



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 8180/1
Permit Holder:	Mamabulanjin Aboriginal Corporation
Duration of Permit:	18 October 2019 – 18 October 2024

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I – CLEARING AUTHORISED

1. Purpose for which clearing may be done

Clearing for the purpose of a native tree orchard.

2. Land on which clearing is to be done

Lot 350 on Deposited Plan 75852, Waterbank.

3. Area of Clearing

The Permit Holder must not clear more than 30 hectares of native vegetation within the area cross-hatched yellow on attached Plan 8180/1.

4. Application

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

PART II – MANAGEMENT CONDITIONS

5. Avoid, minimise and reduce the impacts and extent of clearing

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

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

6. Dieback and weed control

When undertaking any clearing authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds* and *dieback*:

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

7. Direction of clearing

The Permit Holder shall conduct clearing in a slow progressive manner towards remnant vegetation to allow fauna to move into adjacent native vegetation ahead of the clearing activity.

8. Fauna management

- (a) Within two weeks of undertaking any clearing authorised under this Permit, the Permit Holder shall engage a *fauna specialist* to undertake clearance surveys using transects spaced at a maximum 200 metres within the areas cross-hatched yellow on attached Plan 8180/1 for any signs of greater bilby (*Macrotis lagotis*), including tracks, scats, diggings, burrows, etc. If any signs of the greater bilby is identified during the initial 200 metre transects, the Permit Holder shall undertake more intensive searches with transects spaced at a maximum of 20 metres.
- (b) Where a potential greater bilby burrow is identified under condition 8(a) of this Permit, the Permit Holder shall engage a *fauna specialist* to undertake the following measures:
 - (i) flag the location of any burrow/s;
 - (ii) determine whether the burrow/s is an *active burrow*;
 - (iii) fill in any visibly *inactive burrow/s* to prevent future use; and
 - (iv) monitor all *active burrows* with remote cameras for a minimum of three consecutive nights.
- (c) Where monitoring under condition 8(b)(iv) does not identify any greater bilby activity, the Permit Holder shall ensure that a *fauna specialist* excavates the *inactive burrow* in accordance with Appendix 1 to confirm absence of greater bilby, and immediately fills in the *inactive burrow* to prevent future use.
- (d) Where monitoring under condition 8(b)(iv) identifies greater bilby activity, the Permit Holder shall engage a *fauna specialist* to:
 - (i) Avoid clearing of burrows, if possible and only if not possible;
 - (ii) partially excavate the *active burrow*, to encourage greater bilby *displacement*;
 - (iii) continually monitor with remote cameras any *active burrow/s* for a maximum period of three consecutive days or until such time that greater bilby has been *displaced* from the *active burrow/s*;
 - (iv) fill in the *active burrow* to prevent future use where greater bilby is observed to have been *displaced*.
- (e) Should greater bilby not be *displaced* under condition 8(d) of this Permit, the Permit Holder shall engage a *fauna specialist* to undertake the following measures:
 - (i) capture greater bilby utilising the *active burrow* via cage traps or yard traps (refer to Appendix 1), to be deployed for a maximum of three consecutive days; and
 - (ii) relocate any captured greater bilby within 14 hours at a pre-selected release site more than five kilometres from the boundary of the area hatched yellow on attached Plan 8180/1 in *suitable habitat*, in accordance with a Ministerial Authorisation to take or disturb threatened species under Section 40 of the *Biodiversity Conservation Act 2016*.
- (f) Where greater bilby have been relocated under condition 8(e)(ii), the Permit Holder shall ensure that the *active burrow* from which the greater bilby was relocated is filled in to prevent future use.
- (g) Within two days of undertaking any clearing authorised under this Permit, the Permit Holder shall engage a *fauna specialist* to undertake a walk-through of the area cross-hatched yellow on attached Plan 8180/1 to inspect previously filled burrows and ensure that greater bilby has not recolonised filled burrows, and no new burrows have been constructed.
- (h) Should any new or recolonised burrows be identified under condition 8(g) of this Permit, the Permit Holder shall undertake measures in accordance with 8(e) of this Permit to remove and relocate greater bilby utilising the new or recolonised burrows.
- (i) Where greater bilby burrows are identified under condition 8(a), 8(b) and/or 8(g) of this Permit, and/or greater bilby are *displaced* or are relocated under conditions 8(d), 8(e) and 8(h) of this Permit, the Permit Holder shall include the following in a report submitted to the Department of Water and Environmental Regulation:
 - (i) the location of any *active burrows* and/or *inactive burrows* identified, using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (ii) the date, time and location, using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees of any *active burrows* and/or *inactive burrows* identified that were filled in, in accordance with condition 8(b)(iii) and/or 8(d)(iii);

