



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 8598/1
Permit Holder:	Shire of Westonia
Duration of Permit:	From 23 July 2020 to 23 July 2030

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

PART I – CLEARING AUTHORISED

1. Purpose for which clearing may be done

Clearing for the purpose of gravel extraction

2. Land on which clearing is to be done

Lot 1360 on Deposited Plan 161440, Warralakin

3. Area of clearing

The Permit Holder must not clear more than five (5) hectares of native vegetation within the area cross-hatched yellow on attached Plan 8598/1.

4. Period in which clearing is authorised

The Permit Holder shall not clear any native vegetation after 23 July 2025.

5. Application

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

PART II – MANAGEMENT CONDITIONS

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

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

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

7. Weed control

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

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

8. Staged clearing

The Permit Holder shall not clear native vegetation under condition 1 and 2 on this Permit unless active gravel extraction begins within two months of the clearing being undertaken.

9. Fauna management - direction of clearing

The Permit Holder shall conduct clearing in a slow progressive manner from one direction to the other (e.g. west to east) to allow fauna to move into adjacent native vegetation ahead of the clearing activity.

10. Retain vegetative material and topsoil, revegetation and rehabilitation

The Permit Holder shall:

- (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 within the adjacent existing gravel extraction area;
- (b) within 12 months following clearing authorised under this Permit, *revegetate* and *rehabilitate* the area cross-hatched yellow on attached Plan 8598/1 by:
 - (i) ripping the ground on the contour to remove soil compaction; and
 - (ii) laying the vegetative material and topsoil retained under condition 10(a) of this Permit;
- (c) within two (2) years of laying the vegetative material and topsoil in accordance with condition 10(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) where, in the opinion of an *environmental specialist*, the composition structure and density determined under condition 10(c)(i) of this Permit will not result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, *revegetate* the area by deliberately *planting* and/or *direct seeding* native vegetation that will result in a similar species composition, structure and density of native vegetation to pre-clearing vegetation types in that area and ensuring only *local provenance* seeds and propagating material are used.

PART III – RECORD KEEPING AND REPORTING

11. Records to be kept

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

- (a) In relation to the clearing of native vegetation authorised under this Permit:
 - (i) the species composition, structure and density of the cleared area;
 - (ii) 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 or decimal degrees;
 - (iii) the direction in which clearing was undertaken;
 - (iv) the date(s) that the area was cleared; and
 - (v) the size of the area cleared (in hectares).
- (b) Actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 6 of this Permit.
- (c) Actions taken to minimise the risk of the introduction and spread of *weeds* in accordance with condition 7 of this Permit.
- (d) In relation to the *revegetation* and *rehabilitation* of areas in accordance with condition 10 of this Permit:
 - (i) the location of any areas *revegetated* and *rehabilitated*, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (ii) a description of the *revegetation* and *rehabilitation* activities undertaken;
 - (iii) the size of the area *revegetated* and *rehabilitated* (in hectares);
 - (iv) the species composition, structure and density of *revegetation* and *rehabilitation*, and
 - (v) a copy of the *environmental specialist's* report.

12. Reporting

- (a) The Permit Holder must provide to the *CEO* on or before 30 June of each year, a written report:
 - (i) of records required under condition 11 of this Permit; and
 - (ii) concerning activities done by the Permit Holder under this Permit between 1 January to 31 December) of the preceding calendar year.
- (b) If no clearing authorised under this Permit was undertaken between 1 January to 31 December of the preceding calendar year, a written report confirming that no clearing under this permit has been carried out, must be provided to the *CEO* on or before 30 June of each year.
- (c) Prior to 23 April 2030, the Permit Holder must provide to the *CEO* a written report of records required under condition 11 of this Permit where these records have not already been provided under condition 12(a) of this Permit.

Definitions

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

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

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 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 fill a hollow;

local provenance means, for the purpose of this Permit, native vegetation seeds and propagating material from natural sources within 10 kilometres and the same Interim Biogeographic Regionalisation for Australia (IBRA) subregion of the area cleared;

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;

planting means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species;

regeneration means re-establishment of vegetation from in situ seed banks and propagating material (such as lignotubers, bulbs, rhizomes) contained either within the topsoil or seed-bearing *mulch*;

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; and

weed/s means any plant –

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
- (b) published in a Department of Biodiversity, Conservation and Attractions Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION

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

30 June 2020

Plan 8598/1

118°38'6.000"E

118°38'16.800"E

118°38'27.600"E

31°3'32.400"S

31°3'32.400"S

31°3'43.200"S

31°3'43.200"S

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31°3'54.000"S




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
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Legend

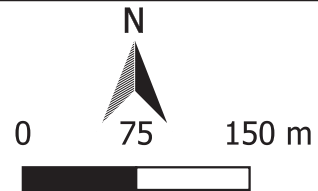
CPS layers


 CPS areas approved to clear

base layers

 Road Centrelines

LGA Boundaries (LGATE-233)




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Gannaway
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Officer delegated under section 20 of the
Environmental Protection Act 1986



GOVERNMENT OF
WESTERN AUSTRALIA



Clearing Permit Decision Report

1. Application details and outcome

1.1 Permit application details

Permit number:	CPS 8598/1
Permit type:	Purpose permit
Applicant name:	Shire of Westonia
Application received:	28 June 2019
Application area:	5 hectares (ha)
Purpose of clearing:	Extractive industry
Method of clearing:	Mechanical clearing
Property:	Lot 1360 on Deposited Plan 161440
Location (LGA area/s):	Shire of Westonia
Localities (suburb/s):	Warralakin

1.2 Description of clearing activities

The application area is adjacent to an existing gravel extraction site of approximately 22 ha. It is part of a broader remnant of approximately 420 ha which extends onto adjacent lands and has linkages to nearby remnants in the local area (10 kilometre (km) radius from the perimeter of the application area). The application form states that the total area of proposed clearing is 5.5 hectares (ha) for the purpose of accessing gravel, with the final land use being gravel pit. The extent of proposed clearing was amended to 5 ha. The application area is indicated in Figure 1.

