GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 9264/1
Permit Holder:	Pilbara Ports Authority
Duration of Permit:	From 14 July 2021 to 14 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 regrading of the ground surface for construction of a revetment wall required for the Spoilbank Marina Complex.

2. Land on which clearing is to be done

Lot 370 on Deposited Plan 35619, Port Hedland
Lot 5550 on Deposited Plan 240246, Port Hedland
Lot 5178 on Deposited Plan 214191, Port Hedland

3. Clearing authorised

The permit holder must not clear more than 1.916 hectares of native vegetation within the area cross-hatched yellow in Figure 1 of Schedule 1.

4. Period during which clearing is authorised

The permit holder must not clear any native vegetation after 14 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. Revegetation and rehabilitation (temporary works)

The permit holder must *revegetate* and *rehabilitate* areas cleared for *temporary works* within six months of the area no longer being required for the purpose for which it was cleared.

PART III - RECORD KEEPING AND REPORTING

8. 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	(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);

No.	Relevant matter	Specifications
		(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 *revegetate* and *rehabilitate* areas cleared for *temporary works* in accordance with condition 7.

9. Reporting

The permit holder must provide to the *CEO* the records required under condition 8 of this permit when requested by the *CEO*.

DEFINITIONS

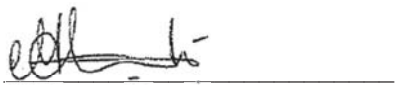
In this permit, the terms in Table have the meanings defined.

Table 2: Definitions

Term	Definition
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*.
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.
fill	means material used to increase the ground level, or to fill a depression.
department	means the department established under section 35 of the *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	*Environmental Protection Act 1986* (WA)
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 / rehabilitated / rehabilitation	means actively managing an area containing native vegetation in order to improve the ecological function of that area.
revegetate / vegetated / revegetation	means the re-establishment of a cover of local provenance native vegetation in an area using methods such as natural regeneration, direct seeding and/or planting, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area.
temporary works	means access tracks, spoil areas, side tracks, site offices, storage areas, laydown areas, extraction sites, camps, project surveys, pre-construction activities, and similar works associated with a project activity that are temporary in nature.

Term	Definition
weeds	means any plant – (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.