- (iii) a description of the camera monitoring measures undertaken under condition 8(b)(iv) of this Permit, including photographic records demonstrating the method and the number of monitoring nights;
- (iv) the date, time and location identified, using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees, of any greater bilby recorded as being displaced from an *active burrow*;
- (v) the gender of each greater bilby captured under conditions 8(e) and/or 8(h) of this Permit;
- (vi) the location of any greater bilby captured using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
- (vii) the date, time, vegetation type and weather conditions at each location where greater bilby is captured under condition 8(i)(v) of this Permit;
- (viii) the gender of each greater bilby relocated under conditions 8(e) and/or 8(h) of this Permit;
- (ix) the location of any greater bilby relocated using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
- (x) the date, time, vegetation type and weather conditions at each location where greater bilby is relocated under condition 8(i)(viii) of this Permit;
- (xi) the name of the *fauna specialist* that relocated greater bilby under condition 8(e) and/or 8(h) of this Permit; and
- (xii) a copy of the fauna licence authorising the relocation of greater bilby under conditions 8(e) and/or 8(h) of this Permit.

PART III - RECORD KEEPING AND REPORTING

9. Records must be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit:

- (a) In relation to the clearing of native vegetation authorised under this Permit:
 - (i) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;
 - (ii) the date that the area was cleared;
 - (iii) the size of the area cleared (in hectares);
 - (iv) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 5 of this Permit;
 - (v) actions taken to minimise the risk of the introduction and spread of *weeds* and *dieback* in accordance with condition 6 of this Permit;
 - (vi) actions taken in accordance with conditions 7 of this Permit; and
 - (vii) of records required under condition 8 of this Permit, and the date the report is submitted to the Department of Water and Environmental Regulation.

10. Reporting

- (a) At least 48 hours prior to commencing clearing authorised under this Permit, the Permit Holder shall advise the *CEO* in writing of the date that clearing is scheduled to commence.
- (b) On or before 30 June of each year following the commencement of clearing authorised under this Permit, the Permit Holder must provide to the *CEO* a written report of records required under condition 9 of this Permit.
- (c) The Permit Holder must produce the records required under condition 9 of this Permit when required by the *CEO*.

DEFINITIONS

The following meanings are given to terms used in this Permit:

active burrow means a burrow that is currently being utilised by greater bilby;

CEO means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*;

dieback means the effect of *Phytophthora* species on native vegetation;

displaced/displacement means a greater bilby departing a burrow of its own volition and/or self-relocating;

fauna specialist: means a person who holds a tertiary qualification specializing 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, and who holds a valid fauna licence issued under the *Biodiversity Conservation Act 2016*;

fill means material used to increase the ground level, or fill a hollow;

inactive burrow means a burrow that is not currently being utilised by greater bilby;

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;

suitable habitat means habitat that is suitable for use by greater bilby (*Macrotis lagotis*)

weed/s means any plant -

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



Samara Rogers
MANAGER
NATIVE VEGETATION REGULATION

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

23 September 2019

Appendix 1: burrow excavation

The following procedures should be followed when excavating burrows:

- Burrow excavation requires two people, each with a blunt-nosed shovel and/or garden trowels. It may take up to several hours to excavate a greater bilby burrow, depending on its length and other characteristics.
- To maintain sight of the burrow, place the shovel handle down the burrow entrance as far as possible.
- Slice away the ceiling with the second shovel or trowel, removing the sides and surrounding soils as required.
- Continue to slide the first shovel down into the burrow chamber so the burrow is not lost during excavation.
- Remove the soil with the second shovel or trowel as excavation proceeds and repeat.
- Excavate the burrow slowly and carefully, and stop often to see if a greater bilby is within reach or the end of the burrow is visible (a torch may be required). Be aware that other fauna species may be utilising the burrow.
- Do not collapse the burrow ahead of the shovel or trowel inside the burrow. Feel the shovel contact the other shovel with each stroke to avoid striking a greater bilby.
- Always excavate the burrow to its absolute end – be aware of forks, branches and plugged chambers and ensure all are excavated and inspected.
- If any fauna is observed, it may be either displaced or captured. Note that venomous species may be present in burrows.
- If a juvenile greater bilby is captured, then reunite with mother if possible by direct insertion into the pouch and taping.
- After excavating the burrow, fill in the remaining hole.

