



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9974/1
Permit type:	Area permit
Applicant name:	Lovegrove Investments Pty Ltd
Application received:	22 November 2022
Application area:	0.34 hectares of native vegetation
Purpose of clearing:	Drainage channel upgrade
Method of clearing:	Mechanical clearing
Property:	Lot 140 on Deposited Plan 232778
Location (LGA area/s):	Shire of Harvey
Localities (suburb/s):	Cookernup

1.2. Description of clearing activities

The vegetation proposed to be cleared comprises scattered trees within an approximate 52-hectare property (see Figure 1, Section 1.5). The trees identified for clearing comprise of *Melaleuca raphiophylla* (Swamp Paperbarks), *Eucalyptus rudis* (Flooded Gum) and *Corymbia calophylla* (Marri) trees over pasture weeds (Accendo, 2022). The total area of clearing proposed throughout the site equals to 0.34 hectares (Ha).

The proposed clearing is for the purpose of upgrading the already existing drainage channels to enhance flow (Lovegrove Investments, 2022). The applicant has advised that the drainage upgrade is for the purpose of improving pasture for grazing. Pivots are proposed for installation to irrigate the pasture, with the intent of providing pasture throughout the dry months.

1.3. Decision on application

Decision:	Refused
Decision date:	28 May 2024
Decision area:	0.34 hectares of native vegetation, as depicted in Section 1.5, below.

1.4. Reasons for decision

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

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

- supporting information supplied by the applicant (see Appendix A);
- site characteristics (see Appendix B);
- relevant datasets (see Appendix F);
- photographs provided by Accendo Environmental (2022) (see Appendix E);
- the clearing principles set out in Schedule 5 of the EP Act (see Appendix C); and

- relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). Consideration of planning instruments and other relevant matters when making a decision on a clearing permit application is a requirement under section 51O(4) of the EP Act.

The Delegated Officer also noted the Shire of Harvey's (the Shire) advised that the proposed activities require planning approvals under the Shire's local town planning scheme (Shire of Harvey, 2023). To date, the applicant has not obtained a valid development approval (DA) for the proposed drainage upgrade. The Delegated Officer considered that the absence of a valid DA from the Shire is a relevant consideration as if this approval is not granted, there would be no reason for the clearing to occur.

The Delegated Officer has also noted that the applicant has not obtained approval under the *Rights in Water and Irrigation Act 1914* (RIWI Act) to interfere with bed and banks of a watercourse which is required for the proposed clearing activities.

Noting the planning matters have not been resolved despite the applicant being afforded a reasonable amount of time in which to resolve them, and that Lovegrove Investments has not provided the Department with a clear timeline as to when a DA and bed and banks permit under the RIWI Act may be obtained, the Delegated Officer has decided to refuse to grant a clearing permit. In the absence of the above planning approvals, it would be unnecessarily harmful to the environment for the Department to authorise native vegetation clearing when such clearing may not be required.