1.3 Decision on application

Decision:	Grant
Decision date:	30 June 2020
Decision area:	5 ha of native vegetation (see Figure 1, Section 1.5)

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). DWER advertised the application for 21 days and no public submissions were received.

In undertaking the assessment, the Delegated Officer had regard for the site characteristics (see Appendix A), relevant datasets (see Appendix E), the findings of a flora survey and a site inspection (see Appendix D), the clearing principles set out in Schedule 5 of the EP Act (see Appendix B), relevant planning instruments, the applicant's minimisation and mitigation measures, and any other matters considered relevant to the assessment (see Section 3). The assessment identified that the proposed clearing will result in the following:

- the loss of native vegetation that is suitable habitat for malleefowl (*Leipoa ocellata*) and is a remnant of native vegetation in an area that has been extensively cleared
- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values, and potential land degradation in the form of wind erosion.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures, the Delegated Officer determined that the impacts of the proposed clearing could be minimised and managed to be environmentally acceptable. The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise and reduce the impacts and extent of clearing
- take steps to minimise the risk of the introduction and spread of weeds
- staged clearing to minimise wind erosion
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity

- retain cleared vegetation and topsoil, and progressively respread and revegetate within the clearing the clearing footprint following gravel extraction.

1.5 Site map

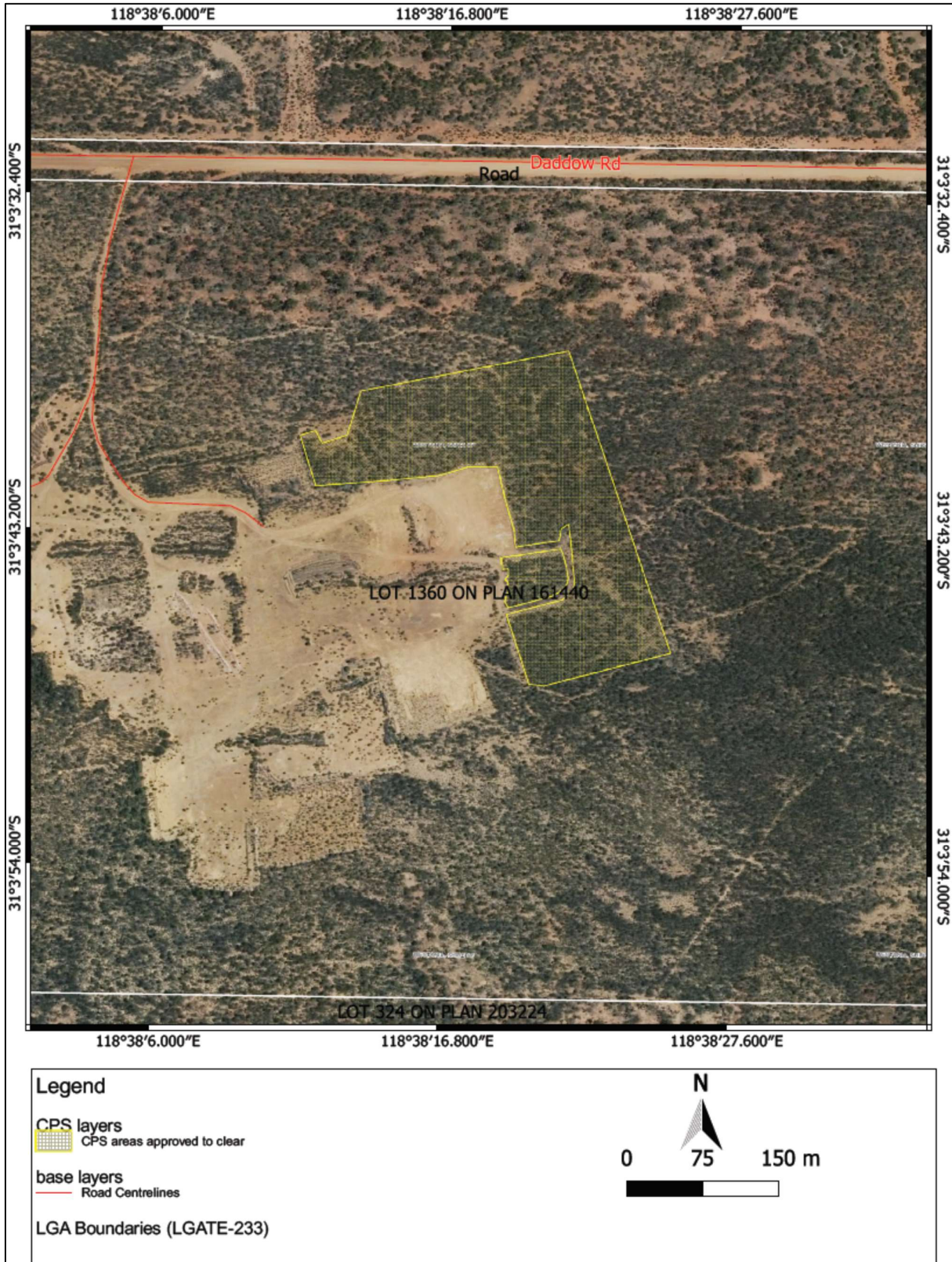


Figure 1: Map of area approved to clear

The area cross-hatched yellow indicates the area 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 1.3), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, in particular:

- 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)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Rights in Water and Irrigation Act 1914* (RIWI Act).

