



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: CPS 8890/1
File Number: DWERVT5691
Duration of Permit: From 26 March 2021 to 26 March 2023

PERMIT HOLDER

Kenneth Charles Keep

LAND ON WHICH CLEARING IS TO BE DONE

Lot 8684 on Deposited Plan 201631, Northcliffe

AUTHORISED ACTIVITY

The permit holder must not clear more than 1.61 hectares of native vegetation within the area cross-hatched yellow in Figure 1 of Schedule 1.

1. **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.

2. **Weed and dieback 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* and *dieback*:

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

- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared;

3. Clearing not authorized

This Permit does not authorise the Permit Holder to *clear* any living or dead *Eucalyptus* or *Corymbia calophylla* (marri) trees at the locations specified in Table 1.

Table 1: Locations of trees not authorized to *clear*

Latitude	Longitude
-34.6344581128	116.1122535303
-34.6344889827	116.1121350565
-34.6342795678	116.1121308849
-34.6344105564	116.1122960808
-34.6343988759	116.1121267133
-34.6343137750	116.1124078800
-34.6343404733	116.1123227791
-34.6343171123	116.1125372000
-34.6343796865	116.1124621109
-34.6341310584	116.1121333879
-34.6341969699	116.1120099081
-34.6342094847	116.1122743884
-34.6340609753	116.1122568676
-34.6339082943	116.1126039458
-34.6339516790	116.1125956025
-34.6337831459	116.1131095452
-34.6338749214	116.1129885684
-34.6340809990	116.1124879749
-34.6342169936	116.1124462588
-34.6342128220	116.1127165793
-34.6342178279	116.1125897623
-34.6313193915	116.1126039458
-34.6313227288	116.1126940526
-34.6312593203	116.1125981055
-34.6313135512	116.1125013241
-34.6313444212	116.1126489992
-34.6337714654	116.1129093078
-34.6313477584	116.1124988211
-34.6313360779	116.1125438745
-34.6311266630	116.1124979868
-34.6311258287	116.1125864250
-34.6310390591	116.1127766505
-34.6310832782	116.1125405373
-34.6312251130	116.1124904779
-34.6312342906	116.1126873780
-34.6311550299	116.1126765318
-34.6312176041	116.1125613953
-34.6307228509	116.1126940526
-34.6309514553	116.1125538864
-34.6307645670	116.1124462588

-34.6307311941	116.1125163419
-34.6310448994	116.1126281411
-34.6310524083	116.1127032301
-34.6309305972	116.1127507865
-34.6310415621	116.1124429215
-34.6297375160	116.1118447123
-34.6303465714	116.1127082361
-34.6296465748	116.1118063334
-34.6297667173	116.1117370847
-34.6305209448	116.1123770100
-34.6305551521	116.1124712885
-34.6304258321	116.1127499522
-34.6304959152	116.1125605610
-34.6297341787	116.1121851159
-34.6297708889	116.1122184888
-34.6295564680	116.1120491213
-34.6296115333	116.1120766539
-34.6297141550	116.1119565115
-34.6296899596	116.1116962029
-34.6298368004	116.1121934591
-34.6298259542	116.1119581801
-34.6295089116	116.1118747479
-34.6294638582	116.1119565115
-34.6294455031	116.1118505525
-34.6294688641	116.1117754635
-34.6295856693	116.1119131267
-34.6296340600	116.1119698607
-34.6295105803	116.1120149141
-34.6295497934	116.1119748666
-34.6292944907	116.1117320787
-34.6293195204	116.1116202795
-34.6292903191	116.1118213512
-34.6292419284	116.1116861910
-34.6293787573	116.1118347004
-34.6293946094	116.1118897657
-34.6293912721	116.1116261198
-34.6293604022	116.1117003745
-34.6301480027	116.1124967353
-34.6301534258	116.1124495961
-34.6301267274	116.1124091315
-34.6301200529	116.1124875578
-34.6302097425	116.1124133031
-34.6292118928	116.1117721262
-34.6301847129	116.1124833862
-34.6302134970	116.1125042442
-34.6299769666	116.1123870219
-34.6300078365	116.1123361282
-34.6299027118	116.1123323738
-34.6299377534	116.1122969151
-34.6301188014	116.1123060926

-34.6301634376	116.1123569863
-34.6300658219	116.1124362469
-34.6300950232	116.1123649124

4. Erosion management

This Permit does not authorise the Permit Holder to clear native vegetation within the area cross-hatched red in Figure 2 of Schedule 1 between 1 May to 30 November in any given year.

5. 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 2.

Table 2: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	<ul style="list-style-type: none"> (a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings; (c) the date that the area was cleared; (d) the size of the area cleared (in hectares); (e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 1; (f) actions taken to minimise the risk of the introduction and spread of weeds and dieback in accordance with condition 2;

6. Reporting

The permit holder must provide to the *CEO* the records required under condition 5 of this permit when requested by the *CEO*.

DEFINITIONS

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

Table 2: Definitions

Term	Definition
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the <i>Environmental Protection Act 1986</i> .
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
dieback	means the effect of <i>Phytophthora</i> species on native vegetation.
department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	<i>Environmental Protection Act 1986</i> (WA)
fill	means material used to increase the ground level, or to fill a depression.
mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
weeds	means any plant – (a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i> ; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.