END OF CONDITIONS



Meenu Vitarana
A/MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

21 June 2021

Schedule 1

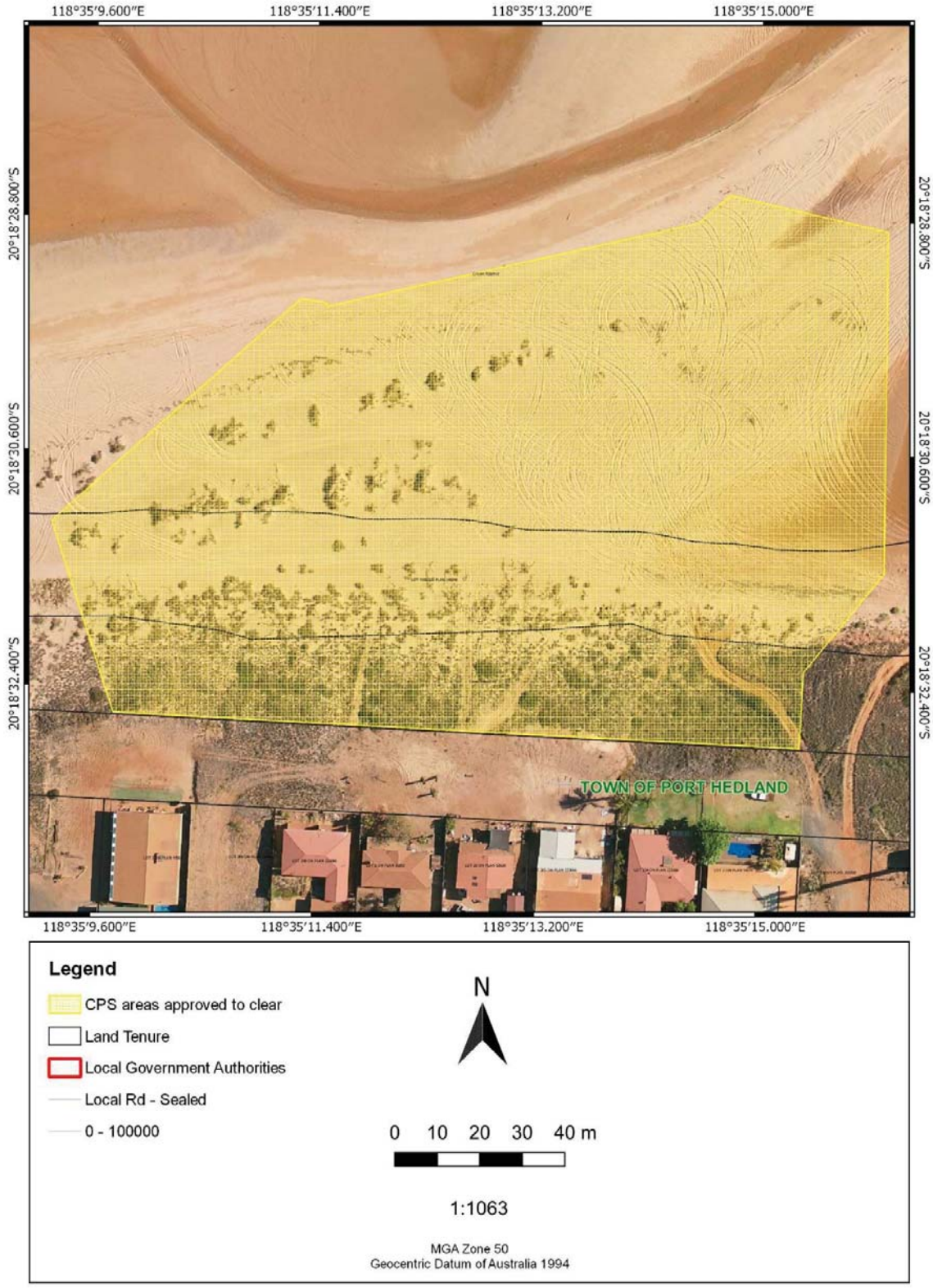


Figure 1: Map of the boundary of the area within which clearing may occur

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9264/1
Permit type:	Purpose permit
Applicant name:	Pilbara Ports Authority
Application received:	13 April 2021
Application area:	1.916 hectares of native vegetation
Purpose of clearing:	Spoilbank Marina development
Method of clearing:	Mechanical removal
Property:	Lot 370 on Deposited Plan 35619 Lot 5550 on Deposited Plan 240246 Lot 5178 on Deposited Plan 214191
Location (LGA area/s):	Town of Port Hedland
Localities (suburb/s):	Port Hedland

1.2. Description of clearing activities

The vegetation proposed to be cleared is contained within a single contiguous area along the Spoilbank peninsula coastline (see Figure 1, Section 1.5). The clearing is required to allow regrading of the ground surface for construction of a revetment wall required for the Spoilbank Marina Complex and vegetation will be permitted to grow back once works are completed (Pilbara Ports Authority, 2021b).

1.3. Decision on application

Decision:	Granted
Decision date:	21 June 2021
Decision area:	1.916 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 A), relevant datasets (see Appendix E), the findings of flora and fauna surveys, the clearing principles set out in Schedule 5 of the EP Act (see Appendix B), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3).

The assessment identified that the proposed clearing:

- may remove vegetation providing suitable roosting habitat for the curlew sandpiper and eastern curlew and habitat for the grey falcon and peregrine falcon, however the impacts of the proposed clearing on these species are not likely to be significant;
- may result an increased risk of wind erosion, however erosion management, dust management and dune revegetation and rehabilitation measures conditioned under an approval issued by the Town of Port Hedland for the proposed development, and a requirement to revegetate and rehabilitate areas cleared for temporary works conditioned on the permit are considered adequate to mitigate the effects of any land degradation resulting from wind erosion.

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 lead to have long-term adverse impacts on environmental values and that the applicant has suitably demonstrated avoidance and minimisation measures.

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

- avoid, minimise and reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds; and
- revegetate and rehabilitate areas cleared for temporary works within six months of the area no longer being required for the purpose for which it was cleared.

