subsurface acidification, phosphorus export, waterlogging or flooding.</p>
Waterbodies and hydrogeography	<p>The desktop assessment and aerial imagery indicated that there are no natural waterbodies or mapped wetlands present on Thevenard Island. The closest mapped wetland to the application area is the Exmouth Gulf East, located approximately 46.7 kilometres south-east, along the mainland.</p> <p>The application area is not mapped within any water resources proclaimed under the <i>Rights in Water and Irrigation Act 1914</i> (the RIWI Act), the <i>Country Areas Water Supply Act 1947</i> (the CAWS Act) or the <i>Metropolitan Water Supply, Sewerage, and Drainage Act 1909</i>.</p>
Flora	<p>The desktop assessment identified that a total of 7 priority flora species have been recorded within the local area, comprising one Priority 1 (P1) flora and six Priority 3 (P3) flora (Western Australian Herbarium, 1998-). None of these existing records occur within the application area, with the closest record being an occurrence of <i>Carpobrotus</i> sp. Thevenard Island (M. White 050) (P3) approximately 0.1 kilometres from the application area.</p> <p>With consideration for the site characteristics set out above, relevant datasets (see Appendix F.1), the habitat preferences of the aforementioned species, and ecological monitoring information (Astron, 2020), the application area may provide suitable habitat for one priority flora species, <i>Carpobrotus</i> sp. Thevenard Island (M. White 050), and impacts to this species required further consideration (see Appendix B.3).</p> <p>The desktop assessment did not identify records of any threatened flora species occurring within the local area. No flora species listed as threatened under the state BC Act or the Commonwealth EPBC Act are known to occur on Thevenard Island (Astron, 2020; DBCA, 2020). With consideration for the site characteristics set out above, relevant datasets (see Appendix F.1), and the distribution and extent of existing records, impacts to threatened flora species or significant habitat for these species were not considered likely to result from the proposed clearing and did not require further consideration.</p>
Ecological communities	<p>The desktop assessment identified that the closest state-listed threatened ecological community (TEC) is an occurrence of the Cameron's Cave Troglitic Community TEC, which occurs approximately 106.8 kilometres south-west of the application area, on the mainland.</p> <p>The desktop assessment identified that the closest mapped state-listed priority ecological community (PEC) is an occurrence of the Tanpool Land System PEC, approximately 66.6 kilometres south-east of the application area, on the mainland. However, the Thevenard Island TEMP identified a small, isolated occurrence of the Coastal dune native tussock grassland dominated by <i>Whiteochloa airoides</i> (Tussock grassland of <i>Whiteochloa airoides</i>) PEC within Thevenard Island Nature Reserve in 2017 (Astron, 2020). The occurrence of the Tussock grassland of <i>Whiteochloa airoides</i> PEC is located approximately 2.6 kilometres west of the application area and no other occurrences of the PEC have been recorded within Thevenard Island or the application area (Astron, 2020).</p>

Characteristic	Details
Fauna	<p>The desktop assessment identified that a total of 72 conservation significant fauna species have been recorded within the local area, including 22 threatened fauna species, 11 priority fauna species, 34 fauna species protected under international agreement, and five other specially protected fauna species (DBCA, 2007-). None of these records occur within the application area, with the closest record being a fairy tern (<i>Sternula nereis nereis</i>) occurring approximately 50 metres from the application area.</p> <p>With consideration for the site characteristics set out above and relevant datasets (see Appendix F.1), the application area may provide suitable habitat for 32 of the aforementioned conservation significant fauna species and impacts to these species required further consideration (see Appendix B.4).</p>

B.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*					
Carnarvon	8,382,890.35	8,360,801.46	99.74	1,020,434.08	12.17
Vegetation complex					
Beard vegetation association 117*	897,107.77	883,704.60	98.51	129205.67	14.4
Vegetation complex in IBRA bioregion					
Beard vegetation association 117 (Carnarvon)*	12,424.35	10,907.99	87.80	2,997.21	24.12
Local area					
50km radius	172,702.71	168,448.51	97.54	-	-

*Government of Western Australia (2019)

B.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix F.1), and biological survey information, impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Carpobrotus</i> sp. Thevenard Island (M. White 050)	P3	Y	Y	Y	0.1	12	Y

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

B.4. Fauna analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix F.1), and biological survey information, impacts to the following conservation significant fauna required further consideration.