END OF CONDITIONS



Meenu Vitarana
A/MANAGER
NATIVE VEGETATION REGULATION

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

3 March 2021

SCHEDULE 1

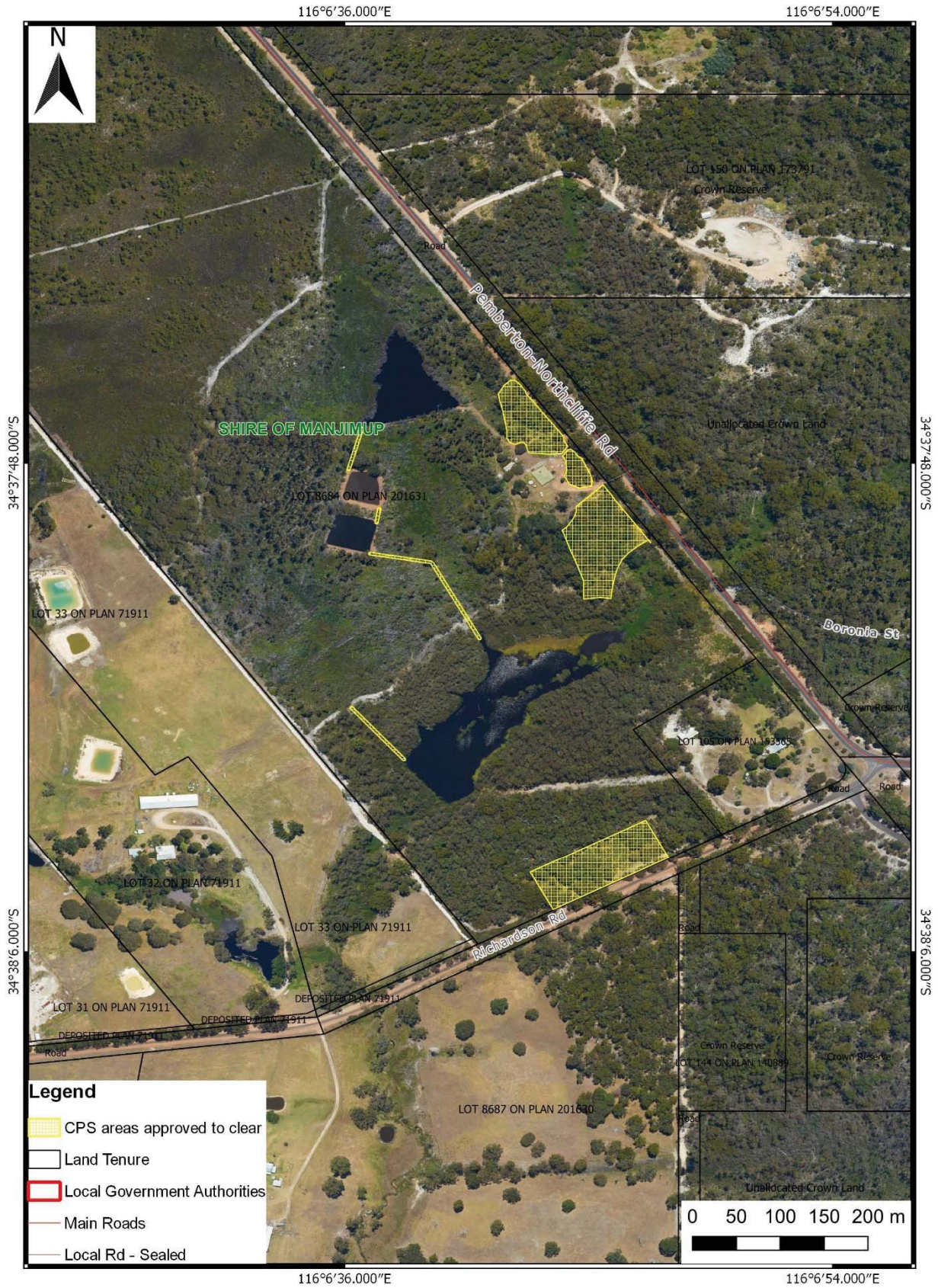


Figure 1: Map of the boundary of the area within which clearing may occur



Figure 2: Map of the boundary of the area subject to Condition 4 of the Clearing Permit



Clearing Permit Decision Report

1. Application details and outcome

1.1. Permit application details

Permit number:	CPS 8890/1
Permit type:	Area permit
Applicant name:	Mr Kenneth Charles Keep
Application received:	23 April 2020
Application area:	1.61 hectares (ha) of native vegetation
Purpose of clearing:	Building protection zone, vegetable garden, orchards, paddocks for livestock and access tracks
Method of clearing:	Mechanical
Property:	Lot 8684 on Deposited Plan 201631
Location (LGA area/s):	Shire of Manjimup
Localities (suburb/s):	Northcliffe

1.2. Description of clearing activities

The vegetation applied to be cleared is within eight separate areas within Lot 8684 on Deposited Plan 201631 (see Figure 1, Section 1.3).

- The three areas along the north-eastern property boundary comprising 0.93 hectares are proposed to be cleared for vegetable gardens, fruit trees and a building protection zone for a house (area north of the house).
- Four areas approximately 3 metres wide will be cleared for tracks to allow access to dams within the property (0.009 ha).
- An additional 0.59 hectare area along the south-eastern property boundary will be cleared for an orchard and possibly for livestock in the future.

It is noted that the proposed clearing will entail the removal of ground shrubs and small trees (e.g. peppermint trees and *Melaleuca* species trees) only and all large *Eucalyptus* trees will be retained. Some non-native pines trees will also be removed within the application area, however the removal of these trees is not subject to this clearing permit application.

The application was revised multiple times during the assessment as follows:

- An area of clearing area initially proposed in the western portion of the property was reduced and reshaped at the request of the applicant to avoid an area of large gum trees, changing the total application area from 3.26 hectares to 2.7 hectares;
- The area along the south-western property boundary was removed from the application area after DWER provided advice that clearing in this area may have land degradation impacts, and additional clearing areas were instead proposed by the applicant along the south-eastern property boundary and north-western property boundary. Areas for tracks between dams were also added to the application area. This increased the application area to 4.82 hectares;
- Following DWER's advice that the proposed clearing within the area along the north-western property boundary may have impacts to land degradation (and therefore wetlands and water quality), and that the clearing of one of the proposed track areas may bisect the mapped wetland, these areas were removed from the application area, reducing the application area to 1.61 hectares.

1.3. Decision on application

Decision:	Granted
Decision date:	3 March 2021
Decision area:	1.61 hectares of native vegetation as depicted in Figure 1 of 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. The application was re-advertised for 7 days on two occasions due to revisions to the application area (refer to Section 1.2).

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix A, relevant datasets (see Appendix F), the clearing principles set out in Schedule 5 of the EP Act (see Appendix B), relevant advice received and relevant planning instruments and any other matters considered relevant to the assessment (see Section 3).

The assessment identified that the proposed clearing area:

- contains breeding and foraging habitat significant for black cockatoo species;
- contains suitable habitat for several priority flora species;
- intersects a paluslope wetland and watercourse;
- is within soils mapped as having a high risk of eutrophication and where clearing may result in eutrophication and waterlogging.

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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, subject to suitable conditions being applied, the proposed clearing is unlikely to lead to significant impacts to fauna species, the conservation status of priority flora species, waterbodies present within/near the proposed clearing area, water quality and land degradation. The applicant has suitably demonstrated avoidance and minimisation measures.

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

- Avoid, minimise to reduce the impacts and extent of clearing;
- Take hygiene steps to minimise the risk of the introduction and spread of weeds;
- Retain *Eucalyptus* and *Corymbia calophylla* trees at specified locations to protect habitat significant for black cockatoo species;
- Retain all large native trees to protect habitat significant for black cockatoo species; and
- Only clear within the areas proposed to be cleared for access tracks (refer to Figure 2 of Section 1.5 below) between 1 December and 30 April to prevent impacts to surface water of the wetland and watercourse.