1.5. Site map

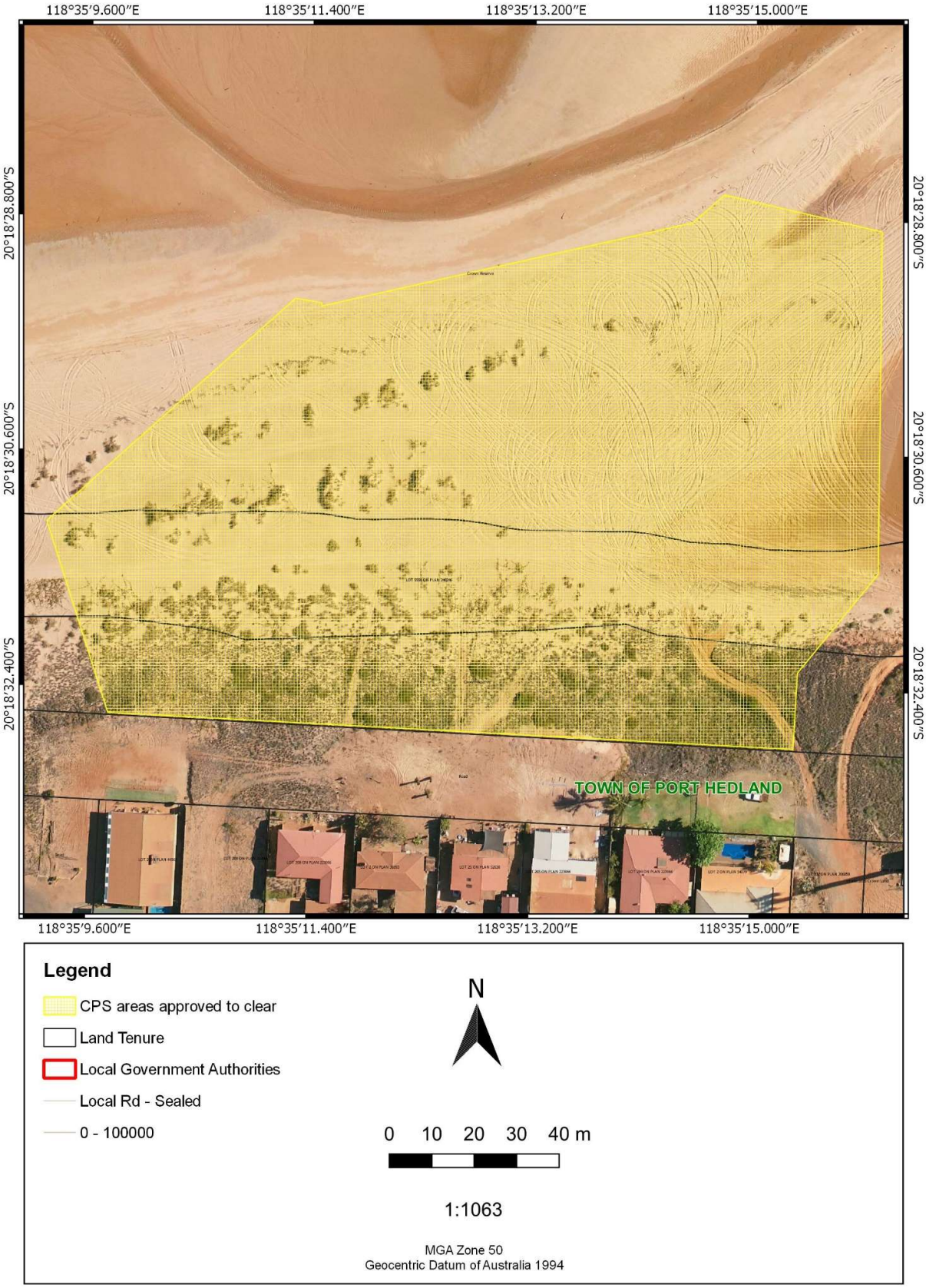


Figure 1 - Map of the application area. The area cross-hatched yellow indicates the area authorised to be cleared under the granted clearing permit.

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 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)
- *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

The applicant advised the following in regards to avoidance and mitigation considerations:

- The clearing is required to allow regrading of the beach surface for the construction of a revetment wall required for the Spoilbank Marina Complex;
- The clearing will be temporary in nature and vegetation will be allowed to grow back;
- The following mitigation strategies will be implemented by PPA to minimise impacts of the proposed clearing:
    - clearing of native vegetation will be minimised wherever possible;
    - there will be no changes to existing surface drainage patterns; and
    - dieback and weed hygiene measures will be implemented during operations.

