GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: CPS 10156/1

File Number: DWERVT12523

Duration of Permit: From 13 September 2023 to 13 September 2037

PERMIT HOLDER

Shire of Broome

LAND ON WHICH CLEARING IS TO BE DONE

Lot 2792 on Deposited Plan 217781, Cable Beach.

Lot 2789 on Deposited Plan 217781, Cable Beach.

Cable Beach Road West Road Reserve (PIN 11478834), Cable Beach.

AUTHORISED ACTIVITY

The permit holder must not clear more than 1.64 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

CONDITIONS

1. Period during which clearing is authorised

The permit holder must not clear any native vegetation after 13 September 2033.

2. Avoid, minimise, and reduce impacts and extent of clearing

In determining the *native vegetation* authorised to be cleared under this permit, the permit holder must apply the following principles, set out in descending order of preference:

(a) avoid the clearing of *native vegetation*;

(b) minimise the amount of *native vegetation* to be cleared; and

(c) reduce the impact of clearing on any environmental value.

3. 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.

4. Directional clearing

The permit holder must conduct clearing activities in a slow, progressive manner toward the adjacent remnant vegetation to allow fauna to move into adjacent *native vegetation* ahead of the clearing activity.

5. Wind erosion management

The permit holder must commence activities related to the purpose of the clearing, no later than three (3) months after undertaking the authorised clearing activities to reduce the potential for wind erosion.

6. Fauna management

The permit holder must restrict clearing activities to day-light hours to avoid the possibility of injury to fauna.

7. Revegetation and rehabilitation (temporary works)

The permit holder must:

(a) retain the vegetative material and topsoil removed by clearing authorised under this permit and stockpile the vegetative material and topsoil in an area that has already been cleared;

(b) as soon as is practicable, and no later than six (6) months following clearing authorised under this permit, *revegetate* and *rehabilitate* areas cleared for *Temporarily works* under this permit, by:

  (i) re-shaping the surface of the land where possible so that it is consistent with the surrounding five metres of land;

  (ii) ripping the ground on the contour to remove soil compaction;

  (iii) laying the vegetative material and topsoil retained under condition 7(a) on the cleared area(s); and

(iv) undertake ongoing *weed* control over the *revegetated* and *rehabilitated* areas.

(c) within 24 months of laying the vegetative material and topsoil on the cleared area in accordance with condition 7(b) of this permit:

(i) engage an *environmental specialist* to determine the species composition, structure and density of the area *revegetated* and *rehabilitated*; and

(ii) engage an *environmental specialist* to make a determination as to whether the composition, structure and density determined under condition 7(c)(i) of this permit will, without further *revegetation/rehabilitation*, result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area.

(d) If the determination made by the *environmental specialist* under condition 7(c)(ii) is that the species composition, structure, and density determined under condition 7(c)(i) will not, without further *revegetation*, result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, the permit holder must *revegetate* the area by deliberately *planting local provenance* propagating material and/or *direct seeding* of *local provenance* seeds that will result in a similar species composition, structure, and density of *native vegetation* to pre-clearing vegetation types in that area.

(e) Where additional *planting* or *direct seeding* of *native vegetation* is undertaken in accordance with condition 7(d), the permit holder must repeat the activities required by condition 7(c) and 7(d) within two years of undertaking the additional *planting* or *direct seeding* of *local provenance native vegetation*.

(f) Where a determination is made by an *environmental specialist* under condition 7(c)(ii) that the composition, structure and density within areas *revegetated* and *rehabilitated* will result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, that determination shall be submitted to the *CEO* within three months of the determination being made by the *environmental specialist*.

(g) During the next *optimal time* occurring after receiving notice from the *CEO*:

(i) stating that the *CEO* disagrees with the determination submitted under condition 7(f); and

(ii) specifying the required further *planting* of *local provenance* propagating material and/or *direct seeding* of *local provenance* seeds that in the *CEO's* reasonable opinion are necessary to ensure that the *native vegetation* will result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, the permit holder must carry out the further *planting* and/or *direct seeding* specified in the notice.

8. Records that must be kept

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

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	(a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to GDA2020, expressing the geographical coordinates in Eastings and Northings; (c) the date that the area was cleared; (d) the size of the area cleared (in hectares); (e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 2; (f) actions taken to minimise the risk of the introduction and spread of *weeds* in accordance with condition 3; and (g) actions taken in accordance with conditions 4, 5 and 6.
2.	In relation to the *revegetation* and *rehabilitation* of areas pursuant to condition 6 of the permit	(a) actions taken to retain topsoil; (b) the size of the area(s) *revegetated* and *rehabilitated*; (c) the date(s) on which the *revegetation* and *rehabilitation* was undertaken; (d) details of the *revegetation* and *rehabilitation* activities undertaken; and (e) the boundaries of the area(s) *revegetated* and *rehabilitated*, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020). Expressing the geographical coordinates in Eastings and Northing

9. Reporting

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

DEFINITIONS

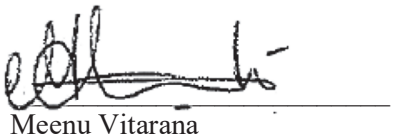
In this permit, the terms in Table 2 have the meanings defined.

Table 2: Definitions

Term	Definition
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*.
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
direct seeding	means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species.
environmental specialist	means a person who holds a tertiary qualification in environmental science or equivalent, and has a minimum of 2 years work experience relevant to the type of environmental advice that an environmental specialist is required to provide under this permit, or who is approved by the CEO as a suitable environmental specialist.
fill	means material used to increase the ground level, or to fill a depression.
department	means the department established under section 35 of the *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	*Environmental Protection Act 1986* (WA)
immediately prior	immediately prior means the pre-clearance surveys must be undertaken within 72 hours prior to clearing
local provenance	means native vegetation seeds and propagating material from natural sources within 50 kilometres and the same IBRA subregion of the area cleared.
optimal time	means the period from November–December for undertaking seeding and planting
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
planting	means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species.
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.
rehabilitate/ed/ion	means actively managing an area containing native vegetation in order to improve the ecological function of that area
revegetate/ed/ion	means the re-establishment of a cover of local provenance native vegetation in an area using methods such as natural regeneration, direct seeding and/or planting, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area
temporary works	means access tracks, spoil areas, side tracks, site offices, storage areas, laydown areas, extraction sites, camps, project surveys, pre-construction activities, and similar works associated with a project activity that are temporary in nature.
weeds	means any plant –

