



Clearing Permit Decision Report

1. Application details and outcome

1.1. Permit application details

Permit number:	CPS 9051/1
Permit type:	Area Permit
Applicant name:	Portframe Enterprises Pty Ltd ATF Gnaraloo Station Trust
Application received:	16 September 2020.
Application area:	13.14 hectares of native vegetation
Purpose of clearing:	Construction of an airstrip
Method of clearing:	Mechanical
Property:	Lot 801 on Deposited Plan 415912 Macleod
Location (LGA area):	Shire of Carnarvon
Locality:	Macleod

1.2. Description of clearing activities

Portframe Enterprises Pty Ltd (ATF Gnaraloo Station Trust) operate Gnaraloo Station; a pastoral station and associated tourism business, located approximately 150 kilometres north of Carnarvon. The proposed clearing is required to construct an airstrip to Royal Flying Doctor Service (RFDS) standards to facilitate emergency evacuations from the area. The proposed clearing extends and upgrades an existing historical small airstrip. The application area is approximately 100 metres wide (Appendix E1). However, only the centre 15 metres of the airstrip will be cleared to mineral earth (Appendix E2). The areas 15 metres adjacent to this will initially be cleared, but grasses and herbs will be allowed to grow back (Appendix E3), with the remainder of application area having any large shrubs removed according to RFDS specifications and for safety (Appendix E4). No trees are present within the application area.

1.3. Decision on application and key considerations

Decision:	Granted
Decision date:	9 April 2021
Decision area:	13.14 hectares of native vegetation over the proposed Gnaraloo Station airstrip 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 (Appendix A), relevant datasets (Appendix F), representative photographs provided by the applicant (Appendix D), and the clearing principles set out in Schedule 5 of the EP Act (Appendix B), relevant planning instruments, and any other matters considered relevant to the assessment (Section 3). The Delegated Officer also took into consideration the purpose of the clearing to construct an airstrip at Gnaraloo Station to RFDS standards.

The assessment identified that the proposed clearing will result in:

- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values;
- potential land degradation in the form of wind erosion;
- the loss of 1.96 hectares of predominantly degraded habitat for the Priority 1 skink *Lerista haroldi*.

After consideration of the available information, as well as the applicant's avoidance, minimisation, and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing can be managed to be unlikely to lead to an unacceptable risk to environmental values.

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

- avoid, minimise and reduce the impacts and extent of clearing;
- retain all native vegetation under 1.5 metres in height within the remainder of the application area;

- take hygiene steps to minimise the risk of the introduction and spread of weeds;
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity;
- undertake staged clearing with the commencement of airstrip formation no later than two month after clearing to reduce the potential for wind erosion.

1.5. Site map

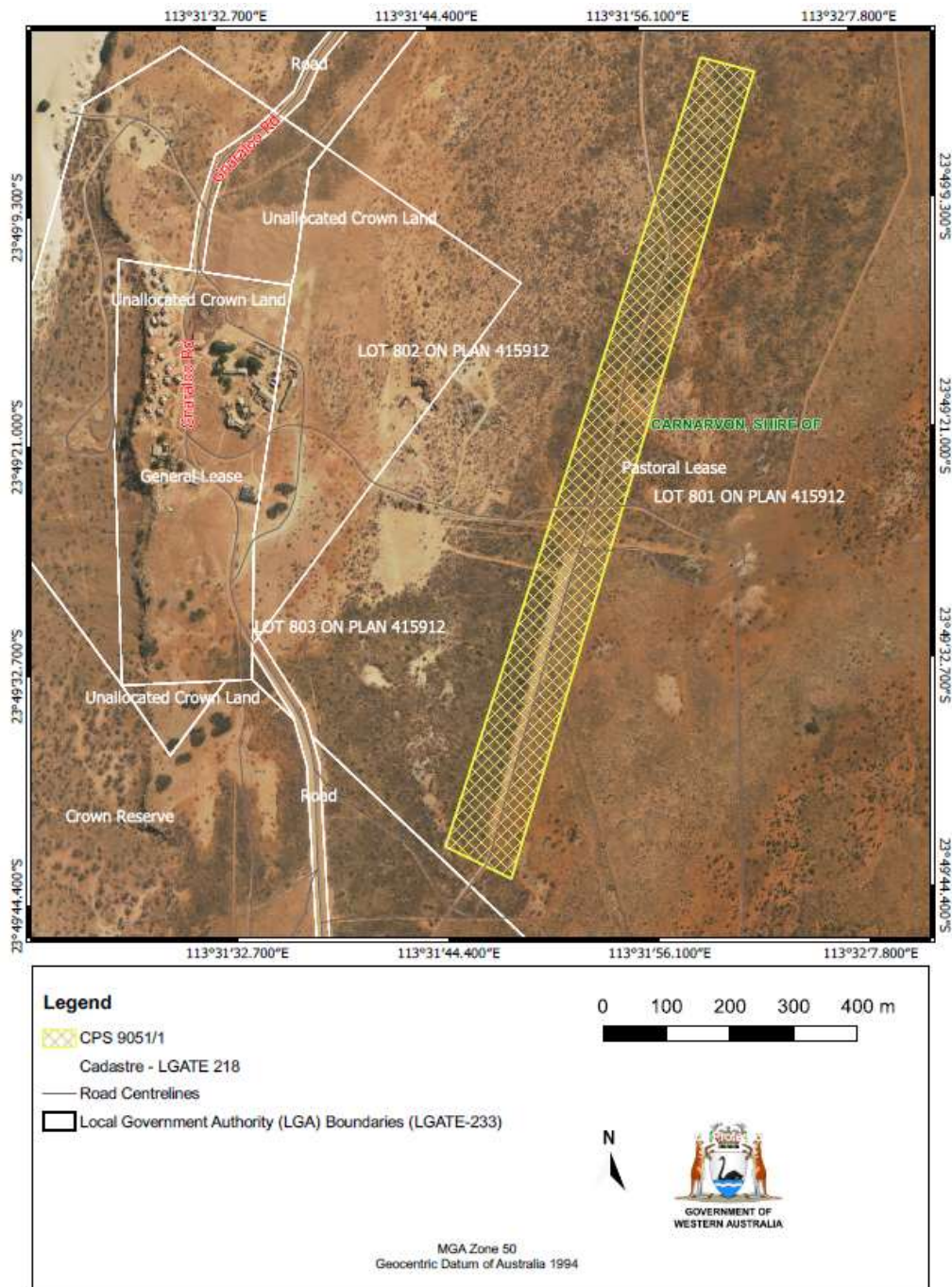


Figure 1. Map of area approved to clear. The area cross-hatched yellow indicates the area authorised to be cleared under the granted clearing permit.

2. Legislative context

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

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 3), 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; and
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment includes:

- *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)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

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. Proposed clearing intends to upgrade a small existing airstrip (YGHS - MacLeod/Gnaraloo) in close proximity to the Gnaraloo Station homestead to RFDS standards. There are no airstrips suitable for the RFDS on any adjacent pastoral leases or Crown lands.

The applicant considered the upgrade and use of an existing, unused, airstrip (YGAR - MacLeod/Gnaraloo Bay) located approximately 2.6 kilometres north of the application area (Portframe Enterprises 2021a).

The alternative YGAR airstrip is located on Department of Biodiversity, Conservation, and Attractions (DBCA) tenure. That is, Crown Reserve R53686, that forms part of the Nyinggulu (Ningaloo) coastal reserves- Red Bluff to Winderabandi (DBCA 2019). A draft joint management plan for these coastal reserves has been prepared (DBCA 2019).

The YGAR airstrip has not been constructed to RFDS standards, is not suitable for use (DBCA 2019), and is not maintained (DBCA 2021b). The airstrip is also accessible by members of the public, and further from Gnaraloo Homestead than the upgrade proposed for YGHS. Launching and landing of aircraft on reserve lands is not permitted without lawful authority under 65(1) of the *Conservation and Land Management Regulations 2002* (DBCA 2021b). DBCA (2019) states that all fixed-wing and helicopter access requests to DBCA for the use of this airstrip will be directed to adjoining pastoral leases, and there will be no lawful landing of aircraft permitted on this airstrip.

