

GOVERNMENT OF  
WESTERN AUSTRALIA**CLEARING PERMIT***Granted under section 51E of the Environmental Protection Act 1986*

<b>Purpose Permit number:</b>	CPS 10428/1
<b>Permit Holder:</b>	Fulton Hogan Construction Pty Ltd
<b>Duration of Permit:</b>	From 11 January 2025 to 11 January 2030

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 constructing a materials offloading facility and associated infrastructure, and an accommodation compound, to facilitate the Cocos (Keeling) Islands Airfield Upgrade Project.

**2. Land on which clearing is to be done**

Lot 100 on Plan 18500, West Island Cocos (Keeling) Islands  
Lot 3003 on Deposited Plan 44688 (Crown Reserve 47378), West Island Cocos (Keeling) Islands

**3. Clearing authorised**

The permit holder must not clear more than 1.81 hectares of *native vegetation* within the areas cross-hatched yellow in Figures 1 and 2 of Schedule 1.

**PART II – MANAGEMENT CONDITIONS****4. Wind erosion management**

The permit holder must ensure that construction activities occur no later than three (3) months after undertaking the *clearing* authorised under this permit.

**5. Avoid, minimise, and reduce the 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:

- avoid the *clearing* of *native vegetation*;
- minimise the amount of *native vegetation* to be cleared; and
- reduce the impact of *clearing* on any environmental value.

## 6. Weed management

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

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

## 7. Fauna management – direction and timing of clearing

The permit holder must:

- (a) conduct *clearing* activities authorised under this permit in a slow, progressive manner towards adjacent *native vegetation*;
- (b) allow a reasonable time for native vertebrate fauna present within the area being cleared under this permit to move into adjacent *native vegetation* ahead of the *clearing* activity; and
- (c) restrict *clearing* activities to *daytime hours* to minimise the risk of injury to fauna.

## 8. Fauna management – nesting birds

The permit holder must:

- (a) engage a *fauna specialist* to inspect the *native vegetation* authorised to clear under this permit immediately prior to *clearing*, to identify any evidence of nesting native birds.
- (b) where nesting native birds are identified under *condition 8(a)*, maintain a minimum 50-metre buffer between any *clearing* activity authorised under this permit and the identified nesting birds until the nest is no longer in use, as determined by a *fauna specialist*, unless otherwise approved by the *CEO*.
- (c) where evidence of *conservation listed* nesting birds is identified under *condition 8(a)*, include the following in a report submitted to the *CEO*:
  - (i) the species and number of each nesting bird identified;
  - (ii) the date each nesting bird was identified;
  - (iii) the location where each nest was identified, recorded using a GPS unit set to GDA2020, expressing the geographical coordinates in Eastings and Northings or decimal degrees; and
  - (iv) measures taken to provide a 50-metre buffer between any nest identified and *clearing* activities, unless otherwise approved by the *CEO* under *condition 8(b)*.

## **PART III - RECORD KEEPING AND REPORTING**

### **9. 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**

<b>No.</b>	<b>Relevant matter</b>	<b>Specifications</b>
1.	In relation to the authorised <i>clearing</i> activities generally	<ul style="list-style-type: none"> <li>(a) the species composition, structure, and density of the cleared area;</li> <li>(b) the location where the <i>clearing</i> occurred, recorded using a Global Positioning System (GPS) unit set to GDA2020, expressing the geographical coordinates in Eastings and Northings;</li> <li>(c) the date that the area was cleared;</li> <li>(d) the size of the area cleared (in hectares);</li> <li>(e) actions taken to avoid, minimise, and reduce the impacts and extent of <i>clearing</i> in accordance with <i>condition 5</i>;</li> <li>(f) actions taken to minimise the risk of the introduction and spread of <i>weeds</i> in accordance with <i>condition 6</i>; and</li> <li>(g) actions taken in accordance with <i>condition 7</i>.</li> </ul>
2.	In relation to fauna management pursuant to <i>condition 8</i>	<ul style="list-style-type: none"> <li>(a) results of the pre-clearance fauna inspection undertaken in accordance with <i>condition 8(a)</i>; and</li> <li>(b) a copy of the fauna report in accordance with <i>condition 8(c)</i>.</li> </ul>

### **10. Reporting**

- (a) The permit holder must provide to the *CEO* on or before 30 June of each year, a written report containing:
  - (i) the records required under *condition 9*; and
  - (ii) records of activities done by the permit holder under this permit between 1 January and 31 December of the preceding calendar year.
- (b) If no *clearing* authorised under this permit has been undertaken, a written report confirming that no *clearing* under this permit has been carried out, must be provided to the *CEO* on or before 31 December of each calendar year.
- (c) The permit holder must provide to the *CEO*, no later than 90 calendar days prior to the expiry date of this permit, a written report of records required under *condition 9*, where these records have not already been provided under *condition 10(a)*.

## DEFINITIONS

In this permit, the terms in Table 2 below have their meanings defined.

**Table 2: Definitions**

<b>Term</b>	<b>Definition</b>
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the <i>Environmental Protection Act 1986</i> .
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
conservation listed	means those fauna species listed as Migratory under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> .
daytime hours	means the duration starting 30 minutes before sunrise and ending 30 minutes after sunset.
department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 2.
EP Act	<i>Environmental Protection Act 1986</i> (WA) (CKI).
fauna specialist	means a person who holds a tertiary qualification specialising in environmental science or equivalent, and has experience in fauna identification and surveys of fauna native to the area being inspected, or who is approved by the CEO as a suitable fauna specialist for the area.
fill	means material used to increase the ground level, or to fill a depression.
mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
weeds	means any plant – <ol style="list-style-type: none"> <li>that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i>; or</li> <li>published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or</li> <li>not indigenous to the area concerned.</li> </ol>

