



## CLEARING PERMIT

*Granted under section 51E of the Environmental Protection Act 1986*

<b>Purpose Permit number:</b>	CPS 10427/1
<b>Permit Holder:</b>	Napier Corporation Pty Ltd
<b>Duration of Permit:</b>	From 29 November 2024 to 29 November 2029

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 irrigated agriculture and associated activities.

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

Lot 22 on Deposited Plan 220112, King Leopold Ranges

**3. Clearing authorised**

The permit holder must not clear more than 200 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

**4. Clearing not authorised**

The permit holder must not clear any native vegetation within the area cross-hatched red in Figure 1 of Schedule 1.

### **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;
- (c) reduce the impact of clearing on any environmental value; and
- (d) conduct clearing activities on an ‘as needs’ basis over the life of the permit.

## 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. Wind erosion management

The permit holder must ensure that the planting of crop species occurs no later than three (3) months after undertaking the clearing authorised under this permit.

## 8. Flora management – *Goodenia sepalosa* var. *glandulosa*

The permit holder shall ensure that no clearing of, or within 20 metres of *Goodenia sepalosa* var. *glandulosa* as identified by the ‘Detailed flora and vegetation survey and reconnaissance survey for groundwater dependent vegetation for the Napier Downs Irrigation Project’ (Phoenix Environmental Sciences, 2023), without prior approval from the *CEO*.

- (a) Prior to undertaking clearing authorised under this permit, the permit holder must:
  - (i) record the location of *Goodenia sepalosa* var. *glandulosa*, either as the location of individual plants, or where this is not practical, the areal extent of the population and an estimate of the number of plants, using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings or decimal degrees, and
  - (ii) where practicable, buffer distances are to be demarcated through flagging.

## 9. Fauna management

The permit holder must:

- (a) restrict clearing activities to daylight hours to avoid the possibility of injury to native fauna; and
- (b) conduct clearing activities in a slow, progressive manner in a single direction towards adjacent native vegetation to allow fauna to move into adjacent *native vegetation* ahead of the clearing activity.

## 10. Fauna management

- (a) In relation to the area cross-hatched yellow in Figure 1 of Schedule 1, the permit holder must engage a *fauna specialist* to inspect that area immediately prior to, and for the duration of clearing activities, for the presence of native vertebrate fauna, including the golden bandicoot (*Isoodon auratus auratus*).
- (b) Clearing activities must cease in any area where fauna referred to in condition 10(a) are identified until either:

- (i) the fauna individual(s) has moved on from that area to adjoining suitable habitat; or
- (ii) the fauna individual(s) has been removed by a *fauna specialist*.
- (c) Any vertebrate fauna individual(s) removed in accordance with condition 10(b)(ii) must be relocated by a *fauna specialist* to a *suitable habitat*.
- (d) Where fauna is identified under condition 10(a), the permit holder must within 14 calendar days provide the following records to the *CEO*:
  - (i) the number of individuals identified;
  - (ii) the date each individual was identified;
  - (iii) the location where each individual was identified recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
  - (iv) the number of individuals removed and relocated;
  - (v) the relevant qualifications of the *fauna specialist* undertaking removal and relocation;
  - (vi) the date each individual was removed;
  - (vii) the method of removal;
  - (viii) the date each individual was relocated;
  - (ix) the location where each individual was relocated to, recorded using a GPS unit set to GDA2020, expressing the geographical coordinates in Eastings and Northings or decimal degrees; and
  - (x) details pertaining to the circumstances of any death of, or injury sustained by, an individual.

**PART III - RECORD KEEPING AND REPORTING**

**11. Records that must be kept**

The permit holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 1.

**Table 1: Records that must be kept**

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	<ul style="list-style-type: none"> <li>(a) the species composition, structure, and density of the cleared area;</li> <li>(b) the location where the clearing 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 clearing in</li> </ul>

No.	Relevant matter	Specifications
		<p>accordance with condition 5;</p> <p>(f) actions taken to minimise the risk of the introduction and spread of <i>weeds</i> in accordance with condition 6;</p> <p>(g) actions taken to manage wind erosion risk in accordance with condition 7; and</p> <p>(h) actions taken to manage impacts to fauna in accordance with condition 9 and condition 10,</p>
2.	In relation to flora management pursuant to condition 8	<p>(a) the location of each <i>Goodenia sepalosa</i> var. <i>glandulosa</i> individual or population, recorded using a Global Positioning System (GPS) unit set to GDA2020, expressing the geographical coordinates in Eastings and Northings;</p> <p>(b) actions taken to demarcate each <i>Goodenia sepalosa</i> var. <i>glandulosa</i> individual or population recorded and their relevant buffers; and</p> <p>(c) actions taken to avoid the clearing of <i>Goodenia sepalosa</i> var. <i>glandulosa</i>.</p>

## 12. Reporting

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

## DEFINITIONS

In this permit, the terms in Table 2 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 <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.

Term	Definition
department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	<i>Environmental Protection Act 1986</i> (WA)
fauna specialist	means a person who holds a tertiary qualification specialising in environmental science or equivalent, and has a minimum of 2 years work experience in fauna identification and surveys of fauna native to the region being inspected or surveyed, or who is approved by the <i>CEO</i> as a suitable fauna specialist for the bioregion, and who holds a valid fauna licence issued under the <i>Biodiversity Conservation Act 2016</i> .
fill	means material used to increase the ground level, or to fill a depression.
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.
suitable habitat	means habitat known to support a species of fauna within the known current distribution of the species.
suitable habitat (golden bandicoot)	means habitat known to support the golden bandicoot ( <i>Isodon auratus auratus</i> ) within the known current distribution of the species. This often includes hummock and tussock grasslands on sand-dunes and sandplains in the arid zone, acacia and eucalyptus woodlands in the tropical semi-arid zone, vine thickets, heath and woodlands in rugged sandstone, and volcanic country in the subhumid tropics.
weeds	means any plant – <ul style="list-style-type: none"> <li>(a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i>; or</li> <li>(b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or</li> <li>(c) not indigenous to the area concerned.</li> </ul>

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**END OF CONDITIONS**



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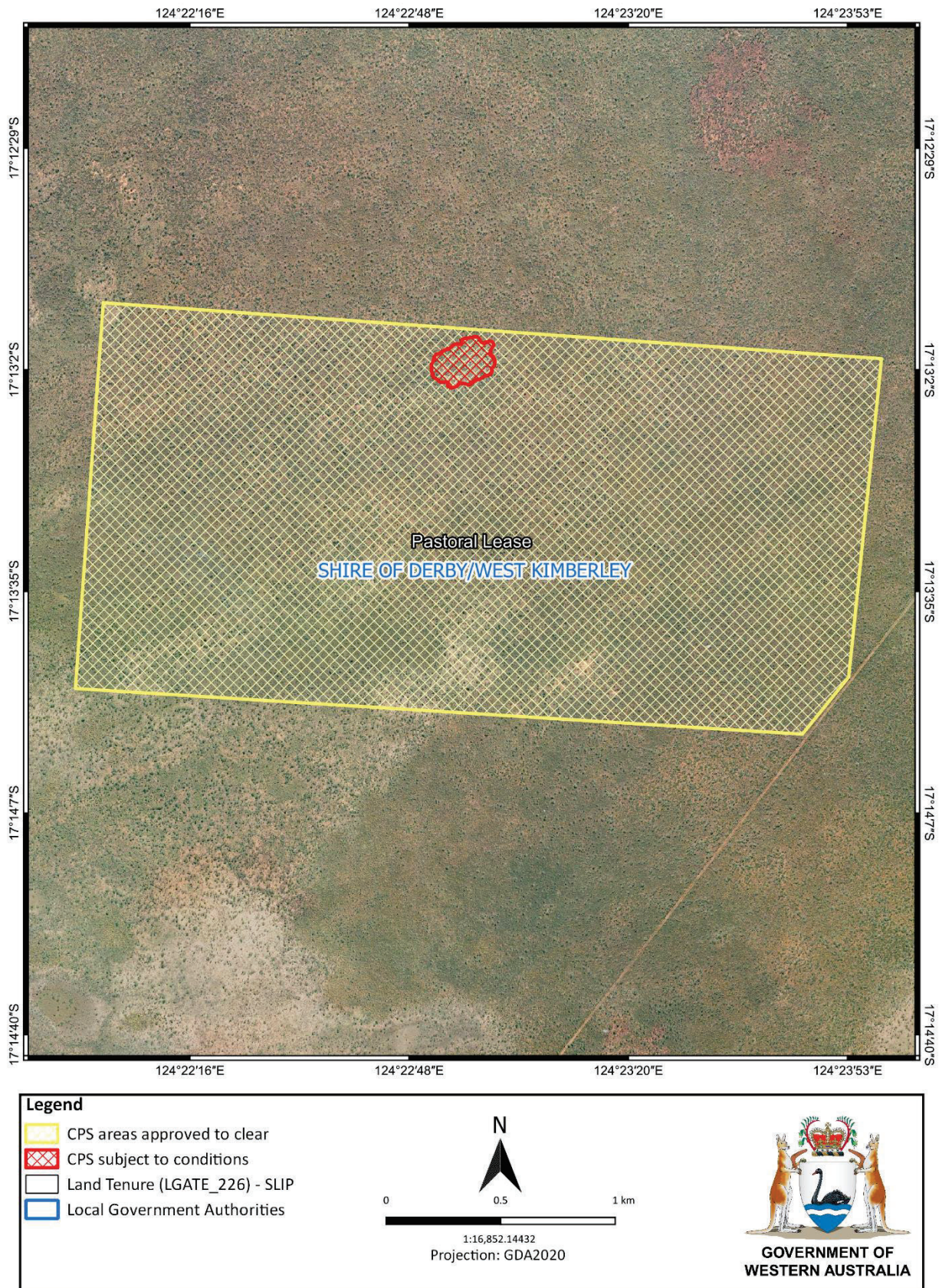
Ryan Mincham  
MANAGER  
NATIVE VEGETATION REGULATION

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

6 November 2024

# Schedule 1

The boundary of the area authorised to be cleared is shown in the map below (Figure 1).



**Figure 1: Map of the boundary of the area within which clearing may occur and the area subject to condition 4.**



# Clearing Permit Decision Report

## 1 Application details and outcome

### 1.1. Permit application details

<b>Permit number:</b>	CPS 10427/1
<b>Permit type:</b>	Purpose permit
<b>Applicant name:</b>	Napier Corporation Pty Ltd
<b>Application received:</b>	23 November 2023
<b>Application area:</b>	200 hectares of native vegetation within a 586.5 hectare footprint
<b>Purpose of clearing:</b>	Irrigated agriculture and associated activities
<b>Method of clearing:</b>	Mechanical
<b>Property:</b>	Lot 22 on Deposited Plan 220112
<b>Location (LGA area/s):</b>	Shire of Derby/West Kimberley
<b>Localities (suburb/s):</b>	King Leopold Ranges

### 1.2. Description of clearing activities

The application is to gradually clear native vegetation for the construction of irrigated pivots to grow cattle fodder crops for use by Napier Corporation managed properties as a supplementary food source during dry conditions. The vegetation will be cleared in stages and is contained within a scrubby paddock that is surrounded by native vegetation (see Figure 1, Section 1.5).

The scope of clearing for the project includes:

- up to four centre irrigation pivots, each approximately 40 hectares in size,
- up to four groundwater production bores and five monitoring bores,
- new access tracks, and
- infrastructure / laydown areas for vehicle parking, plant and equipment storage.

### 1.3. Decision on application

<b>Decision:</b>	Granted
<b>Decision date:</b>	6 November 2024
<b>Decision area:</b>	200 hectares of native vegetation within a 586.5 hectare footprint, 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 one submission was received. Consideration of matters raised in the public submission is summarised in Appendix B.

In making this decision, the Delegated Officer had regard for:

- the site characteristics (see Appendix C),
- relevant datasets (see Appendix I.1),

- the findings of biological surveys (Phoenix, 2023c, 2023d, 2024b & 2024c) (see Appendix F, Appendix G & Appendix H),
- the clearing principles set out in Schedule 5 of the EP Act (see Appendix D),
- relevant planning instruments and any other matters considered relevant to the assessment (see Section 3.3).

The assessment identified that the proposed clearing will result in:

- the loss of suitable habitat for the golden bandicoot (*Isoodon auratus auratus*), and potential injury or mortality to fauna,
- the potential loss of a locally significant population of priority flora species *Goodenia sepalosa* var. *glandulosa*,
- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values,
- indirect impacts to restricted vegetation types, and
- increased risk of land degradation through 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 impacts from the proposed can be minimised and managed to unlikely lead to an unacceptable risk to environmental values. The applicant has suitably demonstrated avoidance and minimisation measures.