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1.5. Site maps

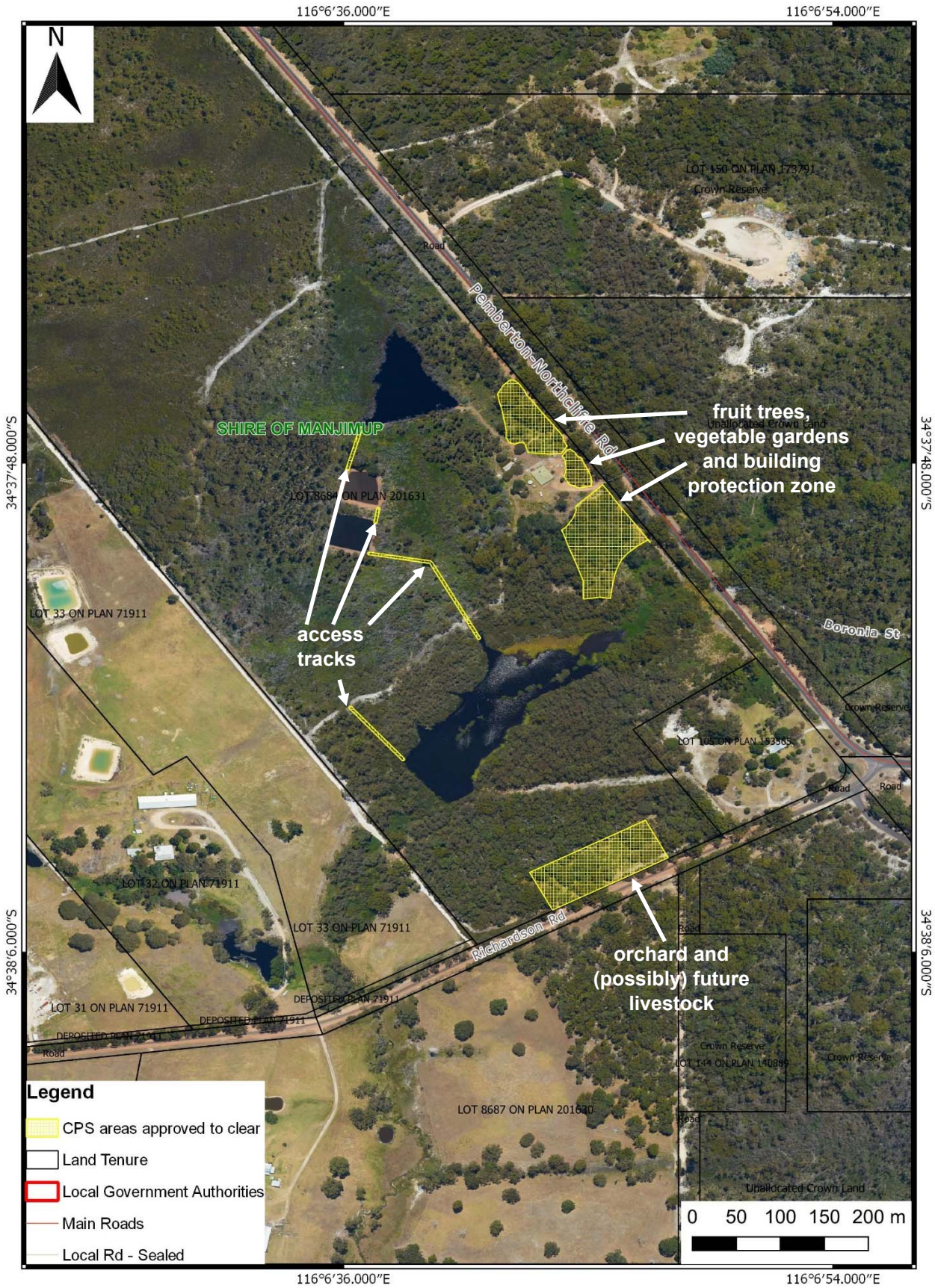


Figure 1. Map of the application area. The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

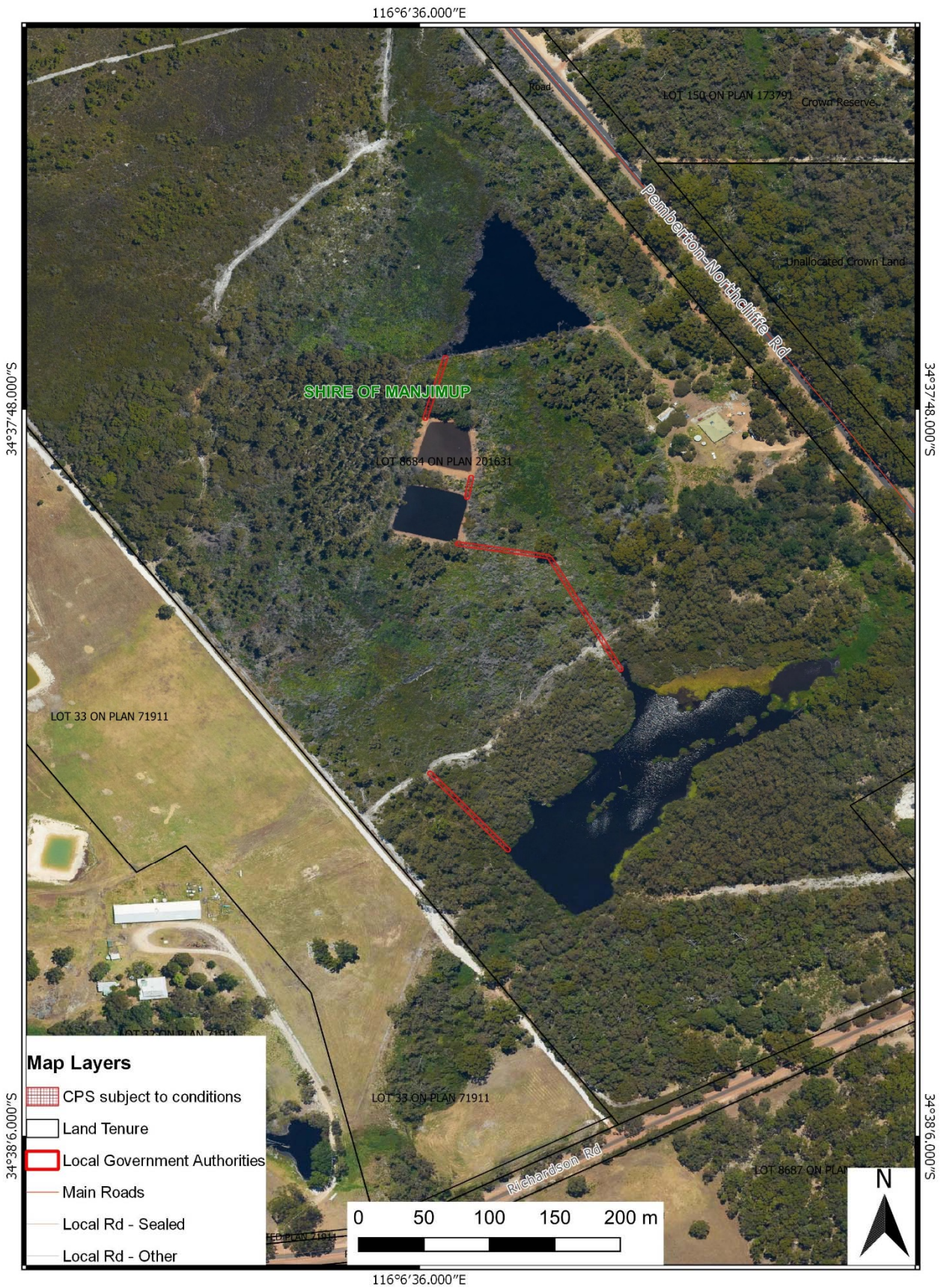


Figure 2. Map of the application area. The areas cross-hatched red indicate the areas subject to conditions under the granted clearing permit.