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

END OF CONDITIONS



Meenu Vitarana
MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

21 August 2023

SCHEDULE 1

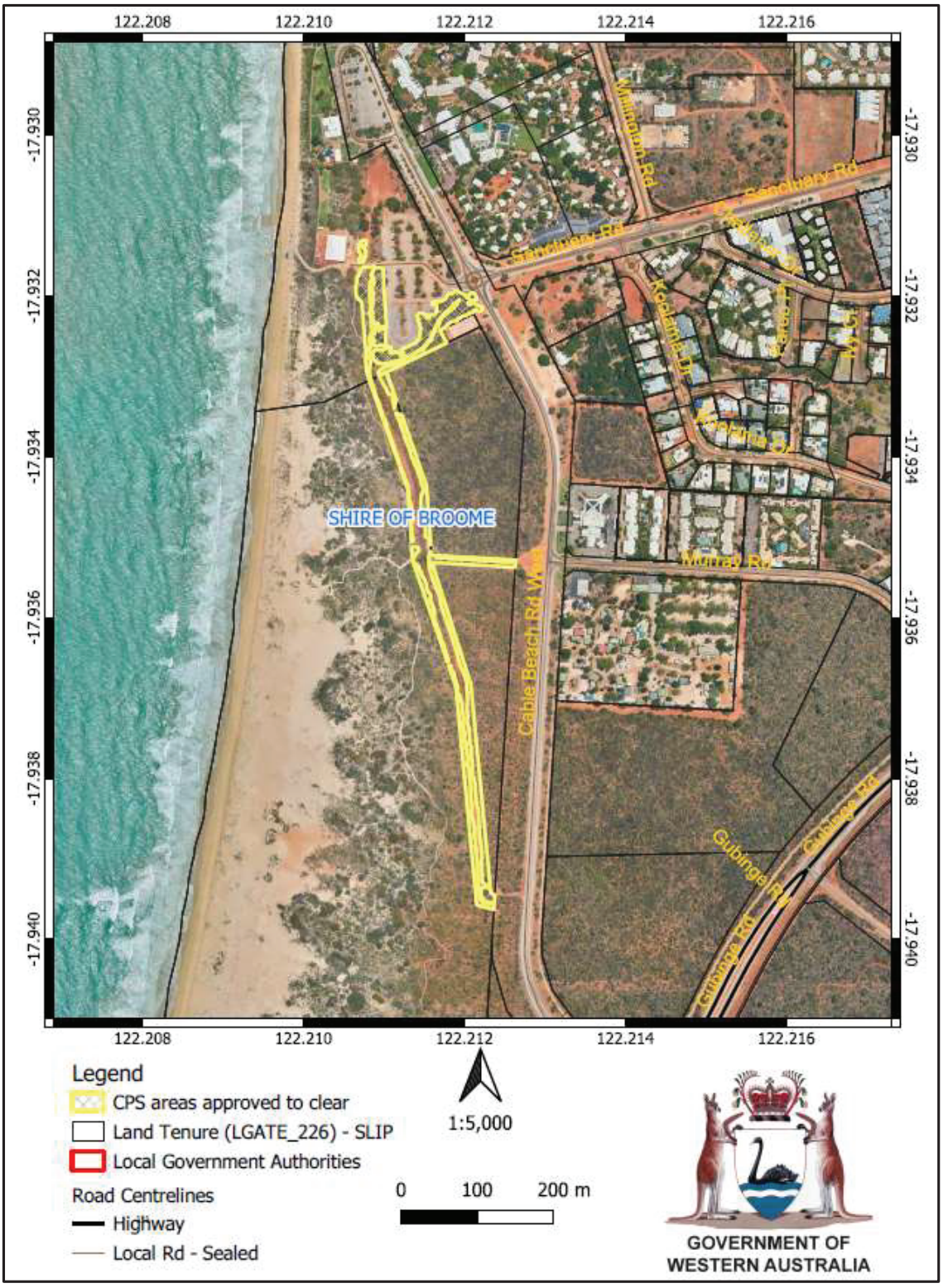


Figure 1: Map of the boundary of the area within which clearing may occur

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 10156/1
Permit type:	Area permit
Applicant name:	Shire of Broome
Application received:	19 April 2023
Application area:	1.64 hectares of native vegetation
Purpose of clearing:	Upgrade and maintenance of an existing drainage swale.
Method of clearing:	Mechanical clearing
Property:	Lot 2792 on Deposited Plan 217781 Lot 2789 on Deposited Plan 217781 Cable Beach Road West Road Reserve (PIN 11478834).
Location (LGA area/s):	Shire of Broome
Localities (suburb/s):	Cable Beach

1.2. Description of clearing activities

The vegetation proposed to be cleared is contained within a single contiguous area (see Figure 1, Section 1.5). The application is to clear 1.64 hectares of native vegetation to conduct upgrade and maintenance works on an existing drainage swale on Cable Beach. The area proposed to be cleared consists of approximately 950 metre strips along the eastern side of Cable Beach Road West.

The application area is an existing water drainage feature that was installed in the 1980's. The purpose of the proposed clearing is to re-shape this drainage swale, which has been silted up with regrowth vegetation, to prevent flooding to adjacent properties and ecological communities (SRL, 2023).

A land degradation assessment on June 2023 provided by the Soil and Land Conservation Commissioner (SLCC) informed that the drainage swale is in a state of disrepair. Large sections of the current swale do not conform to a trapezoidal shape, and the depth and batter slope are insufficient for achieving adequate filtration and sedimentation (SLCC, 2023).

The applicant (the Shire of Broome) (the Shire) advised that the Shire will require the maintenance of this drain indefinitely, ensuring it has sufficient volume to hold and channel all of the water volumes from its catchment area. Similar to all of the swale drains around the Shire, following the end of the wet season in May of each year, this involves first removing vegetation regrowth within the swale that will limit operations, then removing silt and sand that has been deposited in there with machinery. Where native vegetation reseeds itself naturally within the swale, the Shire will need to be able to remove this in order to ensure the safe operation of equipment without fire risk or visual or physical obstruction. This is an ongoing requirement for as long as the drain exists. As such, the Shire sought for the clearing permit to enable the clearing of native vegetation to the longest extent possible (Shire of Broome, 2023b).

1.3. Decision on application

Decision:	Granted
Decision date:	21 August 2023
Decision area:	1.64 hectares of native vegetation, as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Water and Environmental Regulation (DWER) advertised the application for 21 days and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix B), relevant datasets (see Appendix F.1), the findings of a detailed flora and vegetation survey (see Appendix E), the clearing principles set out in Schedule 5 of the EP Act (see Appendix C), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also took into consideration the final land use of the proposed clearing is to implement the maintenance of the swale which improve the drainage condition in the local area.

The assessment identified that the proposed clearing will result in:

- impacts on fauna individuals present within the application area during the time of the clearing;
- the loss of 28 individuals of priority flora species *Corymbia paractia* (Priority 1); and
- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined that the impacts of the proposed clearing can be minimised and managed to be unlikely to lead to an unacceptable risk to environmental values through permit conditioning. The applicant has suitably demonstrated avoidance and minimisation measures.

The Delegated Officer also took into consideration that Shire's requirement to continue to clear within the drain for maintenance work (see section 1.2) in determining to grant an Area Permit for a ten-year duration.

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.
- Undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity.
- Limit the clearing activities during daylight.
- Revegetation of the swale banks (temporary works).