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

- avoid, minimise to reduce the impacts and extent of clearing,
- take hygiene steps to minimise the risk of the introduction and spread of weeds,
- no clearing of the restricted vegetation types,
- commence activities associated with the Napier Downs Irrigation Project within three (3) months of clearing to minimise the risk of land degradation from wind erosion,
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity,
- no clearing of *Goodenia sepalosa* subsp. *Glandulosa* without approval from the CEO, and
- the presence of a fauna specialist to inspect the areas to be cleared for fauna prior to commencing activities and to be present during clearing.



### 1.5. Site map

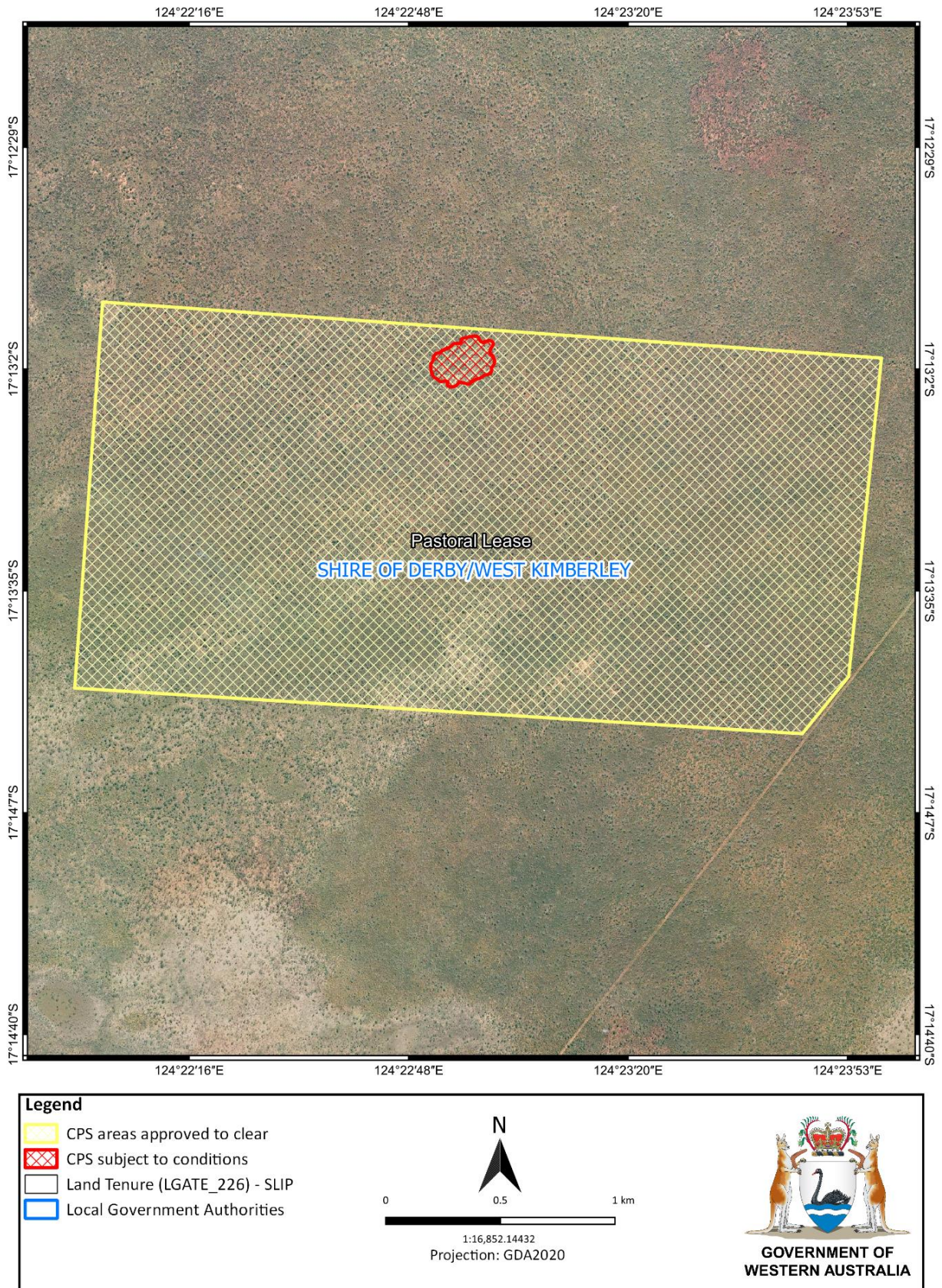


Figure 1. Map of the application area

The area cross-hatched yellow indicates the area authorised to be cleared under the granted clearing permit. The area cross-hatched red indicates the area within which clearing activities must not be undertaken.

## 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 polluter pays principle
- 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)
- *Land Administration Act 1997* (WA)
- *Soil and Land Conservation Act 1945* (WA)

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

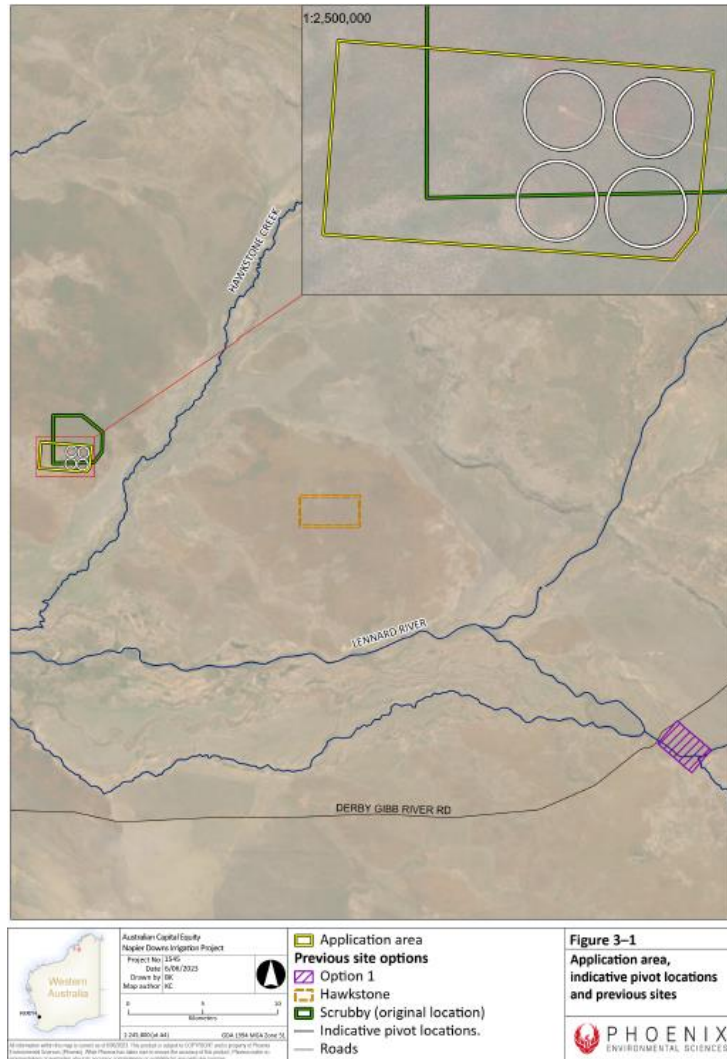
### 3.1. Avoidance and mitigation measures

#### Avoidance

The proposed Napier Downs Irrigation project has undergone several revisions as part of the planning process, with multiple locations within the Napier Downs Pastoral Lease explored. Initially, investigations for both groundwater and surface water development opportunities were conducted within both the Grant Group aquifer and Devonian Reef aquifer (Phoenix, 2023b). The Devonian Reef aquifer was then discounted due to the significance of environmental and cultural heritage values, and surface water options were ruled out due to the high variability of wet season rainfall, challenges of harvesting and storage, and sub-optimal soil types for irrigation (Phoenix, 2023b).

Following these investigations, three potential sites were selected entitled 'Lennard', 'Hawkstone' and 'Scrubby' (see Figure 2), with the Lennard site being preferable due to the soil type and distance to the Gibb River Road and existing infrastructure (Phoenix, 2023b). Following additional investigations, the Lennard site was subsequently discounted due to investigations indicating that the groundwater in the area is connected to the nearby Lennard River and abstraction could impact on the values of the river (Phoenix, 2023b).

'Scrubby' was selected as the preferable site since drilling had more favourable results than Hawkstone (Phoenix, 2023b). The proposal was then shifted slightly south to become the current application area (Figure 2). Initially the proposal was for eight irrigated pivots, abstracting 6 gigalitres of water a year and a clearing footprint of 360 hectares, which, after further analysis of potential impacts was reduced to four pivots, 3 gigalitres a year and a 200-hectare clearing footprint (Phoenix, 2023b).



**Figure 2.** Locations of the areas considered for the proposed clearing (Phoenix, 2023b). Option 1 is the site named ‘Lennard’.

Additional avoidance measures proposed by the applicant include:

- the avoidance of two restricted vegetation types mapped within the clearing footprint, this includes the avoidance of priority flora species *Lophostemon grandiflorus* subsp. *grandiflorus* which was identified within the restricted vegetation types;
- the avoidance of priority flora species *Goodenia sepalosa* var. *glandulosa* based on the current pivot design (it is noted that this may change if the design changes); and
- the implementation of staged development and groundwater extraction, with subsequent development subject to the demonstration of no unacceptable impact on groundwater dependent ecosystems (GDEs).

In particular, the implementation of staged development means that if groundwater monitoring indicates that abstraction rates are impacting GDEs, additional pivots may not be required, in which case, clearing will further be avoided.

**Mitigation and management**

To ensure the direct and indirect environmental impacts of the development are appropriately managed during the clearing, construction, and operational phases, the applicant has developed an Environmental Assessment and Management Plan (EAMP). The EAMP includes provisions to mitigate and manage impacts prior to, and for the duration of the proposed clearing, including (Phoenix, 2023b):

- Flora and vegetation:
  - demarcation of vegetation to be cleared and restriction of clearing/disturbance to marked areas
  - demarcation of vegetation types to be protected (MvPsp and McclggCr)
  - drainage control to avoid erosion/degradation risk to surrounding native vegetation
  - monitoring to track potential spread of cultivation crops beyond cultivation areas
  - hygiene protocols for machinery and vehicles to minimise the risk of introducing weeds.

- Fauna:
  - staging of clearing – clearing will be staged in line with the pivot staging to reduce the scale of fauna displacement.
  - Cane toad control measures,
- Groundwater abstraction:
  - groundwater monitoring of water level and water quality impacts within and beyond the irrigation area, at Ngooderoodyne Spring and Lennard River pool, and at Hawkstone Creek (precautionary)
  - vegetation health monitoring where drawdown levels are greater than predicted at Ngooderoodyne Spring, Lennard River pool or Hawkstone Creek; baseline vegetation health monitoring sites (control and impact) to be established prior to drawdown
  - adaptive management plan which includes a requirement to reduce, move or cease abstraction if monitoring identifies that vegetation is stressed.
- Soil:
  - drainage controls will be implemented to manage water runoff and avoid erosion risk.

The assessment determined that the proposed clearing may have a locally significant impact on the Priority 3 species *Goodenia sepalosa* var. *glandulosa*. While the current design of the pivots will not remove any individuals, this may change if the project design changes. In response to a request for additional avoidance and mitigation measures from the applicant, they noted that given the location of the population within the footprint, it may be difficult to avoid the species if the pivots are relocated, however, advised that if alternative pivot locations are considered, they are committed to retaining the population until such a time it can be determined whether the species is present in any other locations in proximity to the proposal (Phoenix, 2024a).

### **Biosecurity**

While it is beyond the scope of the clearing permit assessment to determine whether the irrigated pivots will result in the increased presence of cane toads within the property or the likelihood of Rhode's grass spreading beyond the project area, the Delegated Officer determined that knowledge of the applicant's management measures for non-native species is a relevant consideration in determining whether the proposed activities are likely to have significant and long-term impacts on the surrounding environmental values.