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DWER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- *Technical guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016).

3. Detailed assessment of application

3.1 Avoidance and mitigation measures

The application form states 'A strategic review of gravel pit locations across the Shire was undertaken to determine whether there were alternative sources appropriately located. This existing gravel pit location is very important because there [are] very few sources of gravel through the centre of the Shire'. The applicant also advised that the application area was reduced from 5.5 ha to 5 ha to avoid an individual York gum (*Eucalyptus loxophleba*) identified during a flora survey undertaken by Santaleuca Consulting on behalf of the applicant.

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 environmental impacts

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix A), and considered the extent to which the impacts of the proposed clearing present a risk to environmental values and whether these can be managed to be environmentally acceptable. The assessment against the clearing principles is contained in Appendix B.

This assessment identified that the impacts of the proposed clearing present a risk to threatened fauna, adjacent flora and vegetation, a significant remnant in an extensively cleared area, and land degradation in the form of wind erosion. 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 Fauna

Assessment

Habitat within the application area is primarily shrubland with a mature woodland overstorey, in mainly very good condition. Aerial photography and spatial datasets indicate that the application area is part of a broader remnant of approximately 420 ha, which contains the same mapped vegetation types as found within the application area. No mapped ecological linkages occur in the local area, although it is noted that the broader remnant has roadside linkages to other remnants in the local area. The proposed clearing will not impact on any ecological linkages.

Significant habitat refers to the resources (breeding, resting and feeding), connectivity or habitat area for a species or community that is critical for its survival. Noting that the application area is part of a broader remnant containing similar mapped vegetation types, the habitat present is likely to comprise suitable habitat for a number of indigenous fauna species, however is unlikely to be significant for the survival of species that are not of conservation significance. Notwithstanding, there is potential that the proposed clearing activities could result in the introduction or spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values.

Conservation-significant fauna

One threatened, one priority and one 'other specially protected' fauna have been recorded in the local area. In forming a view on the likelihood of these species occurring within the application area, the preferred habitat types and typical home ranges of these species and their recorded proximity to the application area were considered, along with the type and condition of the vegetation within the application area.

- Malleefowl (*Leipoa ocellata*; Vulnerable): The National Recovery Plan for malleefowl describes the preferred habitat of this species as 'semi-arid to arid shrublands and low woodlands, especially those dominated by mallee and/or acacias. A sandy substrate and abundance of leaf litter are required for breeding', and identifies clearing as a major threat to the species survival, along with habitat fragmentation, grazing, predation, fire and other threats (Benshemesh, 2007). In relation to home ranges, the National Recovery Plan states that radio tracking studies 'have shown that over the course of a year the birds may range over one to several square kilometres and that home-ranges overlap considerably. During the breeding season, males spend most of their time in the vicinity of their nests and consequently male home-ranges are usually much smaller than those of their mates at these times, and may rarely overlap with other males' (Benshemesh, 2007).

The nearest record (sighting) is approximately 1.5 kilometres (km) from the application area. The flora survey report states that 'at the extreme south-east corner where an abandoned mallee fowl nest was found. This was found in mallee and sedge scrub land and well away from the eventual gravel extraction site' (Santaleuca Consulting, 2020). This mound is about 190 metres (m) from the application area; no information was available in relation to when it was last used by malleefowl. Noting the proximity of the nearest record and a nesting mound, and that the application area is part of a broader remnant with the same mapped vegetation types, the vegetation proposed to be cleared comprises suitable habitat for malleefowl, and may comprise a part of, and/or be necessary for the maintenance of habitat for this species.

- Coolgardie shield-backed trapdoor spider (*Idiosoma intermedium*; Priority 3): A recent paper by researchers from the WA Museum and other institutions describes unique characteristics of spiders of the genus *Idiosoma*, including 'moustache-like' burrow entrances and typically restricted short-range endemic distributions, and outlines some threats to their continued survival (Rix et al., 2018). With specific reference to *Idiosoma intermedium*, the paper indicates a distribution from Bodallin north to Billiburning Rock in the eastern Wheatbelt, and east to near the Helena-Aurora Range, Mount Manning, and Koolyanobbing in the Coolgardie bioregion (an extent of about 14,500 km²) (Rix et al., 2015). In the absence of published information specific to the habitat requirements of this species, available information for the related species shield-backed spider (*Idiosoma nigrum*; Threatened) was reviewed. The Approved Conservation Advice for *Idiosoma nigrum* indicates that the spider typically inhabits clay soils of *Eucalyptus* woodlands and *Acacia* vegetation, and relies heavily on leaf litter to build its burrow (Department of Sustainability, Environment, Water, Population and Communities, 2013).

The nearest record is approximately 8.2 km from the application area. The application area includes *Acacia* vegetation on red sandy, loam gravel. Photographs from a site inspection undertaken by DWER indicate the presence of some, but not abundant, leaf litter. Noting this, the application area is unlikely to comprise a suitable habitat for the Coolgardie shield-backed trapdoor spider.

- Peregrine falcon (*Falco peregrinus*; Other Specially Protected): The Australian Museum website states that this species 'is found in most habitats, from rainforests to the arid zone, and at most altitudes, from the coast to alpine areas. It requires abundant prey and secure nest sites, and prefers coastal and inland cliffs or open woodlands near water, and may even be found nesting on high city buildings' (Australian Museum, 2020).

The nearest record is approximately 8.1 km from the application area. This species is widespread and highly mobile, and is found in various habitats. The application area may comprise suitable habitat for this species, however noting habitat preferences and the extent of the proposed clearing, the application area is unlikely to comprise a significant habitat for this species.