1.5. Site map

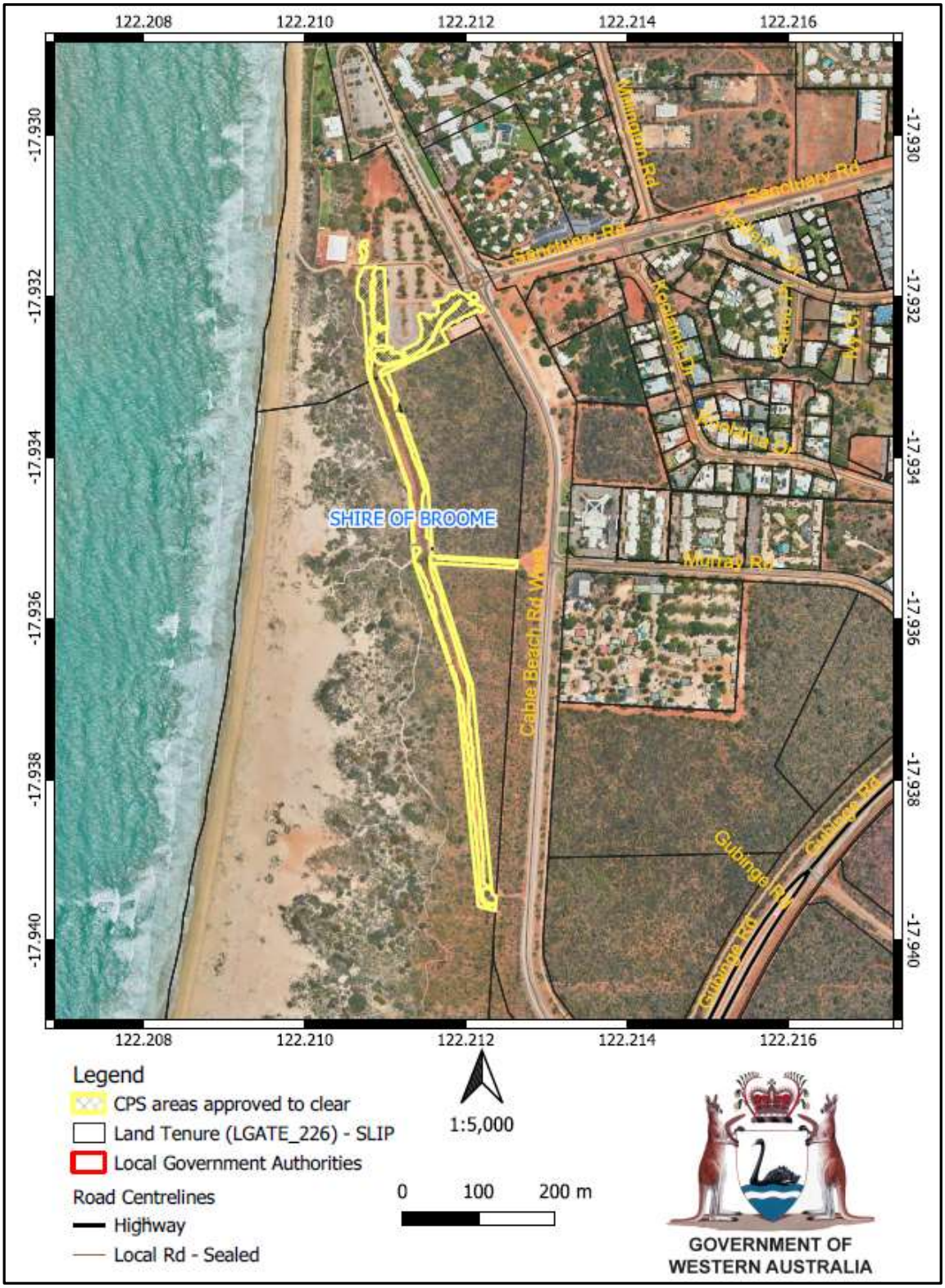


Figure 1 Map of the application area

The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

2 Legislative context

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

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)
- *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

Further information submitted by the applicant (SLR, 2023) indicates that the proposed clearing area covers an area of a drainage swale that was originally cleared in the late 1980s (Figure 2, left). Over time this drainage swale has silted up and vegetation has regrown to the extent the Shire of Broome is unable to maintain the swale unless the vegetation is cleared (Figure 2, right).

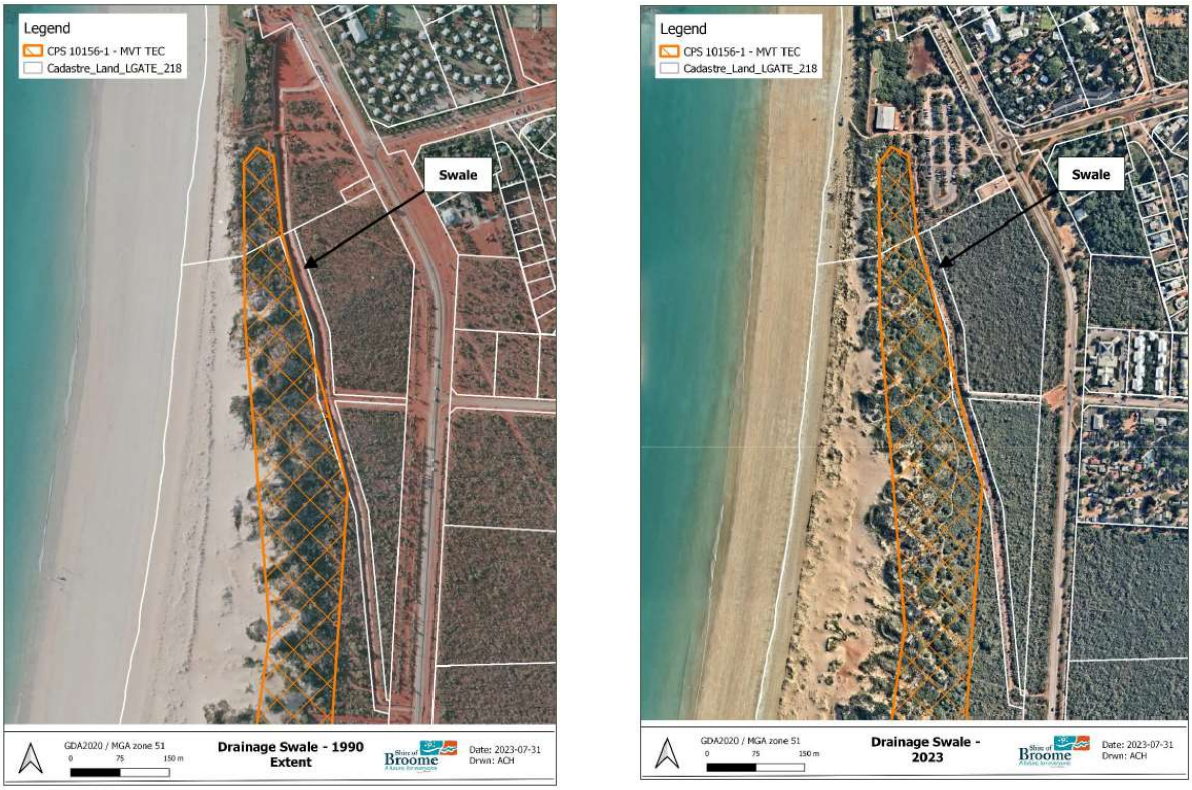


Figure 2: Spatial image of the swale in 1990 (left) and now (2023), indicating the overgrowth of vegetation into the swale boundary (SRL, 2023)

Further information provided by the applicant stated that the design of the swale maintenance work has been amended to avoid clearing the "Monsoon (vine) thickets on coastal sand dunes of Dampier Peninsula" (MVT) threatened ecological community (TEC) identified adjacent to the application area and nearly 50 per cent of identified *Corymbia paractia* individuals (28/49) compared with the original design (SRL, 2023).

Furthermore, to minimize the potential impacts from the activities associated with the proposed clearing, the applicant has committed to implement following environmental management measures (Shire of Broome, 2023a):

- Induction of all contractors and/or internal personnel undertaking the clearing in accordance with the Shire of Broome procedures.
- GPS coordinates of the application area to be supplied to contractors undertaking the clearing activities inclusive of the avoidance of the "Monsoon (vine) thickets on coastal sand dunes of Dampier Peninsula" (MVT) threatened ecological community (TEC) identified adjacent to the application area.
- Prior to clearing and earthworks commencing within the application area, the area will be clearly demarcated (by barrier tape or star pickets) to ensure that no over clearing occurs beyond the permitted area, particularly where the MVT TEC and/or *Corymbia paractia* (P1) PEC is adjacent to the Application area.
- Vegetation clearing will be scheduled to occur immediately before planned revegetation works to minimise the potential for dust, where practicable. The use of a water cart or other means of wetting will be made available.
- Where the MVT is located directly adjacent to the project activity area in the north, MVT species will be planted to serve as a buffer to protect the existing MVT edges from disturbance.
- Ensure all tubestock used in landscaping activities are sourced from a certified dieback-free nursery and are locally sourced species representative of the area. Tubestock will be quarantined if they are not sourced from local nurseries.
- A pre-clearing fauna inspection will be performed prior to the clearing for possible nests, and fauna relocation for species that are slow-moving by a licensed fauna handler, if deemed necessary.
- Weed hygiene measures are to be implemented to minimise the risk of spread or introduction of new weed species to the application area by:
  - Checking all vehicles, machinery, equipment, and personnel for weed contamination and including washdown stations for removal of plant material prior to entering and exiting the application area;
  - Ensuring weed-free tubestock is used in landscaping or plants of low weed risk;
  - Ongoing weed management maintenance by the Shire of Broome (the Shire) by use of steam as an alternative to chemicals if available.
- Landscape planting will be undertaken by the Shire's Parks and Gardens division in consultation with Yawuru, Goolarabooloo, and DBCA, where relevant.
- Cultural monitors will be consulted and present if and when required by Section 18 approval.
- The Shire will undertake an activity notice and site survey with Traditional Owners prior to clearing.
- Mulching of the cleared native vegetation and re-spreading after weed removal to stabilize the swale.
- Vehicle access points to the swale will be limited to ensure minimal disturbance.
- Disposal/reuse of excavated material and stockpiling in the existing basin.