The local area supports major tourism attractions and high visitation (DBCA 2019), and a new airstrip at Gnaraloo Station will provide for emergency evacuations. For example, the nearby rocky shores combined with big swells can result in surfers sustaining serious injuries (DBCA 2019). The applicant has existing infrastructure at the proposed upgraded airstrip at the Gnaraloo Homestead area (YGHS), including a hanger (Portframe Enterprises 2021a).

An upgrade to YGHS has several advantages to any future upgrades planned for YGHS including security of tenure for the Gnaraloo pastoral operation, proximity to Gnaraloo Homestead and established infrastructure, higher elevation with less risk of flooding, and controlled access (Portframe Enterprises 2021a).

The application area is strategically placed over an existing airstrip (YGHS) and pastoral track to reduce the area of vegetation required to be cleared (Portframe Enterprises 2020) (Figure 1). Vegetation condition varies from Completely Degraded to Poor (Trudgen 1991), with small areas approaching Good in the northern section (Appendix C; Appendix D).

The concept of the clearing described for the airstrip is presented in Figure 2. The entire application area will not be cleared to mineral earth. The centre 15 metre strip of the airstrip requires permanent clearing to mineral earth to support a runway (Portframe Enterprises 2020) (Appendix E2). Of this 1.96 hectare area almost half (approximately 0.90 hectares) is Completely Degraded.

The adjacent areas up to 15 metres on either side of the runway will only be cleared where required to create a level surface. Within any areas cleared (up to 3.92 hectares), grasses and herbs will be allowed to regenerate (Appendix E3).

The remainder of the application area requires any large shrubs or trees to be removed according to RFDS specifications (Portframe Enterprises 2020) (Appendix E4). No trees occur within this area, with very few large shrubs (Appendix D). The airstrip will be constructed using a heavy roller with watering to mitigate dust impacts (Portframe Enterprises 2021a).

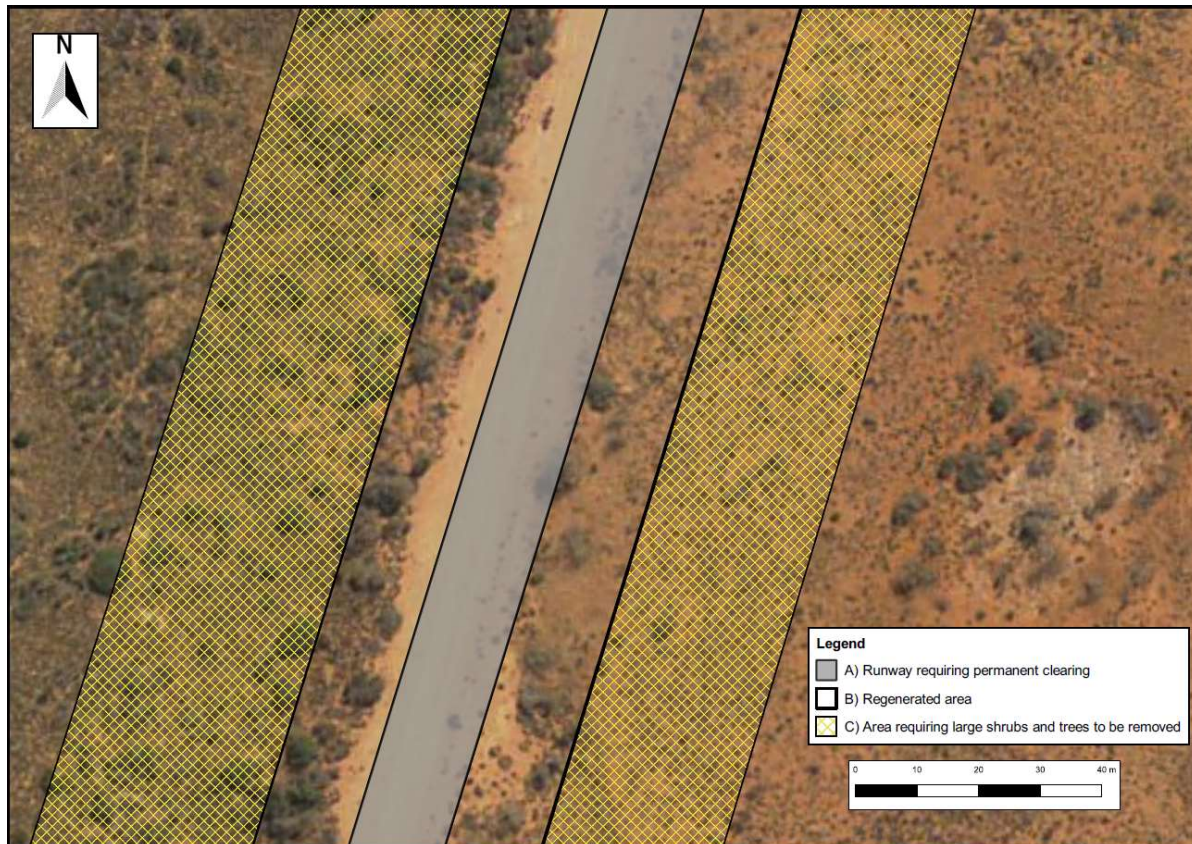


Figure 2. Concept of the clearing required

3.2. Assessment of environmental impacts

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix A) 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 B) identified that the impacts of the proposed clearing may present a risk to fauna habitat and conservation areas, and has the potential to contribute to land degradation. 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. Environmental value: Biological values (fauna habitat) – Clearing Principle (b)

Assessment: Forty-four fauna species of conservation significance have been recorded within 50 kilometres of the application area. This area includes the diverse marine ecosystems of the Ningaloo Marine Park and World Heritage Area. Of the species recorded, four are marine species, eight are Terns, and 26 are shorebirds. These species are unlikely to occur due to a lack of habitat with the shorebirds prevalent at Lake Mcleod approximately 14.5 kilometres to the east (Bertzeletos *et al.* 2012).

Of the remaining species no woodland habitat is present for the conservation dependent Red-Tailed Phascogale (*Phascogale calura*), and no shrubland habitat is present for the Vulnerable Malleefowl (*Leipoa ocellate*). Three birds of prey of conservation significance have been recorded that may overfly the application area intermittently without specifically utilising the habitat present. That is, the specially protected Peregrine Falcon (*Falco peregrinus*), the Priority 4 Letter-winged Kite (*Elanus scriptus*), and the Osprey (*Pandion cristatus*) protected under international agreements. Three species of Threatened marine turtles are known to come to the shore to nest in the sandy beaches of Gnaraloo Bay and Cape Farquhar Bay. The closest sandy beaches to the application area are approximately one kilometre to the west, and marine turtles would not venture as far inland as the application area.

The Priority 1 Gnaraloo Mulch Slider (*Lerista haroldi*) has been recorded within 75 metres of the application area (Figure 3). *Lerista* is a diverse genus of endemic small skinks commonly known as sand-swimmers, due to their predominantly fossorial habit, that inhabit leaf litter and sand substrates. In WA, the genus is particularly rich with 67 described species, most of which are found in arid to semi-arid regions, and the central coast with its dry and sandy soils is particularly rich in species.

Smith and Adams (2007) undertook a detailed examination of the morphological and genetic variation in Western Australian specimens aligned with *Lerista muelleri*. Support was provided for the validity of eleven species, including *Lerista haroldi* as described by Storr (1983), as well as the description of a further nine new species (Smith and Adams 2007). *Lerista haroldi* is listed as Priority 1, and proposed to be nominated as Threatened (Endangered) based on the listing recommendation from the Action Plan for Australian Lizards and Snakes 2017 (Chapple *et al.* 2019), and the updated International Union for Conservation of Nature (IUCN) Red List assessment (Lloyd and Gaikhorst 2018). Habitat degradation caused by overgrazing by sheep and goats is believed to be impacting the species (Chapple *et al.* 2019).