Conclusion

For the reasons set out above, it is considered that the impacts of the proposed clearing on adjacent fauna habitats can be managed to be environmentally acceptable by requiring the applicant to take steps to minimise the risk of the introduction and spread of weeds, slow directional clearing to allow fauna and/or malleefowl to move into adjacent vegetation and rehabilitating the site post extraction to ensure the habitat is not permanently lost. These management measures will be required as conditions on the clearing permit.

It is acknowledged that the proposed clearing will result in the loss of habitat for malleefowl. Given the extent of the proposed clearing, its location within a broader 420 ha remnant adjacent to an existing gravel extraction area, no malleefowl mounds have been recorded within the application and noting that the habitat may (but not 'does') comprise a part of, and/or be necessary for the maintenance of, a significant habitat for this species, it is considered that this impact does not constitute a significant residual impact. Malleefowl may disperse through the

application area intermittently. Slow directional clearing to allow malleefowl to move into adjacent vegetation ahead of the clearing activity will minimise impact to individuals.

3.2.2 Flora and vegetation

Assessment

The flora survey report outlines the findings of a reconnaissance survey of a 25 ha area including the application area on 23 October 2018, and by a detailed survey within the application area on 23 September 2019 (Santaleuca Consulting, 2020). The report describes the vegetation proposed to be cleared as *Allocasuarina acutivalvis* and *Acacia neurophylla* dominated shrubland, with a diversity of 48 flora species (Santaleuca Consulting, 2020). The report concludes that 'The species mix within the clearing envelope is a very standard list which occurs in red gravel soils in the central and eastern wheatbelt. No unusual vegetation types or associations were noted ... No species were found of special conservation value, priority or rare species detailed in the Nature Map report' (Santaleuca Consulting, 2020).

Conservation-significant flora

Four threatened and seven priority flora have been recorded in the local area. In forming a view on the likelihood of these species occurring within the application area, the preferred habitat types of these species and their recorded proximity to the application area were considered, along with the vegetation/soil types and landforms within the application area, and the findings outlined in the flora survey report.

Two priority flora are associated with salt pans or ephemeral pools in granite, being habitats that do not occur within the application area. Two threatened and five priority flora are associated with different mapped soil types, and have peak flowering periods consistent with the timing of the flora survey. Two threatened flora have peak flowering times that are outside the timing of the flora survey, and these are considered in further detail.

- *Eucalyptus crucis* subsp. *crucis* (Threatened): The FloraBase website indicates that this species is a mallee, known from 40 recorded populations (some records overlap) from the Shires of Menzies, Mount Marshall, Westonia and Yilgarn, typically associated with sand or loam and granite outcrops, flowering in October or December or January-March (Western Australian Herbarium, 1998-). FloraBase also indicates that records in the Shire of Westonia are associated with large granite outcrops or gullies on outcrops. The nearest record is approximately 3.7 km from the application area, from a different mapped soil type. Noting that this species has distinctive characteristics, it is likely to have been identified in the absence of flowers if it was present.
- *Eremophila resinosa* (Threatened): The FloraBase website indicates that this species is a spreading shrub (0.4-0.8 m high to 1 m wide), known from 28 recorded populations (some records overlap) from the Shires of Koorda, Mount Marshall, Westonia and Wyalkatchem, typically associated with clay loam, gravelly sandy clay and road verges, flowering in April or October-November (Western Australian Herbarium, 1998-). FloraBase also indicates that records in the Shire of Westonia are associated with brown sandy loam/clay loam in morrel (*Eucalyptus longicornis*) and *Acacia* sp. woodland. The nearest record is approximately 1.1 km from the application area, from a different mapped soil type. Noting the different habitat within the application area, this species is unlikely to be present. This species has distinctive characteristics, it is likely to have been identified in the absence of flowers if it was present.

Conservation-significant ecological communities

Several occurrences of the 'Eucalypt woodlands of the Western Australian Wheatbelt' (Priority 3) priority ecological community (PEC) have been recorded in the local area. This PEC is also a Commonwealth-listed threatened ecological community (TEC) under the *Environment Protection and Biodiversity Conservation Act 1999*.

Approximately 0.47 ha in the southern portion of the application area is mapped as this PEC, and is part of a broader mapped 429.5 ha patch. The PEC mapping appears to align with broad Vegetation Association mapping, and its accuracy may require ground-truthing.

The flora survey report does not specifically mention the presence of this PEC/TEC within the application area, however the species list includes two canopy species and 20 understorey species identified in the Approved Conservation Advice for the TEC as being commonly associated with the TEC (Santaleuca Consulting, 2020; Department of the Environment, 2015). It is noted that the species list includes the findings of a reconnaissance survey of a broader 25 ha area, and includes species that occur outside the application area.

The application area comprises a shrubland (Santaleuca Consulting, 2020). Photographs from the site inspection indicate an absence of *Eucalyptus*-dominated canopy within the application area (DWER, 2019). From this, the vegetation within the application area is not likely to be representative of this PEC/TEC.

Conclusion

For the reasons set out above, it is considered that there are unlikely to be any environmentally unacceptable impacts to conservation-significant flora or ecological communities as a result of the proposed clearing. With regard

for the broader remnant, it is also considered that the vegetation within the application area is unlikely to comprise a high level of floristic diversity. No clearing permit conditions are necessary in relation to these matters.

3.2.3 Significance as a remnant

Assessment

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

One of the mapped vegetation types has less than 30 per cent of its pre-European extent within the bioregion remaining. This vegetation type is mapped across approximately 0.47 ha of the application area, and across about 213 ha of the broader remnant within which the application area is located. The occurrence of Vegetation Association 1057 within the application area is associated with broad Vegetation Association mapping, and its accuracy requires ground-truthing. The application area comprises a shrubland, and species that typically form Vegetation Association 1057 were not observed within the application area (Santaleuca Consulting, 2020). Photographs from the site inspection indicate an absence of *Eucalyptus*-dominated canopy within the application area (DWER, 2019). From this, the vegetation within the application area is not likely to be representative of this Vegetation Association.