---

## END OF CONDITIONS



**Meenu Vitarana**  
**MANAGER**

NATIVE VEGETATION REGULATION

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

20 December 2024



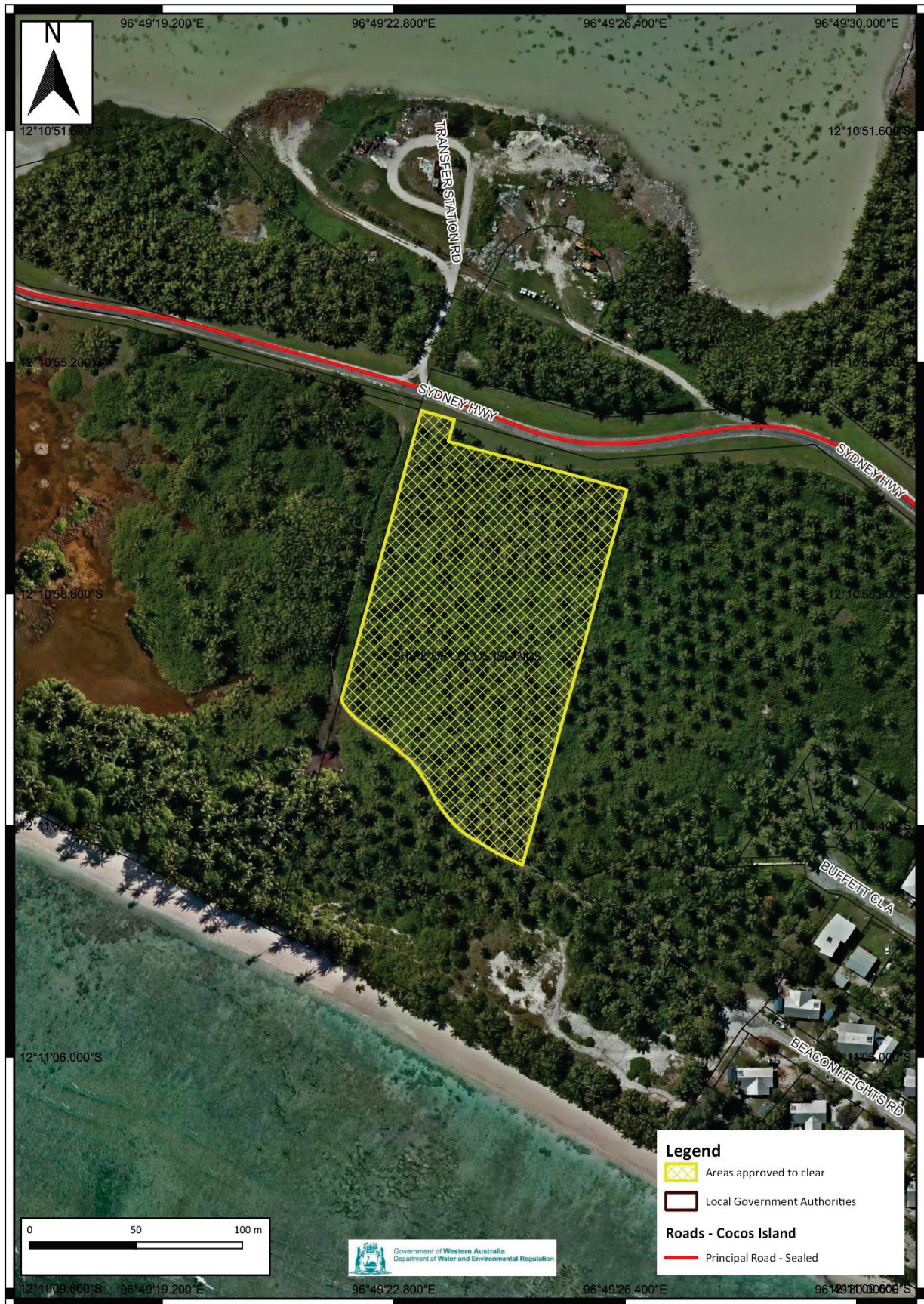
# Schedule 1

The boundaries of the areas authorised to clear under this permit are shown in Figures 1 and 2 below.



**Figure 1:** Map of the boundary of the area within which *clearing* may occur cross-hatched yellow.





**Figure 2:** Map of the boundary of the area within which *clearing* may occur cross-hatched yellow.





# Clearing Permit Decision Report

## 1 Application details and outcome

### 1.1. Permit application details

<b>Permit number:</b>	CPS 10428/1
<b>Permit type:</b>	Purpose permit
<b>Applicant name:</b>	Fulton Hogan Construction Pty Ltd (Fultan Hogan)
<b>Application received:</b>	23 November 2023
<b>Application area:</b>	1.81 hectares
<b>Purpose of clearing:</b>	Constructing a materials offloading facility and associated infrastructure, and an accommodation compound, to facilitate the Cocos (Keeling) Islands Airfield Upgrade Project
<b>Method of clearing:</b>	Mechanical
<b>Property:</b>	Lot 100 on Plan 18500 and Lot 3003 on Deposited Plan 44688 (Crown Reserve 47378)
<b>Location:</b>	Shire of Cocos (Keeling) Islands
<b>Locality:</b>	West Island, Cocos (Keeling) Islands

### 1.2. Description of clearing activities

Fulton Hogan Construction Pty Ltd (Fultan Hogan) on behalf of the Australian Department of Defence (DoD) has applied for a clearing permit under Part V of the *Environmental Protection Act (WA)(CKI)(EP Act)* to clear up to 1.81 hectares of native vegetation within a 4.58-hectare footprint on the West Island of the Cocos (Keeling) Islands (CKI), to construct a materials offloading facility and associated infrastructure, and an accommodation compound, to facilitate the Cocos (Keeling) Islands (CKI) Airfield Upgrade Project. The CKI airfield services both civilian and DoD operations (GHD, 2023). The applicant, Fulton Hogan, has been contracted by DoD to deliver the project.

The applicant has advised that upgrades to the CKI airfield are required to enable the Royal Australian Air Force to support aircraft capability on the runway, reduce safety risks associated with operating specific aircrafts on the airfield, and address Civil Aviation Safety Authority (CASA) requirements (GHD, 2023).

The application area comprises two separate areas and forms the first stage of required clearing for the project. These areas are shown in section 1.5 and comprise (GHD, 2023):

- Rumah Baru site – includes the proposed clearing of 0.19 hectares of native vegetation for a materials offloading facility (MOF) and associated works within and around the existing stilling basin compound area for a temporary and stockpile and staging area. The broader development area has largely been cleared for the stilling basin, with three relatively small portions of vegetation proposed for clearing (see Figure 1).
- Lot 3003 site – includes the proposed clearing of 1.62 hectares of native vegetation for an accommodation compound which is required to house the airfield construction workforce (see Figure 2).

The current capacity and operational constraints of the existing Rumah Baru Port requires the construction of a new MOF to meet the airfield upgrade requirements, which would allow vessels to transfer cargo required for the project (GHD, 2023).

While the proposed MOF extends into the ocean by around 160 metres, the applicant has confirmed that no seagrass (which is considered native vegetation) will be removed, and the ocean infrastructure proposed as part of the MOF has therefore not been included within this clearing permit application.