#### Rhode's grass management

One of the conditions of the Applicant's pastoral diversification permit is the requirement to prepare and implement a biosecurity plan, specifically, for the purpose of ensuring that Rhode's grass remains contained within the disturbance envelope. Items covered in the biosecurity plan include (Phoenix, 2024a):

- property access:
  - project is located away from major roads (Gibb River Rd) and only accessible to those who require access,
  - one access point will be installed,
- visitors:
  - information to call station personnel at station entrance before entering the site,
  - visitors sign in and sign out, including a specific register for people accessing the irrigation site,
  - biosecurity protocols as part of visitor induction,
- vehicles and machinery:
  - designated parking areas and maps of roads and tracks for anyone accessing the site,
  - monthly monitoring of pests around designated parking areas,
  - come clean, go clean practices, with onsite washdown,
  - runoff area part of monitor and control areas,
- sowing non-indigenous plant species:
  - monthly monitoring and control plans,
  - buffer zones,
  - reporting procedures,
- monitoring and surveillance
- weed, pest and disease management
- seed:
  - purchase only from reputable sources,
  - does not require annual planting,
- hygiene practices around storage areas,
- movement of seed and produce off site:
  - come clean go clean policy,
- pest animals (that damage fencing and spread weeds or disease-causing organisms):
  - perimeter fencing around irrigation site,
  - pest animal control,

- education:
  - biosecurity included in all new staff inductions,
  - signage in staffing areas,
  - relevant policies emphasised to new staff,
- record keeping, reporting and auditing.

#### Cane toad management

The fauna survey identified cane toads (*Rhinella marina*) within the proposed clearing area (Phoenix, 2023c). The Applicant acknowledged that the irrigated pivots may promote the persistence of cane toads within the area due to the availability of water during the dry season and proposed ongoing cane toad management and monitoring (Phoenix, 2023b). Actions to manage the presence of cane toads include (Phoenix, 2024a):

- training for personnel on how to identify and humanely euthanise cane toads and provide cane toad posters,
- cane toad surveillance is done routinely in the project area by personnel when the pivots are irrigated,
- cane toad disposal point established within the project area with instructions on safe handling and disposal; and
- cane toads will be euthanised in accordance with NATSOP-CAN001 National Standard Operating Procedure: Methods for the field euthanasia of cane toads.

The Delegated Officer was satisfied that the applicant has undertaken reasonable measures to avoid and minimise potential impacts of the proposed clearing on environmental values and determined that in this instance, the potential significant residual impacts of the proposal have been mitigated to the extent that an offset is not required.

### **3.2. Assessment of impacts on environmental values**

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix C) 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 D) identified that the impacts of the proposed clearing present a risk to biological values (fauna, flora and vegetation), and land and water resources. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

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

##### Assessment

Noting the finding of biological surveys for the application area (Phoenix, 2023d), the site characteristics, and the habitat preferences of the conservation significant flora surveys recorded in the local area (50-kilometre radius), the application contains habitat for the following flora species:

- *Goodenia sepalosa* var. *glandulosa* (Priority 3)
- *Lophostemon grandiflorus* subsp. *grandiflorus* (Priority 3)
- *Stylidium pindanicum* (Priority 3)

The flora and vegetation survey identified individuals of both *Goodenia sepalosa* var. *glandulosa* and *Lophostemon grandiflorus* subsp. *grandiflorus* within the proposed clearing area (Phoenix, 2023d).

Four vegetation types are mapped within the proposed clearing area, namely (Phoenix, 2023d):

- AttSs - Isolated trees of *Eucalyptus miniata* and *Corymbia greeniana* over a tall shrubland of *Acacia tumida* var. *tumida*, *Grevillea refracta* subsp. *refracta* and *Petalostigma pubescens* over a tall open tussock grassland of *Sorghum stipoideum* and *Chrysopogon latifolius*,
- EmDhaSs - Mid to low open woodland of *Eucalyptus miniata*, *Terminalia canescens* and *Corymbia* spp. over a tall open shrubland of *Dodonaea hispidula* var. *arida*, *Petalostigma pubescens* and *Grevillea refracta* subsp. *refracta* over a mixed open tussock grassland of *Sorghum stipoideum*, *Triodia caelestialis* and *Chrysopogon fallax*,
- MccLggCr - open woodland of *Melaleuca cajuputi* subsp. *cajuputi* and *Eucalyptus tectifera* over a low open forest of *Lophostemon grandiflorus* subsp. *grandiflorus* over a low mixed forbland of *Crotalaria ramosissima*, *Indigofera hirsuta* and *Eriocaulon cinereum* with mixed grasses, and
- MvPsp - Low open forest of resprouting *Melaleuca viridiflora* and *Lophostemon grandiflorus* subsp. *grandiflorus* over low, mixed isolated forbs and grasses including *Phyllanthus* sp. B Kimberley Flora (T.E.G. Aplin et al. 809), *Stemodia lathraia* and *Aristida hygrometrica*.

The two main vegetation types within the development footprint are AttSs and EmDhaSs which comprise approximately 87.6 per cent and 11.3 per cent of the proposed clearing area respectively (Phoenix, 2023d) (see

Appendix H). The flora and vegetation survey note that neither of these vegetation types appear to be restricted and are widely available beyond the proposed clearing area (Phoenix, 2023d).

Two of the vegetation types mapped within the proposed clearing area were identified to be locally significant, MccLggCr and MvPsp, both of which are found in the same location associated with an inundation area in the northern section of the footprint (Phoenix, 2023d) (see Appendix H). The survey considered these vegetation types to be significant for the following reasons (Phoenix, 2023d):

- they are habitat for significant flora, *Lophostemon grandiflorus* subsp. *grandiflorus* (P3) which is prominent in the upper canopy,
- they comprised a novel range of species not seen elsewhere in the detailed study area, and
- have a restricted range within the detailed study area (<1% combined).

#### ***Lophostemon grandiflorus* subsp. *grandiflorus* (P3)**

*Lophostemon grandiflorus* subsp. *grandiflorus* is generally associated with damp habitats and has been recorded across six broad locations in the Kimberley (DBCA, 2024a). As mentioned above, this species was recorded in the restricted vegetation types and is the only population within the proposed clearing area, however, the flora and vegetation survey also recorded another seven populations of the species within the broader study area outside of the application and concluded that the species was likely to be relatively abundant locally (Phoenix, 2023d).

The Applicant has committed to not clear within the MvPsp and MccLggCr vegetation types due to their local significance, and therefore no individuals of *Lophostemon grandiflorus* subsp. *grandiflorus* will be directly impacted (Phoenix, 2023b). Therefore, the proposed clearing will not have a significant impact on the species at a local, regional or species level (DBCA, 2024a).

While the applicant has included several mitigation and avoidance measures for impacts to significant vegetation and *Lophostemon grandiflorus* subsp. *grandiflorus*, the proposed clearing may result in the introduction and spread of weeds into these areas impacting their habitat value.

#### ***Goodenia sepalosa* var. *glandulosa* (P3)**

*Goodenia sepalosa* var. *glandulosa* is recorded as a single population within the AttSs vegetation type, where it made up approximately 0.1% of the foliage cover within the area it was found (Phoenix, 2023d). This species is generally found in woodland vegetation and Herbarium records of the species note that where it is found it is generally rare or uncommon (Florabase, 1998-). The survey did not record any other populations in the broader survey area, outside of the clearing footprint (Phoenix, 2023d) which suggests that the population is the only one in the local area.

Advice received from the Department of Biodiversity, Conservation and Attractions (DBCA) (2024a) notes that while there are several herbarium records of *Goodenia sepalosa* var. *glandulosa* in the Kimberley region, the nearest recorded population to the proposed clearing is over 50 km away. This suggests that the population within the proposed clearing area may be the only one in the area and the removal of this population could be considered locally significant for the species.

#### ***Stylidium pindanicum* (P3)**

The desktop assessment identified a record of *S. pindanicum* near the proposed clearing. *S. pindanicum* is found within seasonally damp areas over pindan sands (Barrett et. al., 2015) and has been recorded broadly throughout the Kimberley in a range of habitats (DBCA, 2024a). The flora vegetation survey did not record any individuals of the species (Phoenix, 2023d). *S. pindanicum* flowers between May and October (Barrett et. al., 2015), and the survey occurred in May, meaning that if the species was present, it would have likely been recorded.

Based on *S. pindanicum*'s habitat preferences and the surveyed vegetation types, the proposed clearing area contains suitable habitat for the species (Phoenix, 2023d & DBCA, 2024a). Despite this, suitable habitat for the species is extensively available outside of the proposed clearing area, with the DBCA advice noting that the proposed clearing is not likely to significantly impact on the availability of habitat for *S. pindanicum*.

Therefore, based on the above assessment, the proposed clearing is not likely to result in the loss of individuals of *S. pindanicum*, nor is it likely to result in the loss of significant habitat for the species. The clearing activities may result in the introduction and spread of weeds into adjacent vegetation, possibly impacting on habitat for this species.

#### **Groundwater dependant vegetation**

Several groundwater dependent vegetation (GDV) indicator species were identified during the flora and vegetation survey (Phoenix, 2023d) (see Appendix H). To maintain the Rhode's grass crops during the dry season, the project will require the abstraction of groundwater to use for irrigation which may result in the loss of GDV's in vicinity of the proposed clearing. While managing impacts from groundwater drawdown is beyond the scope of the clearing permit

assessment, these impacts will be managed through the groundwater licence which is further discussed under Section 3.3. Planning and other matters.

Two vegetation types within the proposed clearing area were identified as GDVs, MccLggCr and MyPsp. As discussed above, impacts to these vegetation types from the drawdown of groundwater will be managed through the water licence, however, these vegetation types may be impacted indirectly by the clearing activities through the introduction and spread of weeds and land degradation. Land degradation impacts are discussed in more detail in Section 3.2.3 of this report.

#### Conclusion

Based on the above assessment, the proposed clearing may result in the loss of a locally significant population of *Goodenia sepalosa* var. *glandulosa* and may result in the introduction and spread of weeds into surrounding vegetation, impacting on its habitat value.

As discussed in Section 3.1. of this report, in the event the project design changes, the applicant has committed to retaining the population of *Goodenia sepalosa* var. *glandulosa* until it can be determined whether there are any additional populations within the local area. To ensure that alternatives have been explored and the proposed clearing will not result in the direct loss of a significant population, the applicant will not be authorised to clear the identified population of *Goodenia sepalosa* var. *glandulosa* without consent.

For the reasons set out above, it is considered that direct impacts to *Lophostemon grandiflorus* subsp. *grandiflorus* and the restricted vegetation types can be managed by preventing clearing within these areas, and indirect impacts can be mitigated through weed hygiene management actions.

#### Conditions

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

- take hygiene steps to minimise the risk of the introduction and spread of weeds,
- no clearing of the restricted vegetation types, and
- no clearing of *Goodenia sepalosa* subsp. *Glandulosa* without approval from the CEO.

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

#### Assessment

The desktop assessment identified 91 records across 28 species of conservation significant fauna within the local area. A likelihood of occurrence assessment based on the records available and the findings of a fauna survey (Phoenix, 2023c), the following species were determined to require further assessment:

- bilby (*Macrotis lagotis*) (VU),
- golden bandicoot (*Isoodon auratus auratus*) (VU); and
- Gouldian finch (*Erythrura gouldiae*) (P4).

Additionally, the biological survey identified several invertebrates within the proposed clearing area that may be short range endemic (SRE) species (Phoenix, 2023c).

The biological survey conducted identified three habitats within the proposed clearing area (Phoenix, 2023c):

- Open woodland over open shrubland over grassland (13 per cent): Mid *Corymbia*, *Eucalyptus* and *Acacia* open woodland over mixed open shrubland over *Sorghum stipoides*, *Chrysopogon* and *Triodia* grassland;
- Shrubland over grassland (86.3 per cent): Sparse *Corymbia* and *Eucalyptus* open woodland over mixed open shrubland over *Sorghum* grassland; and
- Open woodland (shrubby regrowth) over mixed herbs and grasses surrounding a seasonally inundated depression (0.7 per cent): Open *Melaleuca* and *Corymbia* woodland (primarily shrubby regrowth) over mixed herbs and grasses.

#### **Golden bandicoot (VU)**

The golden bandicoot (*Isoodon auratus auratus*) was formerly widespread throughout western, central and northern Australia, with records extending to Victoria (TSSC, 2015). Currently, the species is only known to inhabit areas in the north-west Kimberley along with several translocated populations located on islands off the coast of the Kimberley and Northern Territory (TSSC, 2015). The golden bandicoot has been observed in many habitat types including (Northern Territory Government, 2015):

- hummock and tussock grasslands on sand-dunes and sandplains in the arid zone,
- acacia and eucalyptus woodlands in the tropical semi-arid zone,
- vine thickets,
- heath and woodlands in rugged sandstone, and
- volcanic country in the subhumid tropics.

The Kimberley mainland population is now only recorded in rocky sandstone habitats and vine thickets within the medium to high rainfall area, however, given that the species has historically inhabited a wide range of areas, it is likely that their current extent is more of a reflection of the lack of threats to the species rather than the availability of suitable habitat (Northern Territory Government, 2015).

A fauna survey was conducted between June and August 2022 across the entire application area which identified four golden bandicoots, one male and a female carrying two juveniles (Phoenix, 2023c). Additionally, extensive diggings were identified within the proposed clearing area which have been attributed to both the golden bandicoot and northern brown bandicoot, suggesting that the species are resident within the application area (Phoenix, 2023c). This would represent a southern range extension for the species within atypical habitat and therefore, the proposed clearing may impact on significant habitat for the species (DBCA, 2024a).