Appendix 2: greater bilby trapping

Burrow traps

Cage traps with internal-opening doors (spring closing) are required. Hessian should cover the top and sides of the trap but not the end, to enable a bilby to see through the trap. The wire mesh base should be lightly covered with sand. The sides of the burrow need to be carefully dug out using a small shovel to enable the trap to fit snugly inside the burrow, and deep enough so the treadle is just inside the burrow entrance (McGregor and Moseby 2014). Bait is unnecessary. Having no hessian on the base enables sand to obscure the wire mesh. However, the treadle needs to remain free and protected from sand build-up from below. The treadle can be camouflaged by spraying water over the treadle, and then sprinkling sand on top to affix.



Yard traps

A yard is built around a potentially active burrow using 3-4 m panels of 25x25 mm square mesh (or finer), 900 mm tall with a hinged 300-400 mm footing (Southgate *et al.* 1995). The hinged footing can be attached with ring fasteners. A rod through ring fasteners attached to the end of each panel can be used to join additional panels. The panels need to encircle the burrow, leaving about 1 m or more from the entrance. The footing needs to face inward toward the burrow entrance and can be cut to enable overlap and panels to curve around the burrow. The footing should be flat with the ground and covered with sand. At least three internally opening (spring closing) cage traps should be set inside the yard trap against the side of a panel and the wire mesh on the base obscured with sand. The top and sides of the traps should be covered with hessian but absent from the end. Bait may be used in traps.

Plan 8180/1



Legend

-  CPS areas approved to clear
-  Local Government Authorities
-  Roads
- Image



0 100 200 m



MGA 94
Geocentric Datum of Australia 1994

Samara Rogers

2019.09.23

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Officer with delegated authority under Section 20
of the Environmental Protection Act 1986



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WESTERN AUSTRALIA
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Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.:	8180/1
Permit type:	Purpose Permit
Application date:	24 August 2018

1.2. Applicant details

Applicant's name:	Mamabulanjin Aboriginal Corporation
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1.3. Property details

Property:	LOT 350 ON DEPOSITED PLAN 75852
Local Government Authority:	BROOME, SHIRE OF
Localities:	WATERBANK

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
30		Mechanical Removal	Horticulture

1.5. Decision on application

Decision on Permit Application:	Granted
Decision Date:	23 September 2019

Reasons for Decision: The clearing permit application has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986* (EP Act). It has been concluded that the proposed clearing may be at variance to principle (b), and is not likely to be at variance to the remaining principles.

Based on the assessment of the application area, the Delegated Officer determined that the application area may be necessary for the maintenance of significant habitat for the greater bilby (*Macrotis lagotis*).

To minimise impacts to the greater bilby, the clearing permit contains conditions requiring:

- pre-clearance surveys to identify greater bilby burrows within the application area and determine whether burrows are active;
- measures to encourage greater bilby to self-relocate from active burrows;
- the trapping and relocation of greater bilby's from active burrows should they not self-relocate;
- slow progressive one directional clearing to allow greater bilby to move into adjacent vegetation ahead of the clearing; and
- the requirement to obtain a fauna licence issued pursuant to *Biodiversity Conservation Act 2016*.

A weed and dieback management condition has been placed on the clearing permit to minimise the risk of weeds and dieback spreading into adjacent areas of remnant vegetation.

Given the above, the Delegated Officer decided to grant a clearing permit subject to weed and Dieback management, fauna management and avoid minimise conditions.

2. Site Information

Clearing Description The application is for the clearing of 30 hectares of native vegetation at Lot 350 on Deposited Plan 75852, Waterbank for the purpose of a native tree orchard. The application area is displayed in Figure 1 with a context map provided in Figure 2.

Note: The application originally included the proposed clearing of an additional 7 hectares of native vegetation for firebreaks/service roads, however, this was removed from the application due to the availability of clearing permit exemptions for these works.

Vegetation Description The application area is mapped in the 'Dampierland' region of the Interim Biogeographic Regionalisation for Australia (IBRA), and is mapped as the following Beard vegetation association (Shepherd, 2001):

- 750 described as 'Shrublands, pindan; *Acacia tumida* shrubland with grey box & cabbage gum medium woodland over ribbon grass & curly spinifex'.