The applicant is proposing to submit a further clearing permit application for subsequent stages of the project. These include the quarantine station development which will serve as the base of operations, upgrades to the airfield access road, and construction of a seawall to ensure coastal protection (GHD, 2023). The development of these areas was originally included in the current clearing permit application, however the applicant has removed these for submission

within a separate application later, to streamline the multiple EP Act Part V approvals required (clearing permit and works approval).

### 1.3. Decision on application

<b>Decision:</b>	Granted
<b>Decision date:</b>	20 December 2024
<b>Decision area:</b>	1.81 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 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 D.1)
- the findings of flora, vegetation and fauna surveys
- the applicants environmental management plan (EMP)
- the applicants supporting information
- 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 Works Approval that has been issued by DWER under Part V, Division 3 of the EP Act to operate the Rumah Baru site MOF
- the purpose of the clearing to reduce the safety risks associated with operating specific aircrafts on West Island and to meet the CASA requirements.

The assessment identified that the proposed clearing would result in:

- the loss of native vegetation that provides suitable habitat for conservation listed fauna
- potential injury to native fauna and disturbance to nesting native birds through clearing operations should they be using the application areas at the time of clearing
- potential land degradation from wind erosion which may lead to increased turbidity of the marine environment
- the potential spread of weeds into adjacent native vegetation, which could impact on the biodiversity of adjacent vegetation and its fauna habitat values.

The Delegated Officer has considered the above, the applicant's avoidance, minimisation and mitigation measures (see Section 3.1), the necessity of clearing, and notes that the applicants EMP is required to be implemented under the MOF Works Approval and under a Memorandum of Understanding between the DoD and the Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA) (see Section 3.3).

Based on the above information, the Delegated Officer determined that on balance it was appropriate to grant the clearing permit subject to appropriate management conditions. The Delegated Officer considers that these management conditions, together with the management measures set out in the applicants EMP, will ensure that the proposed clearing is unlikely to lead to an unacceptable risk to the environment.

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

- avoid and minimise measures to reduce the impacts and extent of clearing
- hygiene steps to minimise the risk of the introduction and spread of weeds
- commencement of construction works within three months of undertaking any clearing to reduce the potential for wind erosion and increased turbidity of the adjacent marine environment
- slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity
- engagement of a fauna specialist to undertake a pre-clearance inspection of the application areas for nesting birds, and avoidance of nesting birds with a 50-metre buffer until they are no longer using the nest
- restrict clearing activities to daylight hours to reduce the risk of injury to fauna.



1.5. Site map(s)



Figure 1. Map of the Rumah Baru application area cross-hatched yellow, for the MOF.





Figure 2. Map of the Lot 3003 application area cross-hatched yellow, for the accommodation compound.



## 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*.

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 to 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 informed this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment* (EPA, 2020).

## 3 Detailed assessment of application

### 3.1. Avoidance, minimisation and mitigation measures

The applicant has advised that the application area has been located within areas that have been previously cleared where possible, noting that the terrestrial area for the MOF and associated stockpiling and staging area within the existing stilling basin at the Rumah Baru application area (see Figure 1) largely occurs within a historically cleared area.

The applicant has prepared an EMP for the project which sets out the following measures to minimise the extent of native vegetation clearing:

- conduct selective pruning/removal of trees where possible to minimise vegetation clearing
- removal of mature trees and root zones to be avoided where possible.

The EMP also sets out several management measures to manage the risk of impact to environmental values from the proposed clearing, construction and end land use, which are detailed under Section 3.3.

Noting the requirement to undertake works associated with upgrading the existing airfield, and that avoid measures are limited by the existing airfield location and small terrestrial areas available to facilitate the project, the Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid 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), biological survey information and the extent to which the impacts of the proposed clearing present a risk to environmental values.

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

#### 3.2.1. Environmental value: Fauna – Clearing Principle (b)

##### Surveys

The application areas were subject to flora and fauna surveys undertaken by GHD (the surveys). The Lot 3003 application area was surveyed between 30 July - 2 August 2022 and the Rumah Baru application area was surveyed between 8 - 11 September 2020 and 19 - 22 June 2021 (GHD, 2021; 2022; 2023). The surveys were undertaken to identify and describe the dominant vegetation types, fauna habitats and their condition.



Methods involved traversing the application areas and maintaining a flora and fauna inventory of species identified (GHD, 2021; 2022).

The survey methodology was taken with reference to the WA Environmental Protection Authority (EPA) Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016) and Technical Guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA 2020).

#### Conservation listed fauna records on CKI

According to available datasets, there are 17 non-aquatic (marine) conservation listed fauna species known from the local area, which are all Migratory listed bird species under the BC Act and EPBC Act (see all listed in table A.1). These species have been historically recorded on CKI as either residents, visitors, vagrants or migrants. CKI is the only seabird breeding area within a 900 kilometres radius.

Aquatic marine species have been excluded from the below assessment noting they will not be impacted by the proposed clearing; however, marine fauna impacts from the construction and end land use of the project is a relevant other matter that has been considered under Section 3.3.

#### Rumah Baru application area

The surveys identified one native fauna habitat within this area, described as 'mixed shrubland and trees' in good condition (GHD, 2021; 2023). This habitat comprises 0.19 hectares and ranges from a monoculture of *Cocos nucifera* (coconut palm) to closed forest with increased structural layers and diversity (GHD, 2021; 2023). Canopy cover is generally high, with open areas beneath the canopy, comprising a tangle of branches and trunks. Abundant leaf litter is present, with fallen branches and occasional small hollows (GHD, 2021; 2023). The survey considered that this area provides moderate value habitat for avian and ground dwelling fauna (GHD, 2021; 2023).

While coconut palms are native to CKI, they can only reach inland areas through human intervention. Therefore, this species is considered native (under the EP Act) only where it grows close to the shoreline, where seeds can naturally move and germinate. Given the proximity of this application area to the shoreline, DWER considers that only the small patch of coconut palms adjacent to the shoreline (0.07 hectares) within this application area are native. However, the fauna habitat listed above contains native species amongst the coconut palms that provides value to fauna (GHD, 2021; 2022; 2023).