A second targeted survey was conducted in June 2024 with the purpose of confirming the identification of the captured bandicoots (Phoenix, 2024c). Advice received from DBCA (2024a) noted that other than size, it is very difficult to distinguish between the common brown bandicoot and golden bandicoot based on physical appearance and further evidence was required to confirm the presence of the species. The additional survey took place over seven consecutive nights both inside and outside of the proposed clearing area, with no evidence of the golden bandicoot identified, including scats, tracks and diggings (Phoenix, 2024c).

The outcome of the survey means that the presence of the golden bandicoot within the proposed clearing cannot be verified, in which case the precautionary principle has been applied and it assumed that the individuals which were previously caught are the golden bandicoot.

While not much is known about the reproductive habits of the golden bandicoots, it has been well documented that there is a positive correlation between rainfall and bandicoot breeding success. The rainfall records from the nearest weather stations indicate that during the wet seasons in the three years prior to the original fauna survey, much higher rainfall was experienced than the most recent wet season (Phoenix, 2024c). The survey suggests that if the individuals identified in the original survey are golden bandicoots, it is likely their presence may have been the result of favourable conditions in the previous years that enabled the species to move beyond its core range for food and breeding and may have retracted to their usual range following reduced rainfall in the most recent wet season (Phoenix, 2024c).

Additional advice from DBCA notes that it is difficult to determine whether the presence of the golden bandicoot was temporary without long-term monitoring, noting that the results may indicate that the species may be present only in low densities (DBCA, 2024b).

While the proposed clearing area represents a possible range extension for the golden bandicoot, it should be noted that the location where the individuals were captured and evidence of diggings was observed was primarily within the shrubland over grassland and the open woodland over open shrubland over grassland habitat types, both of which recorded extensively beyond the proposed clearing area (Phoenix, 2023c). Therefore, while the golden bandicoot records represent a range extension for the species, the proposed clearing is not likely to have a significant impact on the availability of suitable habitat within the local area.

The proposed clearing may result in the direct harm of golden bandicoot individuals that may be present within the proposed clearing area.

### **Bilby (VU)**

The bilby (*Macrotis lagotis*) was once found across 70 per cent of Australia, however, has since disappeared from at least 80 per cent of their original range (TSSC, 2016). Within Western Australia, this species is now only found in the Pilbara and Southern Kimberly in (DCCEEW, 2023). According to the Recovery Plan for the species (DCCEEW, 2023), the bilby's preferred habitat in northern Western Australia is primarily:

- woodlands with *Eucalyptus* and *Acacia* spp., Pindan woodlands with hummock and tussock grass, on coarse sand to light medium clay;
- low shrub cover of *Acacia* spp. Over hummock and tussock grasses, on sandy soils, loams and red earth; and
- spinifex grasslands with low shrub cover of *Acacia* and *Melaleuca* spp. On sandy and sandy loam soils.

The Recovery Plan also notes that in the northern part of their range, bilbies persist in habitat with higher plant cover and may have persisted in these areas as there are fewer foxes (DCCEEW, 2023). According to available databases, there are no records of the bilby within the local area, the nearest being over 65 km from the application from 2002.

The fauna survey identified suitable habitat for the bilby within the proposed clearing area, however, no evidence of the species was recorded (Phoenix 2023c & 2024b). Identified suitable bilby habitat is the shrubland over grassland and the open woodland over open shrubland over grassland habitat types, both of which are available extensively beyond the proposed clearing area (Phoenix, 2023c & 2024b).



Based on the mapping in the Recovery Plan, the proposed clearing is beyond the northern extent of the current known distribution of the species (DCCEEW, 2023). Given that no evidence of the bilby was recorded, it is not likely that the bilby is present within the application area and surrounding vegetation.

Therefore, the proposed clearing is not likely to impact on significant habitat for the bilby or result in the injury or death of individuals. Advice sought from DBCA also concludes that the proposed clearing is not likely to have a significant impact on the species (DBCA, 2024b).

#### **Gouldian finch (Priority 4)**

The Gouldian finch (*Erythrura gouldiae*) has differing habitat requirements depending on whether it is breeding season. Outside of breeding season they tend to move broadly throughout the landscape in search of grass seed resources which are their primary feeding source and during breeding will tend to be found in areas of open woodland on ridges containing hollow bearing trees with an understorey of grass and generally within two to four kilometres of a perennial water source (Threatened Species Scientific Committee, 2016).

According to available databases, there are seven (7) records of the Gouldian finch in the local area, the nearest being 2.53 km from the proposed clearing area. The fauna survey identified three individuals of the species at a waterhole north-west of the application (outside of the proposed clearing area) (Phoenix, 2023c).

The fauna survey identified that the proposed clearing area contains suitable breeding habitat for the Gouldian finch (Phoenix, 2023c). The Gouldian finch is not restricted to certain habitat types and the suitable habitat within the proposed clearing is extensive in the local area (DBCA, 2024a), and therefore the proposed clearing is not likely to have a significant impact on the species.

#### **Invertebrate species**

The terrestrial fauna survey (Phoenix, 2023c) identified several invertebrates within the proposed clearing area, including three species that are considered 'potential' short range endemic (SRE) species. Two of the potential SRE species are also considered new to science (Phoenix, 2023c).

It is generally considered that SRE species display the following characteristics (EPA, 2016):

- poor dispersal powers
- confinement to discontinuous habitats
- usually have highly seasonal activity patterns; and
- low levels of reproduction

*Aname* 'MYG771' is noted as being one of the species new to science. As it has not previously been described it is difficult to determine whether it can be considered an SRE. This species was recorded within multiple habitat types within the proposed clearing area and the majority of these habitats are widely available (Phoenix 2023c).

*Cubaris* sp. indet. 'Napier' is also noted to be new to science. Similarly to *Aname* 'MYG771', it is difficult to determine whether this species is an SRE since there are no other records of this species, additionally, *Cubaris* sp. indet. 'Napier' is also from the Armadillidae family which are not common in the Kimberley region and several taxa within this family found in the region are known to be highly endemic which may mean that this species is as well (Phoenix, 2023c). This species was recorded at three different sites across two habitat types within the proposed clearing area, with one of the habitat types being broadly recorded in the local area

*Lychas* 'annulatus group' may be an SRE as it was only recorded at one location within the proposed clearing area, however, it is noted that this location is within one of the widely available habitats and therefore it is considered likely that this species is present beyond the proposed clearing area.

Based on the above assessment, the proposed clearing is not likely to significantly impact on the availability of habitat for invertebrate species with the individuals being recorded in habitats not considered to be restricted.

#### Conclusion

Based on the above, the proposed clearing will impact on suitable habitat for the golden bandicoot and may result in the injury or death of individuals residing in the area. Inspecting the area to be cleared prior to activities commencing and the presence of a fauna specialist during clearing will minimise and mitigate potential impacts to individuals that may be present.

In addition to the golden bandicoot, the proposed clearing may impact on other fauna species that may be utilising the application area. The pre-clearance inspection should confirm the presence of other native vertebrate fauna, with a condition imposed on the permit requiring that slow, directional clearing methods be adopted to allow fauna to move into adjacent vegetation.

The applicant may have notification responsibilities under the EPBC Act for impacts to the golden bandicoot and its habitats, as set out in the EPBC Act Matters of National Environmental Significance, Significant Impact Guidelines 1.1 (DoE, 2013). The applicant has been advised to contact the federal Department of Climate Change, Energy, the Environment and Water (DCCEEW) to discuss EPBC Act referral requirements.

Conditions

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

- engage a fauna specialist to inspect the area immediately prior to and be present during clearing activities. Clearing must cease in any areas where fauna is identified until the individual/s have moved on or been trapped and relocated, and
- slow, directional clearing to allow fauna to move into adjacent vegetation.

**3.2.3. Land and water resources - Clearing Principles (f), (g), (i)**Assessment

The majority of the proposed clearing is mapped within the Sisters land system (91.6 per cent) followed by the Yeeda land system (8.3 per cent) and a small portion of the Wanganut land system (0.1 per cent). The Commissioner for Soil and Land Conservation (CSLC) (2024) noted that the risk of degradation for the irrigated production of *Chloris Gayana* (Rhode's grass) was likely to be low for the Sisters system but did note that the Yeeda system may be susceptible to wind or water erosion. In addition, advice received from DWER's North West Region noted that land clearing and irrigated agriculture can pose risks to groundwater and offsite waterways through erosion and nutrient and chemical leaching (DWER, 2024).

Noting the above, the proposed clearing has the potential to result in appreciable land degradation and impacts to surface and groundwater hydrology where there is significant disturbance to topsoil and run-off of surface water. There is a risk of wind erosion if bare ground is left exposed for an extended period between the clearing of native vegetation and commencement of the development.

Part of the applicant's EAMP includes the development of a site drainage plan within the proposed clearing area to mitigate potential impacts from erosion to surrounding vegetation and waterways (Phoenix, 2023b).

The CSLC advised that if the applicant maintains enough vegetation cover and best practice irrigation and fertiliser management is applied, it is not likely that the end land use will cause or exacerbate land degradation (CSLC, 2024). Furthermore, DWER's North West Region considers that impacts to water resources can be managed through the groundwater licence conditions (see Section 3.3).

Given the large size of the proposed clearing, there is still the risk that the proposed clearing may result in appreciable land degradation in the form of wind erosion if areas are left bare for extended periods of time.

Conclusion

Based on the above assessment, the proposed clearing may lead to appreciable land degradation in the form of wind erosion if bare ground is left exposed to weathering for an extended period between the clearing of vegetation and development of the Napier Downs Irrigation Project. For the reasons set out above, it is considered that in addition to the applicant's mitigation measures and the implementation of the recommendations above, impacts of the proposed clearing on land resources can be further minimised by limiting the amount of time the land can be left bare.

Conditions

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

- activities associated with the development of the Napier Downs Irrigation Project must commence within three (3) months of clearing.

**3.3. Relevant planning instruments and other matters****Clearing context**

The Applicant has advised that currently during the dry season they are required to truck supplementary hay from areas as far as the southwest of the state to feed the cattle. The proposed irrigated pivots would be used not only to support Napier Downs but other Napier Corporation managed properties during the dry season (Phoenix, 2023a). The Applicant further advised that it is anticipated the irrigated pivots will have many benefits including (Phoenix, 2024a):

- reduced or no requirement to truck hay from other regions within the State which is a large cost to the organisation and can be difficult to source,
- due to the remote location and large size of the station, transporting hay to the property can be a safety concern as there are many roads that are unsealed or may have been damaged during the previous wet season. This can lead to drivers becoming lost or trucks being damaged and may require a search over vast areas to find a truck if assistance is required,
- supports emissions reduction targets for the Napier Corporation since the long distances required to drive to the Kimberley produce significant carbon emissions, and
- reduced pressure on suppliers who often have high demand for hay during dry periods.

In accordance with section 51O(4) of the EP Act, in considering a clearing matter the Delegated Officer shall have regard to any development approval, planning instrument, or other matter, that they consider relevant. The planning instruments and other matters considered relevant by the Delegated Officer in determining to grant Clearing Permit CPS 10427/1 are outlined below.

Relevant authorisations required for the proposed land use include:

- Licence to abstract water under the *Rights in Water and Irrigation Act 1914*.
- Permit to sow non-indigenous land pastures under the *Land Administration Act 1997*.

#### **Licence to abstract water under the *Rights in Water and Irrigation Act 1914* (RIWI Act)**

An application for a groundwater license for the proposed Napier Irrigation Project was received by the Department on 24 January 2023 (DWER, 2024). The Licence will allow for the maximum abstraction of 3 GL/annum of groundwater from four bores located at the centre of the four proposed pivots (DWER, 2024).

The Licence will include conditions for staged water allocation with the intention of building up to the full 3 GL/annum. Whether the allocation is increased will depend on the results of actions and monitoring undertaken through a Water Resource Management Operating Strategy (WRMOS) (DWER, 2024a). The WRMOS includes the following (Innovative Groundwater Solutions, 2024):

- ability to manage impacts of abstraction on the Ngooderoodyne Spring, Lennard River pool, Hawkstone Creek (Long Pool) and the Priority Ecological Community (Kimberley Vegetation Association 759)
- monitoring to address potential impacts to these groundwater dependent ecosystems (GDEs), and
- an adaptive management plan.

The Licence will require the monitoring data to be submitted to the Department and reviewed as part of annual reporting requirements (DWER, 2024a). DWER's North West Region considers that through appropriate staging, monitoring and adaptive management enforced through licence conditions, potential impacts resulting from groundwater abstraction, such as groundwater dependent vegetation, can be managed effectively under the RIWI Act (DWER, 2024a).