A flora and vegetation survey (the Flora survey) conducted in May 2019 by GHD (2019) mapped the application area as comprising of *Acacia plectocarpa* subsp. *plectocarpa*,

Acacia tumida var. *kulparn* and *Hakea macrocarpa* shrubland with scattered emergent *Corymbia zygophylla* and *Corymbia greeniana* trees over *Dolichandrone occidentalis*, *Bauhinia cunninghamii* and *Gardenia pyriformis* subsp. *keartlandii* sparse shrubland over *Corchorus sidoides* subsp. *sidoides* sparse shrubland over *Sorghum plumosum* and *Eriachne obtusa* tussock grassland over *Triodia caelestialis* hummock grassland.

Vegetation Condition

The condition of the vegetation within the Application area is considered to be:

- Excellent: Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species (Keighery, 1994).

The vegetation condition was determined by the Flora survey (GHD, 2019).

Soil type

The application area is mapped as the following land subsystem:

- Yeeda System, which is described as red sandplains supporting pindan vegetation (Department of Primary Industries and Regional Development (DPIRD), 2018).

Comments

The local area is considered a 20 kilometre radius of the Application area (excluding ocean).



Figure 1: Application area (blue outline)



Figure 2: Context map



Figure 3. Vegetation observed during the Flora survey (GHD, 2019).



Figure 4. Sign of Bilby activity observed in close proximity to the application area (GHD, 2019).

3. Minimisation and mitigation measures

In relation to whether alternatives have been considered that would avoid or minimise the need for clearing, the applicant has advised:

“The Mamabulanjin Aboriginal Corporation have trialled the establishment of a native fruit farm whereby minimal clearing of the understorey was done by brushcutting to clear patches for planting of individual trees. This clearing method was unsuccessful as the planted trees were outcompeted and/or overgrown by the native vegetation that was left intact around the planted trees. Recent trials have shown that mechanical clearing of rows is required to successfully establish native fruit trees, but large/emergent trees within the rows are retained to provide shade for the planted trees, as well as endangered or culturally significant species.”

4. Assessment of application against clearing principles, planning instruments and other relevant matters

(a) Native vegetation should not be cleared if it comprises a high level of biodiversity.

Proposed clearing is not likely to be at variance to this Principle

According to available datasets, one threatened flora species and fourteen priority (P) flora species have been recorded the local area. Threatened flora are discussed further under Principle (c), priority flora species are discussed in the table below.

Table 1. Threatened and priority flora recorded in the local area

Taxon	Status	Comment
<i>Corymbia paractia</i>	P1	The known range of <i>C. paractia</i> is south of the application area (DBCA, 2018). No significant impacts to this species are expected from the proposed clearing.
<i>Jacquemontia</i> sp. Broome (A.A. Mitchell 3028)	P1	<i>J. sp. Broome</i> (A.A. Mitchell 3028) has been recorded in surveys for the Cape Leveque Road upgrade (CPS 6078/1). The species was recorded as occurring sparsely over a length of approximately 50 kilometres (GHD, 2013). Noting the extent to which this species has been recorded in the Cape Leveque Road surveys, and that the application area is likely to provide uniform habitat when compared to the surrounding area, no significant impacts to this species are expected from the proposed clearing.
<i>Thespidium basiflorum</i>	P1	The records of <i>T. basiflorum</i> within the local area were recorded in areas of <i>Melaleuca</i> forest. This vegetation type is unlikely to be present within the application area. No significant impacts to this species are expected from the proposed clearing.
<i>Gomphrena pusilla</i>	P2	The records of <i>G. pusilla</i> within the local area were recorded in close proximity to the coast in fine beach sand. The application area is unlikely to contain suitable habitat for this species. No significant impacts expected.
<i>Acacia monticola</i> x <i>tumida</i> var. <i>kulparn</i> <i>Aphyllodium glossocarpum</i> <i>Glycine pindanica</i> <i>Goodenia byrnesii</i> <i>Nicotiana heterantha</i> <i>Polymeria</i> sp. Broome (K.F. Kenneally 9759) <i>Seringia katatona</i> <i>Stylidium pindanicum</i> <i>Terminalia kumpaja</i> <i>Tetragonia coronata</i>	P3 P3 P3 P3 P3 P3 P3 P3 P3 P3	P3 species are: <ul style="list-style-type: none"> species that are known from several locations, and the species do not appear to be under imminent threat; or species that are known from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. <p>The <i>Dampier Peninsula</i> has been described as presenting a relatively uniform environment (Kenneally et al. 1996 in GHD, 2013) and, as outlined under Principle (e), the local area surrounding the application area retains approximately 97 per cent native vegetation. It is considered that the application area is unlikely to support significant populations of any of these species.</p>

The Flora survey (GHD, 2019) did not record any flora species listed as conservation significant under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) or the EP Act within the application area. Considering previous records, habitat requirements, efficacy of the survey, intensity of the survey, flowering times and cryptic nature of species, GHD (2019) advised that all priority flora species mapped within the local area are unlikely to occur within the application area.