1.5. Site map

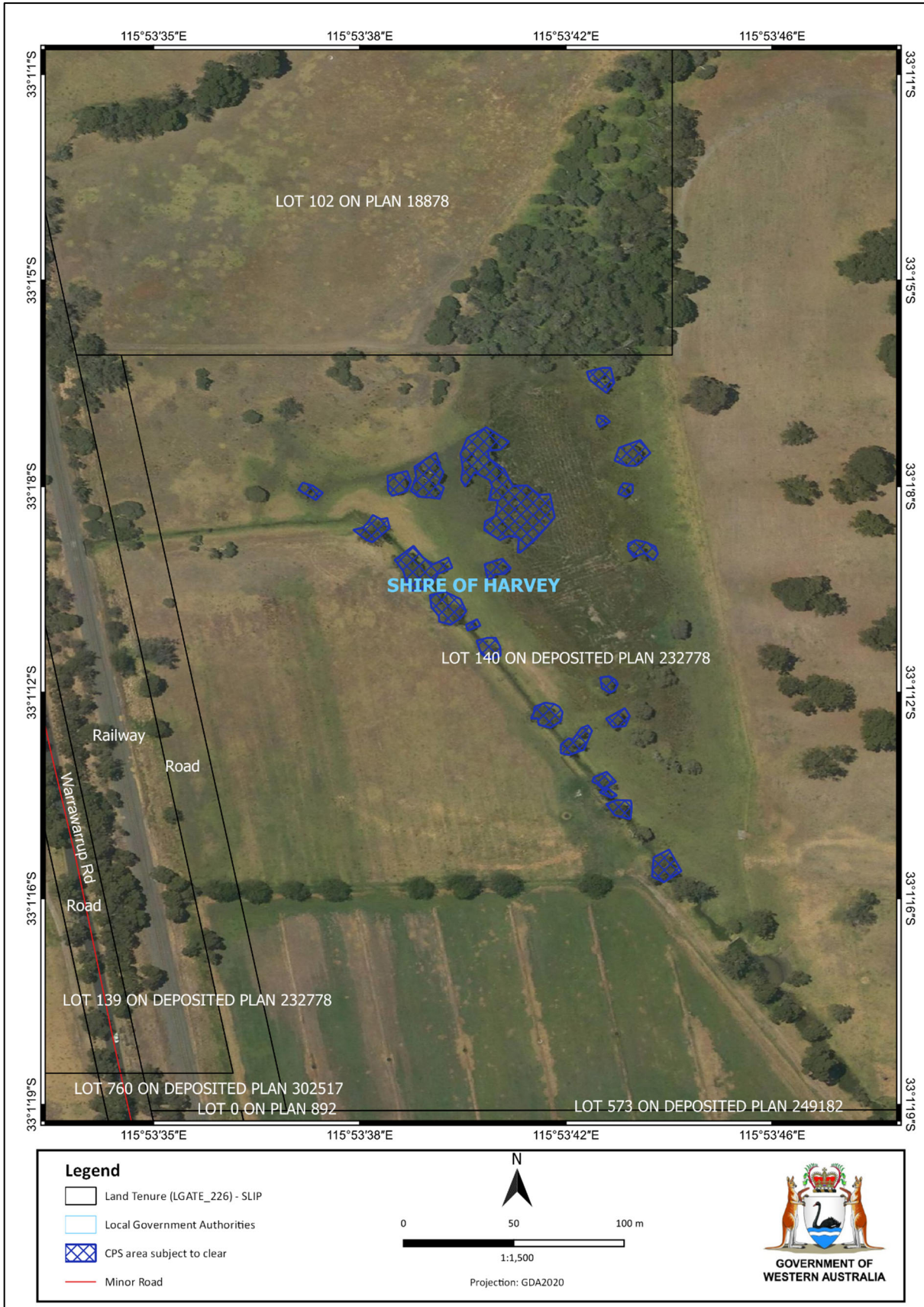


Figure 1 Map of the application area. The areas cross-hatched blue indicate the areas proposed to be cleared.

2 Legislative context

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

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

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

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)
- *Rights in Water and Irrigation Act 1914* (RIWI Act)
- *Aboriginal Heritage Act 1972*
- *Soil and Land Conservation Act 1945* (WA).

The key guidance documents which inform this assessment are:

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

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

The applicant has advised that the property consists of mature *Corymbia calophylla* (marri) trees and the application area was designed to avoid as many marri trees as possible (Accendo, 2023).

The application area is located on the Swan Coastal Plain which is an extensively cleared area and an area used by black cockatoos primarily for foraging resources. A key focus for this region is the ongoing viability of foraging resources for black cockatoos, particularly the Carnaby’s cockatoos (Department of Agriculture, Water and the Environment (DAWE), 2022). Clearing of black cockatoo foraging species within an extensively cleared landscape may represent a significant impact. Based on the above, the applicant was requested to consider revegetation to mitigate the impact resulting from the clearing. If the permit was to be granted, a condition to revegetate an area with marri trees would have been required.