Seven specimens of *Lerista haroldi* are held within the WA Museum, with an additional record contained within the WA Threatened Fauna Database. All records are from coastal areas. The three records in close proximity to the application area have identical co-ordinates, dates (11th June 1993), locality descriptors (McLeod), and site descriptors (Gnaraloo HS). They also have identical locality attributes of '0.5 kilometres south of Gnaraloo Homestead' (DBCA 2007-). Associated location co-ordinates display as 0.85 kilometres north-east of Gnaraloo Homestead. Given the above, the three specimens may have been collected from separate localities in the general vicinity of Gnaraloo Homestead and given matching generic labels. Additional specimens have been collected from approximately 43.5 kilometres to the south of the application area at Cape Cuvier in 1995 (McKenzie *et al.* 2000).

Lerista haroldi habitat is considered to be semi-arid coastal dunes (Chapple *et al.* 2019; Wilson and Swan 2013), with a likely distribution from Gnaraloo south to Cape Cuvier (Atlas of Living Australia 2020; Chapple *et al.* 2019).

All records of *Lerista haroldi* are from coastal dunes of the Cardabia System consisting of soil type 238Ca. Significant areas of the Cardabia System occur between Gnaraloo homestead and Cape Cuvier, and Chapple *et al.* (2019) estimate an extent of occurrence of 10,700 hectares (107 km²).

In total, the application area consists of 13.14 hectares, however, 1.96 hectares requires permanent clearing to mineral earth (Appendix E2), with a further 3.92 hectares initially cleared, but with grasses and herbs allowed to grow back (Appendix E3). The area required to be cleared corresponds with an historical airstrip and existing pastoral track and is predominantly Completely Degraded to Degraded (Trudgen 1991) (Appendix D), with vegetation approaching Good condition occurring in the north. The remainder of the application area will simply have any of the larger shrubs removed according to RFDS specifications (Appendix E4).

The application area does not comprise preferred coastal dunes habitat. Although the alluvial and sandy plains of the Cardabia System may support the species, proposed clearing is minor, with vegetation in a predominantly degraded condition and likely to be of limited habitat value to *Lerista haroldi* (Appendix D). Large areas of similar habitat in the same or better condition are well represented within the local area of a 50 kilometre radius of the application area.

A conservation and recreation reserve system is being created along the Ningaloo Coast (associated with the Ningaloo Marine Park World Heritage Area), including within the vicinity of the application area (section 3.22). A reserve managed by DBCA is located within 30 metres of the application area at its closest point (Figure 3). DBCA is installing boundary fencing between this reserve and the Gnaraloo Pastoral Lease (LPL N050435) to mitigate grazing pressure by goats, which will provide benefits to the extent and quality of available habitat for *Lerista haroldi* on conservation estate (DBCA 2021). Adjacent vegetation to the application area is susceptible to weed invasion which the clearing process may exacerbate, thereby reducing habitat quality.

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

Conditions: To mitigate potential impacts from clearing, the following conditions will be added to the permit:

- No more than 5.88 hectares of native vegetation within the application area to be cleared to mineral earth.
- Retain all native vegetation under 1.5 metres in height within the remainder of the application area.
- Weed management measures to mitigate impacts to adjacent vegetation.
- Slow and directional clearing to allow fauna to move into adjacent native vegetation ahead of the clearing activity.

3.2.2. Environmental value: Conservation areas – Clearing Principle (h)

Assessment: The application area is located within the Gnaraloo Pastoral Lease (L PL N050435), with the Gnaraloo Homestead situated approximately 475 metres to the west, and the coastal waterline and associated coastal flats located approximately one kilometre to the west. Gnaraloo Station is a Land for Wildlife site (DPaW and NRM 2019) (Registration Number: 2647); a voluntary scheme to encourage and assist landholders to provide habitats for wildlife on their property. DBCA has entered into a Partnership Agreement with Natural Resource Management (NRM) to work together to provide biodiversity conservation support to Land for Wildlife members.

The State Government is creating conservation and recreation reserves along the Ningaloo Coast including within the vicinity of the application area. The Ningaloo Marine Park World Heritage Area, associated with the marine environment, is located approximately one kilometre west of the application area. Crown Reserve R 53686, managed by the DBCA is located within 25 metres to the south, 550 metres to the west, and 500 metres to the north of the application area (Figure 3).

Crown Reserve R53686 consists of former pastoral leasehold lands. That is, former Gnaraloo Station land that was not renewed during the 2015 pastoral lease renewal process. Crown Reserve R 53686 forms part of the Nyngulu (Ningaloo) coastal reserves; Red Bluff to Winderabandi (DBCA 2019), with a draft joint management plan prepared (DBCA 2019). The land is vested via Management Orders to the Conservation and Parks Commission and the Nganhurra Thanardi Garrbu Aboriginal Corporation RNTBC. The purpose of Crown Reserve R 53686 is for conservation and recreation, with the responsible agency being DBCA.

The lands are to be jointly managed between traditional owners and DBCA via the formation of a Joint Management Body (JMB) following the recent signing of the Ningaloo Conservation Estate Indigenous Land Use Agreement (ILUA) (WI2020/011). The ILUA agreement provides for the joint vesting, and joint management, of the Ningaloo Marine Park, Cape Range National Park, and the coastal areas of the Ningaloo Coast that includes Reserve R 53686.

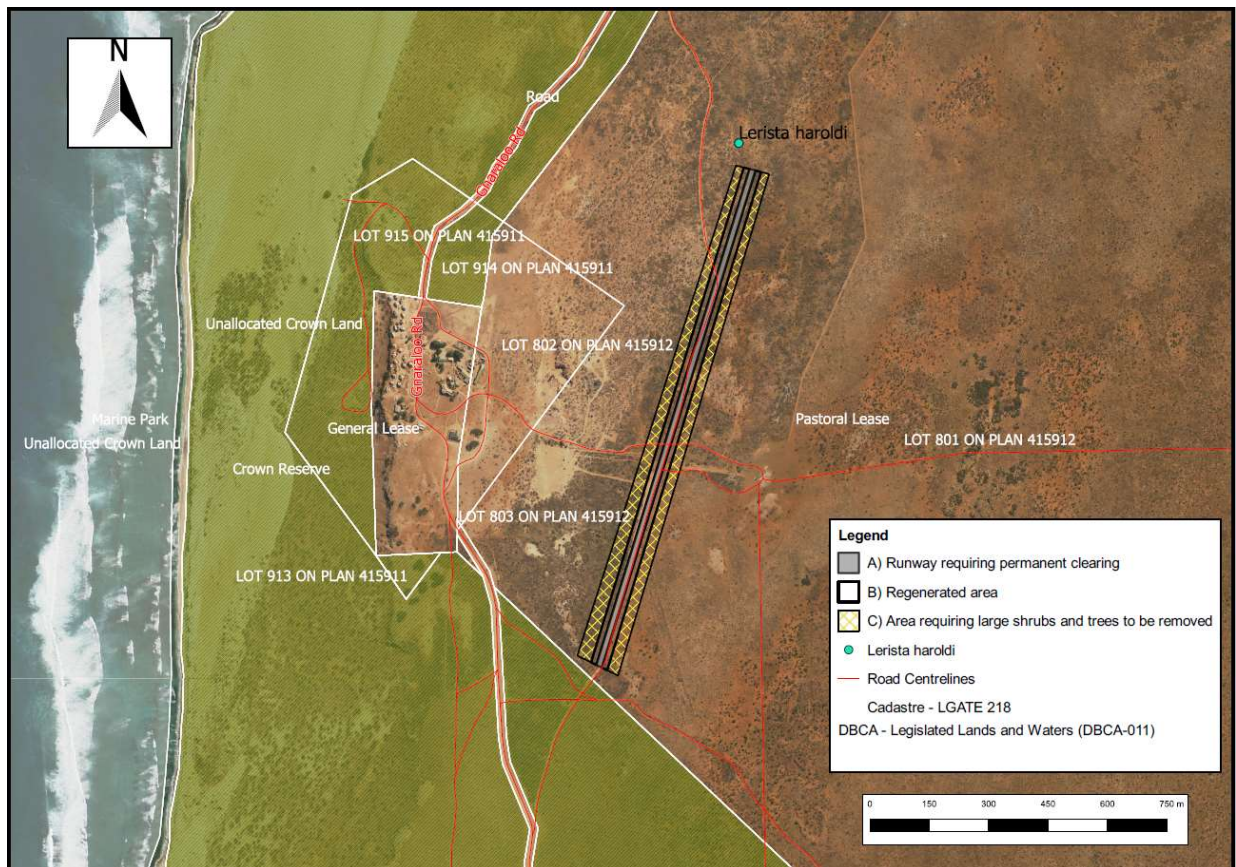


Figure 3: Overview of the area surrounding the proposed clearing

The application area for the Gnaraloo airstrip is within 25 metres of Crown Reserve R 53686 at its closest point (Figure 3). The application area is approximately 100 metres wide, however, only the centre 15 metres of the airstrip will remain cleared to mineral earth. This centreline is approximately 40 metres from Crown Reserve R 53686. Proposed clearing will not have any direct impacts to the Ningaloo Marine Park World Heritage Area or Crown

Reserve R 53686, however, adjacent vegetation is susceptible to weed invasion which the clearing process may exacerbate, and dust generated by the clearing may impact surrounding vegetation.