The GHD survey noted that the 'mixed shrubland and trees' habitat may provide nesting or foraging habitat for the following Migratory birds:

- lesser frigatebird (*Fregata ariel*) – potential nesting habitat
- great frigatebird (*Fregata minor*) – potential nesting habitat
- oriental cuckoo (*Cuculus saturatus*) – potential nesting habitat
- barn swallow (*Hirundo rustica*) – potential foraging habitat
- yellow wagtail (*Motacilla flava*) – potential foraging habitat
- grey wagtail (*Motacilla cinerea*) – potential foraging habitat

DWER considers that based on the available information on the habitat and ecology of Migratory listed birds known from CKI (Birdlife International, 2017; 2018; 2019a; 2019b; 2020a; 2020b; 2021a; 2021b), the application area may also provide suitable nesting habitat for the common (brown) noddy (*Anous stolidus*), red-footed booby (*Sula sula*) and brown booby (*Sula leucogaster*).

The above Migratory birds are not at a conservation level that warrants a recovery plan or Commonwealth approved conservation advice, therefore critical habitat for these species is not defined.

The above Migratory birds were not identified during the surveys of this application area, nor were any other conservation listed fauna species (GHD, 2021; 2023).

The surveys identified two native non-conservation listed fauna species within this area, the white tern (*Gygis alba*) and green jungle fowl (*Gallus varius*). No evidence of these species nesting was identified (GHD, 2021; 2023).

#### Lot 3003 application area

The two native fauna habitats identified within this area by the survey includes (GHD, 2022):

- 'Coconut palm forest with tall shrubs', comprising 1.61 hectares, in very good condition. This habitat is described as a forest of coconut palms over a dense tall shrubland of *Scaevola taccada* and *Morinda citrifolia*, with groundcover of palm fronds, coconuts and dense leaf litter. The survey considered that this habitat provides moderate value for avian and ground dwelling fauna and is unlikely to provide nesting habitat for conservation listed birds.
- 'Isolated trees / grassland', comprising 0.008 hectares in completely degraded condition. This habitat is described as occasional isolated stands of coconut palms and *Casuarina equisetifolia* over grass. The survey considered that this habitat provides low value for fauna.

As previously noted, coconut palms are considered native only when growing close to the shoreline. The Lot 3003 application area occurs around 100 metres inland of the shoreline, and therefore DWER does not consider the coconut palms in this area to be native. However, both fauna habitats listed above contain native species amongst the coconut palms that provide value to fauna, including *Casuarina equisetifolia* and tall shrubland of *Scaevola taccada* and *Morinda citrifolia* (GHD, 2022).

The surveys noted that the 'Coconut palm forest with tall shrubs' habitat may provide foraging habitat for the following Migratory listed birds (BC Act; EPBC Act); barn swallow, yellow wagtail and grey wagtail.

DWER considers that portions of this application area may also provide suitable breeding habitat for the lesser frigatebird, great frigatebird, oriental cuckoo, common noddy, red-footed booby and brown booby, based on the available information on the habitat and ecology for these species (Birdlife International, 2017; 2018a; 2018b; 2019a; 2019b; 2020a; 2020b; 2021a; 2021b).

The surveys did not identify any conservation listed fauna within this application area (GHD, 2022).

The surveys identified four non-conservation listed native fauna species in the broader survey area, including the white tern, green jungle fowl, white-breasted waterhen (*Amauronis phoenicurus*) and land crab (*Cardisoma carnifex*) (GHD, 2022). The white terns were assumed to be nesting in a large *Casuarina equisetifolia*, based on their aggressive behaviour (GHD, 2022).

### Conclusion

Both application areas include moderate value fauna habitat that provides suitable habitat for up to nine Migratory listed birds known from CKI.

The fauna habitat recorded within the application areas are well represented across West Island and are not of comparatively higher value than the 424.9 hectares of remnant vegetation on West Island. The proposed clearing of 1.81 hectares represents the loss of around 0.42% of the remaining vegetation on West Island and will not significantly reduce the extent of fauna habitat on West Island, or the broader CKI.

Noting the above, and that no conservation listed fauna were recorded in the application areas during the surveys (GHD, 2021; 2022; 2023), the vegetation within the application areas is not likely to provide significant fauna habitat.

The proposed clearing may however directly impact on native fauna using the application areas at the time of clearing, through machinery strike or via disturbance to nesting birds through vibration and noise impacts. This is noting the high likelihood that white terns were observed nesting in the Lot 3003 application area (GHD, 2022). Appropriate management measures will assist in minimising this risk.

### Conditions

To address the above impacts of fauna strike and nesting bird disturbance, the following management measures will be required as conditions on the clearing permit:

- slow, one directional clearing to allow fauna to move into adjacent vegetation ahead of the clearing activity
- restrict clearing activities to daylight hours to reduce the risk of injury to fauna
- engage a fauna specialist to undertake a pre-clearance inspection of the application areas for nesting birds, with a required avoidance buffer of 50 metres to any nesting birds identified, until the nest is no longer in use.

The Delegated Officer considers that the above conditions will appropriately minimise the risk of impact to native fauna resulting from the proposed clearing.

### 3.2.2. Environmental value: Land and water sources – Clearing Principles (g) and (i)

#### Land degradation, sedimentation and marine water quality

The soils of the application area comprise medium to coarse grain coralline sands which are highly permeable and not typically susceptible to water erosion noting the high rate of infiltration. These coralline sands are however highly susceptible to wind erosion if left exposed, particularly during windy conditions. Without appropriate management measures, land degradation may result from prolonged sand exposure post clearing.

The Rumah Baru application area is adjacent to the shoreline and the proposed clearing may also lead to localised sedimentation and turbidity of the adjacent marine environment, from wind erosion and run-off during heavy rainfall.

The applicant has committed to implementing sand suppression control measures for cleared areas and stockpiles within its EMP, to minimise the risk of wind erosion. These measures include (Fulton Hogan, 2023):

- developing an erosion and sediment control plan to identify strategies to mitigate erosion and sedimentation for disturbance areas
- minimising slope angles and lengths of cleared surfaces with exposed soils
- using water tankers to spray areas of exposed soils.

#### Groundwater quality

Noting the highly porous sands present on West Island all rainfall infiltrates very rapidly to the shallow groundwater, which is in direct connection with seawater. The infiltrated rainfall forms a thin brackish lens over the saline groundwater. West Island comprises one freshwater lens located at the south end of the island below the Airport (West Island Airfield Lens), and another located in the central to northern portion of the island just below the quarantine station. The application areas are not located over a freshwater lens.

Noting that the application areas are not located directly over the two freshwater lenses that occur on West Island, and that the proposed clearing is not likely to significantly impact on groundwater recharge given the existing high infiltration rates, it is unlikely that there will be any impact on groundwater quality as a result of the proposed clearing.