It is also noted that, as conditioned as part of the of the approval granted by the Town of Port Hedland to the applicant to undertake the proposed development, the applicant will be required to undertake the following as required:

- suitable coastal erosion and stabilisation measures being implemented at all times within and adjacent to the proposed works area;
- dust mitigation and management measures as per an approved Construction Environment Management Plan (Pilbara Ports Authority, 2020) and Dust Management Plan (Environmental Technologies and Analytics, 2020), which include the following management actions relevant to the clearing to be undertaken as required:
    - clear only areas required and stabilise as soon as practical;
    - employing wind fencing/barriers;
    - minimise cleared areas;
    - planning of works to consider wind speed and direction;
    - pre-wetting and re-wetting of dry materials to be handled;
    - addition of mulch or suitable surface treatment to be applied immediately following spreading of topsoil or other surface material;
    - use of mobile water carts;
    - dust episode management procedures; and
    - dust monitoring;
- dune rehabilitation and replanting being established within the primary dune area that is proposed to be cleared (Town of Port Hedland, 2021).

The applicant has also advised that clearing within the sand dune area in the southern portion of the application area, where most of the vegetation within the clearing footprint is located, is likely to be minimal.

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 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 risk of impacts of the proposed clearing to fauna, flora and land resources required further consideration. 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 (fauna) - Clearing Principles (a) and (b)

Assessment Nine threatened fauna species and one other specially protected fauna species may utilise the application area for habitat:

- Shore birds:
    - *Calidris canutus* (Red knot) (T)
    - *Calidris ferruginea* (curlew sandpiper) (T)
    - *Calidris tenuirostris* (Great knot) (T)
    - *Charadrius leschenaultia* (Greater sand plover, large sand plover) (T)
    - *Limosa lapponica menzbieri* (Bar-tailed godwit (northern Siberian)) (T)
    - *Numenius madagascariensis* (Eastern curlew) (T)
    - *Sternula nereis nereis* (Fairy tern) (T)
- Other
    - *Falco hypoleucos* (Grey falcon) (T)
    - *Falco peregrinus* (Peregrine falcon) (OS)
    - *Natator depressus* (Flatback turtle) (T)

The seven shorebirds listed above have previously been recorded either within the Port Hedland area and/or within or close to the application area (i.e. at Spoilbank or nearby Cemetery Beach) (Bamford and Bamford, 2019). In Australia, the primary habitats for these shorebirds are mudflats and/or sandflats of beaches, estuaries and sometimes wetlands (Threatened Species Scientific Committee (TSSC), 2015a, 2015b, 2016a, 2016b, 2016c, 2016d and Department of Environment (DoE), 2011) and as such the shoreline area within the application area may provide habitat for these species, however given that the shoreline area is unvegetated (Strategen, 2020b) the proposed clearing is unlikely to impact upon this habitat type. The only one of these species to breed in Australia, the Fairy tern, generally prefers nest sites clear of vegetation (Jenniges and Plettner, 2008 and Barre et al., 2012), although may line nests with vegetation (DoE, 2011). These species do not generally use dune shrubland for foraging, although the curlew sandpiper and eastern curlew may occasionally roost in dune vegetation (TSSC, 2015a and 2015b). Overall, given the extent of the clearing, that the proposed clearing is temporary, and that replanting of dune vegetation will be required as a condition of approval of the proposed development, the proposed clearing of vegetation within the application area is considered unlikely to have a significant impact on these migratory species. A condition will also be placed on the permit requiring that temporarily cleared areas are revegetated and rehabilitated.

Although vegetation within the application area may be utilised by the grey falcon and peregrine falcon, given the large ranges and varied habitats utilised by these species, the proposed clearing is unlikely to have a significant impact upon these species (BirdLife International, 2020).

It is possible that the proposed clearing area may provide suitable habitat for flatback turtle nesting, however the proposed clearing area is not known as a flatback turtle nesting area: a significant flatback turtle rookery is known to be present at Cemetery Beach, to the east of the Spoil Bank peninsula (Pendoley Environmental, 2019). Flatback turtle nests are generally placed within bare sand and as such the proposed clearing of native vegetation is unlikely to impact upon nesting, should the application area be utilised for this purpose.

Conclusion: Vegetation within the application area may provide suitable roosting habitat for the curlew sandpiper and eastern curlew and habitat for the grey falcon and peregrine falcon, however the impacts of the proposed clearing on these species are not likely to be significant. A condition to revegetate and rehabilitate temporarily cleared areas will recreate habitat for these species.

Conditions: The permit holder is required to revegetate and rehabilitate areas cleared for temporary works within six months of the area no longer being required for the purpose for which it was cleared.