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

Conditions: To mitigate potential impacts from clearing, the following conditions will be added to the permit:

- Weed management measures to mitigate impacts to adjacent vegetation.
- A wind erosion management condition to mitigate impacts of the proposed clearing on adjacent vegetation.

3.2.3. Environmental value: Land resources – Clearing Principle (g)

Assessment: A Property Assessment Report for Gnaraloo Station has been prepared by DPaW and NRM (2019) (LFW Reg. No. 2647). The application area is located within the Cardabia System consisting of soil type 238Ca comprising undulating sandy plains with linear dunes, with minor limestone plains and low rises, supporting mainly soft spinifex hummock grasslands with scattered acacias and other shrubs (DPaW and NRM 2019).

Although the Cardabia System is generally stable, the dunes and dune crests of the system are susceptible to wind erosion when denuded of adequate cover (Payne *et al.* 1987), and may become unstable due to factors such as fire or excessive grazing pressure (DPaW and NRM 2019). Clearing of vegetation can also expose dunes and dune crests to wind erosion. Some sand drift can occur after fire, but the system revegetates rapidly after rain and stabilises. Rege 003-21 neration also appears to be occur naturally after the removal of herbivores (DPaW and NRM 2019).

The application area is flat and does not include dunes or dune crests, however, it is subject to strong prevailing winds and comprises soils prone to wind erosion if left exposed. Surrounding vegetation may be impacted by short-term wind erosion during the airstrip construction process as well as potential weed invasion. Commencement of airstrip construction activities immediately after the authorised clearing has been undertaken and a wind erosion management condition will mitigate any long-term wind erosion impacts.

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

Conditions: To mitigate potential impacts from clearing, the following condition will be added to the permit:

- A wind erosion management condition to mitigate impacts of the proposed clearing on adjacent vegetation.
- Weed management measures to mitigate impacts to adjacent vegetation.

3.3. Relevant planning instruments and other matters

Clearing permit application CPS 9051-1 is located on Lot 801 on Deposited Plan 415912 Macleod, and the Gnaraloo Pastoral Lease (LPL N050435). The application was advertised on the DWER website for a 21 day public comment period on 02 November 2020. No public submissions were received in relation to this application.

Given that the application area is located within the Gnaraloo Pastoral Lease (LPL N050435), the Shire of Carnarvon and in close proximity to lands managed for conservation and recreation, in accordance with section 51E(4)(b) of the EP Act an invitation to comment on the proposed clearing was sent to the Pastoral Lands Unit of the Department of Planning, Lands and Heritage (DPLH), the Shire of Carnarvon, and DBCA.

The Pastoral Lands Unit of DPLH confirmed that there were no issues with the proposed clearing permit for the airstrip (DPLH 2020).

The Shire of Carnarvon (the Shire) advised that Development Approval would be required for the airstrip (Shire of Carnarvon 2021). Under Local Planning Scheme 13, the proposed site falls within a Rural Zone. Within this zone an Aerodrome is identified as a 'D' (discretionary) use and approval is required by the Shire for the development of an airstrip at this location.

An application was received by the Shire from the applicant on 17 February 2021, seeking approval for the airstrip pursuant to Clause 68(2)(b) of the *Planning and Development (Local Planning Schemes) Regulations 2015*. Conditional approval for the airstrip was granted by the Shire of Carnarvon on 25 February 2021 (Portframe Enterprises 2021b). No other Shire approvals are required.

DBCA recommended a survey for *Lerista haroldi* to determine the species area of extent and habitat suitability of the application area (DBCA 2021a), as well as the consideration of repositioning the proposed alignment further north to provide safe usability of the airstrip due to the proximity to the imminent fencing of Crown Reserve R53686 (DBCA 2021b). Habitat suitability for *Lerista haroldi* is considered in section 3.2.1. The proximity of any planned fencing of Crown Reserve R53686 has been considered by the applicant. The applicant has been in communication with the Civil Aviation Safety Authority (CASA) and has advised DWER that any repositioning of the airstrip due to the

influence of a fenceline can be accommodated within the submitted application area (Portframe Enterprises 2020; 2021a).

Proposed clearing is located within the Pilbara Surface Water Area (UFI 54) proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act), as well as the Gascoyne Groundwater Area (UFI 37) proclaimed under the RIWI Act. The application area is not located in any clearing control catchments proclaimed under the *Country Areas Water Supply Act 1947* (CAWS) or any Public Drinking Water Supply Areas (PDWSA). Permitting by DWER under the RIWI Act will not be required (Portframe Enterprises 2021a).

Native Title exists in parts of larger determination areas including, and surrounding, the application area. In accordance with section 24GD of the *Native Title Act 1993* (Cth), the relevant Yinggarda Aboriginal Corporation RNTBC (Representative Body), the Nganhurra Thanardi Garrbu Aboriginal Corporation RNTBC (Representative Body), the Yinggarda People (Claimant), and the Baiyungu and/or Thalanyji People (Claimant) were given the opportunity to provide comment on the proposed clearing. No comments were provided in the time-frames required in relation to this application.

The application area is located wholly within an Aboriginal Heritage Place; Gnaraloo Bay (Place ID 10100), and several additional Registered Sites or Other Heritage Places have been identified within the local area with the closest, Gnaraloo Station (Place ID 6831), located approximately 12.1 kilometres to the north-northeast. It is the Permit Holder's responsibility to comply with the *Aboriginal Heritage Act 1972* (WA) and to 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 summary