The collection of *Scleria* aff. *brownie* from the Cyperaceae family was determined as having an affinity but not identical to *Scleria brownie*, and is a flora of interest. As this taxon was recorded from a widespread habitat and vegetation type, it is considered that further records are likely to occur outside of the survey area. It is expected that this taxon would continue to recruit post vegetation clearing given the proposed low impact clearing/rolling of vegetation (GHD, 2019).

As outlined under Principle (b), one species, the Greater bilby, has potential to be impacted by proposed clearing. Potential significant impact could occur to the species with the potential loss of burrows and foraging habitat. Potential impacts upon bilby will be minimised by the implementation of fauna management conditions.

As outlined under Principle (c), no threatened flora is mapped or is likely to occur within the application area.

According to available datasets, mapped records of two ecological communities listed as threatened (TECs) under the EPBC Act and five State listed priority ecological communities (PECs) occur within the local area:

- Species-rich faunal community of the intertidal mudflats of Roebuck Bay (TEC – vulnerable);
- Vine thickets on coastal sand dunes of Dampier Peninsula (TEC – vulnerable);
- *Corymbia paractia* dominated community on dunes (PEC – Priority 1);
- Dwarf pindan heath community of Broome coast (PEC – Priority 1);
- Relict dune system dominated by extensive stands of Minyjuru (Mangarr) *Sersalisia* (formerly *Pouteria*) *sericea* (PEC – Priority 1);
- Kimberley Vegetation Association 73 (PEC – Priority 3); and
- Nimalarica Claypan Community (previously Nimalaica) (PEC – Priority 4).

The closest PEC to the application area is a record of the 'Relict dune system dominated by extensive stands of Minyjuru (Mangarr) *Sersalisia* (formerly *Pouteria*) *sericea*' community which is mapped approximately 700 metres south. All of the mapped records of this PEC occur in the local area, predominantly in and around the Broome town site. A total of 19 patches of the PEC are mapped ranging in size from 1 hectare to 42 hectares and measuring a combined total of approximately 260 hectares. The application area is located outside of the current mapped range of the PEC. No significant impacts to the PEC are expected.

The Flora survey (GHD, 2019), advised that the mapped vegetation type does not represent any TECs listed under EPBC Act, or PECs listed under the EP Act.

As outlined under Principle (e), the local area surrounding the application area retains approximately 97 per cent native vegetation. The application area is also considered likely to be relatively uniform with the surrounding vegetation.

Given this context, the application area is not likely to comprise a high level of biodiversity, and therefore the proposed clearing is not likely to be at variance to this Principle.

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.

Proposed clearing may be at variance to this Principle

According to available databases, nineteen threatened and fifteen priority fauna species listed as being of conservation significance under the BC Act within the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* (WC Notice) have been recorded within the local area (DBCA, 2007 –).

In addition to the above, the Dampier Peninsula goanna (*Varanus sparnus*) was recently described in 2014 and is listed as P1. It is known from four records; three near Coulomb Point (approximately 30 to 50 kilometres north of the application area) and one near Mount Jowlaenga (approximately 85 kilometres northeast of the application area) (DPaW, 2007 –). The distribution and abundance of the species is poorly known and noting the application area represents potentially suitable habitat, consideration should be given to the species potential occurrence (Department of Biodiversity Conservation and Attractions (DBCA), 2018).

A total of 29 fauna species were recorded within the application area during the Fauna survey (GHD, 2019). Based on species biology, habitat requirements, the quality and availability of suitable habitat, local occurrence and the outcomes of the targeted fauna survey, GHD (2019) advised that one conservation significant fauna species is known to occur within the application area; being bilby (*Macrotis lagotis*), and four species are likely to occur within the application area. These include Peregrine Falcon (*Falco peregrinus*), grey falcon (*Falco hypoleucos*) (Vulnerable), Gouldian Finch (*Erythrura gouldiae*) (P4) and Barn Swallow (*Hirundo rustica*).

Bilby

Historically the bilby occupied a vast area of Australia with records from all states except Victoria and Tasmania. In WA, the distribution of the bilby extended from the Dampier Peninsula in the north to the Wheatbelt in the southwest. The species is now restricted to the Pilbara and Kimberley in WA, the Tanami, Great Sandy and Gibson deserts in NT, and an isolated population in southwest Queensland (Pavey, 2006). The current distribution of the bilby is reported as being strongly correlated to the absence or limited abundance of foxes, rabbits and stock (DEC, 2012; Abbott, 2001; Southgate, 1990).