3.2.2. Biological values (flora) - Clearing Principle (a)

Assessment: Three priority flora species present within the local area, *Gomphrena pusilla* (P2), *Gymnanthera cunninghamii* (P3) and *Tephrosia rosea* var. Port Hedland (A.S. George 1114) (P1) are associated with similar soil and vegetation types, as well as similar habitats (Western Australian Herbarium, 1998-), as those which occur within the application area. However, noting that the extent of the application area, the Very Poor condition of the vegetation and that no priority flora species were found by Strategen (2020b), it is considered unlikely that any priority species are present within the application area. No threatened flora species are recorded within the local area.

Conclusion: Based on the above assessment, the proposed clearing is unlikely to result in significant impacts to flora.

Conditions: No flora management conditions required.

3.2.3. Land and water resources - Clearing Principle (g)

Assessment: Given the sandy soils within the application area, and that the Spoilbank peninsula has been previously identified as a source of dust (Strategen, 2020a) it is considered likely that the proposed clearing may result an increased risk of wind erosion. However, is noted that as a condition of the approval granted to the applicant by the Town of Port Hedland, the applicant will be required to implement suitable coastal erosion and stabilisation measures, undertake dust mitigation and management measures (as described in more detail in Section 3.1.) and undertake dune rehabilitation and replanting. A condition will also be placed on the permit requiring that temporarily cleared areas are revegetated and rehabilitated. Given the extent of the application area, the above measures to be undertaken by the applicant are considered adequate to mitigate the effects of any land degradation resulting from wind erosion.

Outcome: Based on the above assessment, and that a condition to revegetate and rehabilitate temporarily cleared areas will be placed on the permit, the proposed clearing is unlikely to result in significant land degradation impacts.

Conditions: The permit holder is required to revegetate and rehabilitate areas cleared for temporary works 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

A determination was made by the Regional Joint Development Assessment Panel (JDAP) on 21 September 2020 to approve a Development Application under the *Planning and Development Act 2005* for the Spoil Bank Marina, subject to conditions. However, it should be noted that this Development Approval does not include the area of proposed clearing. As such, the proposed development subject to this clearing permit application (i.e. regrading of the ground surface for construction of a revetment wall) was approved separately by the Town of Port Hedland on 1 April 2021 (Town of Port Hedland, 2021). The Town of Port Hedland advised DWER that the Town has no objections to the proposed clearing, subject to on-going compliance with the conditions agreed on between the Town and Pilbara Ports Authority as part of this approval:

- Suitable coastal erosion and stabilisation measures being implemented at all times by Pilbara Ports Authority within and adjacent to the proposed works area to ensure that the stabilisation of land and existing/proposed assets located on the vacant road reserve adjacent to the proposed works area is not adversely impacted;
- Dust mitigation and management measures, as prescribed in an approved Construction Environment Management Plan and Dust Management Plan, being implemented within the proposed works area at all times to avoid adverse impacts on Kingsmill Street property owner/occupiers as a result of removal of dune protection;
- Dune rehabilitation and replanting being established within the primary dune area that is proposed to be cleared, to be installed as part of the marina development landscaping to tie in with the surrounding coastal dune environment in accordance with the Town's Coastal Foreshore Management Plan (Town of Port Hedland, 2021).

The Spoilbank Marina proposal, with a proposed development envelope encompassing the application area, was referred to the Environmental Protection Authority (EPA) under Part IV of the EP Act on 5 March 2020. On 14 April 2020 the EPA considered that the proposal is unlikely to have a significant impact on the environment and did not warrant formal assessment, although noted that the proposal raises a number of environmental issues pertaining to marine fauna, marine environmental quality and benthic communities and habitats and air quality (EPA, 2020).

The Spoilbank Marina proposal, with a proposed development envelope encompassing the application area, was referred to the Commonwealth Department of Agriculture, Water and the Environment (DAWE) under the EPBC Act (reference number 2019/8520). On 11 June 2020 DAWE decided that the proposal would be assessed by preliminary

documentation, and on 18 February 2021 a decision was made to approve the proposal with conditions. The EPBC approval was transferred from the Department of Transport to the Pilbara Ports Authority on 18 May 2021.