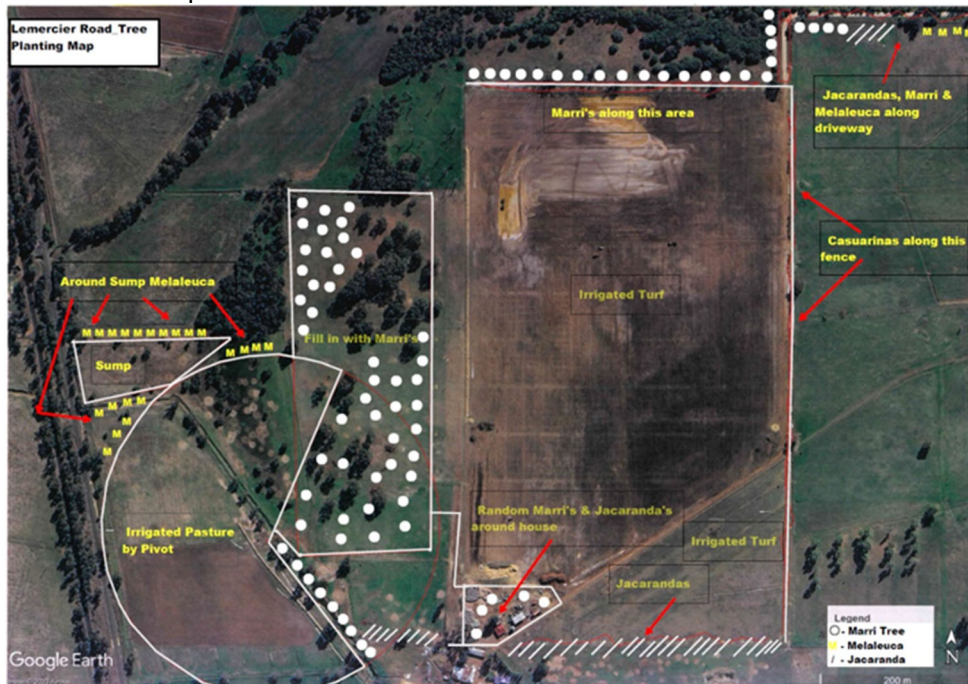


Figure 2: A map representing the revegetation area proposed by the applicant.

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

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix B) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles (see Appendix C) identified that the impacts of the proposed clearing present a risk to biological values (fauna habitat), significant remnant vegetation and land and water resources. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

3.2.1. Biological values (fauna) - Clearing Principles (b)

Assessment

According to the information available to the Department through the supporting documentation provided by Accendo Environment (2022) and advice (including a site inspection report) provided by Department of Primary Industries and Regional Development (DPIRD) (Commissioner of Soil and Land Conservation (CSLC), 2023a), the vegetation proposed to be cleared consists of *Corymbia calophylla* (marri), *Eucalyptus rudis* (Flooded Gum) and *Melaleuca raphiophylla* (Swamp Paperbark). According to the DPIRD site inspection report, the condition of the trees ranged from good to degraded (Keighery, 1994), with some trees observed to be dead alongside the existing drain. The trees proposed for clearing are scattered along the property over pasture grasses (CSLC, 2023a).

Based on the photographs available to the Department (Accendo, 2022), it was determined that the condition of the vegetation throughout the application area is degraded (Keighery, 1994) as a result of multiple disturbances, in particular grazing by livestock and predominance of introduced species.

A desktop assessment identified records of conservation significant fauna species within the local area, which includes ten birds, two invertebrate, seven mammals, one reptile and one fish. Majority of the records identified from the local area are of *Isoodon fusciventer* (Quenda) followed by the *Zanda latirostris* (Carnaby's cockatoo). A likelihood of occurrence analysis was undertaken for the species previously recorded within the local area. It was determined that habitat for the following species may occur within the application area.