Known/potential threats to the bilby include predation by introduced animals (fox, feral cat), competition with introduced herbivores (rabbits, stock), habitat degradation/destruction, unsuitable fire regimes, mining and other development, drought and road mortality (Pavey, 2006).

The shrub species *A. tumida* and *S. notabilis* which occur within the application area/surrounds are known to harbour the grubs which form a significant fraction of a bilby's diet. There are recent (2015) records of the bilby along Broome Beagle Bay Road approximately 500 metres to the east. The application area is likely to be utilised by the bilby and utilisation may increase after the ground has been cultivated (DBCA, 2018).

The DBCA Species and Communities (S&C) branch (2019) advised that "It is likely that bilbies use or will use the application area at some point of time, and their use of the area may increase in use after the ground has been cultivated. If the proposed staged vegetation clearing occurs, then there should be minimal long-term impact to the bilbies because the proposed land use isn't complete removal of bilby habitat, and bilbies will be able to continue to utilise the orchard area, unless it is being fenced. The potential short-term impact to bilbies is injury or mortality of individuals during the vegetation clearing, if they are present at that time. Possible future impacts to individual bilbies may also occur during the orchard planting, harvest and maintenance activities, depending on the procedures."

No bilby burrows were found during targeted searching of the application area (GHD, 2019). Targeted and opportunistic searching in the adjacent area, east and south of the application area detected two active Bilby burrows (Figure 4) with fresh soil excavated indicating this species is likely to be resident in close proximity to the survey area. Other borrow were also identified, but did not present recent use. GHD (2019) advised that a pre-clearance fauna survey targeting bilby, which would locate any recent active burrows within the clearance footprint to prevent destruction of active bilby burrows should be undertaken directly prior to clearing.

Peregrine falcon

Peregrine falcon is listed as other specially protected fauna species under the BC Act within the WC Notice. The Fauna survey undertaken by GHD (2019) advised that this species is known to occur locally, and the pindan shrubland habitat within the study area represents suitably foraging habitat, although lacks suitable breeding habitat. Therefore likely to occur at least on an occasional basis.

Given the highly mobile nature of Peregrine falcon, the abundance of similar foraging habitat within the local area, and the likely absence of suitable nesting habitat, the proposed clearing is not likely to result in significant impacts to this species.

Grey falcon and Gouldian finch

The application area may provide suitable foraging habitat for the grey falcon and Gouldian finch, however, large areas of similar such habitat remains on the Dampier Peninsula. The Dampier Peninsula has been described as presenting a relatively uniform environment (Kenneally et al. 1996 in GHD, 2013) and, as outlined under Principle (e), the local area surrounding the application area retains approximately 97 per cent native vegetation.

The application area is considered unlikely to provide suitable nesting habitat for these species which nest in tall trees or mature trees with hollows, neither of which are likely to occur within the application area due to the vegetation type present.

Given the highly mobile nature of the grey falcon and Gouldian finch, the abundance of similar foraging habitat within the local area, and the likely absence of suitable nesting habitat, the proposed clearing is not likely to result in significant impacts to these species.

Barn Swallow

Barn Swallow is listed as fauna species protected under international agreement under the BC Act within WC Notice. GHD (2019) advised that species is known to occur locally. Although the site lacks nesting habitat, the shrubland plains within the survey area represent suitable foraging habitat and likely to occur on an occasional or seasonal basis.

Other fauna species of conservation significance could occasionally occur within the application area, however, GHD (2019) advised that it is considered unlikely that the application area provides important habitat for any of these species, and that these other species may occasionally use the application area for temporary refuge and dispersal between other areas of habitat.

Summary

Even though bilby evidence was not found during the fauna survey, it is possible that bilbies may be using the area at the time the clearing commences. Given this, the proposed clearing may be at variance to this Principle.

DBCA S&C branch (2019) advised that imposing fauna management would be adequate to manage potential impact to bilbies from the proposed clearing. Therefore, potential impacts upon bilby will be minimised by the implementation of fauna management conditions.

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.

Proposed clearing is not likely to be at variance to this Principle

According to available databases, one threatened flora species (*Seringia exastia*) is mapped within the local area. The closest record to the application area is approximately ten kilometres away. All of the records of this species within the local area are located within/immediately surrounding the Broome town site.