The local area retains approximately 18.91 per cent of native vegetation cover, and the proposed clearing will reduce this extent by approximately 0.01 per cent.

The application area comprises suitable habitat for threatened fauna (malleefowl). The application area represents approximately 1.2 per cent of the broader remnant, and contains the same mapped vegetation types. Given this, the proposed clearing also impacts on approximately 1.2 per cent of malleefowl habitat within this broader remnant. It is not considered that the proposed clearing comprises of significant habitat for the malleefowl.

Whilst the application area is located within an extensively cleared landscape, it is not considered to be a significant remnant as it does not contain any conservation significant flora or communities and does not contain significant habitat for fauna.

Conclusion

For the reasons set out above, it is considered that the impacts of the proposed clearing on the remnant can be managed to be environmentally acceptable by requiring the applicant to avoid, minimise and reduce the impacts and extent of clearing, and to progressively revegetate the clearing footprint following gravel extraction. These requirements will be applied as conditions on the clearing permit.

It is acknowledged that the proposed clearing will contribute to the cumulative loss of native vegetation in the local and regional contexts. By requiring the applicant to progressively revegetate the clearing footprint following gravel extraction, it is considered that this impact does not constitute a significant residual impact requiring an offset.

3.2.4 Land and water resources

Assessment

The potential land degradation risks associated with the proposed clearing are wind erosion, salinity and acidification.

Noting the extent of the proposed clearing, the location of the application area adjacent to an existing gravel extraction site, the purpose of the proposed clearing, and the mapped groundwater salinity in the local area, the proposed clearing is unlikely to cause an appreciable increase in salinity or sub-surface acidification.

Noting the landscape position and mapped soil type within the application area, the proposed clearing activities (and subsequent land use) may result in land degradation in the form of wind erosion.

Conclusion

For the reasons set out above, it is considered the impacts of the proposed clearing in relation to the risk of wind erosion can be managed to be environmentally acceptable by requiring the applicant to implement a staged clearing approach. This will be required as a condition on the clearing permit.

3.3 Relevant planning instruments and other matters

No registered Aboriginal sites of significance have been mapped within the application area. The nearest registered site is an Aboriginal Heritage Place known as 'Warren Double Cunyan', located approximately 3.5 km from the application area. This site is separated from the application area by vegetation, cleared agricultural land, and roads, and the proposed clearing is unlikely to impact on it. 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 below are the findings of a desktop assessment based on the best information available to DWER at the time of this assessment, and described the key characteristics of the application area. This information was used to inform the assessment of the clearing against the clearing principles (see Appendix B).

Site characteristics

Site characteristic	Details						
Local context	<p>The application area is part of a broader remnant of approximately 420 ha, which extends onto adjacent privately-owned land parcels and a Crown reserve. The broader remnant has roadside linkages to other remnants in the local area.</p> <p>The application area is adjacent to an existing gravel extraction site of approximately 22 ha, and the proposed clearing is to extend this.</p> <p>The local area considered in the assessment of this application is defined as a 10-kilometre (km) radius from the perimeter of the application area, and retains approximately 18.91 per cent of native vegetation cover.</p>						
Vegetation description	<p>The application area is mapped as:</p> <ul style="list-style-type: none"> Vegetation Association 1413, described as shrublands; <i>Acacia</i>, <i>Casuarina</i> and <i>Melaleuca</i> thicket (mapped across about 4.53 ha of the application area); Vegetation Association 1413 is dominated by York gum (<i>Eucalyptus loxophleba</i>), with a middle shrub strata of northern sheoak (<i>Allocasuarina dielsiana</i>), <i>Senna</i> sp., <i>Dodonaea stenozyga</i>, <i>Melaleuca acuminata</i>, one-sided bottlebrush (<i>Calothamnus quadrifidus</i>) and quandong (<i>Santalum acuminatum</i>) with a lower shrub strata of desert boronia (<i>Boronia inornata</i>), <i>Westringia dampieri</i> and blue bush (<i>Halgania lavandulacea</i>) Vegetation Association 1057, described as mosaic: shrublands; medium woodland; salmon gum (<i>Eucalyptus salmonophloia</i>) and gimlet (<i>Eucalyptus salubris</i>) / York gum and ribbon-barked mallee (<i>Eucalyptus sheathiana</i>) mallee scrub (mapped across about 0.47 ha in the southern portion of the application area) (Shepherd et al, 2001). <p>Vegetation composition was determined from a flora survey report provided by the applicant and the findings of a site inspection undertaken by the Department of Water and Environmental Regulation (DWER).</p> <p>The flora survey report states 'The vegetation type is typical <i>Allocasuarina acutivalvis</i>, <i>Acacia neurophylla</i> dominated shrubland to 5 metres in height. The overstorey is very mature woodland with a coverage of approximately 70%. Mid storey cover is diverse with a coverage of 30%. The understorey is sparse at 25% coverage, with very little annual cover, partly due to the dry years preceding the survey. There are however, young mid storey species which add to the understorey mix. Senescence values are mainly from old mature branches and dead mature trees, especially Sheoak and Acacia species, which account for most of the 25% senesced material on the ground' (Santaleuca Consulting, 2020). The findings of the site inspection are consistent with those of the flora survey (DWER, 2019).</p>						
Vegetation condition	<p>Vegetation condition was determined from the flora survey report, and the findings of the site inspection. The vegetation proposed to be cleared ranges from very good to degraded (from edge effects) condition on the scale described by Keighery (1994) (see Appendix C), and is mostly in very good condition.</p>						
Soil description	<p>The application area is mapped as:</p> <ul style="list-style-type: none"> Ulva Subsystem (258BcUL) within the Bencubbin System, described as yellow sandplain and gravel plain of the north eastern wheatbelt; this unit contains more Wodjil than yellow sandplains further south. <p>The flora survey report describes the soil within the application area as 'a predominantly red sandy, loam gravel, underlain with white calcareous rock' (Santaleuca Consulting, 2020).</p>						
Land degradation risk	<p>The mapped Ulva Subsystem (258BcUL) has the land degradation risk categories set out in the table below:</p> <table border="1"> <thead> <tr> <th>Risk categories</th> <th>Land Unit</th> </tr> </thead> <tbody> <tr> <td>Wind erosion</td> <td>30-50% of map unit has a high to extreme wind erosion risk</td> </tr> <tr> <td>Water erosion</td> <td><3% of map unit has a high to extreme water erosion risk</td> </tr> </tbody> </table>	Risk categories	Land Unit	Wind erosion	30-50% of map unit has a high to extreme wind erosion risk	Water erosion	<3% of map unit has a high to extreme water erosion risk
Risk categories	Land Unit						
Wind erosion	30-50% of map unit has a high to extreme wind erosion risk						
Water erosion	<3% of map unit has a high to extreme water erosion risk						