The department's North West Region has accepted the applicant's WRMOS and the Licence is in the process of being finalised (DWER, 2024b) with a decision expected shortly. Therefore, the Delegated Officer determined that the outstanding water licence was not a significant barrier to the granting of a clearing permit in this instance.

#### **Permit to sow non-indigenous land pasture**

The Applicant was granted a permit to sow non-indigenous land pasture under the *Land Administration Act 1997* on 5 December 2023 (Phoenix, 2023a). This permit specifies that the sowing and irrigated cultivation of Rhode's grass (*Chloris gayana*) within four 40 hectare pivots may occur.

Several conditions are included within the permit that are relevant to the protection and management of the natural environment including:

- the preparation and implementation of a biosecurity plan
- the requirement to obtain a clearing permit, and
- implement a weed monitoring system in the 200 m beyond the edge of the application area.

#### **Rhode's grass**

It is noted that the establishment of Rhode's grass (*Chloris gayana*) following clearing may impact on the quality of remaining vegetation if the species spreads outside of established pivots.

While it is noted that Rhode's grass may impact the surrounding vegetation, the management and mitigation of this risk is beyond the scope of the clearing permit process. The management and mitigation of the spread of Rhode's grass is regulated through the Applicant's permit to sow non-indigenous land pasture under the *Land Administration Act 1997*, which requires the development and implementation of a biosecurity plan (Phoenix, 2024a). Further information about the contents of the biosecurity plan is discussed in Section 3.1 Avoidance and mitigation measures.

#### **Referral under Part IV of the EP Act**

On 6 June 2023, the Applicant referred the Napier Downs Irrigation Project to the Western Australian Environmental Protection Authority (EPA) under section 38(1) of the EP Act. On 1 November 2023, the EPA determined not to assess the proposal advising that impacts associated with the clearing of native vegetation, including potential indirect impacts to the golden bandicoot, can be regulated under Part V Division 2 of the EP Act (EPA, 2023). It is understood that three appeals were lodged against the decision not to assess the proposal under section 100(1)(a) of the EP Act, for the consideration by the Office of the Appeals Convenor and the Minister for Mines and Petroleum; Ports; Road Safety; Minister Assisting the Minister for Transport (The Minister) for and on behalf of the Minister for Energy; Environment; Climate Action (Appeal Number 049/2023).

On 4 April 2024, the Minister determined to dismiss these appeals stating that the environmental impacts of the proposal can be adequately assessed and, if approved, appropriately managed through other statutory processes (Minister for Mines and Petroleum; Ports; Road Safety; Minister Assisting the Minister for Transport, 2024).

The Minister considered the information available to him, including the EPA's response to the appeals and the Appeals Convenor's report which noted that the key concerns raised by the appeals related to impacts to the threatened golden bandicoot (*Isoodon auratus auratus*), groundwater drawdown impacts and risks to Aboriginal cultural heritage resulting from the proposal.

The Minister understood that the proposal requires clearing of up to 200 hectares of native vegetation, which represents 11% of the total mapped extent of suitable habitat for golden bandicoot in the proposal area and one kilometre buffer. The Minister was advised that potential impacts from the proposal include local displacement and mortality of golden bandicoot during clearing, and increased predation from feral animals.

DWER advised that potential impacts to golden bandicoot and its habitat from clearing native vegetation for the proposal, can be adequately assessed and regulated (if approved) under Part V, Division 2 of the EP Act. DWER advised that any significant residual impact to threatened fauna habitat would not be approved if the impacts were considered irreversible and unable to be counterbalanced through management conditions, including environmental offsets.

The appeals raised concerns regarding the impacts of groundwater drawdown on the Devonian Reef aquifer and the Grant Group aquifer, risks to groundwater dependent ecosystems (GDEs) and subterranean fauna, and that the proponent's hydrogeological assessment referral information was not available for the EPA's 7-day public comment period.

DWER advised that it is currently assessing the proponent's application for a groundwater licence under the RIWI Act. DWER noted that the proponent's groundwater modelling and analysis, and a subsequent site inspection by DWER technical specialists, has demonstrated that potential indirect impacts to groundwater levels can be assessed and managed through the groundwater licensing process. This will also provide the ability to monitor and manage groundwater drawdown impacts to nearby GDEs.

In relation to subterranean fauna (stygo fauna and troglo fauna), the EPA acknowledged that no surveys for subterranean fauna were undertaken for the proposal. In this regard, DWER advised that stygo fauna and troglo fauna habitats would remain continuous and well-connected, with only localised impacts close to the proposal's production bores.

The EPA acknowledged that the proponent's hydrogeological assessment referral information was not available for public comment. The Minister was advised by the EPA that the relevant information was considered by the EPA while deliberating whether to assess the referral, and that all relevant information and reports are now available on the EPA website.

The Minister understood that the proposal is located within the Warrwa Part A Native Title Determination area, and that the Madanaa Nada Aboriginal Corporation RNTBC (MNAC) holds the determined native title on trust for the Warrwa people pursuant to the *Native Title Act 1993*.

The Minister noted that by the appeal, MNAC questioned the proponent's Aboriginal cultural heritage survey report, noting that the survey was limited to approximately 40 hectares and did not cover the entire proposal area and did not include an ethnographic heritage survey as no Elder was present.

In this regard, the proponent has obligations under the *Aboriginal Heritage Act 1972* (AH Act) to ensure that no Aboriginal sites of significance are affected by the proposal.

The Minister was advised that the proponent has committed to enter into a Heritage Protection Agreement with the Warrwa People, which is expected to include site avoidance surveys prior to clearing of native vegetation (if approved), and relocation of infrastructure if significant Aboriginal cultural heritage sites are identified.

In relation to concerns that the proposal will lead to an incursion of cane toads, the Minister was advised that the proponent has committed to amend the Environmental Assessment Management Plan to include cane toad control in existing fauna management measures.

The Minister considered the advice provided to him by the EPA and the Appeals Convenor and was of the view that the EPA had appropriately considered these issues. Further information on these matters is available in the Appeals Convenor's report. It should be noted that nothing in this decision on the appeals should be taken to imply that the Minister has formed a view about the environmental acceptability of the proposal. Rather, the Minister was of the view that the potential environmental risks of the proposal can be assessed, managed and regulated through other statutory decision-making processes.

**Aboriginal Heritage**

It is understood that the groundwater licence application has been referred to Warrwa Combined Part A and Wanjina-Wungurr Wilinggin under provisions of the *Native Title Act 1993* who are engaging with the applicant directly regarding impacts to potential GDEs and management measures to mitigate impacts on ecological and water related cultural values (DWER, 2024).

No Aboriginal sites of significance have been mapped within the application area. It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972 (WA)* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

**Relevant planning instruments**

The Shire of Derby-West Kimberley (the Shire) advised DWER that they did not have any objections to the proposed clearing (SDWK, 2024).

The Napier Downs Pastoral Lease is not zoned under the Shire's local Planning Scheme. Areas that are not zoned are still subject to the Shire's Local Interim Development Order No. 9 that outlines the land use and development types outside the Scheme areas that still require a development approval (SDWK, 2023). Section 6 lists land use and developments that do not require approval under the Development Order, this includes 'buildings and land uses associated with the pastoral industry' (SDWK, 2023).

The Delegated Officer was satisfied that the proposed clearing is not likely to require planning approvals through the Shire of Derby-West Kimberley.

**End**

## Appendix A. Additional information provided by applicant

Summary of comments	Consideration of comment
Response to request for further information (Phoenix, 2024a).	See Section 3.1 and Section 3.3. of the decision report.
Targeted Golden bandicoot survey (Phoenix, 2024b).	See Section 3.2.2. of the decision report.
Additional supporting information – Revised fauna survey clarifying details of bilby search effort (Phoenix 2024c).	A revised version of the reconnaissance fauna survey was provided to further clarify the survey effort for targeted bilby searches and their likelihood occurrence.  See Section 3.2.2 of the decision report

## Appendix B. Details of public submissions

Summary of comments	Consideration of comment
Clearing should not be allowed because the vegetation has not previously been disturbed.	See Section 3.2.1 for consideration of the significance of the vegetation.  Evidence of grazing and the presence of livestock tracks were observed within the proposed clearing area (Phoenix, 2023d). Evidence of feral animals were also observed (Phoenix, 2023c & 2024b). Given the remoteness of the region, it is likely most of the native vegetation in the local area has had limited disturbance.
Rhode's grass should not be introduced to the area as it is not a native species and could spread and impact surrounding native vegetation.	The potential impacts of Rhode's grass are assessed through the permit to sew non-indigenous land pasture which requires the implementation of a biosecurity plan (Phoenix, 2024a).  See Section 3.1 and 3.3 of the decision report.
The availability of fodder will allow more cattle to be sustained on the station which will lead to greater environmental degradation and damage to native vegetation.	Potential impacts from the presence of cattle are beyond the scope of the clearing permit assessment which is to specifically assess the impacts of clearing as opposed to the post-clearing land use.  Minimum and maximum stock numbers within a Pastoral Lease are determined and managed through the Pastoral Lands Board (PLB) who are responsible for ensuring that the land is managed on an ecologically sustainable basis (PLB, 2023).

## Appendix C. Site characteristics

### C.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia. It is surrounded by native vegetation and pastoral lands.  Aerial imagery indicates the local area (50-kilometre radius from the centre of the area proposed to be cleared) retains approximately 99.90 per cent of the original native vegetation cover.
Ecological linkage	The proposed clearing is not mapped within any formal ecological linkages.
Conservation areas	The proposed clearing is not mapped within a conservation area and there are no conservation areas within the local area (50 km radius).
Vegetation description	The vegetation survey (Phoenix, 2023d) indicates the vegetation within the proposed clearing area consists of four vegetation types: <ul style="list-style-type: none"> <li>• <u>AttSs (514.2 ha)</u> - Isolated trees of <i>Eucalyptus miniata</i> and <i>Corymbia greeniana</i> over a tall shrubland of <i>Acacia tumida</i> var. <i>tumida</i>, <i>Grevillea refracta</i> subsp. <i>refracta</i></li> </ul>

Characteristic	Details
	<p>and <i>Petalostigma pubescens</i> over a tall open tussock grassland of <i>Sorghum stipoideum</i> and <i>Chrysopogon latifolius</i>;</p> <ul style="list-style-type: none"> <li>• <u>EmDhaSs (66.2 ha)</u> - Mid to low open woodland of <i>Eucalyptus miniata</i>, <i>Terminalia canescens</i> and <i>Corymbia</i> spp. over a tall open shrubland of <i>Dodonaea hispidula</i> var. <i>arida</i>, <i>Petalostigma pubescens</i> and <i>G. refracta</i> subsp. <i>refracta</i> over a mixed open tussock grassland of <i>Sorghum stipoideum</i>, <i>Triodia caelestialis</i> and <i>Chrysopogon fallax</i>;</li> <li>• <u>MccLggCr (3.5 ha)</u> - Mid open woodland of <i>Melaleuca cajuputi</i> subsp. <i>cajuputi</i> and <i>Eucalyptus tectifolia</i> over a low open forest of <i>Lophostemon grandiflorus</i> subsp. <i>grandiflorus</i> over a low mixed forbland of <i>Crotalaria ramosissima</i>, <i>Indigofera hirsuta</i> and <i>Eriocaulon cinereum</i> with mixed grasses; and</li> <li>• <u>MvPsp (0.9 ha)</u> - Low open forest of resprouting <i>Melaleuca viridiflora</i> and <i>Lophostemon grandiflorus</i> subsp. <i>grandiflorus</i> over low, mixed isolated forbs and grasses including <i>Phyllanthus</i> sp. B Kimberley Flora (T.E.G. Aplin et al. 809), <i>Stemodia lathraia</i> and <i>Aristida hygrometrica</i>.</li> </ul> <p>The full survey descriptions and maps are available in Appendix H.</p> <p>This is consistent with the mapped vegetation type:</p> <ul style="list-style-type: none"> <li>• Beard 754, which is described as Shrublands, pindan; <i>Acacia tumida</i> shrubland with woollybutt (<i>Eucalyptus miniata</i>) &amp; cabbage gum (<i>E. grandiflora</i>) medium woodland over ribbon grass &amp; curly spinifex (<i>Triodia pungens</i>) (Shepherd et al, 2001)</li> </ul> <p>The mapped vegetation type retains approximately 100 per cent of the original extent (Government of Western Australia, 2019).</p>
Vegetation condition	<p>The vegetation survey (Phoenix 2023d) indicates the vegetation within the proposed clearing area is in excellent to very good (Trudgen, 1991) condition.</p> <p>The full Trudgen (1991) condition rating scale is provided in Appendix E.</p> <p>The full survey descriptions and mapping are available in Appendix H.</p>
Climate and landform	<p>The Kimberley has a tropical monsoon climate, with most of the rainfall occurring from November to April. The landform of the proposed clearing area is described as sandplains and dune fields.</p>
Soil description	<p>The proposed clearing is mapped within three different soil types:</p> <ul style="list-style-type: none"> <li>• 337Si – Sisters System, described as Low sandy plateaux and lower slopes supporting pindan woodlands with acacias and eucalypts and curly spinifex-ribbon grass, and valley plains supporting mixed woodlands with ribbon grass. (91.6 per cent of the application area)</li> <li>• 337Wa – Wanganut system, described as sandplains and linear dunes supporting pindan woodlands with acacias and bloodwoods and curly spinifex- ribbon grass, and broad low-lying swales supporting bloodwood-grey box woodlands with curly spinifex-ribbon grass. (0.1 per cent of the application area)</li> <li>• 337Ye – Yeeda System, described as red sandplains supporting pindan vegetation with dense acacia shrubs, scattered bloodwood and grey box trees and curly spinifex and ribbon grass. (8.3 per cent of the application area)</li> </ul>
Land degradation risk	<p>The soils within the proposed clearing are mapped as high to extreme risk for wind erosion and phosphorous export and very high to extreme risk of water erosion.</p>
Waterbodies	<p>The desktop assessment and aerial imagery indicated that an inundation area associated with the Meda River intersects the northern portion of the proposed clearing.</p> <p>A minor non-perennial tributary of the Meda River is also located approximately 0.51 km west of the proposed clearing.</p>
Hydrogeography	<p>The proposed clearing is mapped within the Canning-Kimberley groundwater area. The soils within the proposed clearing area are at moderate risk for flooding and waterlogging.</p>
Flora	<p>There are 48 records from 23 species of conservation significant flora within the local area (50 km radius). Two of these species have previously been recorded within the proposed clearing area and were recorded during the flora survey (Phoenix, 2023d):</p> <ul style="list-style-type: none"> <li>• <i>Goodenia sepalosa</i> var. <i>glandulosa</i> (P3)</li> <li>• <i>Lophostemon grandiflorus</i> subsp. <i>grandifloras</i> (P3)</li> </ul>