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 1.3), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

1. the precautionary principle;
2. the principle of intergenerational equity; and
3. the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

The applicant provided the following evidence of consideration of avoidance/mitigation measures for the proposed clearing:

- The proposed clearing will entail the removal of ground shrubs and small trees only and all large native trees (e.g. eucalypts) will be retained.

The clearing area was also modified throughout the assessment process, both at the request of the applicant and through consultation with DWER, to minimise the risk of impacts to vegetation, wetlands, water quality and land degradation (refer to Section 1.1 for further details). Applicant has provided locations of all trees proposed to be retained (Appendix E).

Given the above, it is considered that avoidance and mitigation measures have been adequately considered.

3.2. Assessment of environmental impacts

In assessing the application in accordance with section 51O of the EP Act, the Delegated Officer has examined the application and site characteristics (Appendix C) and considered whether the clearing poses a risk to environmental values. The assessment against the Clearing Principles is contained in Appendix D.

This assessment identified that the clearing may pose a risk to the environmental value of fauna, flora and land and water resources, and that this required further consideration. The detailed consideration and assessment of the clearing impacts against the specific environmental values is provided below. Where the assessment found that the clearing presents an unacceptable risk to environmental values, conditions aimed at controlling and/or ameliorating the impacts have been imposed under sections 51H and 51I of the EP Act. These are also identified below.

3.2.1. Environmental value: biological values (fauna) – Clearing Principles (a) and (b)

Assessment: The application area may provide suitable habitat for the following terrestrial conservation significant fauna species:

- *Calyptorhynchus banksii naso* (Forest red-tailed black cockatoo) (VU);
- *Calyptorhynchus baudinii* (Baudin's cockatoo) (EN);
- *Calyptorhynchus latirostris* (Carnaby's cockatoo) (EN);
- *Elapognathus minor* (Short-nosed snake) (P2);
- *Falco peregrinus* (Peregrine falcon) (OS);
- *Hydromys chrysogaster* (Water-rat, rakali) (P4);
- *Isoodon fusciventer* (Quenda, southwestern brown bandicoot) (P4);
- *Phascogale tapoatafa wambenger* (South-western brush-tailed phascogale, wambenger) (CD);
- *Pseudocheirus occidentalis* (Western ringtail possum, ngwayir) (CR); and
- *Setonix brachyurus* (Quokka) (VU).

The application area may contain breeding, foraging and roosting habitat for the forest red-tailed black cockatoo, Baudin's cockatoo and Carnaby's cockatoo (hereafter collectively referred to as "black cockatoo species". These black cockatoo species breed in suitable hollows in *Eucalyptus* trees with a diameter at breast height of greater than 50 cm at a height of 130 cm, including jarrah trees, which are abundant in the application area, and karri trees, which may also be present (Commonwealth of Australia, 2012 and Department of Environment and Conservation, 2008). It is noted that although the closest mapped record of black cockatoo breeding is approximately 20 kilometres from the application area, the application area is likely to be within a breeding area for the red-tailed black cockatoo (Department of Environment and Conservation, 2008) and is mapped within a known breeding area for Baudin's cockatoo (Commonwealth of Australia, 2012), and is outside the known breeding range for Carnaby's cockatoo (Commonwealth of Australia, 2012). All three black cockatoo species are also likely to forage upon and roost in jarrah and karri trees (Commonwealth of Australia, 2012). However, given that the applicant has committed to retaining all mature *Eucalyptus* trees within the application areas, the proposed clearing is considered unlikely to impact upon breeding and roosting habitat for black cockatoo species. Other native flora species that may provide suitable foraging habitat for black cockatoo foraging may be present within the application area, including *Banksia* species, however photographs of the vegetation and a site inspection conducted by Department of Primary Industries and Regional Development (DPIRD, 2020) indicate such species are only likely to occur sparsely within the application areas. As such, it is also considered unlikely that the proposed clearing will significantly impact black cockatoo foraging habitat, particularly given the presence of other suitable foraging habitat within the highly vegetated local area.

The western ringtail possum utilises jarrah dominated forests within the Southern Forest Management Zone for habitat, and also utilises peppermint trees, which were noted to occur sporadically within jarrah dominated portions of the application area (DPAW, 2017). However, it is noted that the only two western ringtail possum records within the local area are historical sightings, and the application area is also to the south of the Southern Forest Management Zone where the majority of western ringtail possums within the area are found, and therefore it is considered unlikely that western ringtail possums would occur within the application area.

The Myrtaceous shrub vegetation in proximity to wetland areas within the application area may provide habitat for the short nosed snake (Shea et al, 1993) and water rat (DFCA, 2012a), and both the Myrtaceous shrub vegetation and jarrah dominated vegetation may provide habitat for the quenda (DFCA, 2018) and quokka (DEC, 2013). However, noting the small extent of the area to be cleared (particularly for the Myrtaceous shrub areas of which only 0.09 hectares will be cleared) and presence of similar habitat within the property and the local area, it is unlikely that the proposed clearing will have a significant impact upon the above species.

Although brush-tailed phascogale (*Phascogale tapoatafa wambenger*) may utilise Jarrah forest areas within the application area as habitat (DFCA, 2012b), given that reduced hollow availability represents the most significant threat to the brush-tailed phascogale (Rhind, 1996) and that *Eucalyptus* trees within the application area will be retained, it is considered unlikely that the proposed clearing will significantly impact this species, particularly given the relatively small extent of clearing and the presence of other suitable habitat within the local area.

While the Peregrine falcon may utilise vegetation within the application area as habitat, given the broad distribution of and wide range of habitats utilised by this species, it is unlikely that the proposed clearing will have a significant impact upon this species.

The application area may also provide suitable habitat for the following aquatic conservation significant fauna species:

- *Calamoecia elongata* (a copepod (Northcliffe)) (P3);
- *Daphnia occidentalis* (a water flea (Karri forests)) (P3)
- *Galaxiella nigrostriata* (Black-stripe minnow, black-striped dwarf galaxias) (EN)
- *Lepidogalaxias salamandroides* (Salamanderfish) (EN)

The above species have been described to inhabit temporary waters (Bayly, 1979 and 1992, Bray and Gomon, 2000, and Bray, 2017 respectively) and as such it is considered possible, although reasonably unlikely, that they could occur within areas proposed to be cleared for the access tracks that become seasonally inundated. Given the small extent of the areas to be cleared that contain potentially suitable habitat within the larger context of the low-lying areas within the property and that the above species are unlikely to rely on the vegetation present for habitat, it is considered unlikely that the proposed clearing would have a significant impact on the above species. The application area is not considered to contain sufficient water to provide habitat for other aquatic conservation significant fauna species found within the local area (*Galaxiella munda*, *Geotria australis*, *Nannatherina balstoni* and *Westralunio carteri*).#

Conclusion: Based on the above assessment, the proposed clearing is not likely to result in significant impacts to habitat for conservation significant fauna species.

Conditions: Trees at specified locations to be retained, which includes all *Eucalyptus* spp. and *Corymbia calophylla* trees.

3.2.2. Environmental value: biological values (flora) – Clearing Principle (a)

Assessment: Given the mapped soil and vegetation types and topography and preferred habitat (Western Australian Herbarium, 1998-), the application area may provide suitable habitat for the following flora species:

- *Gonocarpus pusillus* (P4);
- *Gonocarpus simplex* (P4); and
- *Stylidium leeuwinense* (P4).