The portion of the application area located Lot 370 on Deposited Plan 35619 falls within a site awaiting classification under the *Contaminated Sites Act 2003* due to potential contamination issues including a diesel spill, raw sewage spill and disposal of dredging sediments (DWER, 2020). The diesel and sewage spills occurred in areas a significant distance to the south of the application area, which have been classified separately. DWER has been reviewing management plans prepared for the Spoilbank Marina development which have not identified contamination within the development area. DWER's contaminated sites branch had no objection to the proposed vegetation clearing as it relates to contaminated sites issues, however advises that construction works should be undertaken in accordance with the relevant management plans.

An Aboriginal Site of Significance is mapped 180 metres east of the application area. It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972* (WA) and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

End

Appendix A. Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is part of an approximately 4 ha patch of native vegetation along the coastline of the Spoil Bank peninsula and adjacent beach, within the extensive land use zone of Western Australia. It is adjacent to an inlet waterbody to the east, the Spoil Bank peninsula and ocean to the north, native vegetation and coastline to the west and houses to the south. Spatial data indicates terrestrial portions of the local area (50 kilometres radius of the proposed clearing area) retain approximately 95% of the original native vegetation cover.
Ecological linkage	Vegetation in the proposed clearing area may be part of a local ecological linkage associated with coastline vegetation, however it is noted that vegetation immediately east of the application is within an area recently approved to be cleared (under CPS 8909/1) for the Spoilbank Marina. No formal ecological linkages are mapped within the local area.
Conservation areas	There are no conservation areas within the local area.
Vegetation description	Approximately 0.75 ha of the application area contains vegetation, with the remainder comprised of bare sand. A flora and vegetation reconnaissance survey conducted in February 2020 (Strategen, 2020b) found that vegetation within the application area consisted of: • Acacia shrubland: Open shrubland, primarily of Acacia species, over grasses and Fabaceae species. This is inconsistent with the mapped Beard vegetation type: • Abydos Plain 117: Hummock grassland, Triodia spp. The mapped vegetation type retains approximately 94 per cent of the original extent (Government of Western Australia, 2019). Vegetation mapping is available in Appendix D.
Vegetation condition	Strategen (2020b) described the vegetation within the proposed clearing area as being in Degraded condition, which is approximately equivalent to Very Poor (Trudgen, 1991) condition, described as: • 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. Strategen (2020b) stated that vegetation was dominated by *Cenchrus ciliaris* (buffel grass), an aggressive weed widespread throughout the Pilbara region. The full Trudgen (1991) condition rating scale is provided in Appendix C. Vegetation condition mapping is available in Appendix D.
Climate	Rainfall: 400 Evapotranspiration: 400
Topography	Approximately 0-10 metres AHD
Soil description	Soil within the southern portion of the application area is mapped as Littoral System (Mapping unit 286Li), described as bare coastal mudflats (unvegetated), samphire flats, sandy islands, coastal dunes and beaches, supporting samphire low shrublands, sparse acacia shrublands and mangrove forests (DPIRD, 2017).

Characteristic	Details
Land degradation risk	Land degradation risks for the mapped soil type within the terrestrial portion of the application area include: • Subsurface acidification - <3% of map unit has a high susceptibility • Salinity at surface - >70% of the map unit has a high susceptibility (Schoknecht et al., 2004). • Acid Sulfate Soil Risk: High to moderae risk (northern portion), Moderate to low risk (southern portion). The Spoil Bank peninsula has been previously identified as a dust source due to wind erosion (Strategen, 2020a).
Waterbodies	An inlet waterbody connecting to the ocean via a channel is located immediately east of the application area, and the Indian Ocean is immediately north. The Leslie (Port Hedland) Saltfields System, mapped in the Directory of Important Wetlands in Australia, is located approximately 14.3 kilometres east of the application area.
Hydrogeography	Groundwater Salinity (Total Dissolved Soilds): 1000-3000 mg/L Hydrogeology: Surficial Sediments - Shallow Aquifers - Surficial sediments lithology The application area is mapped within the Pilbara Surface Water Area and Pilbara Groundwater Area proclaimed under the *Rights in Water and Irrigation Act 1914*.
Flora	13 priority flora species are mapped within the local area (i.e. within a 50 kilometre radius of the clearing area), the closest of which is *Seringia exastia* located approximately 800 m south-east.
Ecological communities	No threatened or priority ecological communities are mapped within the local area.
Fauna	19 threatened fauna species, six priority fauna species and two other specially listed fauna species are mapped within the local area, the closest of which is *Natator depressus* (flatback turtle) located approximately 180 m south.