Characteristic	Details
	One other species was recorded within one kilometre of the proposed clearing, <i>Stylidium pindanicum</i> (P3), located approximately 0.24 km from the application.
Ecological communities	The proposed clearing is not within any priority or threatened ecological communities. Six ecological communities are mapped within the local area (50 km radius), the nearest being Kimberley vegetation association 759 (Priority 3), located approximately 1.84 km from the proposed clearing.
Fauna	<p>There are 91 records from 28 species of conservation significant fauna within the local area (50 km radius). No records are found within one kilometre of the proposed clearing. Five species have been recorded approximately 5.39 km from the proposed clearing:</p> <ul style="list-style-type: none"> <li>• common greenshank (<i>Tringa nebularia</i>) (MI)</li> <li>• freshwater crocodile (<i>Crocodylus johnstoni</i>) (OS)</li> <li>• glossy ibis (<i>Plegadis falcinellus</i>) (MI)</li> <li>• gull-billed tern (<i>Gelochelidon nilotica</i>) (MI)</li> <li>• northern quoll (<i>Dasyurus hallucatus</i>) (EN)</li> </ul> <p>The fauna survey (Phoenix, 2023c) identified one species of conservation significant fauna within the proposed clearing area, the golden bandicoot (<i>Isoodon auratus auratus</i>) (VU).</p>

**C.2. Flora analysis table**

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

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Goodenia sepalosa</i> var. <i>glandulosa</i>	3	Y	Y	Y	0.00	2	Y
<i>Lophostemon grandiflorus</i> subsp. <i>grandiflorus</i>	3	Y	Y	Y	0.00	1	Y
<i>Stylidium pindanicum</i>	3	Y	Y	Y	0.24	3	Y

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

**C.3. Fauna analysis table**

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Erythrura gouldiae</i> (Gouldian finch)	P4	Y	Y	2.53	7	Y
<i>Isoodon auratus auratus</i> (golden bandicoot)	VU	Y	Y	0.00	4	Y

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

**C.4. Land degradation risk table**

Risk categories	Description
Wind erosion	99% of map unit has a high to extreme hazard
Water erosion	99% of map unit has a very high to extreme hazard
Phosphorus export risk	99% of map unit has a high to extreme hazard



## Appendix D. 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> The vegetation within the proposed clearing is in very good to excellent (Trudgen, 1991) condition and supports a high level of biodiversity including priority flora, conservation significant fauna, groundwater dependant ecosystems and a restricted vegetation type.</p>	At variance	Yes  <i>Refer to Section 3.2.1, above.</i>
<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> The golden bandicoot was identified during the fauna survey (Phoenix, 2023c) where it was identified that this species is likely resident within the proposed clearing area. In addition, the Gouldian finch was identified in proximity to (but not within) the proposed clearing.</p>	At variance	Yes  <i>Refer to Section 3.2.2, 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> The area proposed to be cleared is unlikely to contain habitat for threatened flora species listed under the BC Act. No threatened flora species were recorded within the local area and the vegetation survey (Phoenix, 2023d) did not record any threatened flora within the proposed clearing area.</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> The proposed clearing is not mapped within a threatened ecological community (TEC) and the vegetation survey (Phoenix, 2023d) did not identify vegetation that may be representative of a TEC.</p>	Not likely to be at variance	No
<b>Environmental value: significant remnant vegetation and conservation areas</b>		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u> The extent of the mapped vegetation type and native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.</p> <p>In the local context (50-kilometre radius), the proposed clearing is not likely to significantly contribute to the cumulative loss of native vegetation, with the proposed clearing representing approximately 0.02 per cent of the native vegetation in the local area.</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (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> 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.</p>	Not likely to be at variance	No
<b>Environmental value: land and water resources</b>		
<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> One inundation area associated with the Meda River intersects the application, however, the applicant has advised that no clearing will occur within this area (Phoenix, 2023a). The site may be indirectly impacted by clearing activities given the proximity to the proposed pivot locations.</p>	May be at variance	Yes <i>Refer to Section 3.2.3, above.</i>
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u> The mapped soils are highly susceptible to wind erosion, water erosion and nutrient export. Noting the extent and location of the application area, the proposed clearing may have an appreciable impact on land degradation.</p>	May be at variance	Yes <i>Refer to Section 3.2.3, above.</i>
<p><u>Principle (i):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.”</i></p> <p><u>Assessment:</u> Given that the mapped inundation area will be avoided and that the applicant is implementing drainage controls, it is unlikely clearing activities will impact on surface or groundwater quality.</p>	May be at variance	Yes <i>Refer to Section 3.2.3, above.</i>
<p><u>Principle (j):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u> The proposed clearing is located within the Kimberley which is subject to flooding during the wet season from storms and cyclones, however, noting that the soils are sandy and well-draining and the presence of extensive vegetation surrounding the application, the proposed clearing is not likely to contribute to increased incidence or intensity of flooding.</p>	Not likely to be at variance	No

**Appendix E. Vegetation condition rating scale**

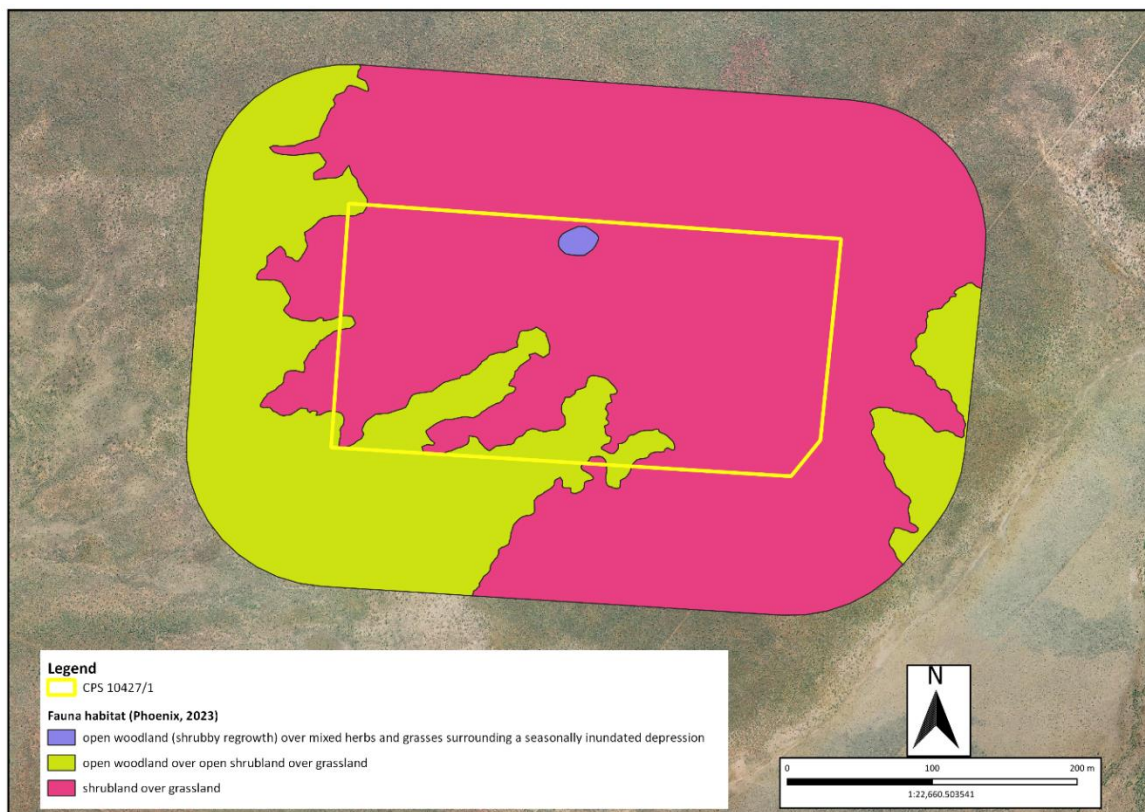
Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree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

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Trudgen, M.E. (1991) *Vegetation condition scale* in National Trust (WA) 1993 Urban Bushland Policy. National Trust of Australia (WA), Wildflower Society of WA (Inc.), and the Tree Society (Inc.), Perth.