All three of these species are known to occur within winter-wet or seasonally inundated areas (Western Australian Herbarium, 1998) and as such may be present in the lower-lying areas of Myrtaceous shrub vegetation where clearing for access tracks is proposed. However, given the small extent of this vegetation type proposed to be cleared (0.09 hectares) and that all three of these species are well represented by numerous records (with 31, 26 and 60 records on available databases (Western Australian Herbarium, 1998-) respectively), should these species be present within the application area, it is considered unlikely that the proposed clearing would have a significant impact on the conservation status of these species. Weed and dieback management measures will also reduce the risk of potential impacts to adjoining habitat.

Conclusion: Based on the above assessment, the proposed clearing is not likely to result in significant impacts to conservation significant flora species.

Conditions: Weed and Dieback management.

3.2.3. Environmental value: land and water resources – Clearing Principles (f), (g), (i) and (j)

Assessment: The areas of the application area proposed to be cleared for the access tracks are within a soil type (254NfS4) identified by the Commissioner for Soil and Land Conservation (2020) to have an extreme risk of eutrophication which may be increased by further clearing. The Commissioner for Soil and Land Conservation (2020) noted that low lying, waterlogged areas occurred within the property, and that in these waterlogged areas the risk of increased waterlogging occurring as a result of clearing was very high, and that these areas were particularly at risk of eutrophication.

Any eutrophication resulting from land degradation within low-lying areas of the property has the potential to impact the paluslope wetland and associated minor non-perennial watercourse mapped within portions of the application area proposed to be cleared for access tracks, particularly when these low-lying areas are inundated and water would be expected to flow from these areas into the wetland. The mapped wetland is considered to be part of the Walpole River consanguineous wetland suite (Water and Rivers Commission, 1997). Wetlands within the Walpole River consanguineous wetland suite have been identified as important for supporting endemic and new invertebrate species, and have been identified as having significant values of wetland condition, representativeness, fauna and linkages (Water and Rivers Commission, 1997).

While areas proposed to be cleared for the access tracks are present within waterlogged areas within the 254NfS4 soil type, it is considered that due to the narrow (3 metres wide) and linear nature of the proposed clearing for the tracks, the proposed clearing is not likely to result in significant impacts from eutrophication or waterlogging that would result in water quality impacts within the mapped wetland or watercourse. It is noted that the access tracks have been placed so as not to bisect the mapped wetland and are therefore not expected to impact upon the ecological values of the wetland or sever any linkages present. Impacts to conservation significant wetland fauna, should they be present, are not considered likely to be significant (see Section 3.2.1). To minimise land degradation impacts resulting from the small scale proposed clearing for the proposed access tracks, a condition has been placed on the permit to restrict clearing within the proposed track areas during the wet season (between 1 December to 30 April in any year).

Clearing of the other larger application areas to the east and south-east of the watercourse are considered to have a low risk of resulting in impacts to waterlogging due to their higher elevation, lower risk soil type (254NfAN) and that large trees will be retained in these areas. Of these clearing areas, the closest to the mapped watercourse and

wetland is 40 metres away, and as such it is considered that there will be an adequate buffer of riparian vegetation surrounding the watercourse and wetland to prevent water quality impacts from erosion.

Conclusion: Based on the above assessment, the proposed clearing is not likely to result in significant impacts to conservation significant flora species.

Conditions: Clearing only permitted within the proposed track areas (Figure 2) between 1 December and 30 April in any year.

3.3. Relevant planning instruments and other matters

The Shire of Manjimup advised DWER that local government approvals are not required for the proposed clearing, and that the clearing is consistent with the Shire's Local Planning Scheme. The Shire did not have any objections to the proposed clearing.

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

Appendix A – Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to DWER at the time of this assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix C.

A.1. Site characteristics

Site characteristic	Details
Local context	The proposed clearing area is part of an expansive tract of native vegetation. It is adjacent to cleared agricultural land to the southwest and native vegetation to the north, east and southeast. Spatial data indicates the local area (10 km radius of the proposed clearing area) retains approximately 62% of the original native vegetation cover.
Ecological linkages	Mapped South West Ecological Linkages run in an east-west direction approximately 1.5 km south of the application area and in a north-west to south-east direction approximately 1.8 km north-east of the application area.
Vegetation description	<p>Photographs supplied by the applicant and the Land Degradation report provided by the Commissioner of Soil and Land Conservation (Commissioner of Soil and Land Conservation 2020) indicates the vegetation within the proposed clearing area consists of:</p> <ul style="list-style-type: none"> • Three areas along north-eastern property boundary: Canopy largely consisting of Jarrah (<i>Eucalyptus marginata</i>) trees, with occasional peppermint (<i>Agonis flexuosa</i>) trees and understorey species including bracken, Cyperaceae species and water bush (<i>Bossiaea</i> sp.). Some large pine trees are present in the southernmost of these areas. • Four track areas between dams: Myrtaceous shrubs, bracken and sedges; • Area along south-eastern boundary: bracken and Cyperaceae species with scattered <i>Eucalyptus</i> (including jarrah and possibly karri (<i>Eucalyptus diversicolor</i>)) and peppermint trees. <p>Photographs of the vegetation are provided in Appendix D.</p> <p>This is consistent with the mapped vegetation type:</p> <ul style="list-style-type: none"> • Southern Plain – Broad Swamps (S4), which is described as: Low woodland of <i>Eucalyptus marginata</i> subsp. <i>marginata</i>-<i>Nuytsia floribunda</i> with some <i>Melaleuca preissiana</i> and closed heaths of Myrtaceae spp. on broad drainage lines in hyperhumid and perhumid zones; and • Southern Plain – Angove (S4), which is described as: Open forest of <i>Eucalyptus marginata</i> subsp. <i>marginata</i>-<i>Banksia ilicifolia</i>-<i>Nuytsia floribunda</i> with some <i>Eucalyptus diversicolor</i> on gently sloping sandy terrain in hyperhumid and perhumid zones (Mattiske and Havel 1998).
Vegetation condition	<p>Photographs supplied by the applicant and the Land Degradation report provided by the Commissioner of Soil and Land Conservation indicate the vegetation within the proposed clearing area is in Degraded, Good and Very Good (Keighery, 1994) condition, described as:</p> <ul style="list-style-type: none"> • Degraded (area along south-eastern boundary): Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing. • Good (portions of areas along north-eastern boundary): Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.