Site characteristic	Details	
	Salinity	30-50% of map unit has a moderate to high salinity risk or is presently saline
	Sub-surface acidification	30-50% 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	<3% of map unit has a high to extreme phosphorus export risk
	<p>According to Department of Primary Industries and Regional Development datasets, the application area has a moderate ('M2') rating for wind erosion and a low ('L1') rating for salinity.</p> <p>Groundwater salinity (as total dissolved solids) is mapped as 14,000-35,000 milligrams per litre (mg/L) – this is considered to be saline; by way of comparison seawater is about 35,000 mg/L.</p>	
Waterbodies	<p>ANCA Wetland: No EPP SCP Lake: No RAMSAR Wetland: No</p> <p>No watercourses or wetlands are mapped within the application area. The nearest mapped water features are:</p> <ul style="list-style-type: none"> • non-perennial watercourses located approximately 440, 465 and 470 m from the application area; these appear to link to tributaries of the Yilgarn River • a wheatbelt wetland 'granite outcrop' is located approximately 915 m south of the application area. <p>The next nearest water features are all located in excess of 4 km from the application area.</p>	
Conservation areas	<p>Two conservation areas occur in the local area:</p> <ul style="list-style-type: none"> • an un-named Nature Reserve (R 19209) managed by the Department of Biodiversity, Conservation and Attractions (DBCA), located approximately 8 km from the application area • a privately managed <i>Land for Wildlife</i> site (1401), located approximately 9.1 km from the application area. 	
Climate and landform	<p>Rainfall: 300 millimetres (mm) per annum Evapotranspiration: 300 mm per annum Geology: Granite and Gneiss Acid Sulfate Soil Risk: None identified Groundwater Salinity (Total Dissolved Solids): 14000-35000 mg/L</p> <p>The application area is on a slight westward-facing slope. Topography of the adjacent existing gravel extraction site ranges from approximately 344-366 metres (m) above sea level (ASL); the application area is at a slightly higher elevation of approximately 366-368 m ASL (Department of Primary Industries and Regional Development, 2017).</p>	
Hydrology and hydrogeology	<p>The mapped hydrogeology is described as granitoid lithology, and rocks of low permeability, fractured and weathered rocks (local aquifers).</p> <p>The application area is within the 'Northern Zone of Ancient Drainage' Hydrological Zone, and the 'South West' Hydrographic Catchment. The application area is also within the mapped 'Westonia' Groundwater Area and 'Avon River System' Surface Water Area and Irrigation District under the <i>Rights in Water and Irrigation Act 1914</i>.</p>	

Flora, fauna and ecosystem analysis

The following conservation-significant species and ecological communities have been recorded from the local area. With consideration for the site characteristics set out above, relevant datasets (see Appendix E), and the findings of

the flora survey and site inspection (see Appendix D), the likelihood of their occurrences within the application area has been assessed.

Species / Ecological Community	Distance to nearest record (km)	Suitable soil type?	Suitable vegetation type?	Suitable habitat features?	Surveys adequate to identify?
Fauna					
Malleefowl (<i>Leipoa ocellata</i> ; Threatened)	About 1.5 km; mound 190 m recorded during flora survey	N/A	Y	Y	N/A
Peregrine falcon (<i>Falco peregrinus</i> ; Other Specially Protected)	About 8.1 km	N/A	Y		N/A
Coolgardie shield-backed trapdoor spider (<i>Idiosoma intermedium</i> ; Priority 3)	About 8.2 km	Y	Y	Y	N/A
Flora					
<i>Eremophila resinosa</i> (Threatened)	About 1.1 km	N	N	Y	Y
<i>Eucalyptus crucis</i> subsp. <i>crucis</i> (Threatened)	About 3.7 km	N	N	Y	Y
<i>Darwinia</i> sp. Chiddarcooping (S.D. Hopper 6944) (Priority 4)	About 4.1 km	N	N	-	Y
<i>Eremophila viscida</i> (Threatened)	About 5.1 km	N	N	-	Y
<i>Acacia undosa</i> (Priority 3)	About 5.5 km	N	N	-	Y
<i>Eucalyptus caesia</i> subsp. <i>magna</i> (Priority 4)	About 5.8 km	N	N	-	Y
<i>Hibbertia graniticola</i> (Priority 3)	About 6.2 km	N	N	-	Y
<i>Glossostigma trichodes</i> (Priority 1)	About 7 km	N	N	-	Y
<i>Tecticornia</i> sp. Lake Wallambin (K.A. Shepherd KS 1157) (Priority 1)	About 7.6 km	N	N	-	Y
<i>Dampiera scaevolina</i> (Priority 1)	About 8.4 km	N	N	-	Y
<i>Eremophila virens</i> (Threatened)	About 10 km	N	N	-	Y