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix B) 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 **Error! Reference source not found.**) identified that the impacts of the proposed clearing is likely to present a risk to biological values (flora, fauna and ecological communities), significant remnant vegetation and conservation areas, 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 (fauna) - Clearing Principles (a) and (b)

Assessment

The flora and vegetation assessment (360 Environmental, 2023a) identified three fauna habitat types within the application area, including:

(i) Mixed shrubland: Isolated *Corymbia* and *Terminalia* trees over mixed *Adriana*, *Acacia* and *Lysiphyllum* shrubs over *Triodia* hummocks. The vegetation was mostly in good condition, however, it was impacted by litter and walking trails.
(ii) Drainage line: A single linear drainage strip that travels the length of the application area in a North to South direction. This habitat lacks overstorey vegetation but contains isolated *Corymbia* sp. and *Acacia* sp. Ground cover is sparse, but typically contains *Trioda* hummocks on substrates ranging from sand to sandy-clay.
(iii) Planted trees: Introduced trees over mixed shrubs and/or cleared ground.

Representative photos of fauna habitats within the survey area are presented in Appendix 3.

The desktop assessment identified 102 conservation significant fauna species recorded in the 50-kilometre radius of the application area (local area), including 76 bird species, 15 mammal species, ten reptile species, and one fish species. In determining the likelihood of conservation significant fauna occurring within the application area, consideration was given to the results of the preferred habitat types, proximity of records to the application area, and the type and condition of the vegetation within the application area. Based on these factors, 62 bird species, two mammal species and two reptile species are considered to potentially occur in the application area.

Birds

Most of identified bird species inhabit coastal environments and water associated habitat. The drainage line and mixed shrubland habitats within the application area are likely to provide the most suitable habitat for birds after rainfall events. However, considering better quality naturally occurring foraging habitat adjacent to the application area, the proposed clearing is not considered to impact significant habitat for these bird species. Furthermore, noting that the final land use of the application area will be kept unchanged which is still a drainage swale, the impacts on these bird species' habitat (if any) are considered to be short-term.

Mammals

Greater bilby

The greater bilby (*Macrotis lagotis* - Vulnerable*)* is a medium-sized burrowing marsupial, occupying three major habitat including open tussock grassland on uplands and hills, mulga woodland or shrubland growing on ridges and rises, and hummock grassland in plains and alluvial areas (TSSC, 2016). The greater bilby is known from 247 records within the local area, the closest of which is approximately 1.2 kilometres from the application area. The mixed shrubland may provide suitable habitat for the bilby within the application area. However, noting the linear shape of the proposed clearing and the better quality of adjacent remnant vegetation, the application area is unlikely to provide significant habitat for this species. However, bilby individuals may transiently occur on site given the closest record, the high mobility of the species and the proximity of adjacent suitable habitat around the application area. It is recommended that clearing activities are conducted slowly, in one direction and is limited to daylight hours as the bilby is known to be active during dark hours, as they are nocturnal.

Northern brushtail possum (Kimberley)

The Northern brushtail possum (*Trichosurus vulpecula arnhemensis* - Vulnerable*)* is a nocturnal semi-arboreal marsupial and considered as a subspecies of the species of *T. arnhemensis* (TSSC, 2021). Most of this species' current population have been recorded in the Northern Territory, with limited records in Kimberley region of Western Australia. The Northern brushtail possum is mainly associated with tall eucalypt open forests and sometimes with mangrove communities where these contains hollow-bearing trees (TSSC, 2021). Ten records of this species are mapped within the local area, and the closest record is approximately 700 metres from the proposed clearing area. Considering that the vegetation within the application area is mostly shrub with lack of hollows (SRL, 2023), the proposed clearing area is unlikely a suitable habitat for this species. However, similar to the bilby, it is potential that the possum individuals may transiently occur on site given the closest record and the proximity of adjacent suitable habitat around the application area. The clearing in one direction and is limited to daylight hours will mitigate any potential impacts to individuals.

Reptiles

Dampierland plain slider and Dampierland burrowing snake

Dampierland plain slider (*Lerista separanda* – Priority 2) and Dampierland burrowing snake (*Simoselaps minimus* – Priority 2) are known only from the Dampierland Bioregion and are poorly known. The plain sliders have been recorded on consolidated coastal dunes (Cogger and Shea, 2017), while the burrowing snakes have been found in open areas with few trees (Ellis et al., 2017). The associated habitats of these two species are poorly known (Cogger and Shea, 2017; Ellis et al., 2017). There are 11 and five records of the plain sliders and burrowing snakes, respectively, within the local area, with the closest records of approximately 4.9 kilometres from the application area for both species. Noting that the application area is located in Dampierland which is the distribution area of the species, these two reptiles may be transient visitors within the application area while foraging and dispersing. Given this, it is important that the clearing activities are conducted slowly and in one direction towards the adjacent native vegetation to avoid possible mortality of these species.

Saltwater crocodile

Saltwater crocodile (*Crocodylus porosus*) is listed as specially protected in Western Australia. Even though no saltwater crocodiles are mapped within the local area, the survey identified a juvenile saltwater crocodile during the site inspection (360 Environmental, 2023). Saltwater crocodiles can occupy a range of habitats including rivers, estuaries, creeks, swamps lagoons and billabongs and can tolerate salinities ranging from zero per cent (freshwater) to 35 per cent (full strength sea water) (Australian Museum, 2020). The application area does not provide significant habitat to this species. The juvenile crocodile was expected to have been washed into the clearing area from a wildlife park approximately 15 kilometres northeast due to recent flood events (360 Environmental, 2023a) and is not considered to be a permanent resident to the site. The proposed clearing is therefore unlikely to impact the habitat of this species.

Conclusion

Based on the above assessment, the proposed clearing is unlikely to impact on significant habitat for any conservation listed fauna species. However, the proposed clearing may result in fauna fatalities should they occur within the application area during the clearing.

Conducting the clearing in a slow progressive manner from one direction towards the adjacent vegetation will allow any fauna present to move into the adjacent native vegetation ahead of the clearing activity. Restricting the proposed clearing to day-light hours will further avoid potential injuries to fauna.

Conditions

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

- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity.
- clearing be conducted during daylight hours.

3.2.2. Biological values (Threatened flora and Threatened Ecological Community) - Clearing Principles (a), (c), and (d).

Assessment

Flora

The desktop assessment identified 18 conservation significant flora taxa within the local area (50km-radius from the centre of the application area), which comprised of one threatened flora species, and 17 priority flora species. Based on the assessment on suitability of soil type, vegetation type and habitat, the species of *Corymbia paractia* (Priority 1) is considered to likely occur within the application area.

The biological assessment (360 Environmental, 2023a) identified 49 *Corymbia paractia* individuals within an area of 4.41 hectares including the application area and its surrounding area. Within the proposed clearing area, 28 *Corymbia paractia* individuals over 13 separate locations were identified. This is also the only conservation significant flora species found within the application area (360 Environmental, 2023a).

Corymbia paractia is a deciduous tree in the dry season, growing to 12m high and flowering between April to May or October to December. It is endemic to the Broome peninsula and surrounding Pindan plains, occurring on transition zone between coastal beach dunes and red pindan soils (Western Australian Herbarium, 1998).

DBCA advised that the clearing of 57 per cent (28/49 identified individuals) of the identified population of *Corymbia paractia* was considered locally and regionally significant. Therefore, the retention of this species where possible and the submission of seeds collected from *Corymbia paractia* to be cleared to WA Threatened Flora Seed Centre were recommended (DBCA, 2023).

This flora species is associated with the priority ecological community (PEC) of *Corymbia paractia* dominated community on dunes (*Corymbia paractia* PEC). The application area is mapped within an occurrence of this PEC (ID 3663) with an area of 54.2 hectares. In addition to this occurrence, there are several other occurrences of *Corymbia paractia* PEC in the local area (will be discussed further in following part). The applicant also informed that the *Corymbia paractia* is known to occur widely outside of the survey area with a recent but non-exhaustive survey identifying more than 2,800 individuals, meaning this clearing will impact less than 1 per cent of the local population within the Broome townsite (SRL, 2023).