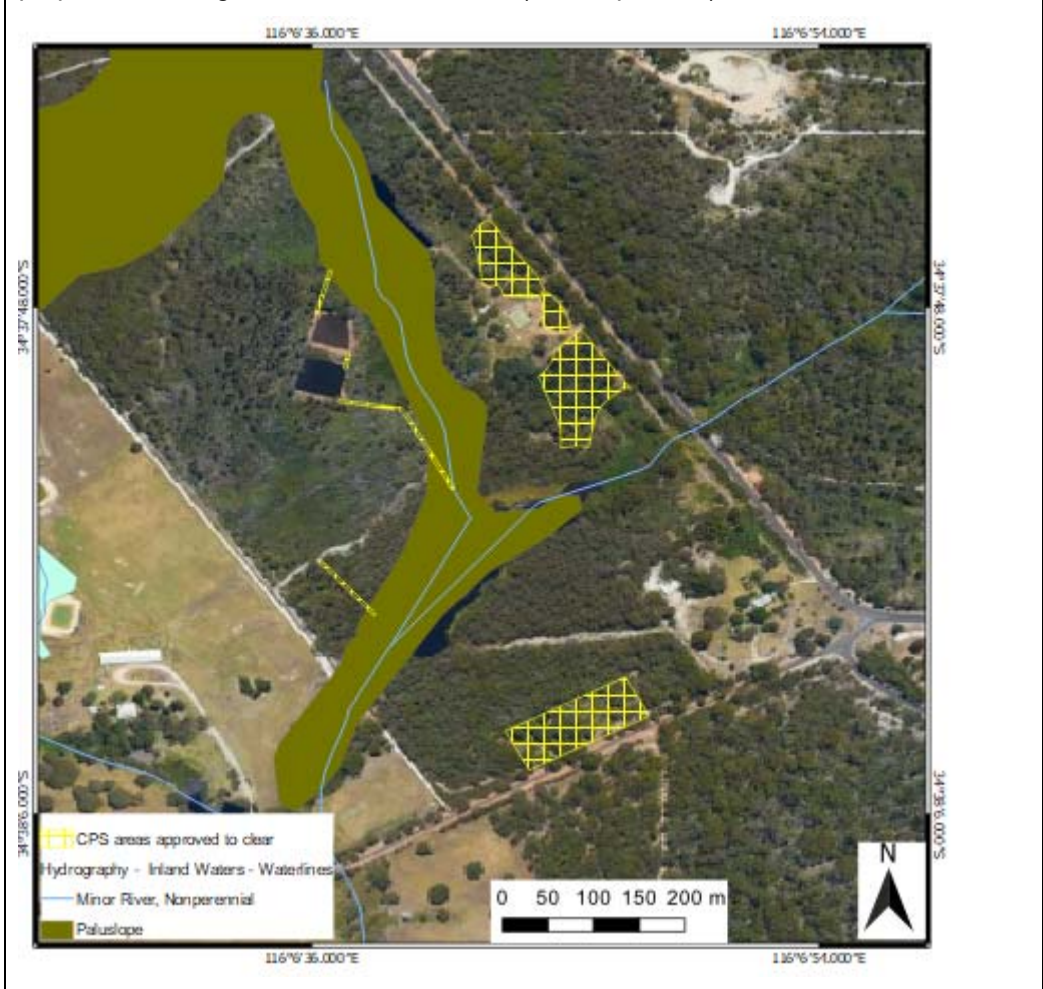
	<ul style="list-style-type: none"> • Very Good (portions of areas along north-eastern boundary and track areas): Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing. <p>Photographs of the vegetation are provided in Appendix D.</p> <p>The full Keighery condition rating scale is provided in Appendix C below.</p>
Soil description	<p>The soil is mapped as:</p> <ul style="list-style-type: none"> • Angove Subsystem (Northcliffe) (areas along north-eastern boundary and majority of area along south-eastern boundary) : Gently sloping sandy terrain; slight dissections. Humus podzols on broad crests; Kangaroo Grass sedgeland, Teatree heath. Sandy yellow duplex soils in shallow dissections; Jarrah woodland (Mapping unit: 254NfAN). • Minor Valleys S4 Subsystem (track areas): Broad swampy drainage zones;<5 m relief. Podzols and sandy yellow duplex soils; teatree heath; sedgelands (Mapping unit: 254NfS4). • Collis yellow duplex Phase (small portion of area along south-eastern boundary): Gravelly yellow duplex soils; Jarrah-Marri forest (Mapping unit: 254Nf).
Land degradation risk	<p>The land degradation risk categories that apply to these subsystems are (Schoknecht et al., 2004; DAFWA,2017):</p> <ul style="list-style-type: none"> • Minor Valleys S4 Subsystem: <ul style="list-style-type: none"> • Water Erosion: 30-50% of map unit has a high to extreme water erosion risk • Wind Erosion: >70% of map unit has a high to extreme wind erosion risk • Salinity: <3% of map unit has a moderate to high salinity risk or is presently saline • Subsurface Acidification: >70% of map unit has a high subsurface acidification risk or is presently acid • Flood risk: 10-30% of the map unit has a moderate to high flood risk • Water logging: 30-50% of map unit has a moderate to very high waterlogging risk • Phosphorus export risk: >70% of map unit has a high to extreme phosphorus export risk. • Angove Subsystem (Northcliffe): <ul style="list-style-type: none"> • Water Erosion: <3% of map unit has a high to extreme water erosion risk • Wind Erosion: 50-70% of map unit has a high to extreme wind erosion risk • Salinity: <3% of map unit has a moderate to high salinity risk or is presently saline • Subsurface Acidification: >70% of map unit has a high subsurface acidification risk or is presently acid • Flood risk: <3% of the map unit has a moderate to high flood risk • Water logging: 50-70% of map unit has a moderate to very high waterlogging risk • Phosphorus export risk: 30-50% of map unit has a high to extreme phosphorus export risk • Collis yellow duplex Phase: <ul style="list-style-type: none"> • Water Erosion: 3-10% of map unit has a high to extreme water erosion risk • Wind Erosion: >70% of map unit has a high to extreme wind erosion risk • Salinity: <3% of map unit has a moderate to high salinity risk or is presently saline • Subsurface Acidification: >70% of map unit has a high subsurface acidification risk or is presently acid • Flood risk: <3% of the map unit has a moderate to high flood risk • Water logging: <3% of map unit has a moderate to very high waterlogging risk • Phosphorus export risk: 10-30% of map unit has a high to extreme phosphorus export risk

The Commissioner of Soil and Land Conservation (2020) advised the following in regards to land degradation risks from the proposed clearing in soil mapping units 254NfAN and 254NfS4:

- The application area is located on the lower position of the landscape;
- Both soil types 254NfAN and 254NfS4 have a low to moderate capability for the proposed land use;
- Eutrophication:
 - Extreme risk of eutrophication on the 254NfS4 soils; and further clearing and agriculture would increase this risk. Significant change is possible on waterlogged areas of this soil type;
 - High to very high risk of eutrophication on low areas affected by waterlogging;
 - The risk of eutrophication causing land degradation is high to extreme;
- Waterlogging:
 - Removal of vegetation on low waterlogged areas may increase the risk of waterlogging to high to very high;
 - The risk of waterlogging causing land degradation is high to very high;
- Risk of water erosion, wind erosion and salinity causing land degradation area low.

Waterbodies

The desktop assessment and aerial imagery indicated that a minor non-perennial watercourse, a tributary of the Shannon River, intersects one of the proposed clearing areas for an access track and a paluslope wetland intersects three of the proposed clearing areas for access tracks (see map below).



Conservation areas

The closest conservation area to the application area is an unnamed reserve located 1175m southeast of the application area.