Vegetation extent

	Pre-European (ha)	Current extent (ha)	Current extent (%)	Current extent (ha) in DBCA ¹ -managed lands	Current extent (%) in DBCA-managed lands
IBRA² bioregion (as at March 2019)					
Avon Wheatbelt	9,517,109.95	1,761,187.42	18.51	174,980.68	1.84
Vegetation Association in bioregion (as at March 2019)					
1413	546,675.55	174,102.84	31.85	12,880.26	2.36
1057	145,310.83	17,564.46	12.09	2,879.84	1.98
Local area					

¹ Department of Biodiversity, Conservation and Attractions. Current extent as proportion of pre-European extent within DBCA-managed lands.

² Interim Biogeographic Regionalisation for Australia.

10-kilometre radius	32,507.287	6,149.07	18.91	N/a	N/a
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Appendix B – Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (a):</u> “Native vegetation should not be cleared if it comprises a high level of biodiversity.”³</p> <p><u>Assessment:</u> The application area is part of a broader remnant of approximately 420 ha containing the same mapped vegetation types as the application area. Seven priority flora have been recorded in the local area, however the flora survey did not record threatened or priority flora within the application area. A portion of the application area is mapped the ‘Eucalypt woodlands of the Western Australian Wheatbelt’ (Priority 3) priority ecological community (PEC), however the vegetation is unlikely to be representative of this PEC. Malleefowl habitat is observed within the application area however is not deemed to be significant.</p>	Not likely to be at variance	Yes Sections 3.2.1 and 3.3.2
<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> One threatened, one priority and one ‘other specially protected’ fauna have been recorded in the local area. The application area comprises suitable habitat for at least two of these species. Noting the proximity of the nearest malleefowl record and a nesting mound, and that the application area is part of a broader remnant with the same mapped vegetation types, the vegetation proposed to be cleared contains suitable habitat for malleefowl. It is determined that the habitat within the application area is not significant.</p>	May be at variance	Yes 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> Four threatened flora have been recorded in the local area. The flora survey did not record any threatened flora within the application area, however two threatened flora have peak flowering periods outside the timing of the flora survey. One has habitat preferences that are not present within the application area, and the other has distinctive characteristics and is likely to have been identified in the absence of flowers if it was present.</p>	Not likely to be at variance	Yes Section 3.2.2
<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.”⁴</p> <p><u>Assessment:</u> No threatened ecological communities have been recorded in the local area. The nearest occurrence is ‘Plant assemblages of the Parker Range System’, located approximately 90 km from the application area.</p>	Not likely to be at variance	No
<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 application area is located within an extensively cleared landscape.</p>	Is at variance	Yes Section 3.2.3
<p><u>Principle (f):</u> “Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</p>	Not likely to be at variance	No

³ The *Biodiversity Conservation Act 2016* defines ‘biodiversity’ as ‘the variability among living organisms and the ecosystems of which those organisms are a part and includes the following – (a) diversity within native species and between native species; (b) diversity of ecosystems; (c) diversity of other biodiversity components’.

⁴ The *Biodiversity Conservation Act 2016* defines ‘threatened ecological community’ as ‘an ecological community that – (a) is listed as a threatened ecological community under section 27(1); or (b) is to be regarded as a threatened ecological community under section 33’. Section 27(1) refers to TECs listed by the WA Minister for Environment; section 33 refers to the listing and de-listing of collapsed TECs.

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Assessment:</u> The nearest mapped watercourses are located approximately 440, 465 and 470 m from the application area, and the nearest mapped wetland is located approximately 915 m from the application area. These water features are separated from the application area by vegetation and/or roads.</p>		
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u> Noting the landscape position and mapped soil type within the application area, the proposed clearing activities (and subsequent land use) may result in land degradation in the form of wind erosion.</p>	May be at variance	Yes Section 3.2.5
<p><u>Principle (h):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.”</i></p> <p><u>Assessment:</u> Two conservation areas occur in the local area, the nearest is located approximately 8 km from the application area and separated from the application area by vegetation, cleared agricultural land, and roads.</p>	Not likely to be at variance	No
<p><u>Principle (i):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.”</i></p> <p><u>Assessment:</u> Noting the topography, the underlying groundwater salinity, the extent and purpose of the proposed clearing, the extent of clearing in the local area, and the distance to nearby water features, the proposed clearing is unlikely to cause deterioration in water quality.</p>	Not likely to be at variance	No
<p><u>Principle (j):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u> The application area is located on a slight westward-facing slope. The mapped soil type has a low flood risk.</p>	Not likely to be at variance	No