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records in local area (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Calidris canutus</i> (Red knot)	EN	Y	Y	0.5	3	Y
<i>Calidris ferruginea</i> (Curlew sandpiper)	CR	Y	Y	15.5	5	Y
<i>Calidris tenuirostris</i> (Great knot)	CR	Y	Y	0.5	6	Y
<i>Charadrius leschenaultii</i> (Greater sand plover)	VU	Y	Y	0.5	102	Y
<i>Charadrius mongolus</i> (Lesser sand plover)	EN	Y	Y	8.1	27	Y
<i>Chelonia mydas</i> (Green turtle)	VU	Y	Y	0.3	593	Y
<i>Eretmochelys imbricata</i> (Hawksbill turtle)	VU	Y	Y	0.6	72	Y
<i>Leggadina lakedownensis</i> (Lakeland Downs mouse)	P4	Y	Y	0.2	348	Y
<i>Limosa lapponica menzbieri</i> (Bar-tailed godwit)	CR	Y	Y	21.1	4	Y
Migratory waterbirds (19 species)	MI	Y	Y	>0.5	-	Y
<i>Natator depressus</i> (Flatback turtle)	VU	Y	Y	0.6	413	Y
<i>Numenius madagascariensis</i> (Eastern curlew)	CR	Y	Y	0.5	27	Y
<i>Sternula nereis nereis</i> (Fairy tern)	VU	Y	Y	<0.1	49	Y
<i>Tringa brevipes</i> (Grey-tailed tattler)	P4	Y	Y	0.5	92	Y

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority, MI: migratory birds protected under an international agreement.

Appendix C. 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> "Native vegetation should not be cleared if it comprises a high level of biodiversity."</p> <p><u>Assessment:</u> The area proposed to be cleared may contain locally significant flora, fauna, habitats, and assemblages of plants.</p>	May be at variance	Yes <i>Refer to Sections 3.2.1 and 3.2.2, above.</i>
<p><u>Principle (b):</u> "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."</p> <p><u>Assessment:</u> The area proposed to be cleared contains potential foraging, roosting, and nesting habitat for conservation significant fauna.</p>	May be at variance	Yes <i>Refer to Section 3.2.2, above.</i>
<p><u>Principle (c):</u> "Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."</p> <p><u>Assessment:</u> No flora species listed as threatened under the state BC Act or the Commonwealth EPBC Act are known to occur on Thevenard Island or in the local area.</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<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 consists of predominantly shrubland and heath over hummock grassland that is well-represented across Thevenard Island and does not contain species that can indicate a threatened ecological community listed under the BC Act. Given the distance and separation from the closest TEC, the proposed clearing is not likely to impact or be necessary for the maintenance of any state-listed TEC.</p>	Not likely to be at variance	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 type and 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 includes several small areas within an expansive tract of remnant vegetation and is not considered to be part of a significant ecological linkage in the local area.</p>	Not likely to be at variance	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> The application area occurs within Thevenard Island Nature Reserve. The proposed clearing will result in the loss of vegetation within a conservation area and has the potential to impact on its environmental values.</p>	At variance	Yes <i>Refer to Section 3.2.3, above.</i>
Environmental value: land and water resources		
<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 Thevenard Island and the closest natural source of surface water occurs on the mainland approximately 20 kilometres south of the application area, the proposed clearing is unlikely to impact on- or off-site hydrology and water quality.</p>	Not likely to be at variance	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 sandy, coastal soils within the application are susceptible to wind and water erosion. However, noting the extent and location of the application area, the proposed clearing is not likely to have an appreciable impact on land degradation.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.4, above.</i>
<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, wetlands or proclaimed water resources are recorded within Thevenard Island or within 20 kilometres of the application area, the proposed clearing is unlikely to impact surface or ground water quality.</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (j)</u>: “Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</p> <p><u>Assessment</u>: The surveyed 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 water courses are recorded within Thevenard Island and noting the extent and location of the application area, the proposed clearing is unlikely to cause, or exacerbate, the incidence or intensity of flooding or to contribute to waterlogging.</p>	Not likely to be at variance	No

Appendix D. 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 Trudgen, M.E. (1991) *Vegetation condition scale* in National Trust (WA) 1993 Urban Bushland Policy. National Trust of Australia (WA), Wildflower Society of WA (Inc.), and the Tree Society (Inc.), Perth.

Measuring vegetation condition for the Eremaean and Northern Botanical Provinces (Trudgen, 1991)

Condition	Description
Excellent	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Very good	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.
Good	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.
Poor	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.
Very poor	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely degraded	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or ‘parkland cleared’ with their flora comprising weed or crop species with isolated native trees or shrubs.