There is the risk of groundwater and ocean contamination from the potential accidental release of chemicals during construction and operation of the proposed infrastructure. This potential risk is detailed under section 3.3 noting that this impact does not specifically relate to the clearing of native vegetation.

#### Conclusion

Based on the above, the proposed clearing is not likely to impact on the quality of groundwater, however it may result in localised wind erosion and sedimentation if appropriate management measures are not adhered to. The applicant has developed an EMP which details proposed measures to manage this risk, which together with the below conditional requirements of the clearing permit, will adequately minimise the erosion risk.

#### Conditions

To address the above impacts, as a condition of the clearing permit, the applicant will be required to commence construction works within three months of undertaking any clearing to reduce the potential for wind erosion and sedimentation of the adjacent marine environment.

### 3.3. Relevant planning instruments and other matters

#### **Land access**

The DoD has an MoU with DITRDCA to access multiple properties associated with the Airfield Upgrade Project, including Lot 100 on Plan 18500 (Lot 100) (MOF) and Lot 3003 on Plan 44688 (Accommodation Compound). The MoU requires DoD to produce an environmental management plan to demonstrate the responsibilities and actions in managing impacts directly or indirectly resulting from the project. The DoD also has a commercial lease agreement with the Shire of Cocos (Keeling) Islands (the Shire) to undertake the proposed works for the MOF.

#### **Shire comment**

The Shire provided comment on the proposed clearing and advised that it supports the clearing permit application to facilitate the proposed airfield upgrades (Shire, 2024a). The Shire also advised that as the works associated with the project are classified as Public Works, development approval for the project is not required.

The Shire has however requested that the applicant provides regular updates to the Shire (Shire, 2024b), which the applicant has agreed to do.

### **Construction and end land use impacts**

The applicant has obtained Works Approval (DWER Reference W6943/2024/1) for the proposed MOF development at the Rumah Baru site, to undertake bulk materials loading / unloading (Category 58) under Part V Division 3 of the EP Act.

#### MOF – marine environment

The proposed MOF development extends into the marine environment (Cocos Lagoon) and has the potential to cause marine impacts through noise and vibration, light emissions, benthic habitat sediment disturbance, sedimentation, and hydrocarbons and chemical release. The West Island supports a high density of resident green (*Chelonia mydas*) and hawksbill (*Eretmochelys imbricata*) turtles (both listed as vulnerable under the EPBC Act), and the potential impacts to these species and other conservation listed marine fauna from the MOF construction and operation require appropriate management. The proposed development also represents a risk of impact to seagrass within the Cocos Lagoon. While the applicant has committed to no direct impact to seagrass, the proposed MOF location occurs nearby mapped areas of seagrass, and construction may increase turbidity which can impact seagrass health.

The applicant submitted a revised EMP to DWER on 7 October 2024, to inform the Works Approval assessment and address comments provided by DWER's Marine Ecosystems branch regarding the above impacts. The updated EMP includes the following management measures (amongst others) to reduce impacts to marine fauna and seagrass:

#### *Marine fauna*

- commitment to use turtle safe lights with a narrow spectrum and long wavelength
- subsurface noise to be managed through a sleeve around each pile with a bubble curtain, with noise monitoring to ensure underwater noise it is maintained within acceptable parameters
- no night work to be undertaken during the green turtle nesting and hatching season
- inspection for signs of turtle nesting daily, and implement a stop work procedure if identified
- monitoring for marine megafauna during piling works. This includes monitoring within a 100-metre radius for marine turtles and a commitment to cease works where turtles are identified within 100 metres of piling works, until 20 minutes after turtles have left the 100 metre radius.

#### *Seagrass*

- sediment will be contained to minimise smothering or decreased photosynthesis of nearby seagrass
- ongoing water quality monitoring will occur, with contingencies if water quality shows signs of deterioration
- no go zones will be established around seagrass beds
- proposed benthic habitat surveys to inform benthic community health monitoring.

The Works Approval assessment identified that, while the updated EMP was largely adequate to address marine impacts, further revisions were required to protect benthic communities. Subsequently a condition of the Works Approval requires the applicant to submit an updated EMP prior to construction to include:

- an additional benthic habitat survey to provide the basis for ongoing monitoring during construction
- further details of water quality and benthic habitat monitoring, including monitoring methodology, water quality indicators and triggers and thresholds in accordance with technical guidance, for construction and operation.

The Delegated Officer considers that the Works Approval requirement to submit and adhere to an updated EMP will appropriately manage the impact to marine environmental values.

#### All application areas – terrestrial environment

The proposed construction and operation of the accommodation camp and MOF have the potential to impact on the terrestrial environment through dust and sedimentation, erosion, light, noise and vibration and the release of hydrocarbons and other contaminants which may impact on the shallow freshwater lenses that exist on West Island.

The applicants EMP includes a commitment to the following measures, which are considered appropriate to manage these impacts:

- implement a groundwater monitoring program during construction within the vicinity of project works

- storage and handling of hazardous substances to occur at least 100 metres from potable water abstraction galleries
- bunding to protect the island's freshwater lenses from refuelling and chemical storage areas
- implement an erosion and sediment control management plan
- control dust through water spray, minimising slope angles of cleared areas, and establishing cover on stockpiles
- noise will be monitored during construction to ensure compliance with noise regulation criteria
- prepare and implement a light management plan in accordance with the *National Light Pollution Guidelines for Wildlife 2023* prior to commencement of project works.

The applicant is also required by DWER (under planning policy) to adhere to specific groundwater extraction rate limits relating to the airfields upgrade project, which are informed by DWER groundwater monitoring on CKI using telemetry measurements associated conductivity.

#### **Contaminated sites**

No contaminated sites have been identified within the application areas. Fragments of asbestos have been identified within Lot 345 which occurs 100 metres north of the Airfield Access Road application area. The applicant has advised that prior to construction, a contaminated sites management plan will be developed to manage potential contamination risks.

#### **EPBC Act**

The applicant has advised DWER that the Department of Defence considered its obligation to refer the project to the Department of Climate Change, Energy, the Environment and Water under the EPBC Act and determined that referral was not warranted as the project is not likely to cause a significant environmental impact.

#### **Cultural heritage**

There are no Aboriginal Sites of Significance or Native Title Claims on the CKI. There are however several sites listed on the Commonwealth Heritage list on CKI. The applicants EMP commits to undertaking a cultural heritage site inspection in consultation with the local CKI community ahead of construction to inform the establishment of no go areas or monitoring programs (if required).