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

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

**Appendix F. Fauna survey excerpts (Phoenix, 2023c)**



**Figure 3.** Mapped habitat types within the proposed clearing area.

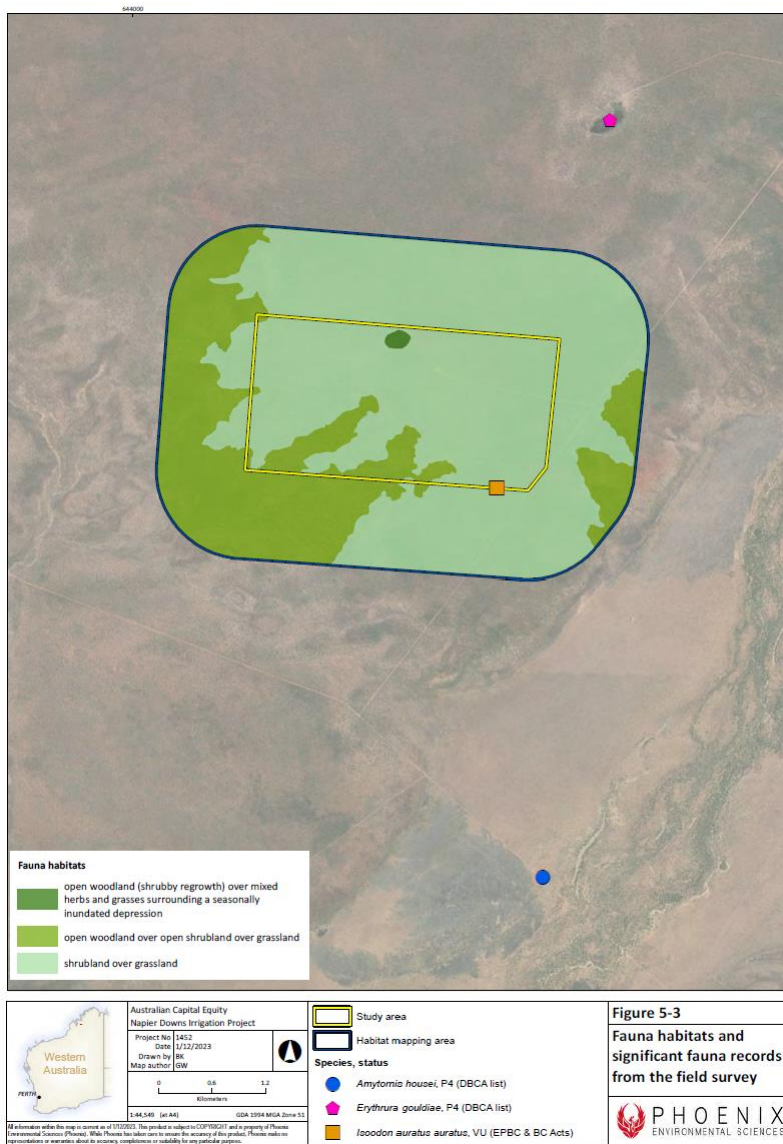
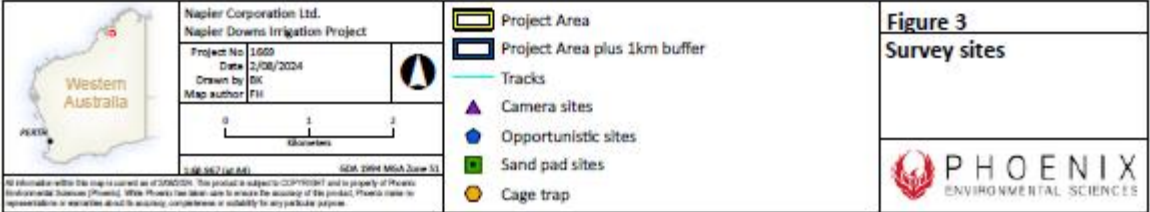
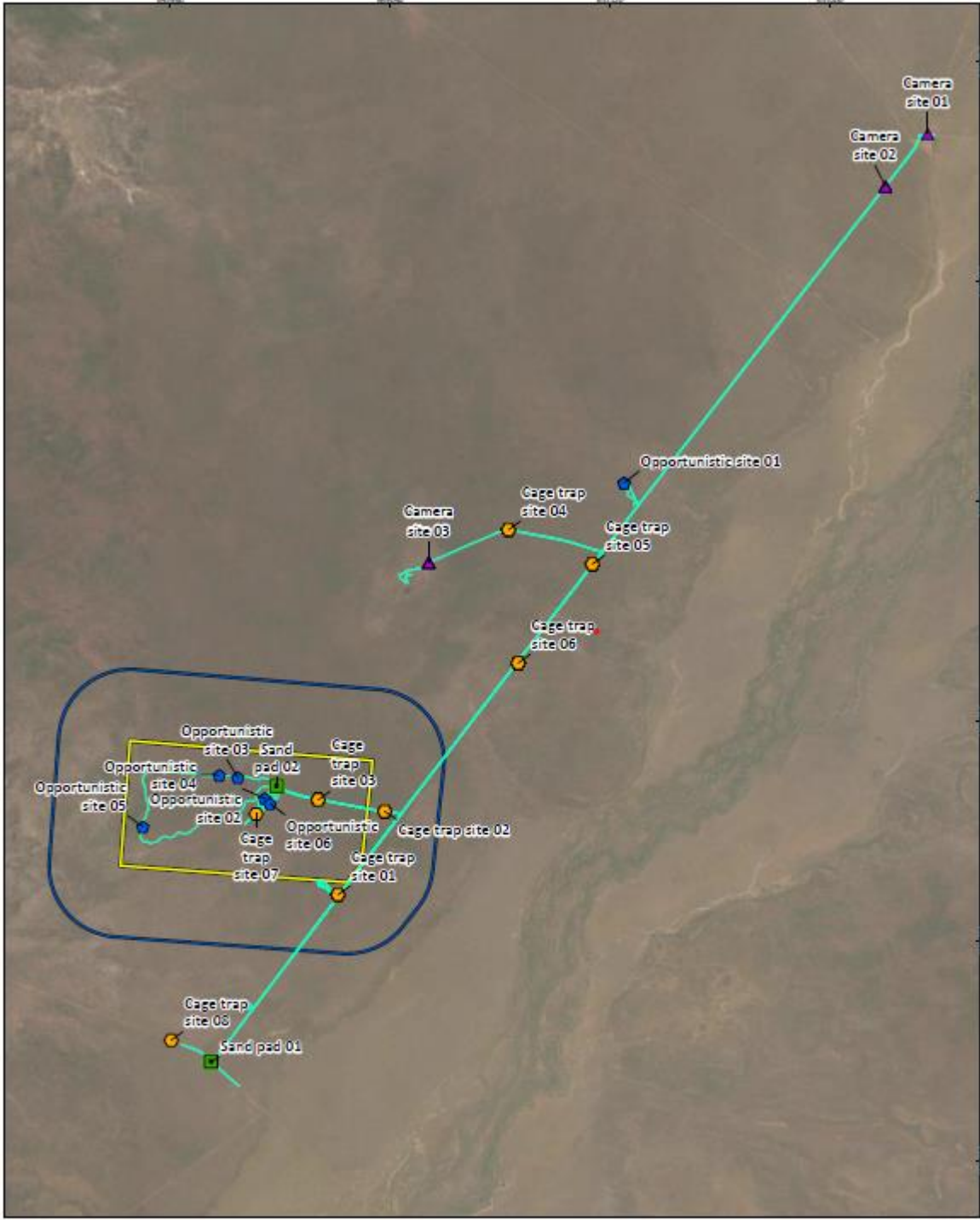


Figure 4. Map of the locations where conservation significant fauna was identified during the fauna survey.

**Appendix G. Golden bandicoot survey excerpts (Phoenix, 2024b)**



**Figure 5.** Golden bandicoot survey sites.



Figure 6 Dog caught on camera trap at Camera site 01

Figure 6. Photograph of a dog spotted from a camera trap during the survey.

**Appendix H. Flora and vegetation survey excerpts (phoenix, 2023d)**



Species	Status	Distribution and ecology	Survey records	Photograph
<i>Lophostemon grandiflorus</i> subsp. <i>grandiflorus</i>	P3	Occurs in the Dampierland and Victoria Bonaparte bioregions (WA Herbarium 1998). There are 10 records of this species in WA Herbarium (1998) Habitat descriptions include semi-deciduous vine thicket in a drainage basin in grey brown sand, <i>Melaleuca dealbata</i> , <i>Lophostemon grandiflorus</i> subsp. <i>grandiflorus</i> low woodland over <i>Acacia coleii</i> var. <i>coleii</i> , <i>Tephrosia rosea</i> var. <i>clementii</i> shrubland over <i>Abutilon otocarpum</i> low open shrubland in a drainage basin in salmon coloured sandy loam, coastal vine thicket, large <i>Melaleuca</i> and <i>Grewia</i> vine thicket in low area behind coastal dunes, on swamp, wet seepage area. Population sizes for the Florabase records are limited to a single cultivated tree, and a comment that the <i>Lophostemon</i> was dominant in a vine thicket.	The species was recorded at a single location in the detailed study area where it was a dominant overstorey species in a tall shrubland that surrounded a seasonally wet depression. Also recorded at 7 locations in the reconnaissance study area.	
<i>Goodenia sepalosa</i> var. <i>glandulosa</i>	P3	Occurs in the Dampierland, Northern Kimberley and Victoria Bonaparte bioregions (WA Herbarium 1998). There are 15 records of this species in WA Herbarium (1998). Habitat descriptions include herb/sedge land in damp sandy loam along edge of minor drainage channel, <i>Corymbia</i> woodland over tall <i>Acacia</i> shrubland on the crest of a rise in brown loam, <i>Corymbia</i> woodland over tall <i>Acacia</i> shrubland on a plain in reddish brown sandy loam, Pindan woodland mid slope in red sand. Population sizes recorded were limited to single plants, records of less than 1% cover and a comment of being uncommon.	The species was recorded at a single quadrat site in the detailed study area where it was present in low numbers under isolated <i>Corymbia</i> trees over a tall shrubland of <i>Acacia tumida</i> var. <i>tumida</i> , <i>Petalostigma pubescens</i> and <i>Grevillea refracta</i> subsp. <i>refracta</i> .	

Figure 7. Details of the significant flora species recorded during the survey.

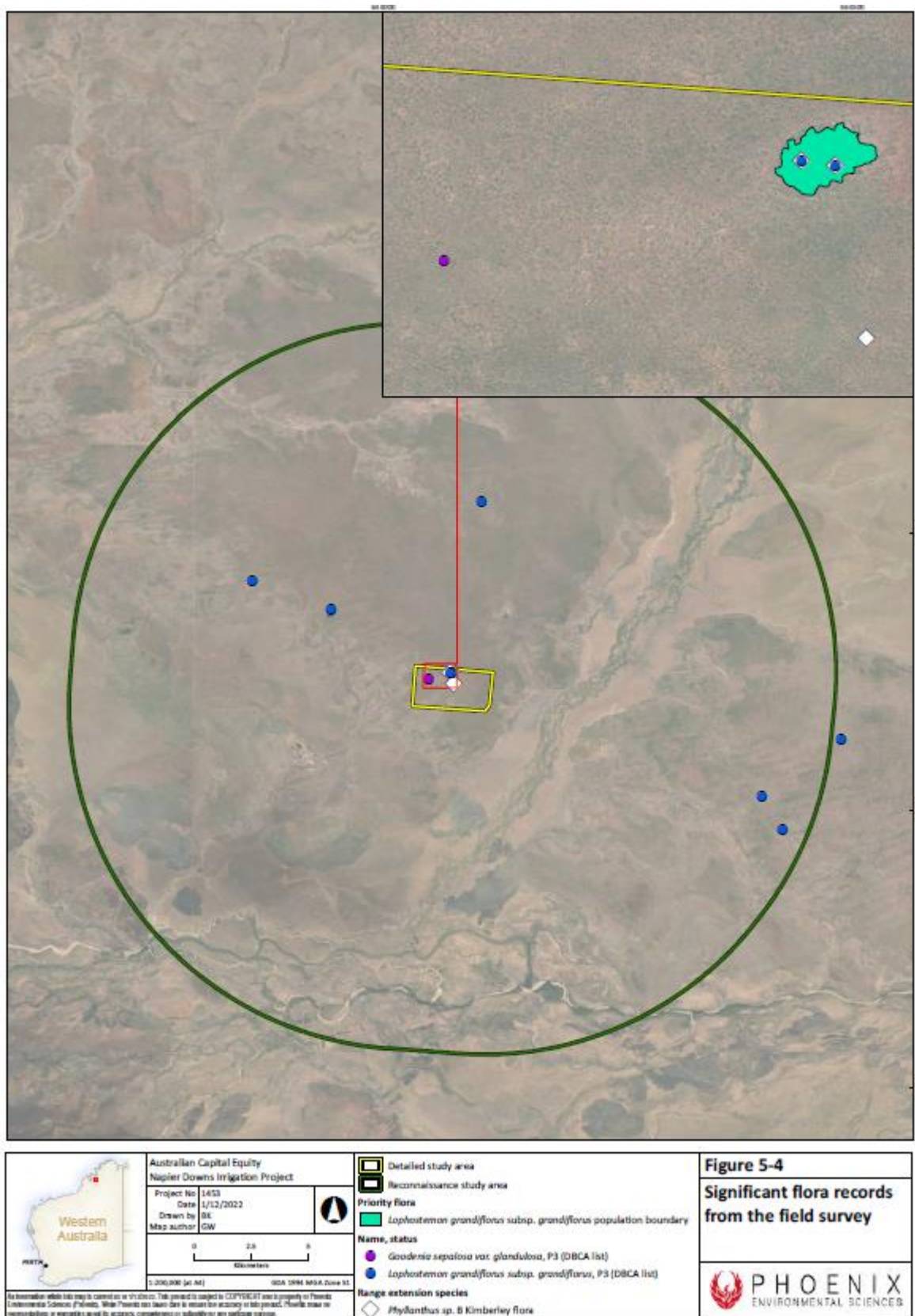


Figure 8. Locations of priority flora identified during the flora and vegetation survey.