Topography	Topography falls from 90 m AHD in the north-western and south-eastern proposed clearing areas to 80 m AHD in the central proposed clearing areas near the waterbody corresponding with the paluslope wetland.
Climate	Mean Rainfall: 1300mm Evapotranspiration: 900mm
Hydrogeography	Groundwater salinity: 500-1000 mg/L Hydrogeology: Rocks of Low Permeability, Fractured and Weathered Rocks - Local Aquifers (granitoid lithology)
Flora	There are records of eight priority flora and no threatened flora within the local area (10 km). The closest record to the application area is <i>Lomandra ordii</i> , a Priority 4 species, located approximately 1.8 km from the application area.
Fauna	There are records of 19 fauna of conservation significance within the local area (10 km), including 12 threatened species, 6 priority species, one conservation dependant species and one other specially protected species. The closest records, are located approximately 320 m from the application area, for <i>Galaxiella munda</i> (Mud minnow, western dwarf galaxias), <i>Galaxiella nigrostriata</i> (Black-stripe minnow, black-striped dwarf galaxias), <i>Isodon fusciventer</i> (Quenda, southwestern brown bandicoot), <i>Lepidogalaxias salamandroides</i> (Salamanderfish) and <i>Phascogale tapoatafa wambenger</i> (South-western brush-tailed phascogale, wambenger).
Ecological communities	No threatened or priority ecological communities are mapped within the local area (10 km).

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A.2. Vegetation extent

Vegetation	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*					
Warren	833,985.56	659,432.21	79.07	558,485.38	66.97
Vegetation complex					
Southern Plain – Broad Swamps (S4) (248)**	1,568.97	866.90	55.25	373.55	23.81
Southern Plain – Angove (S4) (1)**	39,698.49	34,737.44	87.50	31,437.22	79.19
Local area (10km)					
Remnant vegetation	-	-	62	-	-

A.3. Flora analysis table

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

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Species name	Conservation status	Suitable habitat features?	Suitable vegetation type?	Suitable soil type?	Distance of closest record to application area (km)	Number of known records in local area	Number of Florabase records	Are surveys adequate to identify?
<i>Actinotus repens</i>	P3	N	Y	Y	7.7	3	32	N
<i>Chamelaucium floriferum</i> subsp. <i>diffusum</i>	P2	N	N	Y	9.3	2	37	N
<i>Gonocarpus pusillus</i>	P4	Y	Y	Y	9.9	1	31	N
<i>Gonocarpus simplex</i>	P4	Y	Y	Y	8.8	1	26	N
<i>Lomandra ordii</i>	P4	N	N	Y	1.8	15	35	N
<i>Myriophyllum trifidum</i>	P4	Y	Y	Y	6.8	10	38	N
<i>Schizaea rupestris</i>	P2	N	Y	Y	7.7	1	13	N
<i>Styliidium leeuwinense</i>	P4	Y	N	Y	7.3	3	60	N

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

A.4. Fauna analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix F), impacts to the following conservation significant fauna required further consideration.

Species name	Conservation status	Suitable habitat features?	Distance of closest record to application area (km)	Most recent record in local area	Number of known records in local area	Are surveys adequate to identify?
<i>Calamoecia elongata</i> (a copepod (Northcliffe))	P3	possible	5.3	1990	8	N/A
<i>Calyptorhynchus banksii naso</i> (Forest red-tailed black cockatoo)	VU	Y	1.7	2013	2	N/A
<i>Calyptorhynchus baudinii</i> (Baudin's cockatoo)	EN	Y	1.4	2013	12*	N/A
<i>Calyptorhynchus latirostris</i> (Carnaby's cockatoo)	EN	Y	0.41	2014	13*	N/A
<i>Daphnia occidentalis</i> (a water flea (Karri forests))	P3	possible	5.3	1990	3	N/A
<i>Elapognathus minor</i> (Short-nosed snake)	P2	Y	1.8	1900	1	N/A
<i>Falco peregrinus</i> (Peregrine falcon)	OS	Y	4.8	1900	2	N/A
<i>Galaxiella munda</i> (Mud minnow, western dwarf galaxias)	VU	N	0.32	1996	21	N/A
<i>Galaxiella nigrostriata</i> (Black-stripe minnow, black-striped dwarf galaxias)	EN	possible	0.32	2014	39	N/A
<i>Geotria australis</i> (Pouched lamprey)	P3	N		1996	1	N/A
<i>Hydromys chrysogaster</i> (Water-rat, rakali)	P4	Y	0.36	2014	3	N/A
<i>Isodon fusciventer</i> (Quenda, southwestern brown bandicoot)	P4	Y	0.32	1999	4	N/A
<i>Lepidogalaxias salamandroides</i> (Salamanderfish)	EN	possible	0.32	1989	40	N/A
<i>Nannatherina balstoni</i> (Balston's pygmy perch)	VU	N	5.5	2009	4	N/A
<i>Phascogale tapoatafa wambenger</i> (South-western brush-tailed phascogale, wambenger)	CD	Y	0.32	1980	4	N/A
<i>Pseudocheirus occidentalis</i> (Western ringtail possum, ngwayir)	CR	Y	1.6	N/A	2	N/A
<i>Setonix brachyurus</i> (Quokka)	VU	Y	0.35	1997	7	N/A
<i>Westralunio carteri</i> (Carter's freshwater mussel)	VU	N	2.5	2010	1	N/A

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

* Note an additional 6 records of *Calyptorhynchus* sp. 'white-tailed black cockatoo' were recorded within the local area, which could comprise either of these species

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Appendix B – Assessment against the Clearing Principles

Assessment against the Clearing Principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> “Native vegetation should not be cleared if it comprises a high level of biodiversity.”</p> <p><u>Assessment:</u> The proposed clearing area may contain habitat for conservation significant flora and fauna, and portions of the proposed clearing area intersect a wetland which has been identified to be of high ecological value.</p>	May be at variance	Yes: Refer to Section 3.2.2 and Section 3.2.1
<p><u>Principle (b):</u> “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.”</p> <p><u>Assessment:</u> The proposed clearing area is not likely to contain significant habitat for conservation significant fauna.</p>	Not likely to be at variance	Yes: Refer to Section 3.2.1
<p><u>Principle (c):</u> “Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</p> <p><u>Assessment:</u> The proposed clearing area is not likely to contain habitat for threatened flora species listed under the BC Act.</p>	Not likely to be at variance	No
<p><u>Principle (d):</u> “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.”</p> <p><u>Assessment:</u> The proposed clearing area does not contain species that can indicate a threatened ecological community.</p>	Not likely to be at variance	No
Environmental values: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> “Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</p> <p><u>Assessment:</u> The extent of the mapped vegetation type and native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia. Vegetation in the proposed clearing area is not considered to be part of a significant ecological linkage in the local area.</p>	Not likely to be at variance	No
<p><u>Principle (h):</u> “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.”</p> <p><u>Assessment:</u></p> <p>Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.</p>	Not likely to be at variance	No
Environmental values: land and water resources		