Considering the common presence of *Corymbia paractia* PEC and the flora species *Corymbia paractia* within the Broome townsite (SRL, 2023), the clearing of 28 *Corymbia paractia* individuals within the application area can be considered unlikely to impact on the conservation status of this flora species. In addition, the revegetation over the batter after upgrade and maintenance works with native vegetation using the stored topsoil and mulch will help to restore the *Corymbia paractia* in the application area (SRL, 2023).

Ecological communities

Threatened ecological community of 'Monsoon vine thickets on the coastal sand dunes of the Dampier Peninsula'

The proposed clearing area is adjacent to the threatened ecological community 'Monsoon vine thickets on the coastal sand dunes of the Dampier Peninsula' (MVT TEC). The applicant stated that the proposed clearing will not occur within the MVT TEC (Shire of Broome, 2023a).

DBCA advised that MVT TEC occurrences have a known buffer of 50 metres or greater and recommended a further survey of surrounding area to demarcate the extent of the TEC occurrence along the western edge of the application area and its protective buffer as the alterations in flow regimes from poor drainage and surface water pooling, as a results of increased runoff within the development area, may negatively impact the MVT occurrence (DBCA, 2023).

Responding to request for further survey on the buffer of this TEC as per DBCA advice, the applicant informed that the proposed clearing area is an existing water drainage installed more than 30 years ago, and it has been situated adjacent to the TEC and hence within the default 50-metre buffer. The intent of proposed clearing is to re-shape the drain to improve its capacity and ability to manage water. The clearing and swale upgrade works will not impact the flow regimes that already support this occurrence of the TEC (SRL, 2023). The clearing will also enable the drainage swale maintenance and upgrade which will prevent or mitigate the flooding extent in the area, including adjacent ecological communities (SRL, 2023). Furthermore, the swale upgrade and maintenance works will remove several weed species which helps in controlling weeds, one key threat for the MVT TEC (TSSC, 2013; SRL, 2023). Considering the historical existence of the swale adjacent to the MVT TEC, the persistence of the TEC since the time the swale was established, and that the end land use/landform after clearing will be kept unchanged, it is unlikely that the proposed clearing may have significant impact on the TEC.

The applicant help a meeting with the Department of Climate Change, Energy, the Environment and Water (DCCEEW) in 2022 to discuss impacts to Matters of National Environmental Significance of the larger Cable Beach Redevelopment Project which includes the proposed works under this clearing application. DCCEEW has concluded that a referral under the EPBC Act would not be required for this project based on the design which avoided any direct impact to the MVT TEC (SRL, 2023).

Priority ecological community of 'Corymbia paractia dominated community on dunes'

As mentioned previously, the application area is mapped entirely within the PEC of *Corymbia paractia* dominated community on dunes (*Corymbia paractia* PEC) (Priority 1 – State listed). *Corymbia paractia* PEC is restricted to the Broome Peninsula and immediate vicinity. It is mainly confined to a relatively narrow coastal zone, where beach dunes merge into pindan soils, with some patches occurring across the Broome Peninsula (360 Environmental, 2023a). The proposed clearing consists of 0.546 hectares of the *Corymbia practia* PEC in good condition.

There are 63 occurrences of this PEC mapped in the local area with the total area of 271.86 hectares (GIS database). Considering the small extent of the PEC proposed to be cleared (0.2 per cent of the total area of the PEC) and the fact that the proposed clearing area is within the original extent of the drainage swale established in 1980's (Figure 2), the proposed clearing is unlikely to impact on the conservation status of this PEC.

Other issues: Weeds

The site inspection undertaken by officer from the Office of the Commissioner for Soil and Land Conservation identified that the drainage swale was particularly inundated with weeds including neem *Azadirachta indica*, *Cenchrus ciliaris*, *Passiflora* sp., *Senna* sp., *Merremia* sp., *Hyptis suaveolens* and many others (CSLC, 2023). The *Azadirachta indica* and *Hyptis suaveolens* are listed as declared pest under the *Biodiversity and Agriculture Management Act 2007* (BAM Act) (360 Environmental, 2023).

The proposed clearing may result in the spreading of these weed species and impact to the remnant vegetation including the adjacent MVT TEC and the *Corymbia practia* PEC. The poor maintenance of the drainage swale also poses a high risk of weed spread within the swale and the adjacent remnant vegetation.

Therefore, in addition to weed management measures during the clearing that will be conditioned in the permit, a detailed and ongoing weed management program/plan during the swale upgrade and maintenance is recommended to ensure the control of weeds in the long term. The applicant has committed to implement following measures (SRL, 2023):

Pre-clearing

- Weed control (spray) prior to clearing being undertaken.
- The clearing area will be clearly demarcated (by barrier tape or star pickets) to ensure that no over clearing occurs beyond the permitted area, particularly where the MVT TEC and/or *Corymbia paractia* PEC is adjacent to the clearing area.
- A pre-clearing fauna inspection will be performed prior to the clearing, and fauna relocation by a licensed fauna handler, if deemed necessary.

During clearing

- Induction of all contractors and/or internal personnel undertaking the clearing in accordance with the Shire of Broome procedures.
- Weed hygiene measures are to be implemented to minimise the risk of spread or introduction of new weed species to the clearing area by:
  - Check all vehicles, machinery, equipment, and personnel for weed contamination and include washdown stations for removal of plant material prior to entering and exiting the clearing area;
  - Ensure weed free tube stock is used in landscaping or plants of low weed risk.
- Vehicle access points to the swale will be limited to ensure minimal disturbance and lower potential for weed spread.
- As part of the clearing process, weed free native vegetation will be mulched and stored. Following the completion of maintenance works, this mulch will later be spread over the batters in order to promote native vegetation regrowth and batter stabilisation.

Post clearing (maintenance of swale)

In addition to those identified above the following specific items also apply.

- Mulched natives will later be spread over the batters in order to promote native vegetation regrowth and batter stabilisation.
- Additional planting in the swale or throughout the site will be weed free.
- All tube stock used in landscaping activities are sourced from a certified dieback free nursery, or appropriately quarantined, and are locally sourced species representative of the area.
- Landscape planting will be undertaken by the Shire of Broome Parks and Gardens division in consultation with Yawuru, Goolarabooloo, and DBCA, where relevant.
- Where the MVT is located directly adjacent to the Project activity area in the north, MVT species will be planted to serve as a buffer to protect the existing MVT edges from disturbance.
- Excavated soil material will be reused on site in the existing basin.
- The Shire adopted a Weed Management Strategy on 31 March 2022, which provides a framework for best practice weed management within the Shire and to protect the environment, economy, community, and industry from adverse impacts of weeds. The Shire prepared the Weed Management Strategy with consideration from the Shire's State of the Environment Report (2015) and in consultation with numerous stakeholders.
- The drainage swale will be incorporated into the Shires ongoing weed management program which involves regular inspections and treatment of weeds.
- To minimise the risk of introducing new weed species and/or spread of weed species during ongoing weeding and maintenance operations of the swale drain the following:
  - All contractor plant and equipment will be inspected to ensure they are free of soil, mud, and vegetative material. Vehicles/plant and equipment are to be washed down remove any potential introduced flora plants or seeds.
  - Ensure all operational staff are trained in the awareness of weed management.

- All Vehicles will adhere to established roads and tracks where possible.

Conclusion

Based on the above assessment, the proposed clearing is unlikely to result in significant impacts on the conservation status of MVT TEC and *Corymbia practica* PEC. However, there is potential the proposed clearing could impact on the environmental values of the ecological communities through the introduction or spread of weeds into adjacent vegetation.

Conditions

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

- Avoidance and minimisation to reduce the impacts and extent of clearing;
- Take hygiene steps to minimise the risk of the introduction and spread of weeds to adjacent vegetation;
- Revegetation the banks after completing the swale upgrade.