**End**

## Appendix A. Site characteristics

### A.1. Site characteristics

Characteristic	Details
Local context	<p>The CKI comprise 27 low-lying tropical coral islands around 2,175 kilometres north-west of Australia. The application area is located on the West Island of CKI. The West Island is on the Southern Atoll and comprises a land mass of around 632 hectares.</p> <p>The main townsite on West Island is located around 200 metres south east of the Lot 3003 application area and around 3.2 km south of the Rumah Baru application area.</p> <p>The West Island retains around 67% vegetative cover (424.9 hectares) and includes cleared areas associated with the airfield, housing, and other associated infrastructure amongst vegetated areas dominated by coconut palms.</p>
Conservation areas	<p>There are no DBCA managed lands on CKI. The CKI Marine Park, established by the Australian Government under the EPBC Act, covers an area of 467,054 square kilometres and extends from most of the island's shoreline (including West Island) to the limit of Australia's Exclusive Economic Zone (AEEZ).</p> <p>Within the Southern Atoll, the CKI Marine Park contains two zones, the National Park Zone and the Habitat Protection Zone. The National Park Zone begins at around 3 nautical miles from shore to the limit of the AEEZ, where extractive industries such as fishing and mining are not allowed. The Habitat Protection Zone covers most of the marine parks inshore waters and allows fishing however prohibits activities that disturb the sea floor.</p> <p>The application areas do not encroach on the CKI Marine Park.</p>
Vegetation description	<p>The vegetation on West Island has been heavily influenced by the historical clearing of native vegetation and replacement with coconut palm plantations, last maintained in 1987.</p> <p>While coconut palms are native to the CKI shoreline where seeds and nuts can naturally move and germinate, it can only reach and proliferate within inland areas through human intervention. Therefore, it is only along the shoreline that coconut palms are considered native on CKI.</p> <p>Broad, non-detailed vegetation mapping of CKI was created by Geoscience Australia. This dataset was derived from topography data (around 1:1000 scale) and was taken from 1987. This dataset maps both application areas as 'coconut palm plantations'.</p> <p>Flora and fauna surveys (GHD, 2021, 2022 and 2023) identified the following vegetation types within the application areas:</p> <p><u>Rumah Baru application area</u></p> <ul style="list-style-type: none"> <li>• Grasslands – non-native lawn which includes regularly mown areas to areas less maintained adjacent to native vegetation. Comprises 0.16 hectares.</li> <li>• Beach / Tidal Zone – areas devoid of vegetation and comprising bare sands and shingle. Comprises 0.02 ha.</li> <li>• Cocos closed forest – <i>Cocos nucifera</i> with scattered <i>Morinda citrifolia</i>, <i>Terminalia catappa</i> and <i>Guettarda speciosa</i> mid forest over <i>Scaevola taccada</i> and <i>Turnera ulmifolia</i> tall shrubland over <i>Ipomoea macrantha</i>, <i>*Euphorbia cyathophora</i> and <i>*Tridax procumbens</i> low open herbland. Comprises 0.19 hectares.</li> </ul> <p><u>Lot 3003 Application Area</u></p> <ul style="list-style-type: none"> <li>• <i>Cocos nucifera</i> open forest - <i>Cocos nucifera</i> open forest over <i>Scaevola taccada</i> and <i>Morinda citrifolia</i> tall closed shrubland over <i>*Turnera ulmifolia</i> low open shrubland. Comprises 1.61 hectares.</li> <li>• Occasional natives over weeds - occasional isolated occurrences of <i>Cocos nucifera</i> and / or <i>Casuarina equisetifolia</i> over various grassy and herbaceous weeds, however <i>*Tridax procumbens</i>, <i>*Cynodon arcuatus</i> and <i>*Cyanthillium cinereum</i> were dominant. Comprises 0.01 hectares.</li> </ul>



Characteristic	Details
	<p>The flora and fauna surveys identified that the vegetation within the application areas largely lacked structural diversity and weed incursion was noted at most locations.</p> <p>The detailed description and photographs of the recorded vegetation types are available within the applicants supporting survey information which is publicly available within the documents titled 'Supporting information - Flora and fauna report Enabling works area' and 'Supporting information - Flora and fauna report Lot 3003' via the following link <a href="https://www.dwer.wa.gov.au/index-of/permit/10428">Index of /permit/10428 (dwer.wa.gov.au)</a>.</p>
Vegetation condition	<p>Flora and fauna surveys (GHD, 2021; 2022; 2023) identified that the vegetation within the application areas ranged from very good to completely degraded (Keighery, 1994):</p> <ul style="list-style-type: none"> <li>the vegetated portions of the Rumah Baru development envelope (0.19 hectares) are largely in a good (Keighery, 1994) condition</li> <li>the Lot 3003 development envelope is in a very good (Keighery, 1994) condition.</li> </ul>
Climate and landform	<p>The CKI consist of two separate low lying coral atolls, 24 km apart, which have formed atop an old volcanic seamount that rises from a depth of 5,000 metres in the north-eastern Indian Ocean. The topography of both application areas is flat.</p> <p>The CKI experience a tropical climate with an average annual rainfall of around 2000 millimetres per annum.</p>
Soil description	<p>The soils of the application area comprise medium to coarse grain coralline sands. Soil density is generally loose to medium in the upper soil profile, becoming predominantly medium dense below.</p>
Land degradation risk	<p>No land degradation risk mapping exists for the CKI. The greatest land degradation risks are associated with wind erosion noting the presence of highly permeable fine to medium grain sands.</p>
Waterbodies	<p>The application areas do not intersect any known wetlands or watercourses, and none were identified during the flora and vegetation surveys (GHD, 2021a, 2021b and 2022). A swamp has been mapped within the Cocos Island vegetation dataset, which occurs around 450 metres north of the Rumah Baru road application area.</p>
Marine environment	<p>The CKI is within the Indian Ocean, with the shoreline largely adjacent to the Rumah Baru application area and around 100 metres from the Lot 3003 application area.</p>
Hydrogeography	<p>There are two fresh groundwater lenses that occur on West Island. The southern lens occurs under the airfield and townsite, beginning just east of the Lot 3003 application area and extending southeast by around 2.7 kilometres. Within this lens, groundwater has been recorded at depths of between 0.57 to 2.4 metres below ground level.</p> <p>The northern lens is around 200 metres west of the Rumah Baru application area at its closest point. This lens extends just past Heartbreak Drive to the north of West Island, to around 2.7 kilometres south.</p> <p>The freshwater lenses exist in a layer of saturated sand above the saltwater table and are recharged from rainfall that permeates from the surface into these lenses.</p>
Flora	<p>According to available datasets, no state or Commonwealth listed flora species were recorded within, or nearby the application areas.</p> <p>The Western Australian Herbarium (1998- ) database returned records of three priority (P) (DBCA listed) flora species on CKI:</p> <ul style="list-style-type: none"> <li><i>Acalypha lanceolata</i> var. <i>lanceolata</i> (P1) – recorded on the Home Island of CKI around 8.4 kilometres from the Rumah Baru application area</li> <li><i>Clerodendrum inerme</i> (P1) – recorded on the Home Island of CKI around 8.4 kilometres from the Rumah Baru application area.</li> <li><i>Lepturus repens</i> (P3) – closest record 800 metres from the application areas.</li> </ul>
Ecological communities	<p>According to available datasets, no state or Commonwealth listed threatened or priority ecological communities have been recorded on the CKI.</p>