Site characteristic	Details
Local context	<p>The application area is situated within the Carnarvon (CAR) bioregion of Thackway and Cresswell (1995), and the Wooramel subregion (CAR02).</p> <p>Proposed clearing of 13.15 hectares is associated with upgrading the Gnaraloo Station airstrip approximately 475 metres east of the Gnaraloo homestead.</p>
Landform and climate	<p>The application is located within the Cardabia Land System of alluvial and sandy plains. The climate is semi-arid, warm and temperate. Rainfall is low with the winter months having higher rainfall than summer months with an annual rainfall of approximately 220 millimetres (BOM 2020).</p>
Vegetation description (Shepherd et al, 2001)	<p>The application area has been mapped by Shepherd <i>et al</i>, (2001) as Vegetation Association 329 described as dwarf scrub or open low shrub including dwarf <i>Acacia coriacea</i> shrubs with <i>Acacia</i> spp., <i>Eremophila</i> spp., and <i>Senna</i> spp.</p> <p>Vegetation on this system at Gnaraloo consists of hummock grasslands of soft spinifex and hard spinifex with numerous low shrubs <i>Acacia</i>, <i>Eremophila</i>, and <i>Senna</i> (DPaW and NRM (2019). Photographs provided by the applicant confirm this description (Appendix D).</p>
Vegetation condition (Trudgen 1991)	<p>Photographs provided by the applicant indicate that the vegetation condition over the application area to be Completely Degraded to Poor condition, with small areas approaching Good in the north (Appendix C; Appendix D). A Property Assessment Report for Gnaraloo Station (DPaW and NRM 2019) suggests that although no significant weeds were recorded over the station, Buffel Grass (<i>Cenchrus spp</i>) is dominant within some coastal pockets and sand dunes.</p>
Conservation areas	<p>The Indian Ocean and the Ningaloo Marine Park (World Heritage Area) is located approximately 1,020 metres to the west of the application area, and a Crown Reserve (R 53686) managed by the Department of Biodiversity, Conservation and Attractions (DBCA) is located within 25 metres to the south, 550 metres to the west, and 500 metres to the north of the application area.</p>
Environmentally sensitive areas	<p>The Ningaloo Marine Park (World Heritage Area) located approximately 1,020 metres to the west of the application area is also an Environmentally Sensitive Area (ESA).</p>
Ecological linkages	<p>The application area is not located in any recognised formal ecological linkages.</p>
Land System and Soil description	<p>The application area is located within the Cardabia Land System and soil type 238Ca consisting of undulating sandy plains with linear dunes, minor limestone plains and low rises, supporting mainly soft spinifex hummock grasslands with scattered acacias and other shrubs.</p>
Land degradation risk (DPIRD 2017)	<p>The longitudinal dunes of the Cardabia Land System are susceptible to wind erosion when denuded of adequate cover (Payne et al., 1987). Potential impacts of erosion may be minimised by the implementation of a staged clearing condition.</p>
Waterbodies	<p>There are no wetlands or watercourses within the vicinity of the application area. The coastal waterline and associated coastal flats are located 1,006 metres to the west.</p> <p>Lake McLeod is located 14.5 kilometres to the east. Lake McLeod is listed in the Directory of important wetlands (WA009), and is a Draft Proposed Ramsar Addition.</p>

Site characteristic	Details	
Hydrogeography	Hydrographic Division	Indian Ocean
	Hydrographic Catchment	Coastal (UFI 223)
	Rights in Water and Irrigation Act 1914	
	Surface water areas and irrigation districts	Located within the proclaimed Pilbara Surface Water Area (UFI 54)
	Groundwater areas	Located within the proclaimed Gascoyne Groundwater Area (UFI 37)
	Watercourses	None
	Country Areas Water Supply Act 1947	
	Clearing control catchments	None
	Other	
	Public Drinking Water Supply Area (PDWSA)	None

2. Vegetation extent

2a) Regional vegetation mapping (Government of Western Australia 2019a)

Factor		Pre-European extent (ha)	Current extent (ha)	Remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion of pre-European extent in all DBCA managed land (%)
Carnarvon Bioregion	CAR	8,382,890	8,360,801	99.74	301,591	3.60

Factor		Pre-European Extent (ha)	Current Extent (ha)	Remaining (%)	Current extent: Land protected (reserved) and proposed (not yet reserved) for conservation (ha)	Current percentage: Land protected (reserved) and proposed (not yet reserved) for conservation (%)
Vegetation Type Shepherd <i>et al</i> , (2001)	329	25,113	25,101	99.95	4,027	16.04

2b) Remnant vegetation within ten kilometres of the application area

Remnant Vegetation	Hectares (ha)	Remaining %
Total Area (50 km radius)	380,090	(100 %)
Remnant vegetation remaining	378,420	99.6 %

3. Ecological communities, flora, and fauna

3a) Conservation significant ecological communities

No Threatened Ecological Communities (TECs) endorsed by the Western Australian Minister for the Environment (DBCA 2020) have been mapped within 50 kilometres of the application area. The vegetation of the application area does not align with any TECs endorsed by the Western Australian Minister for the Environment.

The Lake MacLeod invertebrate assemblages is a Priority 4 Priority Ecological Community (PEC) is located approximately 15.4 kilometres to the east.

3b) Conservation significant flora

No Threatened flora taxa, have been recorded within fifty kilometres of the application area.

Seven Priority flora taxa have been recorded within ten kilometres of the application area. The closest is the P3 *Stackhousia clementii* within samphire flats surrounding Lake Mcleod approximately 20 kilometres to the east.

Taxon	Status	Count	Closest (km)	Habitat
<i>Ptilotus alexandri</i>	P2	1	39.61	Red-white sands on dunes
<i>Acacia ryaniana</i>	P2	1	46.32	Red-white sands on dunes
<i>Crinum flaccidum</i>	P2	2	49.29	Loam, clay, sandstone. Swamps and creeks
<i>Stackhousia clementii</i>	P3	2	19.87	Samphire flats
<i>Stenanthemum divaricatum</i>	P3	1	44.24	White or yellow sand over sandstone
<i>Owenia acidula</i>	P3	2	47.88	white-brown/cream. Clay
<i>Eremophila youngii</i> subsp. <i>lepidota</i>	P4	1	46.96	Stony red sandy loam. Plains, floodplains and semi-saline clay flats.

3c) Conservation significant fauna

Forty-four fauna species have been recorded within 50 kilometres of the application area. Of these, four are marine species, 26 are shorebirds, and eight are Terns. These species are unlikely to occur due to a lack of habitat.

Of the remainder no woodland habitat is present for the Red-Tailed Phascogale (*Phascogale calura*), and no shrubland habitat is present for the Malleefowl *Leipoa ocellata*.

Three are birds of prey that may overfly the area intermittently.

The Gnaraloo Mulch Slider (*Lerista haroldi*) has been recorded within 75 metres of the application and has the potential to occur over the application area.

Common name	Scientific name	Status	Count	Closest	Category
Birds					
Malleefowl	<i>Leipoa ocellata</i>	VU	4	22,090	Terrestrial
Peregrine Falcon	<i>Falco peregrinus</i>	OS	5	13,761	Raptor
Letter-winged Kite	<i>Elanus scriptus</i>	P4	4	35,411	Raptor
Osprey	<i>Pandion cristatus</i>	IA	6	10,493	Raptor
Curlew Sandpiper	<i>Calidris ferruginea</i>	CR	24	11,258	Shorebird
Great Knot	<i>Calidris tenuirostris</i>	CR	8	11,258	Shorebird
Eastern Curlew	<i>Numenius madagascariensis</i>	CR	5	28,961	Shorebird
Red Knot	<i>Calidris canutus</i>	EN	20	11,258	Shorebird
Lesser Sand Plover	<i>Charadrius mongolus</i>	EN	6	11,297	Shorebird
Greater Sand Plover	<i>Charadrius leschenaultii</i>	VU	19	5,685	Shorebird
Bar-tailed Godwit	<i>Limosa lapponica</i>	IA	9	11,258	Shorebird
Black-tailed Godwit	<i>Limosa limosa</i>	IA	5	11,258	Shorebird
Broad-billed Sandpiper	<i>Limicola falcinellus</i>	IA	3	11,258	Shorebird