A.2. Vegetation extent

Vegetation Unit	Pre-European extent (ha)	Current extent (ha)	% remaining	Current extent in all DBCA managed land (ha)	% current extent in all DBCA managed land (proportion of pre-European extent)
IBRA bioregion					
Pilbara	17,808,657.04	17,731,764.88	99.57	1,801,714.98	10.12
Vegetation complex					
Abydos Plain 117	82,705.78	78,096.64	94.43	17,600.29	21.28

A.3. Flora analysis table

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

Species name	Conservation status	Suitable habitat features?	Suitable vegetation type?	Suitable soil type?	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify?
Gomphrena pusilla	P2	Y	Y	Y	1.5	15	Y
Gymnanthera cunninghamii	P3	Y	Y	Y	1.5	39	Y
Tephrosia rosea var. Port Hedland (A.S. George 1114)	P1	Y	Y	Y	3.3	40	Y

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

A.4. Fauna analysis table

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

Species name	Conservation status	Suitable habitat features?	Most recent record in local area	Distance of closest record to application area (km)	Number of records in local area	Are surveys adequate to identify?
Calidris canutus (Red knot) (T)	T	Y	2017	0.8	18	Y
Calidris ferruginea (curlew sandpiper) (T)	T	Y	2017	0.8	55	Y
Calidris tenuirostris (Great knot) (T)	T	Y	2017	0.1	33	Y
Charadrius leschenaultia (Greater sand plover, large sand plover) (T)	T	Y	2017	0.6	47	Y
Falco hypoleucos (Grey falcon) (T)	T	Y	2018	13.1	6	N
Falco peregrinus (Peregrine falcon) (OS)	OS	Y	2012	11.7	3	N
Limosa lapponica menzbieri (Bar-tailed godwit (northern Siberian)) *(T)*	T	Y	2011	7.7	1	Y
Natator depressus (Flatback turtle) (T)	T	Y	2016	0.2	2225	Y
Numenius madagascariensis (Eastern curlew) (T)	T	Y	2017	0.8	42	Y
Sternula nereis nereis (Fairy tern) (T)	T	Y	2008	3.7	2	Y

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

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: Soil and vegetation types within the application area may support priority flora species, however none were found within the application area. Vegetation within the application area is otherwise of low floristic diversity, does not contain any locally or regionally significant ecological communities and is considered unlikely to harbour a biodiverse range of fauna species.	Not likely to be at variance	Yes: Refer to Section 3.2.1 and Section 3.2.2 above.
Principle (b): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."*	Not likely to be at variance	Yes: Refer to Section 3.2.2 above.

Assessment against the clearing principles	Variance level	Is further consideration required?
Assessment: The proposed clearing area may contain habitat for conservation significant fauna, however given the nature and extent of the clearing, the proposed clearing is unlikely to have a significant impact on these species.		
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: The proposed clearing area is unlikely to contain habitat for flora species listed under the BC Act.	Not likely to be at variance	No
Principle (d): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community."* Assessment: The proposed clearing area does not contain species indicative a threatened ecological community.	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
Principle (e): *"Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."* Assessment: The extent of native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia. Vegetation in the proposed clearing area is not considered to be part of a significant ecological linkage in the local area.	Not likely to be at variance	No
Principle (h): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area."* Assessment: Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.	Not likely to be at variance	No
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: No water courses or wetlands are mapped within the application area and vegetation present is not riparian.	Not likely to be at variance	No
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: Clearing of vegetation within the application area may result in an increased risk of wind erosion of soils, however given the small extent of clearing and mitigation measures committed to by the applicant and conditioned of the permit, impacts are not likely to be appreciable.	Not likely to be at variance	Yes: Refer to Section 3.2.3 above.
Principle (i): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water."* Assessment: Given the extent of the proposed clearing area and nature of surrounding waterbodies, the proposed clearing is considered unlikely to result in deterioration of water quality.	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: The mapped and surveyed soils and topographic contours and in the surrounding area and the nature of the vegetation to be removed does not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding or waterlogging.	Not likely to be at variance	No

Appendix C. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types. 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 (1991).

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. Biological survey information excerpts

Figure D-1 – Vegetation mapping within the application area (Strategen, 2020b)

Figure D-2 – Vegetation condition mapping within the application area (Strategen, 2020b)

Appendix E. Sources of information

E.1. GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Acid Sulfate Soil Risk Map, Pilbara Coastline (DWER-053)
- 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)
- 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 – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Salinity Risk (DPIRD-009)
- 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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