3.2.3. Conservation areas - Clearing Principles (h)

Assessment

There are several conservation areas mapped within the local area. The closest mapped conservation area is Broome Wildlife Centre approximately 2.2 kilometres to the north of the proposed clearing area. However, the application area is adjacent to the Yawaru Minyirr Buru Conservation Park (Minyirr Park) (jointly managed by DBCA and Nyambu Buru Yawuru – NBY) which is not mapped in the available database.

The proposed clearing can result in indirect impact to the Minyirr Park, including edge effects, the spread of weeds and land degradation impacts. The applicant, Shire of Broome as a joint manager of Minyirr Park, has committed to implement following steps to minimize and manage the indirect impact of the proposed clearing to the Park (SRL, 2023):

- Prior to clearing all weed species will be removed. Existing native species and organic matter will be mulched and reapplied to the banks following the completion of works to promote new growth and bank stabilisation. This will be followed by increased maintenance and monitoring to ensure that weed species do not re-establish, and to ensure that bank stabilisation via organic growth, does in fact occur. Bank stabilisation will be augmented additional planting and reseeding as required.
- All efforts will be made to avoid clearing up to the boundary of the drainage reserve and leave a buffer of native vegetation.
- Removal of excess soil will be achieved by vehicles operating from within the swale and will not create additional access paths into the swale. Maintenance of the existing swale drain will result in better outcomes to that of the current drainage arrangement.
- The Shire of Broome will continue to work respectfully and closely with NBY to ensure that mutual interests are preserved throughout these works. Accordingly, the careful management of these works is being prioritised. Shire engineering staff will be closely monitoring and manage the works.
- The establishment phase of vegetation will be closely monitored to ensure bank stabilisation and additional efforts will be applied if required. On an ongoing basis, the Shire continues to have management and maintenance obligations for the reserve to ensure the drainage needs of all landholders within the catchment, (including Minyirr Park) that are served by the drainage swale, are met.

Noting the above management steps and the weed management measures (see Section 3.2.2) proposed by the applicant, the indirect impacts on the adjacent conservation park are unlikely to be significant.

Conclusion

Based on the above assessment, the proposed clearing is considered unlikely to have a significant impact on the adjacent conservation area.

Conditions

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

- Avoidance and minimisation to reduce the impacts and extent of clearing;
- Take hygiene steps to minimise the risk of the introduction and spread of weeds to adjacent vegetation;

3.2.4. Land degradation risks - Clearing Principles (g)

Assessment

The assessment and expert advice received from the office of the Commissioner for Soil and Land Conservation (the Commissioner) (CSLC, 2023) identified that soils within the application area present a high risk of land degradation resulting from wind erosion, water erosion, waterlogging and flooding.

Sandy soils in the application area are vulnerable to wind erosion, and once the protective vegetative cover is removed, the soil surface becomes susceptible to significant land degradation. It is noted that water erosion is presently affecting the banks of the existing swale. The water erosion is progressing westward into the Dunes of the Carpentaria land system, posing a threat to the MVT TEC. The lack of adequate ground cover in sections of the swale also poses hazards associated with water erosion. The close proximity of the application area to the ocean results in as raised water table, making the site vulnerable to waterlogging in the absence of proper drainage (CSLC, 2023). The Commissioner anticipated that remediation of the swale may present an opportunity to mitigate ongoing land degradation.

To minimize and manage the ongoing land degradation risks, the applicants the applicant has committed to implement following mitigation measures (SRL, 2023):

- Restoring the swales volume capacity, as a larger volume achieves a slower water velocity as there is less head pressure moving water down gradient.
- Geolink structures will be installed in the swale at the locations where stormwater inflows.
- The gradient of the swale drain is designed to uniformly fall at 1:1018, a gradient that is consistently flatter than currently exists. This will result in the reduction of localised water velocity related erosion.
- The swale bank gradients are not proposed to be materially changed, except where currently degraded and are generally graded at 1:3, and which is capable of being maintained with vegetation when established.
- The diameter of pipes for stormwater originating on Sanctuary Road will be increased, which reduces velocity.
- Revegetating the swale banks immediately after works will assist in their stabilisation. All weeds will first be removed, then the remaining native vegetation and organic material will be mulched and re-applied to the swale banks in order to maximise the early development of vegetation on the banks in the growing season.

Given that the mitigation measures are committed by the applicant and the purpose of clearing is to upgrade and improve the drainage swale, land degradation risks by the proposed clearing are likely to be short term and minimal. The land degradation risks of the area can be mitigated after the swale upgrade if the design and construction are conducted properly.

The likelihood of land degradation due to wind erosion could be minimised by commencing the activities for which clearing is authorised within three months of clearing. It is also noted that the north-south alignment of the drainage channel should minimise exposure to the prevailing east-west winds and reduce the risk of wind erosion (CSLC, 2023).

Conclusion

From the above assessment, the impacts of the proposed clearing on water erosion, waterlogging and flooding could be mitigated with suitable drainage design and maintenance as proposed by the applicant. The risk related to wind erosion could be minimised through conditions imposed on the permit.

Conditions

To address the above impact, a condition has been imposed which requires activities for which clearing is authorised to commence within three months of clearing.

3.3. Relevant planning instruments and other matters

The application area is located adjacent to the Yawaru Minyirr Buru Conservation Park. DBCA recommended the applicant to consult with the Yawuru joint management team as manager of the Park. The Shire informed that the Shire has a good relationship with Yawuru and regularly consults on several matters, including being part of the monthly Yawuru Park Council which manages the Yawaru Minyirr Buru Conservation Park. The need to re-clear the drainage swale and re-establish the volume it was designed to hold has already been discussed with Yawuru officers and will be further discussed when a start date has been determined (SRL, 2023).

The application area falls within an Aboriginal Heritage Site (Place ID: 12886, Name: Illangarami) and is adjacent to another Aboriginal Heritage Site (Place ID: 12918, Name: Cable Beach 4). The applicant informed that the drainage swale was given “cleared” status in a recent heritage assessment conducted with Yawuru and Goolarabooloo and hence does not require any further heritage approvals. It is the permit holder’s responsibility to comply with the legislation and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

End

Appendix A. Additional information provided by applicant

Summary of further information provided	Consideration of information
Evidence of efforts taken to avoid (reduction of application area compared with original design) and mitigate significant environmental impacts	This information is presented in Section 3.1 of the Report
Information regarding historical existence of the swale within the buffer of MVT TEC	This information is presented in Section 3.1 and 3.2.2 of the Report
Mitigation measures to manage land degradation risks	This information is presented in Section 3.2.4 of the Report
Ongoing weed management measures to be implemented	This information is presented in Section 3.2.2 of the Report
Actions to minimize indirect impacts to the adjacent conservation park	This information is presented in Section 3.2.3 of the Report

Appendix B. Site characteristics

B.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 Cable Beach and road reserves. Spatial data indicates the local area (50-kilometre radius from the centre of the area proposed to be cleared) retains approximately 99 per cent of the original native vegetation cover.
Ecological linkage	The application area is not within any mapped linkages and is unlikely to be part of any local ecological linkage.
Conservation areas	There are no mapped conservation areas within the application area. The closest mapped conservation area is Broome Wildlife Centre, located approximately 2.2 kilometres north of the application area. However, the application area is located adjacent to the unmapped Yawaru Minyirr Buru Conservation Park.
Vegetation description	A biological assessment (360 Environmental, 2023a) indicates the vegetation within the proposed clearing area consists of three vegetation types, described as below: • AiTmSh: *Azadirachta indica, Terminalia ferdinandiana, Melaleuca ?nervosa* mid isolated trees over *Terminalia ferdinandiana* low woodland over *Lysiphyllum cunninghamii* tall shrubs over *Adriana tomentosa var. tomentosa* low open shrubland over *Triodia microstachya* hummock grassland over **Stylosanthes hamata* open forbland. • TpTmCc: *Terminalia petiolaris* low open woodland including *Terminalia ferdinandiana* low isolated trees over *Flueggea virosa subsp. melanthesoides* and *Gyrocarpus americanus subsp. pachyphyllus* tall open shrubs over *(Corymbia ?paractia), Exocarpos latifolius,* and *Sersalisia sericea* isolated trees over *Triodia microstachya*, low hummock grassland **Cenchrus ciliaris* low tussock grassland mosaic. • CpTfAtTm: *Corymbia paractia, Corymbia greeniana* isolated clumps of trees over *Terminalia ferdinandiana, Lysiphyllum cunninghamii* over *Acacia colei var. colei (Acacia plectocarpa)* open shrubland over *Adriana tomentosa var. tomentosa* low open shrubland over *Triodia microstachya* open hummock grassland. The survey map on vegetation type is available in Appendix E.