Characteristic	Details
Fauna	<p>According to available datasets, there are records of 15 threatened fauna and 13 migratory listed fauna (listed under the EPBC Act) known from CKI. Of the 15 threatened fauna, 11 are marine species, and 4 are bird species. The threatened and migratory bird species are listed in the below table.</p> <p>The application is not proposing to clear native vegetation from the marine environment therefore marine species have not been listed in the below table.</p> <p>The closest conservation significant fauna record to the application area is the Migratory common noddy (<i>Anous stolidus</i>), recorded 5 km southeast of the Lot 3003 application area.</p>

## A.2. Fauna analysis table

Conservation listed fauna species (excluding marine species) previously recorded on the CKI.

Species name	Conservation status (EPBC Act)	Abundance / status on CKI	Suitable habitat? [Y/N/N/A]	Are surveys adequate to identify? [Y, N, N/A]
Greater Sand Plover ( <i>Charadrius leschenaultii</i> )	Vulnerable	Regular visitor – does not nest on CKI	N – no suitable foraging habitat	Y
Buff-banded Rail ( <i>Hypotaenidia philippensis andrewsi</i> )	Endangered	Only on North Keeling Island where it is a common resident	N – no suitable foraging habitat	Y
Christmas Island White-tailed Tropicbird ( <i>Phaethon lepturus fulvus</i> )	Endangered	Irregular visitor – does not nest on CKI	N – no suitable foraging habitat	Y
Round Island Petrel ( <i>Pterodroma arminjoniana</i> )	Critically Endangered	Irregular visitor– does not nest on CKI	N – no suitable foraging habitat	Y
Common noddy ( <i>Anous stolidus</i> )	Migratory (M)	Common breeding visitor to CKI	Y	Y
Oriental cuckoo ( <i>Cuculus optatus</i> )	M	Irregular visitor	Y	
Wedge-tailed Shearwater ( <i>Ardenna pacifica</i> )	M	Rare visitor	N/A	Y
Lesser Frigatebird ( <i>Fregata ariel</i> )	M	Common resident	Y	Y
Great Frigatebird ( <i>Fregata minor</i> )	M	Common resident	Y	Y
White-tailed Tropicbird ( <i>Phaethon lepturus</i> )	M	Rare visitor	N/A	Y
Red-tailed Tropicbird ( <i>Phaethon rubricauda</i> )	M	Rare visitor	N/A	Y
Masked Booby ( <i>Sula dactylatra</i> )	M	Uncommon resident	N – nests on cliff ledges, no suitable foraging habitat	Y
Brown Booby ( <i>Sula leucogaster</i> )	M	Uncommon resident	Y	Y
Red-footed Booby ( <i>Sula sula</i> )	M	Common resident	Y	Y
Barn Swallow ( <i>Hirundo rustica</i> )	M	Uncommon passage migrant	Y - foraging only	Y
Grey Wagtail ( <i>Motacilla cinerea</i> )	M	Vagrant	Y - foraging only	Y
Yellow Wagtail ( <i>Motacilla flava</i> )	M	Vagrant	Y - foraging only	Y

## Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
<b>Environmental value: biological values</b>		
<p><u>Principle (a):</u> <i>“Native vegetation should not be cleared if it comprises a high level of biodiversity.”</i></p> <p><u>Assessment:</u></p> <p>The vegetation on West Island has been heavily modified through the extensive planting of coconut palms, which form the dominant overstorey vegetation in both application areas (GHD, 2021; 2022; 2023). These palms are only considered native within those areas of the Rumah Baru site close to the shoreline.</p> <p>The application areas both lack structural diversity and weed incursion was noted in both (GHD, 2021; 2022; 2023). The vegetation types recorded within the application areas align with those previously identified and described on West Island.</p> <p>No threatened (BC Act; EPBC Act) or priority listed flora or fauna species, or priority or threatened ecological communities were recorded within the application areas (GHD, 2021; 2022; 2023).</p> <p>Given the above, the application area is unlikely to contain a high level of biodiversity.</p> <p>The proposed clearing may increase the risk of weeds spreading into adjacent vegetated areas. The applicant will be required to undertake weed hygiene management measures as a condition of the clearing permit. The applicant has also committed to undertake weed control management measures as part of its EMP, which notes that weeds will be appropriately managed through chemical and mechanical controls.</p>	Not likely to be at variance	No
<p><u>Principle (b):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.”</i></p> <p><u>Assessment:</u></p> <p>The application area is not likely to contain significant habitat for fauna, however it may result in direct impacts to any native vertebrate fauna using the application area at the time of clearing.</p> <p>The assessment against this principle is assessed in detail under Section 3.2.1.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u></p> <p>No threatened flora (under the BC Act or EPBC Act) were recorded within the application areas (GHD, 2021; 2022; 2023). Based on desktop searches of the local area, no threatened flora were considered as having the potential to occur within the application areas.</p>	Not likely to be at variance	No
<p><u>Principle (d):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.”</i></p> <p><u>Assessment:</u></p> <p>No threatened ecological communities (under the BC Act or EPBC Act) have been recorded on West Island and the biological surveys did not</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p>identify the presence of any threatened ecological communities within the application area (GHD, 2021; 2022; 2023).</p>		
<p><b>Environmental value: significant remnant vegetation and conservation areas</b></p>		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u></p> <p>The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30% of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).</p> <p>Based on vegetation mapping and aerial imagery, West Island retains around 67% vegetative cover (around 424.9 hectares). Therefore, the extent of remaining vegetation is consistent with the national objectives and targets for biodiversity conservation in Australia.</p> <p>Given the above, the application area is not within an area that has been extensively cleared.</p>	<p>Not likely to be at variance</p>	<p>No</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></p> <p>There is one conservation area within the local area, the CKI Marine Park. This Park extends from most of the CKI shoreline to the limit of Australia’s EEZ. The applicant has advised that no seagrass is required for clearing to construct the MOF, and the proposed terrestrial clearing is not likely to impact on the CKI Marine Park.</p> <p>The applicant has developed an EMP to manage impacts of construction to the marine environment. This EMP is required to be adhered to as a condition of the DWER issued Works Approval for the MOF and as a condition of the MoU with DITRDCA. The EMP includes a commitment to develop an erosion and sediment control plan.</p>	<p>Not likely to be at variance</p>	<p>No</p>
<p><b>Environmental value: land and water resources</b></p>		
<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></p> <p>The closest wetland or watercourse is a swamp located around 450 metres north of the Rumah Baru application area. Flora surveys did not identify the presence of any riparian vegetation (GHD, 2021; 2022; 2023).</p>	<p>Not likely to be at variance</p>	<p>No</p>
<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></p> <p>The sandy soils recorded on West Island are susceptible to wind erosion. The risk of appreciable land degradation has therefore been assessed in detail under Section 3.2.2.</p>	<p>May be at variance</p>	<p>No</p>