Common name	Scientific name	Status	Count	Closest	Category
Common Greenshank	<i>Tringa nebularia</i>	IA	26	11,258	Shorebird
Common Sandpiper	<i>Actitis hypoleucos</i>	IA	17	11,258	Shorebird
Grey Plover	<i>Pluvialis squatarola</i>	IA	10	11,258	Shorebird
Long-toed Stint	<i>Calidris subminuta</i>	IA	4	11,258	Shorebird
Pectoral Sandpiper	<i>Calidris melanotos</i>	IA	1	11,258	Shorebird
Red-Necked Stint	<i>Calidris ruficollis</i>	IA	23	11,258	Shorebird
Ruddy Turnstone	<i>Arenaria interpres</i>	IA	20	11,258	Shorebird
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	IA	17	11,258	Shorebird
Sanderling	<i>Calidris alba</i>	IA	6	13,535	Shorebird
Red-necked Phalarope	<i>Phalaropus lobatus</i>	IA	1	15,454	Shorebird
Oriental Plover	<i>Charadrius veredus</i>	IA	4	15,917	Shorebird
Grey-tailed Tattler	<i>Tringa brevipes</i>	IA	11	17,607	Shorebird
Marsh Sandpiper	<i>Tringa stagnatilis</i>	IA	4	17,607	Shorebird
Pacific Golden Plover	<i>Pluvialis fulva</i>	IA	6	17,607	Shorebird
Terek Sandpiper	<i>Xenus cinereus</i>	IA	4	17,607	Shorebird
Whimbrel	<i>Numenius phaeopus</i>	IA	3	34,752	Shorebird
Wood Sandpiper	<i>Tringa glareola</i>	IA	2	43,304	Shorebird
Roseate Tern	<i>Sterna dougallii</i>	IA	6	5,685	Tern
Common Tern	<i>Sterna hirundo</i>	IA	8	5,709	Tern
Crested Tern	<i>Thalasseus bergii</i>	IA	16	5,709	Tern
White-winged Black Tern	<i>Chlidonias leucopterus</i>	IA	5	5,709	Tern
Caspian Tern	<i>Hydroprogne caspia</i>	IA	32	5,743	Tern
Little Tern	<i>Sternula albifrons</i>	IA	2	5,743	Tern
Gull-billed Tern	<i>Gelochelidon nilotica</i>	IA	7	13,761	Tern
Common Noddy	<i>Anous stolidus</i>	IA	2	13,535	Tern
Mammals					
Red-Tailed Phascogale	<i>Phascogale calura</i>	CD	1	33,627	Terrestrial
Southern Right Whale	<i>Eubalaena australis</i>	VU	1	45,516	Marine
Reptiles					
Gnaraloo Mulch Slider	<i>Lerista haroldi</i>	P1	13	57	Terrestrial
Loggerhead Turtle	<i>Caretta caretta</i>	EN	31	504	Marine
Green Turtle	<i>Chelonia mydas</i>	VU	12	567	Marine
Hawksbill Turtle	<i>Eretmochelys imbricata</i>	VU	5	567	Marine

Appendix B – Assessment against the Clearing Principles

Assessment against the Clearing Principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> “Native vegetation should not be cleared if it comprises a high level of biodiversity.”</p> <p><u>Assessment:</u> The native vegetation over the application area consists of hummock grasslands of soft spinifex and hard spinifex with numerous low shrubs <i>Acacia</i>, <i>Eremophila</i>, and <i>Senna</i> (DPaW and NRM 2019) (Appendix D). Threatened and Priority flora are unlikely to be present and the vegetation does not correspond to any significant ecosystems or significant habitat for fauna. Noting the composition and condition of the vegetation proposed to be cleared the application area is unlikely to comprise a high level of biodiversity. Similarly the vegetation under application is unlikely to represent communities that are more biodiverse than the extensive areas of native vegetation surrounding the application area, including within lands managed for conservation.</p>	Not likely to be at variance	No
<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> Forty-four fauna species have been recorded within 50 kilometres of the application area. Of these, four are marine species, 26 are shorebirds, and eight are Terns. These species are unlikely to occur due to a lack of habitat. Of the remainder no woodland habitat is present for the Red-Tailed Phascogale (<i>Phascogale calura</i>), and no shrubland habitat is present for the Malleefowl (<i>Leipoa ocellate</i>). Three birds of prey have been recorded that may overfly the application area intermittently. The Priority 1 Gnaraloo Mulch Slider (<i>Lerista haroldi</i>) has been recorded within 75 metres of the application and has the potential to occur over the application area.</p>	Not likely to be at variance	Yes Refer to Section 3.2.1
<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 Threatened flora taxa have been recorded within 50 kilometres of the application area. With regard for the extent, condition and composition of the vegetation proposed to be cleared, the native vegetation present is unlikely to include, or be necessary for the continued existence of, Threatened flora.</p>	Not likely to be at variance	No
<p><u>Principle (d):</u> “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.”</p> <p><u>Assessment:</u> No Threatened Ecological Communities (TECs) endorsed by the Western Australian Minister for the Environment have been mapped within 50 kilometres of the application area. The vegetation of the application area does not align with any TECs endorsed by the Western Australian Minister for the Environment. With regard for the extent, condition and composition of the vegetation proposed to be cleared, the native vegetation present is unlikely to include, or be necessary for the continued existence of Threatened Ecological Communities.</p>	Not at variance	No
Environmental values: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> “Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</p> <p><u>Assessment:</u> The national objectives and targets for biodiversity conservation in Australia has a target to prevent the clearance of ecological communities with an</p>	Not at variance	No

Assessment against the Clearing Principles	Variance level	Is further consideration required?
<p>extent below 30 per cent of that present prior to the year 1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001). The Carnarvon Bioregion retains over 99 per cent of its original vegetation. Regional vegetation mapping has been completed by Shepherd <i>et al.</i>, (2001) with the vegetation under application aligning with Vegetation Association 329 described as dwarf scrub or open low shrub including dwarf <i>Acacia coriacea</i> shrubs with <i>Acacia</i> spp., <i>Eremophila</i> spp., and <i>Senna</i> spp. Vegetation Association 329 retains over 99 per cent of its original vegetation. Within a 50 kilometre radius of the application area over 99 per cent of remnant vegetation has been retained. The native vegetation under application is not considered significant as a remnant of native vegetation within an area that has been extensively cleared.</p>		
<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 Ningaloo Marine Park (World Heritage Area) is located approximately one kilometre west of the application area, and Crown Reserve R 53686, managed by DBCA is located within 25 metres to the south, 550 metres to the west, and 500 metres to the north of the application area.</p>	May be at variance	Yes Refer to Section 3.2.2
Environmental values: 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> There are no wetlands or watercourses within the vicinity of the application area. The coastal waterline and associated coastal flats are located approximately one kilometre to the west. Lake McLeod is listed in the Directory of important wetlands (WA009), and is a Draft Proposed Ramsar Addition. Lake McLeod is located approximately 14.5 kilometres to the east of the application area. The native vegetation under application is not growing in, or in association with, an environment associated with a watercourse or wetland.</p>	Not 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 application area is located within the Cardabia Land System. The dunes of the Cardabia Land System are susceptible to wind erosion when denuded of adequate cover (Payne <i>et al.</i>, 1987).</p>	May be variance	Yes Refer to Section 3.2.3
<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> The application area is located in the Coastal catchment of the Indian Ocean Hydrographic Division. There are no wetlands or watercourses within the vicinity of the application area. The coastal waterline and associated coastal flats are located approximately one kilometre to the west, with the closest mapped watercourse approximately 14.5 kilometres distant associated with Lake McLeod. Proposed clearing is located within the Pilbara Surface Water Area (UFI 54) proclaimed under the <i>Rights in Water and Irrigation Act 1914</i> (RIWI Act), as well as the Gascoyne Groundwater Area (UFI 37) proclaimed under the RIWI Act. The application area is not located in any clearing control catchments proclaimed under the <i>Country Areas Water Supply Act 1947</i> (CAWS) or any Public Drinking Water Supply Areas (PDWSA). Proposed clearing of native vegetation is not likely to cause any deterioration in the quality of surface or underground water.</p>	Not likely to be at variance	No

Assessment against the Clearing Principles	Variance level	Is further consideration required?
<p><u>Principle (j)</u>: <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment</u>: The climate of the application area is semi-arid. Rainfall is low with an annual rainfall of approximately 220 millimetres (BOM 2020) falling predominantly in the winter months. The topography of the application area is predominantly flat with well-drained soils. The application area is located within the Coastal Catchment (UFI 223), with surface water and groundwater discharging to the Indian Ocean. There are no wetlands or watercourses within the vicinity of the application area, and the application area is mapped as a low flood risk with no mapped floodplains mapped within the local area. The coastal waterline, with associated coastal flats, are located approximately one kilometre to the west of the application area and may be at risk of coastal inundation. However, the clearing proposed is not likely to cause, or exacerbate, the incidence or intensity of flooding.</p>	Not at variance	No