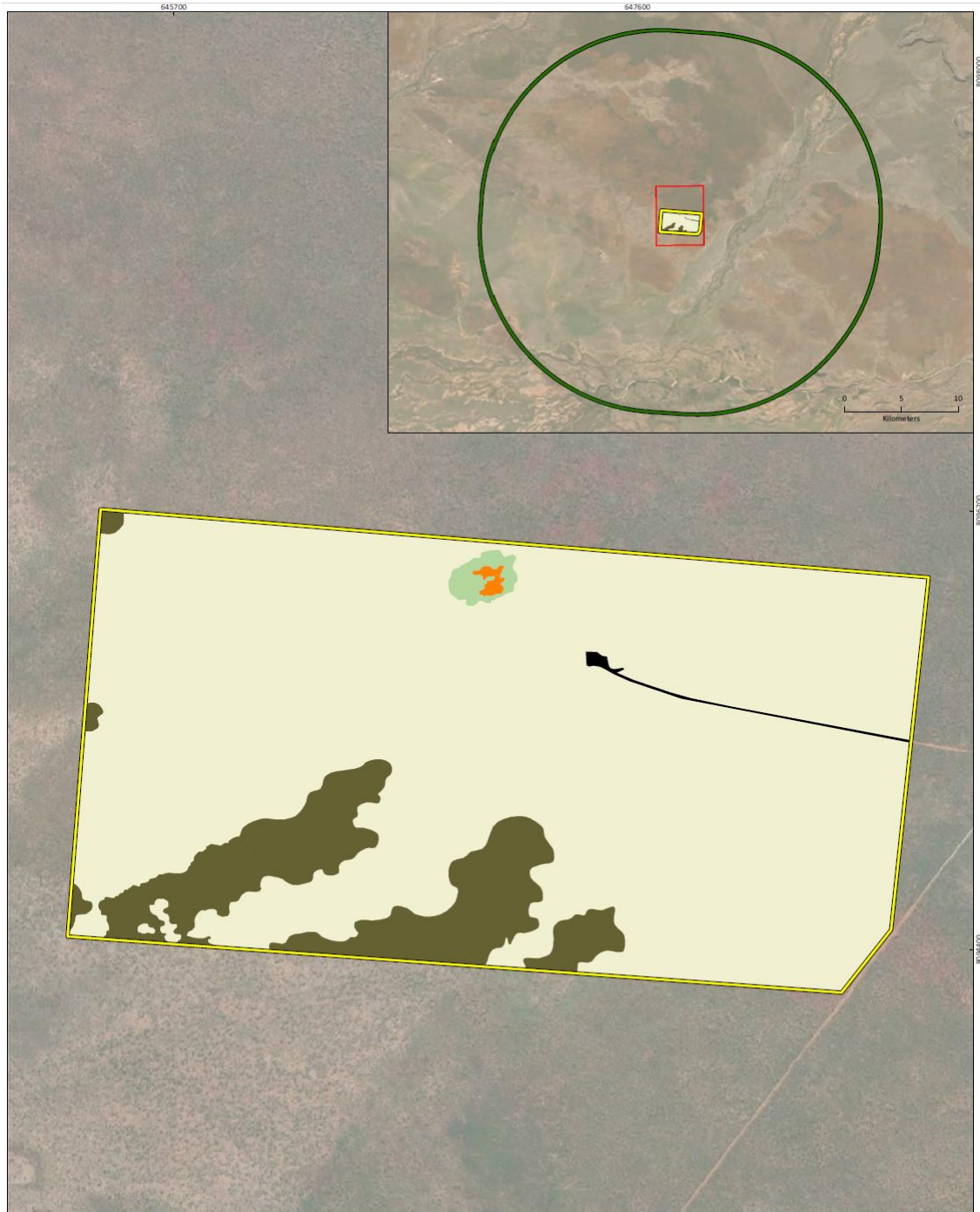
Vegetation type	Site/s	Vegetation description	Extent in detailed study area (ha) and %	Representative photograph
AttSs	SP003, SP004, SP005, SP006, SP008, SP009, SP011, SP021, SP030, SP031	Isolated trees of <i>Eucalyptus miniata</i> and <i>Corymbia greeniana</i> over a tall shrubland of <i>Acacia tumida</i> var. <i>tumida</i> , <i>Grevillea refracta</i> subsp. <i>refracta</i> and <i>Petalostigma pubescens</i> over a tall open tussock grassland of <i>Sorghum stipoideum</i> and <i>Chrysopogon latifolius</i> .	514.2 (87.6%)	
EmDhaSs	SP007, SP026, SP027	Mid to low open woodland of <i>Eucalyptus miniata</i> , <i>Terminalia canescens</i> and <i>Corymbia</i> spp. over a tall open shrubland of <i>Dodonaea hispidula</i> var. <i>arida</i> , <i>Petalostigma pubescens</i> and <i>Grevillea refracta</i> subsp. <i>refracta</i> over a mixed open tussock grassland of <i>Sorghum stipoideum</i> , <i>Triodia caelestialis</i> and <i>Chrysopogon fallax</i> .	66.2 (11.3%)	
Vegetation type	Site/s	Vegetation description	Extent in detailed study area (ha) and %	Representative photograph
MccLggCr	SP002	Mid open woodland of <i>Melaleuca cajuputi</i> subsp. <i>cajuputi</i> and <i>Eucalyptus tectifica</i> over a low open forest of <i>Lophostemon grandiflorus</i> subsp. <i>grandiflorus</i> over a low mixed forbland of <i>Crotalaria ramosissima</i> , <i>Indigofera hirsuta</i> and <i>Eriocaulon cinereum</i> with mixed grasses.	3.5 (0.6%)	
MvPsp.	SP001R	Low open forest of resprouting <i>Melaleuca viridiflora</i> and <i>Lophostemon grandiflorus</i> subsp. <i>grandiflorus</i> over low, mixed isolated forbs and grasses including <i>Phyllanthus</i> sp. B Kimberley Flora (T.E.G. Aplin et al. 809), <i>Stemodia lathraia</i> and <i>Aristida hygrometrica</i> .	0.9 (0.2%)	
Cleared	NA	Areas devoid of vegetation	1.7 (0.3%)	NA

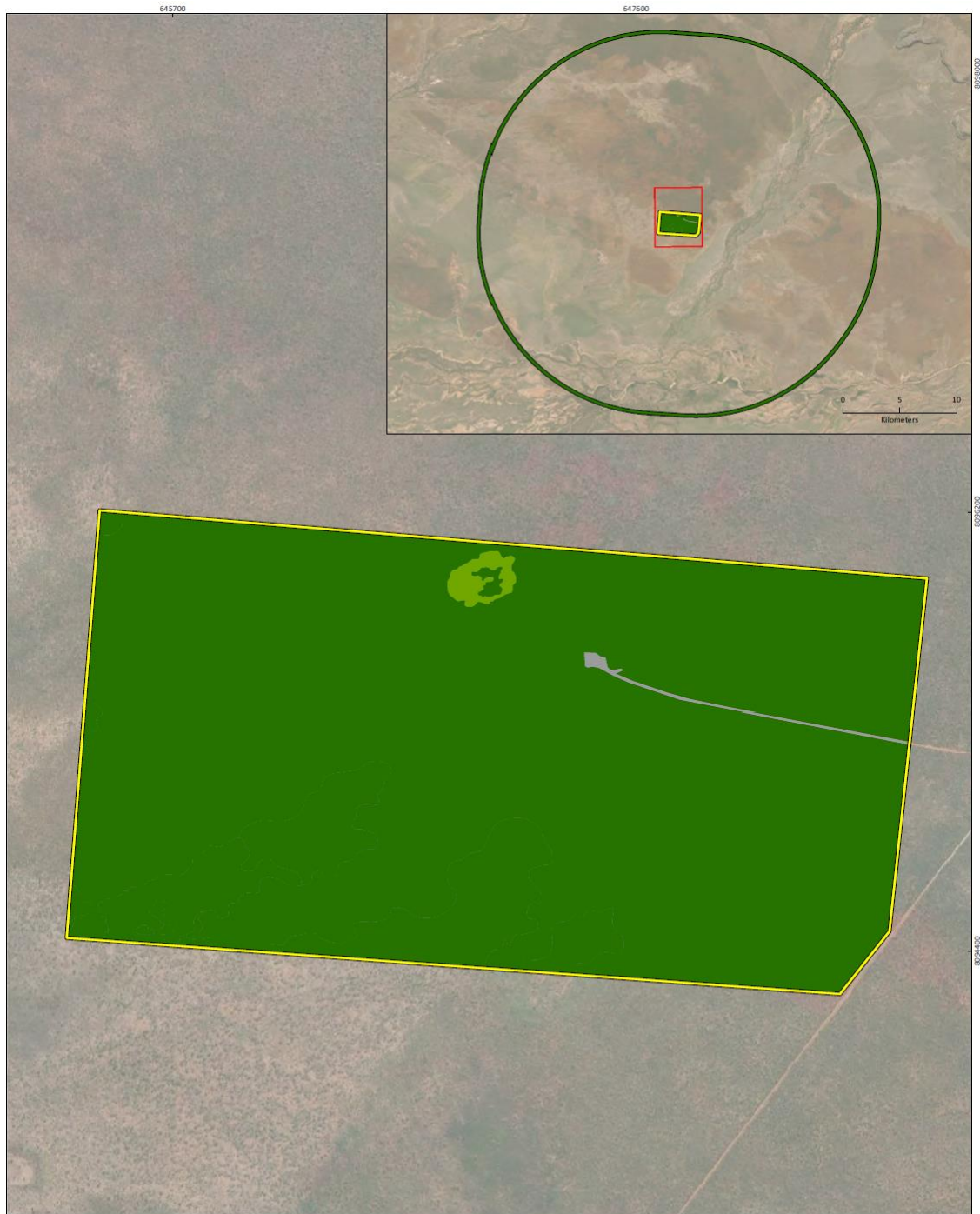
Figure 9. Descriptions and photographs of the vegetation types.





	Australian Capital Equity Napier Downs Irrigation Project			<b>Figure 5-6</b> Vegetation types recorded in the detailed study area
	Project No 1453 Date 1/12/2022 Drawn by BK Map author GW		<b>Vegetation type</b> AttSs Cleared EmDhaSs MccLggCr MvPsp.	
0 250 500 Meters		GDA 1994 MGA Zone 51 1:20,000 (at A4)		
<small>All information within this map is current as of 1/12/2022. This product is subject to COPYRIGHT and is property of Phoenix Environment of Sciences (Phoenix). While Phoenix has taken care to ensure the accuracy of this product, Phoenix make no representations or warranties about its accuracy, completeness or suitability for any particular purpose.</small>				

Figure 10. Mapped vegetation types within the proposed clearing area.



	Australian Capital Equity Napier Downs Irrigation Project		<b>Figure 5-7</b> Vegetation condition in the study area  
	Project No   1453 Date   1/12/2022 Drawn by   BK Map author   GW	<b>Vegetation condition</b> 	
1:20,000 (at A4)      GDA 1994 MGA Zone 51			

All information within this map is current as of 1/12/2022. This product is subject to COPYRIGHT and is property of Phoenix Environmental Sciences (Phoenix). While Phoenix has taken care to ensure the accuracy of this product, Phoenix make no representations or warranties about its accuracy, completeness or suitability for any particular purpose.

**Figure 11.** Mapped vegetation condition (Trudgen, 1991) within the proposed clearing area.

Site code	Species
G0018	<i>Typha domingensis</i>
G0019	<i>Melaleuca viridiflora</i>
G0020	<i>Eucalyptus camaldulensis</i> subsp. <i>obtusa</i> <i>Pandanus spiralis</i>
GDE011	<i>Eucalyptus camaldulensis</i> subsp. <i>obtusa</i> <i>Planchonia careya</i>
GDE013	<i>Eucalyptus camaldulensis</i> subsp. <i>obtusa</i> <i>Terminalia platyphylla</i> <i>Lophostemon grandiflorus</i> subsp. <i>riparius</i>
GDE014	<i>Lophostemon grandiflorus</i> subsp. <i>grandiflorus</i>
GDE015	<i>Melaleuca viridiflora</i> <i>Nymphoides quadriloba</i>
GDE021	<i>Lophostemon grandiflorus</i> subsp. <i>grandiflorus</i> <i>Nymphoides quadriloba</i> <i>Nymphoides indica</i>
GDE022	<i>Lophostemon grandiflorus</i> subsp. <i>grandiflorus</i>
GDE023	<i>Lophostemon grandiflorus</i> subsp. <i>grandiflorus</i> <i>Melaleuca cajuputi</i> subsp. <i>cajuputi</i> <i>Nymphoides quadriloba</i>
GDE024	<i>Lophostemon grandiflorus</i> subsp. <i>grandiflorus</i> <i>Melaleuca cajuputi</i> subsp. <i>cajuputi</i> <i>Nymphoides quadriloba</i>
GDE025	<i>Lophostemon grandiflorus</i> subsp. <i>grandiflorus</i> <i>Melaleuca cajuputi</i> subsp. <i>cajuputi</i>
GDE026	<i>Melaleuca viridiflora</i>
GDE027	<i>Lophostemon grandiflorus</i> subsp. <i>grandiflorus</i> <i>Melaleuca cajuputi</i> subsp. <i>cajuputi</i> <i>Nymphoides indica</i>

Figure 12. List of groundwater dependant vegetation (GDV) indicators recorded during the survey.

## Appendix I. Sources of information

### I.1. GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas

- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

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