No Commonwealth or State listed threatened flora species were recorded within the application area, and noting previous records, habitat requirements, efficacy of the survey, intensity of the survey, flowering times and the cryptic nature of species, no conservation significant flora species are likely to occur within the application area (GHD, 2019).

Given this, the proposed clearing is not likely to be at variance to this Principle.

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Proposed clearing is not likely to be at variance to this Principle

According to available databases, two state listed TECs occur in the local area. The two TECs are restricted to coastal/intertidal areas. The application area occurs approximately five kilometres inland from the coast. The application area is not located in close proximity to any coastal/intertidal areas and therefore it is not expected to comprise the whole or a part of, or be necessary for the maintenance of a TEC.

The Flora survey undertaken by GHD (2019) advised that the vegetation type within the application does not represent any BC Act listed TECs.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Proposed clearing is not likely to be at variance to this Principle

The National Objectives and Targets for Biodiversity Conservation 2001-2005 include a target to have clearing controls in place that prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750 (i.e. pre-European settlement) (Commonwealth of Australia, 2001). This is the threshold level, below which species loss appears to accelerate exponentially.

The local area measures approximately 80,000 hectares. Based on available datasets, approximately 77,500 hectares of remnant native vegetation remains in this area (i.e. approximately 97 per cent). The majority of the cleared land in the local area (i.e. approximately 1,800 hectares) is located at the Broome town site. The proposed clearing will reduce the extent of vegetation remaining in the local area by approximately 0.04 per cent.

As indicated in Table 2, the current vegetation extents for the Dampierland bioregion and Beard vegetation association 750 are close to 100 per cent. Noting this and the extent of vegetation remaining in the local area, the proposed clearing is not likely to be at variance to this Principle.

Table 2. Vegetation extent remaining statistics (Government of Western Australia, 2019)

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed lands (ha)	Extent remaining in all DBCA managed lands (proportion of Pre-European extent) (%)
IBRA bioregion					
Dampierland	8,343,945	8,319,879	99.7	142,055	1.7
Beard vegetation association					
750	1,229,182	1,225,281	99.7	34,114	2.8
Beard vegetation association in IBRA bioregion					
750 in Dampierland	1,229,182	1,225,281	99.7	34,085	2.8

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Proposed clearing is not likely to be at variance to this Principle

According to available datasets, no watercourses or wetlands occur within five kilometres of the application area.

The landform intersected by the application area has been described as:

“Sandplain and dunefields with little organised drainage; sandplain up to 16 km in extent, with shallow valleys, plains with thin sand cover, and scattered pans; with limited surface drainage in zones of sheet-flow up to 3.2 km wide and extending up to 8 km downslope from adjacent uplands.”
(DPIRD, 2018)

Noting this, the application area is not likely to support watercourses or wetlands and the proposed clearing is not likely to be at variance to this Principle.

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Proposed clearing is not likely to be at variance to this Principle

The soils of the application area have been described as ‘generally not prone to degradation or erosion but control of grazing pressure and frequency of burning is required’ (DPIRD, 2018).

Advice was sought from the Deputy Commissioner of Soil and Land Conservation at DPIRD regarding the risk of land degradation from the proposed clearing. The Deputy Commissioner advised (Deputy Commissioner of Soil and Land Conservation, 2018):

“The land capability assessment for the area indicates that the application area has a moderate to high capability for the proposed land use and the risk of land degradation is generally low.”

As outlined under Principle (e), the local area surrounding the application area retains approximately 97 per cent native vegetation. The proposed clearing will reduce the extent of vegetation remaining in the local area by approximately 0.04 per cent. The intended land use also involves the re-establishment of an extent of vegetation cover.

Given the above, any land degradation impacts from the proposed clearing are considered likely to be minor. The proposed clearing is not likely to be at variance to this Principle.

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Proposed clearing is not likely to be at variance to this Principle

The application area is located adjacent to Crown Reserve 52354 which is vested with the Yawuru Native Title Holders Aboriginal Corporation RNTBC and the Conservation Commission of Western Australia for the land uses of:

- use and benefit of Aboriginal inhabitants;
- recreation; and
- conservation.

The application area is surrounded by native vegetation and in the context of the extent of vegetation remaining in the local area, the proposed clearing is not likely to be of a scale that would impact any ecological linkages associated with Crown Reserve 52354. The proposed clearing has the potential to result in the introduction/spread of weeds, including into Crown Reserve 52354, however, the risk of such impacts may be mitigated through the implementation of appropriate hygiene management practices. The proposed clearing is not likely to be at variance to this Principle.