Characteristic	Details
	This is inconsistent with the pre-European mapped vegetation type: • Dampierland 750, which is described as Acacia thicket with eucalypt woodland over spinifex *Acacia tumida*, *Eucalyptus tectifica*, *Corymbia grandifolia, Triodia pungens*, *T. bitextura* (Shepherd et al, 2001) *The mapped vegetation type retains approximately 99.7 per cent of the original extent (Government of Western Australia, 2019).*
Vegetation condition	The biological assessment (360 Environmental, 2023a) indicates the vegetation within the proposed clearing area is in competed degraded and good (Truden, 1991) condition, described as: • 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 (TpTmCc, CpTfAtTm). • 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 (AiTmSh). The full Truden (1991) condition rating scale is provided in Appendix D. Vegetation condition mapping and representative photos are available in Appendix E.
Climate	Climate: Mean maximum temperature is 32.3 degrees Celsius. Mean minimum temperature is 21.3 degrees Celsius. Rainfall: Mean annual rainfall is 633.3 millimetres. (Data of Broome Airport Station (BOM, 2023))
Soil and landform	The soil is mapped as Yeeda System (335Ye) which is described as: Red sandplains supporting pindan vegetation with dense acacia shrubs, scattered bloodwood and grey box trees and curly spinifex and ribbon grass (DPIRD, 2022). The site is situated in a transitional zone between the Carpentaria and Yeeda land systems. The drainage swale falls within the Cockatoo Sands of the Yeeda land system, characterized by deep red sands with a sandy to loamy sandy texture and a red subsoil. Additionally, the application area may impact the Dune unit of the Carpentaria land system. This unit comprises White Dunes consisting of deep, loosely packed light calcareous loamy sand, which contains a significant amount of fine shell fragments. The back dunes within this unit are stable and vegetated, composed of deep, loosely packed light brown to light yellowish brown loamy sand with an occasional indurated secondary calcareous layer (CSLC, 2023)
Land degradation risk	The application area is susceptible to wind erosion, water erosion and waterlogging. The risk of salinity is minimal (CSLC, 2023).
Waterbodies	The application area is along an existing drainage swale and mapped over the Cape Leveque Coast Basin. The application area is approximately 200 metres from Cable Beach. The nearest wetland is Roebuck Bay, a Ramsar Wetland located approximately 3.3 kilometres east of the application area.
Hydrogeography	The application area falls within the Broome Groundwater Area as proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act). The application area is not subject to an area protected under the Country Water Supply Act 1917 or a Public Drinking Water Source Area. The groundwater salinity level is mapped as <500 milligrams total dissolved solids per litre.
Flora	The desktop assessment identified 18 conservation specific flora taxa within the local area (50km-radius from the centre of the application area) which comprises of one

Characteristic	Details
	threatened species and 17 priority flora taxa. The closest flora record is of *Corymbia paractia* which is located throughout the application area.
Ecological communities	The application area is mapped within the "*Corymbia paractia* dominated community on dunes" priority ecological community (*Corymbia paractia* PEC). The application area is also mapped adjacent to an occurrence of the "Monsoon (vine) thickets on coastal sand dunes of Dampier Peninsula" threatened ecological community (MVT TEC).
Fauna	The desktop assessment identified 102 conservation specific fauna species within the local area (excluding the ocean) which comprises of one extinct species, 23 threatened species, 19 priority species, and 59 specially protected species. The closest records are equally of *Fregata ariel* (Lesser frigatebird), *Pandion cristatus* (Osprey), and *Sula leucogaster* (Brown booby) recorded six metres from the application area.

B.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Dampierland	8,343,944.95	8,319,879.14	99.71	142,055.31	1.70
Vegetation complex					
Beard 750	1,229,182.16	1,225,280.52	99.68	34,114.53	2.78
Local area					
50km radius			99.14	-	-

*Government of Western Australia (2019)

B.3. Flora analysis table

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]
Corymbia paractia	P1	Y	Y	Y	Within site	28	Y

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

B.4. Ecological community analysis table

Community 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]
Corymbia paractia dominated community on dunes (*Corymbia paractia* TEC)	Priority 1	Y	Y	Y	0	1	Y
Monsoon (vine) thickets on coastal sand dunes of Dampier Peninsula (MVT TEC)	Vulnerable/Endangered	Y	Y	Y	0.01	1	Y

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

Appendix C. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: The area proposed to be cleared contains 49 individuals of *Corymbia paractia* (Priority 1 flora species) and is mapped within the Priority ecological community (PEC) *Corymbia paractia* dominated community on dunes (Priority 1).	May be at variance	Yes *Refer to Section 3.2.1 and 3.2.2, above.*
Principle (b): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."* Assessment: The desktop assessment identified 102 conservation significant fauna species, most being marine or wetland dependant species that require specific habitats for wading. The proposed clearing area contains a drainage line which can be a suitable habitat for these species after rainfall.	May be at variance	Yes *Refer to Section 3.2.1, above.*
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: No threatened flora species has been recorded within the application area. The area proposed to be cleared contains *Corymbia paractia,* a Priority 1 flora species listed under the BC Act.	Not likely to be at variance	Yes *Refer to Section 3.2.2, above.*
Principle (d): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community."* Assessment: The area proposed to be cleared is mapped adjacent to the threatened ecological community (TEC) Monsoon vine thickets on the coastal sand dunes.	May be at variance	Yes *Refer to Section 3.2.2, above.*
Environmental value: significant remnant vegetation and conservation areas		
Principle (e): *"Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."* Assessment: The extent of the mapped vegetation type and the 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 as a significant remnant in the local area.	Not at variance	No
Principle (h): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area."* Assessment: The closest mapped conservation area is Broome Wildlife Centre recorded approximately 2.2 kilometres from the proposed clearing area. However, the application area is adjacent to the Yawaru Minyirr Buru Conservation Park, which is not mapped in the available database.	May be at variance	Yes *Refer to Section 3.2.3, above.*

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: Given that the application area is along a drainage line, the proposed clearing is likely to impact on- or off-site hydrology. However, the end land use of the proposed clearing is drainage maintenance which improves the drainage system. Therefore, the reserve impacts of clearing activities on hydrology can be minimized by conducting the clearing during dry season.	Not likely to be at variance	No
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The preliminary assessment and expert advice received from the Commissioner of Soil and Land Conservation identified that soils within the application area present a high risk of land degradation resulting from wind erosion, water erosion, waterlogging and flooding.	May be at variance	Yes *Refer to Section 3.2.4, above.*
Principle (i): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water."* Assessment: Given the applicant's intention of undertaking the clearing during dry season when there is no water expected in the swale (360 Environmental, 2023b), the proposed clearing is unlikely to impact surface or ground water quality.	Not likely to be at variance	No
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: Given that the intended time to undertake the clearing is during dry season when there is no water in the swale, and the final land use is drainage swale maintenance which will improve the drainage system, the proposed clearing is unlikely to contribute to waterlogging and flooding.	Not likely to be at variance	No

Appendix D. 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.