Assessment against the Clearing Principles	Variance level	Is further consideration required?
<p>Principle (f): <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p>Assessment: The proposed clearing area intersects a mapped watercourse and paluslope wetland and vegetation to be cleared is considered to be growing in association with these waterbodies.</p>	At variance	Yes – refer to Section 3.2.3
<p>Principle (g): <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p>Assessment: Portions of the proposed clearing area (access tracks) are within soils highly susceptible to nutrient export, and the risk of eutrophication and waterlogging in these soils is likely to be increased as result of clearing. However, given the extent and linear nature of these areas, the proposed clearing is unlikely to have an appreciable impact on land degradation.</p>	Not likely to be at variance	Yes – refer to Section 3.2.3
<p>Principle (i): <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.”</i></p> <p>Assessment: Portions of the proposed clearing area intersect a mapped watercourse and paluslope wetland. However, given the extent of the clearing, it is considered unlikely to impact upon water quality. Larger portions of clearing near these waterbodies are considered to have an adequate buffer of vegetation such that impacts to water quality will be unlikely.</p>	Not likely to be at variance	Yes – refer to Section 3.2.3
<p>Principle (j): <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p>Assessment: Portions of the proposed clearing area are within low-lying, seasonally waterlogged areas where the risk of waterlogging is likely to be increased as result of clearing. However, given the extent and linear nature of these areas of clearing the proposed clearing is unlikely to result in waterlogging. The mapped soils and topographic contours indicate the proposed clearing is not likely to contribute to increased incidence or intensity of flooding.</p>	Not likely to be at variance	Yes – refer to Section 3.2.3

Appendix C – Vegetation condition rating scale

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

Measuring Vegetation Condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very Good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.

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

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Appendix D – Photographs of the vegetation



Figure D-1 – Jarrah, peppermint and pine trees in portion of application area along north-eastern boundary (Keep, 2020b)



Figure D-2 – Peppermint tree, jarrah, bracken, Myrtaceous shrubs and Cyperaceae in northernmost application area along north-eastern boundary (Commissioner of Soil and Land Conservation, 2020)



Figure D-3 – Pine trees and Myrtaceous shrubs in portion of application area along north-eastern boundary (Keep, 2020b)



Figure D-4 – Myrtaceous shrubs and sedges in low lying area within the property (Commissioner of Soil and Land Conservation, 2020)

Appendix E – Locations of trees to be retained

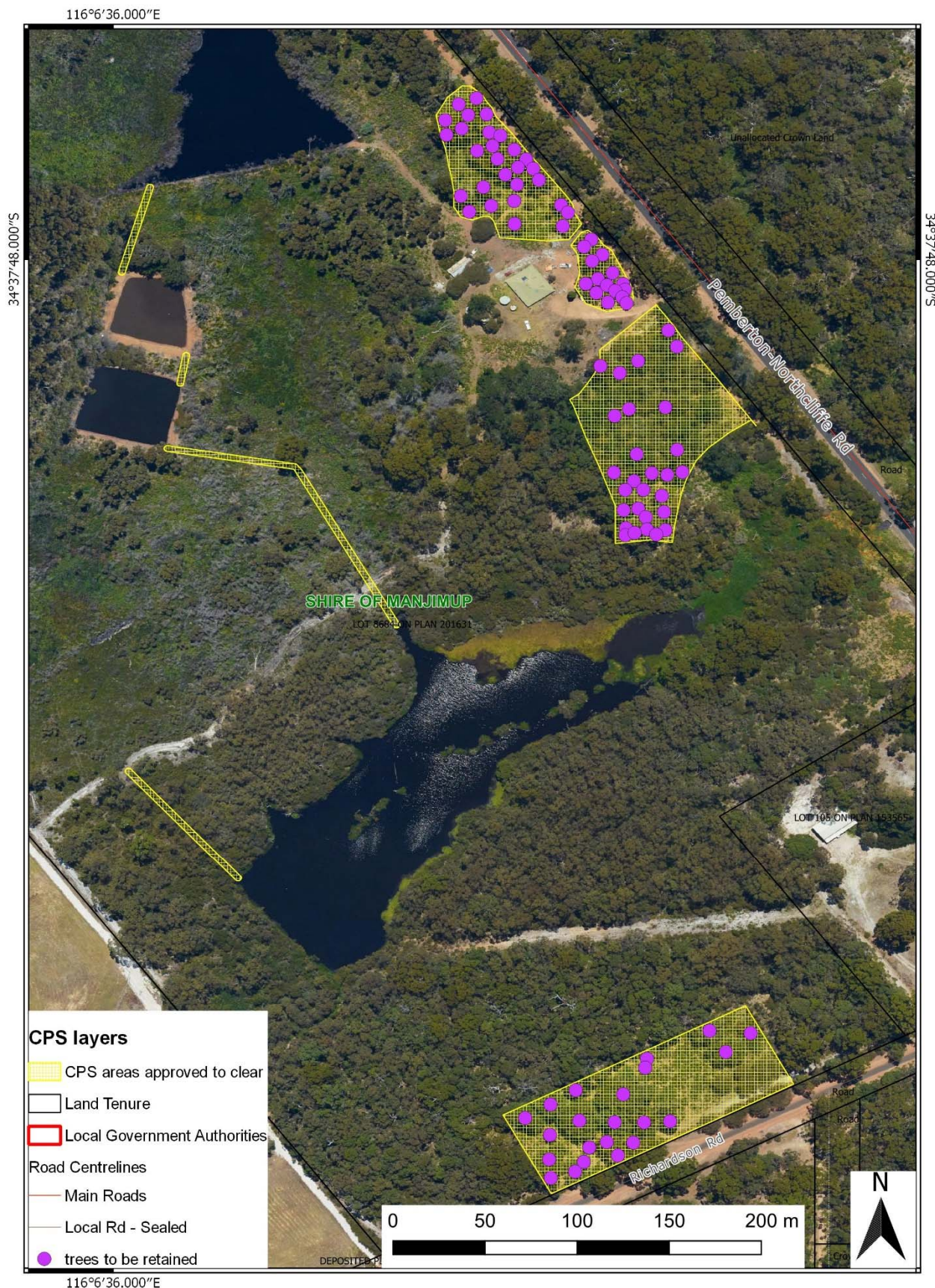


Figure E-1 – Locations of large native trees to be retained.

Appendix F – References and databases

1. GIS datasets

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

- Aboriginal Heritage Places (DPLH-001)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Geomorphic Wetlands, Augusta to Walpole (DBCA-017)
- Groundwater Salinity Statewide (DWER-026)
- IBRA Vegetation Statistics
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Regional Parks (DBCA-026)
- Soil and Landscape Mapping – Best Available
- Soil landscape land quality - Flood Risk (DPIRD-007)
- Soil landscape land quality - Phosphorus Export Risk (DPIRD-010)
- Soil landscape land quality - Salinity Risk (DPIRD-009)
- Soil landscape land quality - Subsurface Acidification Risk (DPIRD-011)
- Soil landscape land quality - Water Erosion Risk (DPIRD-013)
- Soil landscape land quality - Waterlogging Risk (DPIRD-015)
- Soil landscape land quality - Wind Erosion Risk (DPIRD-016)

Restricted GIS Databases used:

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

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