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Proposed clearing is not likely to be at variance to this Principle

As outlined under Principle (f), no watercourses or wetlands are mapped within five kilometres of the application area. The proposed clearing is not likely to cause deterioration in the quality of surface water.

The application area is located within the Broome Groundwater Area. The Broome Water Reserve (BWR), which is a Priority 1 (P1) Public Drinking Water Source Area (PDWSA), is located approximately 700 metres east of the application area. Groundwater salinity of the application area is mapped as being less than 500 milligrams per litre (measured as Total Dissolved Solids [TDS]). Water table depths are estimated to be 30 to 40 metres below the ground surface.

Given the depth to groundwater, the proposed clearing is not likely to cause deterioration in the quality of groundwater. The application area is down groundwater gradient of the P1 PDWSA and therefore the PDWSA is unlikely to be impacted. The proposed clearing is not likely to be at variance to this Principle.

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Proposed clearing is not likely to be at variance to this Principle

As outlined under Principle (i), the local area surrounding the application area retains approximately 97 per cent native vegetation. As outlined under Principle (f), the application area is not expected to support any wetlands or watercourses. The proposed clearing is not likely to be of a scale or in a location that would likely cause, or exacerbate, the incidence or intensity of flooding. The proposed clearing is not likely to be at variance to this Principle.

Planning instruments and other relevant matters.

The clearing permit application was advertised on the Department of Water and Environmental Regulation (DWER) website on 12 October 2018 for a public submission period closing 2 November 2018. No public submissions have been received in relation to this application.

Under the *Rights in Water and Irrigation Act 1914*, a licence to construct/alter a well and a licence to take groundwater is required for the development. The applicant has applied to construct a well and take 200,000 kL/annum (Application ID 22283). The DWER North West Region (Water) has reviewed the permit application and provides the following advice.

There are no defined waterways within or adjacent to the proposed clearing footprint and a broad hydrogeological understanding of the area indicates water table depths of 30-40 m below ground surface. Bore logs from proposed well construction would provide further site specific information on depth to groundwater.

The location is outside (and down groundwater gradient) of the Priority 1 Public Drinking Water Source Area. Given the lack of defined waterways and depth to groundwater, the proposed clearing is unlikely to have a significant impact on the quality of surface and groundwater resources. DWER recommends that stormwater runoff be appropriately managed to reduce erosion during clearing activities and orchard establishment (given the timing proposed is December during the wet season), to further reduce impacts on surface water resources.

The Shire of Broome in letter dated 19 October 2018 stated that it does not wish to raise any objections to the application (Shire of Broome, 2018).

On 14 December 2018 Mr Martin Pritchard (Environs Kimberley) sent a letter to the Minister for the Environment expressing his concerns that clearing permit had commenced (DWER Ref: DWERDT122549-1). The minister replied on 29 January 2019 (DWERDT122549-7).

Department of Mines, Industry Regulation and Safety (DMIRS) had raised concerns with the possible lease location due to the potential impact on the affected Mining Leases and their ability to conduct mining operations and suggested an alternative amendment. Having received the confirmation that the proposal area is located only on Lot 350 and will not affect any land south of MCGuigan road, DMIRS have withdrawn their objection to granting tenure (DMIRS, 2019).

On 16 October 2018 Department of Planning, Land and Heritage (DPLH) advised that a proposal from Water Corporation to amend the Management Order of Reserve 25716 to include power to lease and licence so that they can enter into a licence agreement with Mamabulanjin Aboriginal Corporation was received. The purpose of the licence was to give the Aboriginal Corporation suitable land to plant, grow and harvest native Australian edible bush tucker plants, crops and trees. The usual process required by DPLH was to seek comments and consents of the Shire and the DMIRS. DMIRS has objected to the request advising that the proposal was referred to the affected tenement holders who lodged strong objections to the proposal. As a result, the proposal was not granted to Water Corporation (DPLH, 2019a).

On 13 March 2019 DPLH advised that DMIRS had withdrawn their objections to the proposal, and as such DPLH did not object the issuing of a clearing permit (DPLH, 2019b).

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Geographic Information System (GIS) datasets:

- Cadastre, Land Tenure
- Groundwater salinity, statewide
- Hydrography, linear
- Interim Biogeographic Regionalisation of Australia (IBRA)
- Landgate Imagery
- Native Vegetation Current Extent
- Pre-European Vegetation
- Species and Communities Bio Datasets (accessed 14 December 2018)