Appendix E. Biological survey information excerpts

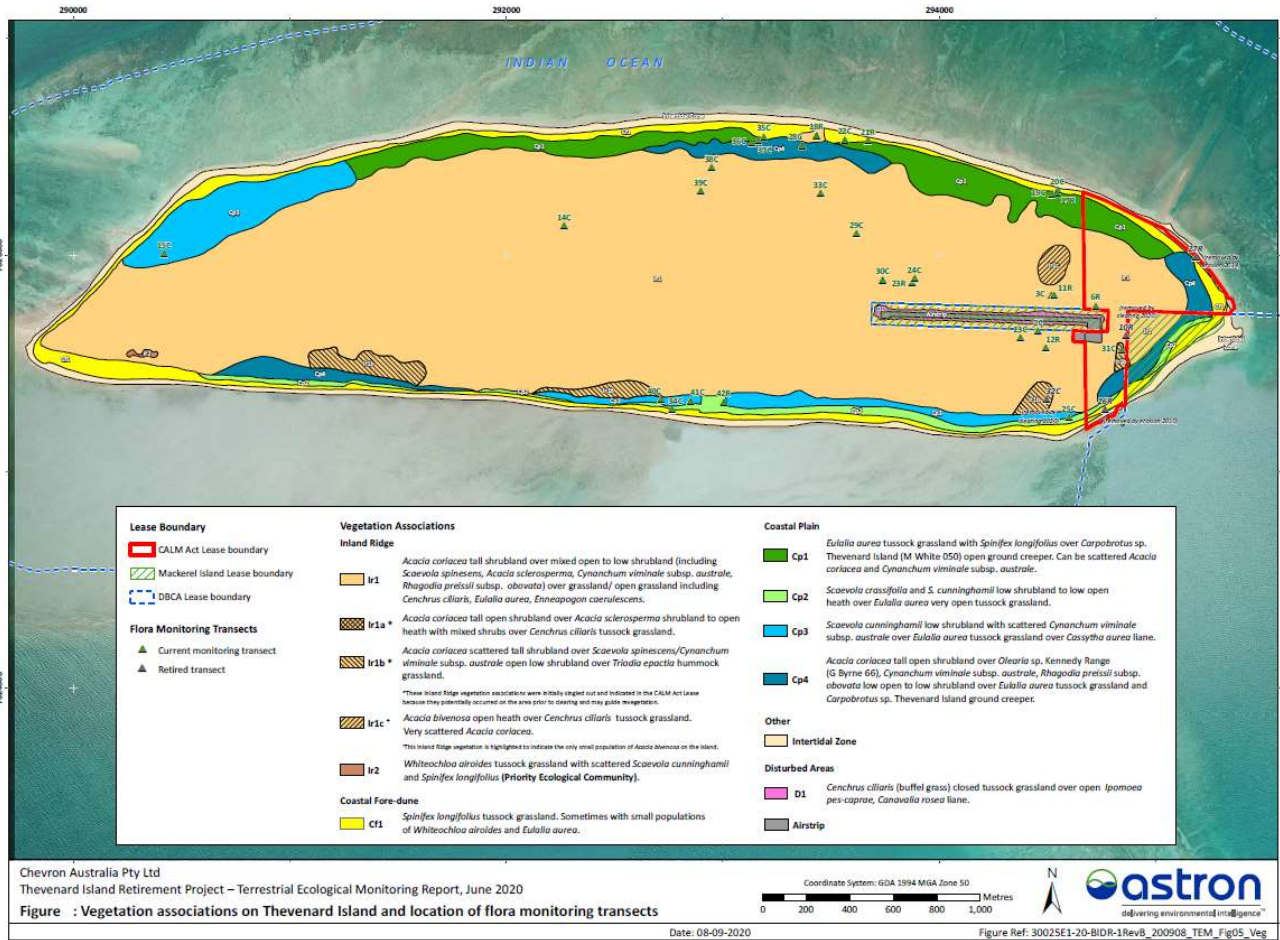


Figure 2. Vegetation association mapping and location of flora monitoring transects on Thevenard Island (Astron, 2020).



Figure 3. Photographs of vegetation representative of the Inland ridge 1 (Ir1) vegetation association, adjacent to the application area (Astron, 2020).



Figure 4. Photographs of vegetation representative of the Coastal plain 2 (Cp2) vegetation association, adjacent to the application area (Astron, 2020).



Figure 5. Photographs of vegetation representative of the Coastal plain 4 (Cp4) vegetation association, adjacent to the application area (Astron, 2020).



Figure 6. Photographs of vegetation representative of the Coastal foredune 1 (Cf1) vegetation association, adjacent to the application area (Astron, 2020).

Appendix F. Sources of information

F.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)
- 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

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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