Condition	Description
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 E. Biological survey information excerpts / photographs of the vegetation / DWER site inspection report

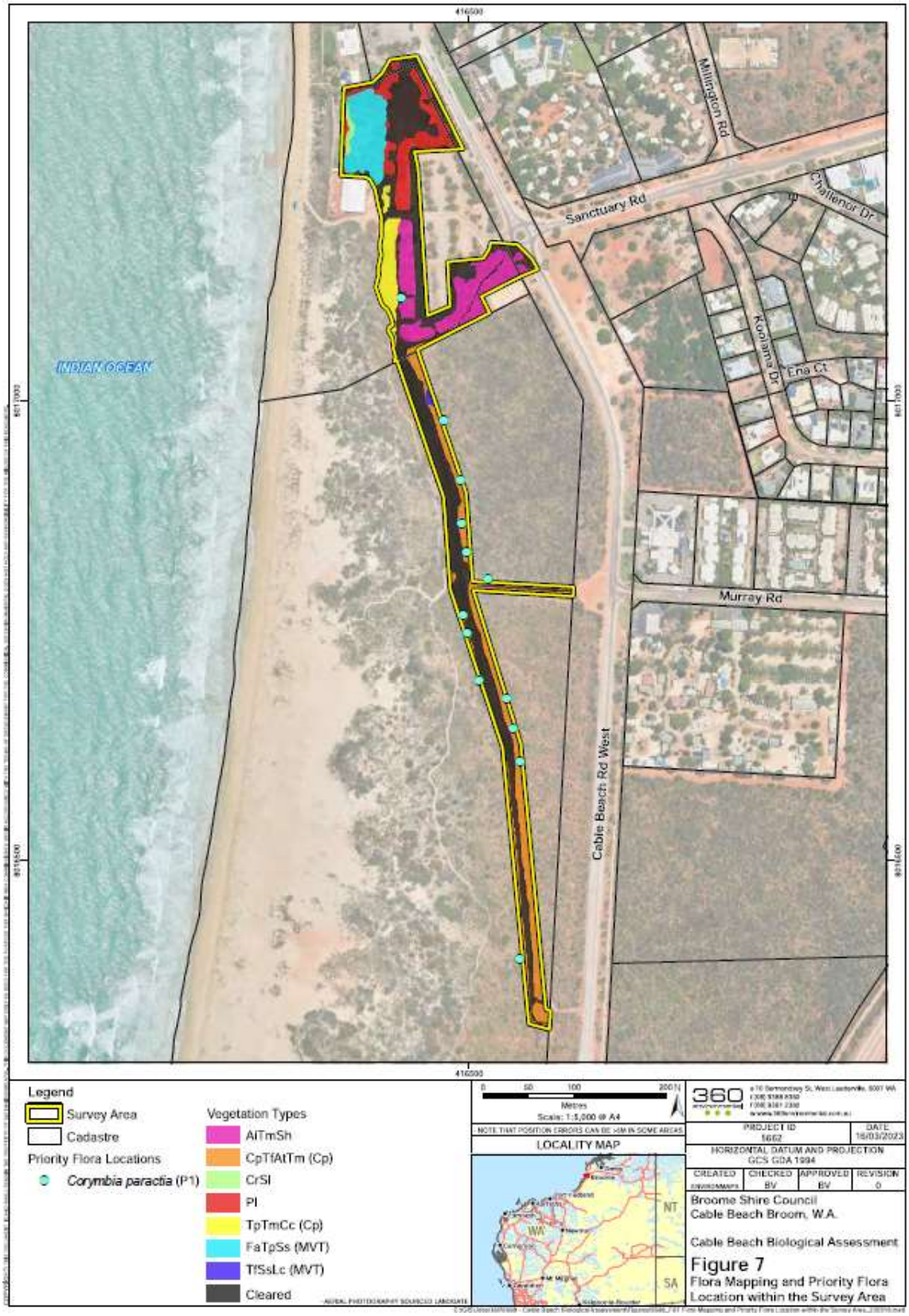


Figure E.1. Map showing vegetation types within the survey area (360 Environmental, 2023a)

AiTmSh

TpTmCc

CpTfAtTm

Figure E.2. Representative photos on different vegetation types within the application area (360 Environmental, 2023a)

Drainage line

Vine thicket

Mixed shrubland

Temporary open water

Figure E.3. Representative photos on different fauna habitat within the survey area (360 Environmental, 2023a)

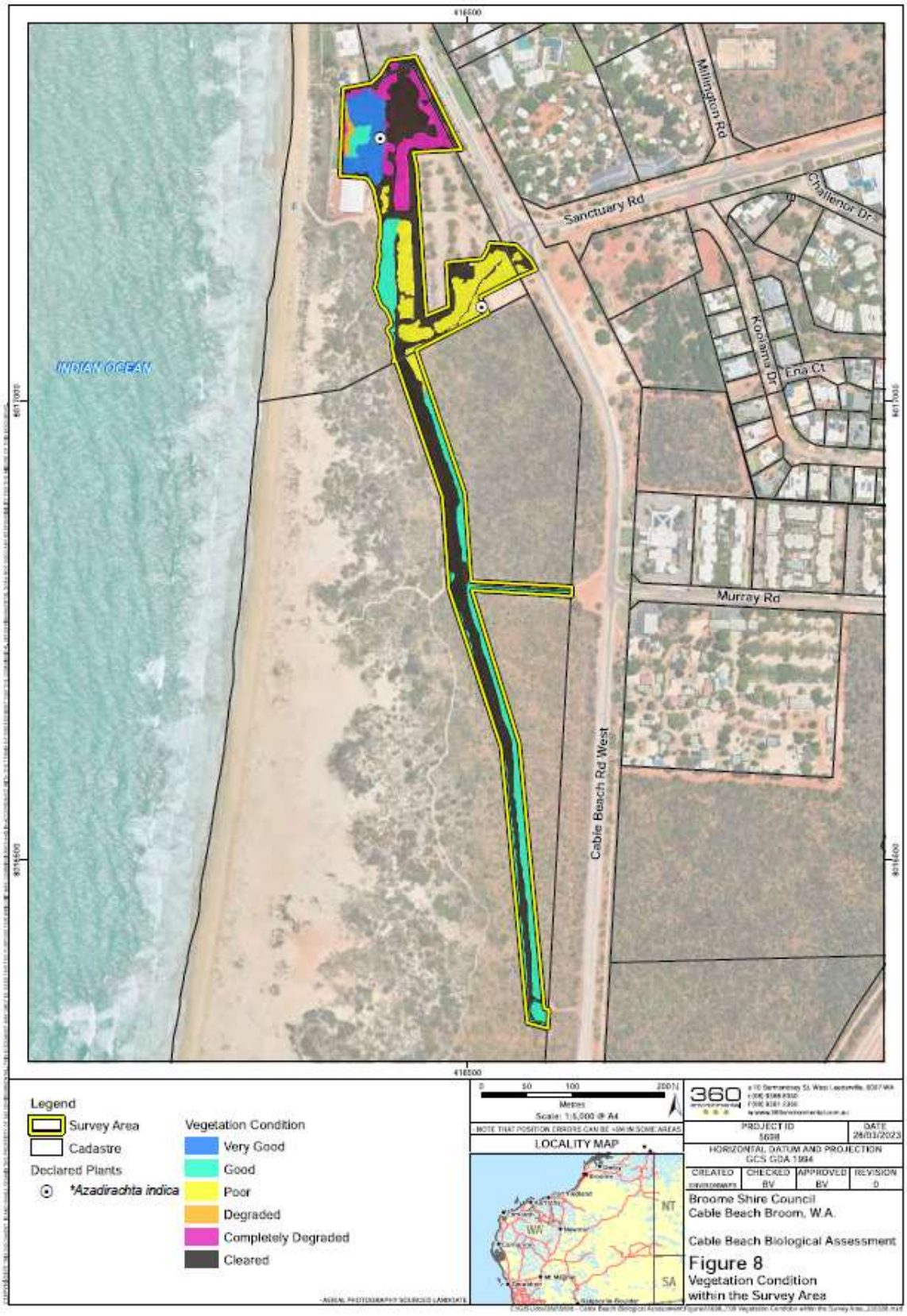


Figure E.4. Map showing vegetation conditions within the survey area (360 Environmental, 2023a)

Appendix F. Sources of information

F.1. GIS databases

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

- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- 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)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- 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:

- 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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