Appendix C – Vegetation condition rating scale

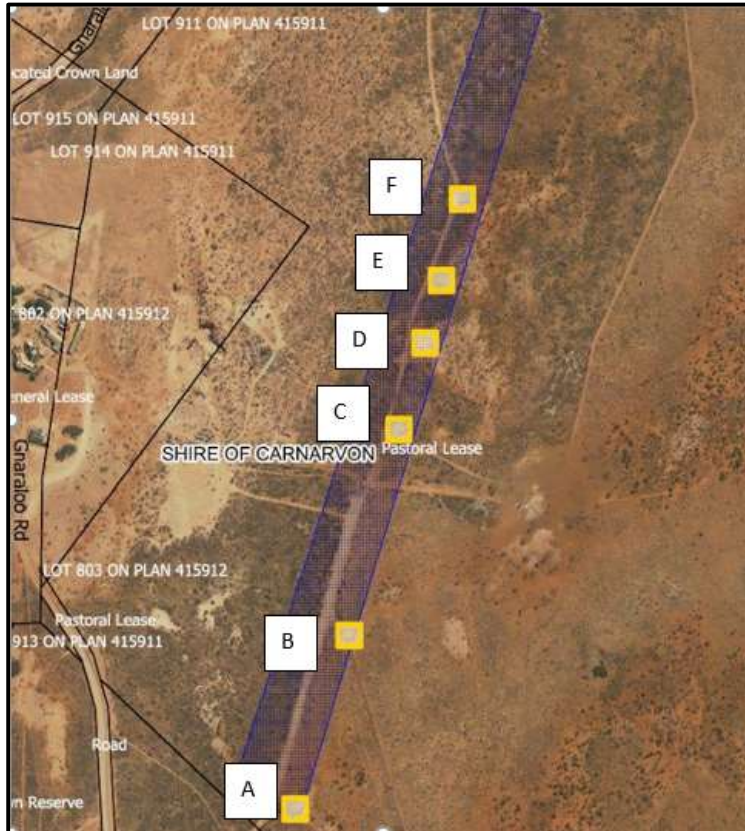
Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree 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.

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 D – Photographs of the application area