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (i):</u> “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.”</p> <p><u>Assessment:</u></p> <p>While the proposed clearing is not likely to result in the deterioration of surface or groundwater quality, the accommodation camp application area is nearby one of two freshwater lenses that exist on West Island. Potential impacts to groundwater are assessed in detail under Section 3.2.2.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.2, above.</i>
<p><u>Principle (j):</u> “Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</p> <p><u>Assessment:</u></p> <p>CKI experiences monsoonal rainfall events and has a high average annual rainfall of 2000 millimetres. However, the soils within the application areas are very highly permeable with high infiltration rates. Noting that, and the absence of watercourses or wetlands within the application area, the proposed clearing is not likely to increase the incidence or intensity of flooding.</p>	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 Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

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

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as ‘parkland cleared’ with the flora comprising weed or crop species with isolated native trees or shrubs.

## Appendix D. Sources of information

### D.1. GIS databases

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

- Bore Sites – Cocos Islands
- Cadastre (LGATE-218)
- DBCA Legislated Lands and Waters (DBCA-011)
- Vegetation – Cocos Islands
- Contaminated Sites
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- Imagery
- Ramsar Sites (DBCA-010)
- Roads – Cocos Islands

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)

### D.2. References

BirdLife International (2017) *Motacilla cinerea* (amended version of 2016 assessment). *The IUCN Red List of Threatened Species* 2017: e.T22718392A111215843. <https://dx.doi.org/10.2305/IUCN.UK.2017.1.RLTS.T22718392A111215843.en>. Accessed on 03 December 2024.

BirdLife International (2018) *Sula leucogaster*. *The IUCN Red List of Threatened Species* 2018: e.T22696698A132590197. <https://dx.doi.org/10.2305/IUCN.UK.2018.2.RLTS.T22696698A132590197.en>. Accessed on 03 December 2024.

BirdLife International (2019a) *Motacilla flava* (amended version of 2018 assessment). *The IUCN Red List of Threatened Species* 2019: e.T103822349A155602678. <https://dx.doi.org/10.2305/IUCN.UK.2019.3.RLTS.T103822349A155602678.en>. Accessed on 03 December 2024.

BirdLife International (2019b) *Hirundo rustica*. *The IUCN Red List of Threatened Species* 2019: e.T22712252A137668645. <https://dx.doi.org/10.2305/IUCN.UK.2019.3.RLTS.T22712252A137668645.en>. Accessed on 03 December 2024.

BirdLife International (2020a) *Anous stolidus*. *The IUCN Red List of Threatened Species* 2020: e.T22694794A168889812. <https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS>

BirdLife International (2020b) *Fregata minor*. *The IUCN Red List of Threatened Species* 2020: e.T22697733A163770613. <https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22697733A163770613.en>. Accessed on 03 December 2024.

BirdLife International (2021a) *Sula sula*. *The IUCN Red List of Threatened Species* 2021: e.T22696694A168988714. <https://dx.doi.org/10.2305/IUCN.UK.20213.RLTS.T22696694A168988714.en>. Accessed on 03 December 2024.

BirdLife International (2021b) *Cuculus optatus*. *The IUCN Red List of Threatened Species* 2021: e.T22734721A206409798. <https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22734721A206409798.en>. Accessed on 03 December 2024.

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

- Department of Environment Regulation (DER) (2013). *A guide to the assessment of applications to clear native vegetation*. Perth. Available from: [https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2\\_assessment\\_native\\_veg.pdf](https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf).
- Environmental Protection Authority (EPA) (2016). *Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment*.
- Environmental Protection Authority (EPA) (2020). *Technical Guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment*.
- Fulton Hogan Construction Pty Ltd (2024) Environmental Management Plan. R8129 – Cocos (Keeling) Islands Airfield Upgrade Project. Document ID: FH\_PM\_PLA\_DP\_0000\_4 (DWER Reference DWERDT1046154).
- GHD (2021) Technical Memorandum. *Flora and Fauna Survey – Enabling Works Areas*. Unpublished Report prepared for Fulton Hogan Construction Pty Ltd (DWER Reference DWERDT872091).
- GHD (2022) Technical Memorandum. *Flora and Fauna Survey – Lot 3003*. Unpublished Report prepared for Fulton Hogan Construction Pty Ltd (DWER Reference DWERDT872091).
- GHD (2023) Technical Memorandum. *Native Vegetation Clearing Permit Supporting Information*. Unpublished Report prepared for Fulton Hogan Construction Pty Ltd (DWER Reference DWERDT872091).
- Johnstone, R.E., and Darnell, J.C. (2017) *Checklist of the Birds of Christmas Island and Cocos (Keeling) Islands*. Western Australian Museum, Perth, Western Australia.
- Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Shire of Cocos (Keeling) Islands (2024) *Advice for clearing permit application CPS 10428/1*, received 2 March 2024 (DWER Reference DWERDT929861).
- Shire of Cocos (Keeling) Islands (2024) *Additional Advice for clearing permit application CPS 10428/1*, received 24 July 2024 (DWER Reference DWERDT984647).
- Western Australian Herbarium (1998-). *FloraBase - the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions, Western Australia. <https://florabase.dpaw.wa.gov.au/> (Accessed October 2024).