Appendix C – Vegetation condition rating scale

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

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

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

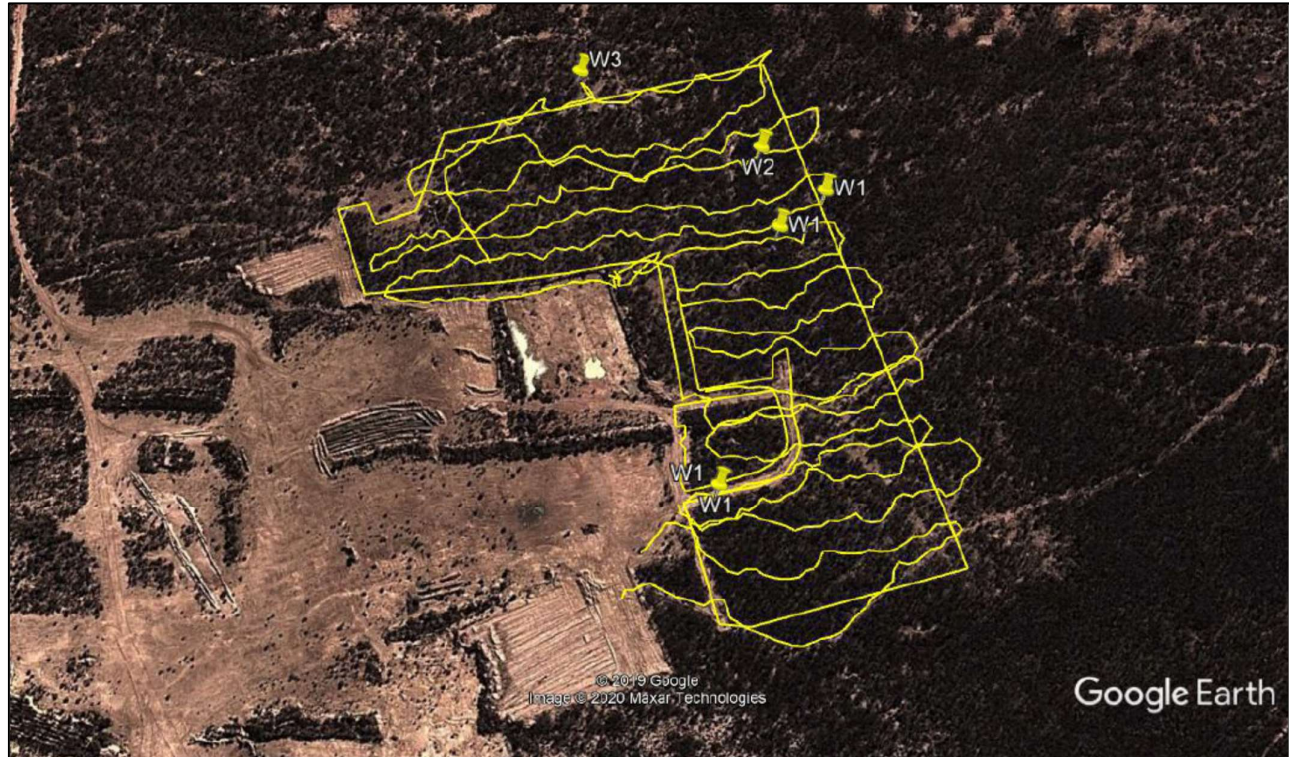
Appendix D – Biological survey information excerpts / photographs of the vegetation

Flora survey report

The flora survey undertaken by Santaleuca Consulting on behalf of the applicant⁵ included a reconnaissance survey of a 25 ha area (including the application area) on 23 October 2018, and a detailed survey within the application area on 23 September 2019. The flora survey was used to inform the assessment of this application, and is published on the Department of Water and Environmental Regulation's (DWER) website at:

<ftp://ftp.dwer.wa.gov.au/permit/8598/>.

A map of the 10 m traverses from the detailed survey is copied below:



The main findings documented in the flora survey report are summarised below:

- a diversity of 48 native species was recorded
- the vegetation within the application area is typical of vegetation found on red gravel soils in the central and eastern wheatbelt
- an old malleefowl nest was found in mallee and sedge scrub land approximately 190 m south of the application area
- no threatened or priority flora species, or unusual vegetation types or associations, were recorded
- the north-eastern pin marked 'W1' in the above map indicates the approximate location of *Eucalyptus loxophleba* subsp. *lissophloia* adjacent to the application area, which was avoided by the applicant.

Site inspection

Photographs (and map of photograph locations) from the report of a site inspection undertaken within the application area by DWER on 23 September 2019.⁶ Of note, photographs 1, 2, 15 and 16 were taken within the portion of the application area mapped as an occurrence of the 'Eucalypt woodlands of the Western Australian Wheatbelt' (Priority 3) priority ecological community.

⁵ Santaleuca Consulting (2020) *Shire of Westonia – Flora Survey of Daddow Road Gravel Pit Extension*. Report prepared for the Shire of Westonia from surveys undertaken on 23 October 2018 and 23 September 2019.

⁶ Department of Water and Environmental Regulation (2019) *Site Inspection Report – Native Vegetation Regulation – CPS 8598/1*. Report of a site inspection undertaken on 23 September 2019.



Map showing location of photos from DWER site inspection.



Photo 1: Taken just outside the application area, near the southern boundary of the clearing footprint.



Photo 2: A shingle back observed outside of the clearing footprint.



Photo 3: Taken over the old pit area showing the regrowth is starting occur.



Photo 4: Taken outside of the application area, this shows that the vegetation within the application footprint is represented outside of the proposed impacted area.



Photo 5: taken near the centre of the application area.



Photo 6: A small number of mallees were observed within the clearing footprint.



Photo 7: Taken along the western border of the application footprint.



Photo 8



Photo 9: This photo was taken approximately 100 metres west of the application footprint to demonstrate that this type of vegetation is also similar in nature to that, that occurs within the application footprint.



Photo 10: Photo taken within the application area.



Photo 11



Photo 12



Photo 13



Photo 14



Photo 15



Photo 16

Appendix E – References and databases

GIS datasets

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

- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- 10 Metre 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)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Remnant Vegetation, All Areas
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- RIWI Act, Groundwater Areas (DWER-034)
- Wheatbelt Wetlands Stage 1 (DBCA-021)

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

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