Legend



Point A – looking north



Point B - looking north



Point B - looking south



Point C – looking north



Point C - looking south



Point D - looking north



Point D - looking south



Point E - looking north



Point E - looking south



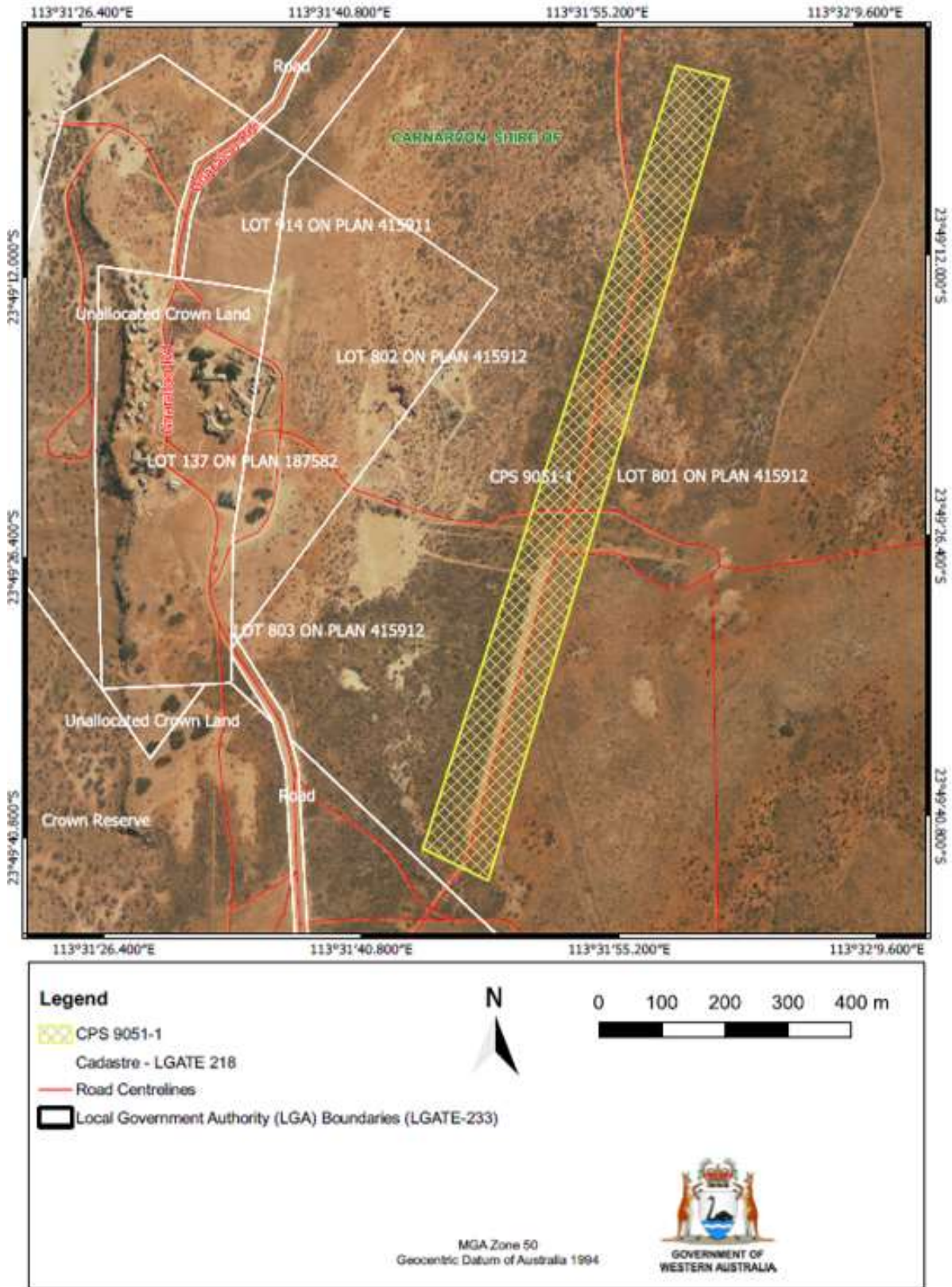
Point F - looking north



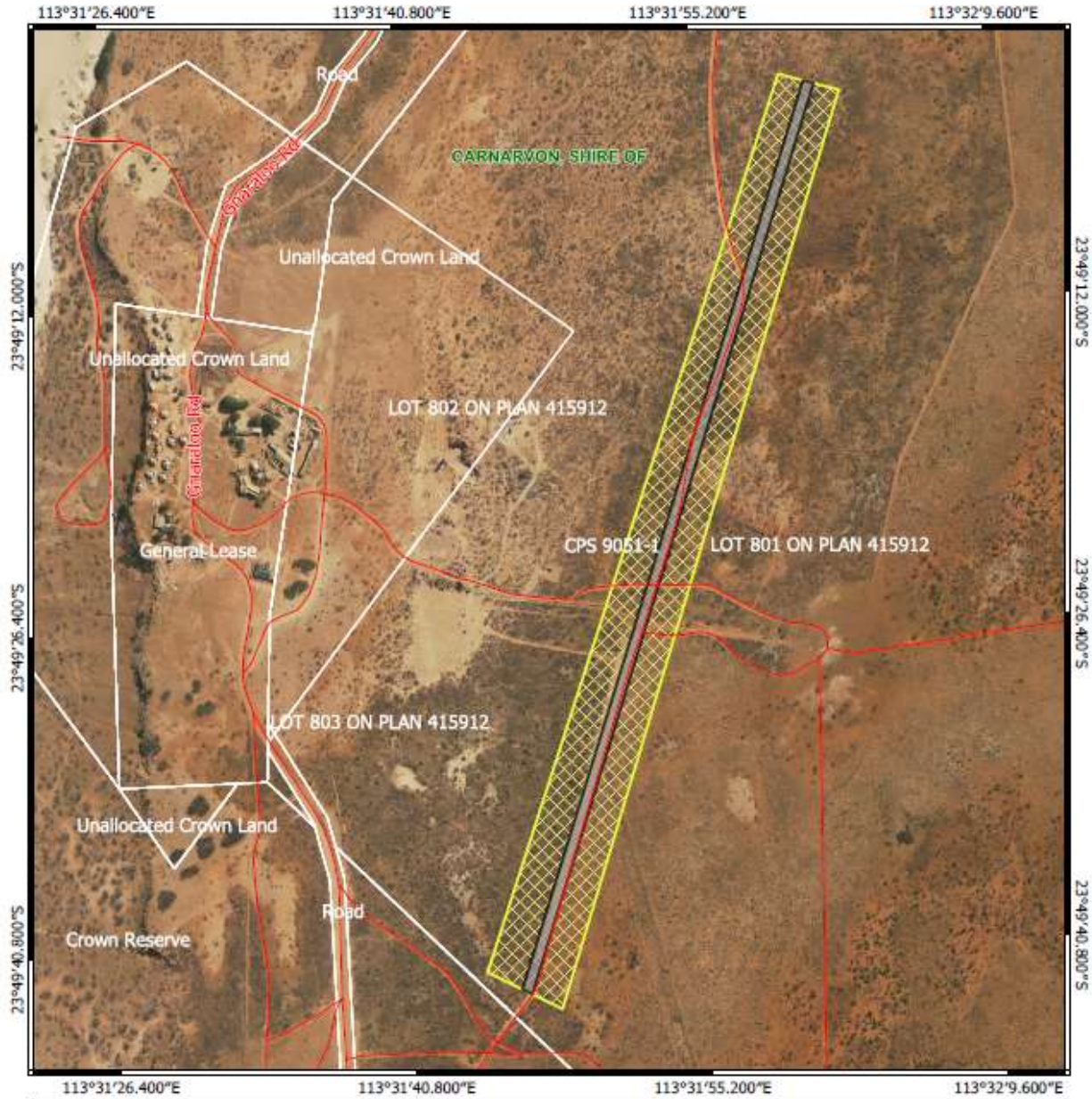
Point F - looking south

Appendix E – Plans of the Application Area






Appendix E1: Application Area (yellow cross-hatching)


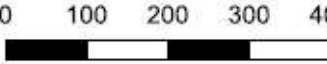


Appendix E2: Runway clearing area (grey shading)




Legend

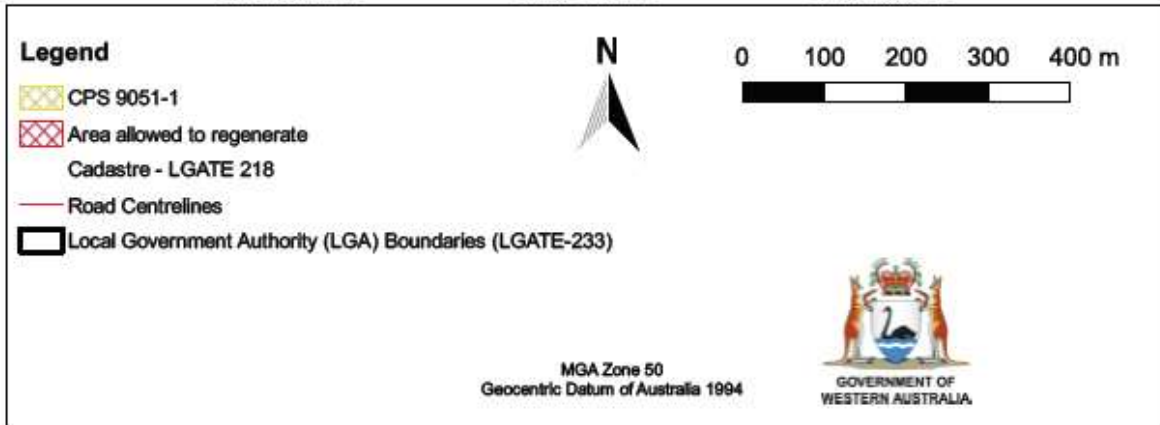
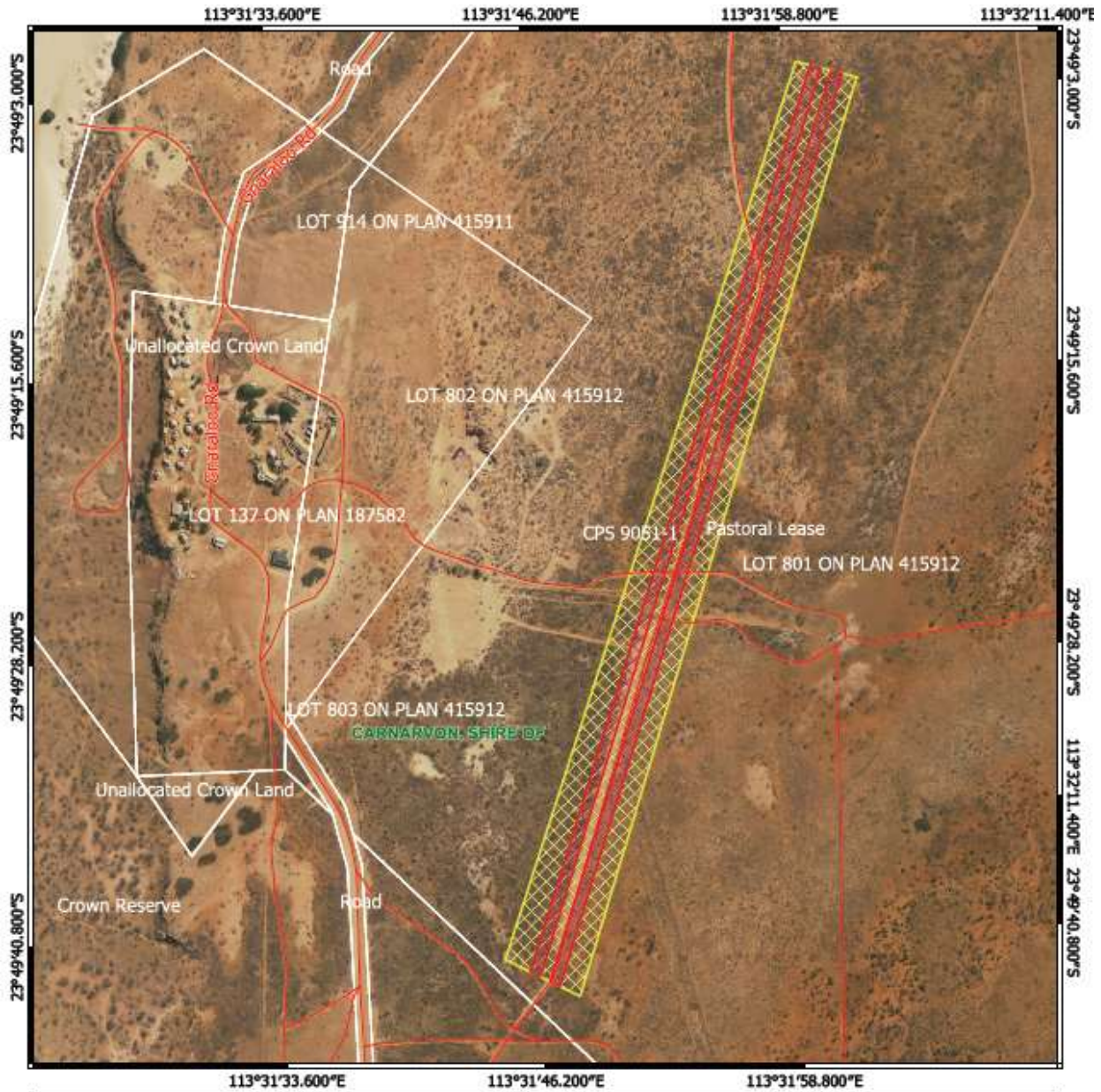
-  CPS 9051-1
-  Runway clearing area
-  Cadastre - LGATE 218
-  Road Centrelines
-  Local Government Authority (LGA) Boundaries (LGATE-233)

MGA Zone 50
 Geocentric Datum of Australia 1994


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Appendix E3: Area allowed to regenerate (red cross-hatching)




Appendix E4: Area within which all native vegetation under 1.5 metres in height shall be retained (red cross-hatching)




Legend

-  CPS 9051-1
-  Area within which all native vegetation under 1.5 metres in height shall be retained
-  Cadastre - LGATE 218
-  Road Centrelines
-  Local Government Authority (LGA) Boundaries (LGATE-233)

0 100 200 300 400 m

 N

MGA Zone 50
Geocentric Datum of Australia 1994



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Appendix F – References and databases

1. References

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2. GIS datasets

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

- 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)