- *Calyptorhynchus banksii naso* (Forest red-tailed black cockatoo) – VU
- *Zanda baudinii* (Baudin's cockatoo) – EN
- *Zanda latirostris* (Carnaby's cockatoo) – EN
- *Westralunio carteri* (Carter's freshwater mussel) - VU

The degraded (Keighery, 1994) condition of the native vegetation, and in particular the lack of an understorey, the isolated nature of the application area from areas of native vegetation in good or better condition (Keighery, 1994) and the absence of a perennial permanent watercourse excludes the likelihood of terrestrial ground dwelling fauna of conservation significance occurring within the application area.

Migratory birds identified through the desktop assessment are associated with mudflats, freshwater wetlands, saltmarshes and mangroves. Although the application area is mapped within a Multiple Use Wetland and there is a nonperennial minor non-perennial watercourse running along the application area, the watercourse is not a permanent feature to support habitat for migratory birds.

Black cockatoos

The application area is mapped within the known distribution zones of the Endangered Baudin's and Carnaby's cockatoo and Vulnerable forest red-tailed black cockatoo, collectively referred to as 'black cockatoos'. However, Baudin's cockatoo is more commonly associated with the forests of the Jarrah Forest bioregion approximately 11 kilometres to the south, with Carnaby's cockatoo more commonly associated with the Swan Coastal Plain (DAWE, 2022). The forest red-tailed black cockatoo has become more commonly sighted on the Swan Coastal Plain in recent decades. Black cockatoo habitat can be considered in terms of breeding, roosting and foraging habitat. Suitable breeding habitat for black cockatoos include trees which either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow. For most tree species a suitable DBH is 500 millimetres (Commonwealth of Australia, 2012). The photographs provided by the applicant showed that the vegetation within the application area did not represent trees with hollows or trees likely to develop large hollows required for black cockatoo breeding (Accendo, 2022).

Night-roosts for black cockatoos are usually located in the tallest trees of an area, and in close proximity to both a food supply and a water source (DAWE, 2022). According to the available databases, trees proposed for clearing are not mapped as known roost sites. The closest known roost site is located 1.9 kilometres from the application area. A non-perennial minor watercourse is located through the proposed clearing area. The Melaleuca trees do not provide a suitable roosting habitat for the black cockatoos. Tall Eucalyptus trees near a permanent watercourse with close proximity to high quality foraging habitat are considered suitable roosting habitat for the black cockatoos (DAWE, 2022). It is considered that the three marri trees that occur within the application area, may provide some suitable roosting habitat for black cockatoos.

Marri trees are also a known primary food source for all three black cockatoo species (Johnstone, R.E and Kirkby T, 2010). Food resources within the range of breeding sites and roost sites are important to sustain black cockatoo populations. Foraging resources are therefore, viewed in the context of known breeding and night roosting sites. It is considered that foraging habitat within six to 12 kilometres of a known roosting and a breeding site are a significant food source (DAWE, 2022). According to the available databases there is one confirmed, natural forest red tailed black cockatoo breeding site and three artificial, potential white tailed black cockatoo breeding sites mapped within the 12 kilometres radius of the application area. Five known black cockatoo roost sites are also identified within the 12 kilometres radius of the application area. According to the available databases, the application area is mapped within a black cockatoo feeding area in the Swan Coastal Plain.

Foraging resources for the black cockatoos within the Swan Coastal Plain is rapidly declining and the existing marri trees therefore is a significant food source. Given the application area is located in a close proximity to known roost sites and potential breeding sites and there is an available water source within the property, there is a likelihood that black cockatoo species may use the three Marri trees within the application area for foraging.

The applicant proposed to undertake revegetation using marri trees within the property to mitigate the impact resulting from the proposed clearing.

Carter's freshwater mussel

The Carter's freshwater mussel (*Westralunio carteri*) which is listed as vulnerable under the *Biodiversity Conservation Act 2016*, has previously been identified within the local area. The most recent record was in 2016. Carter's freshwater mussel inhabits sandy/muddy sediments of freshwater lakes, rivers and streams; usually occurring with woody debris and overhanging riparian vegetation (often flooded gum, Melaleuca sp. or Casuarina sp.). They retreat to shallow pools or damp mud with most moist leaf litter in times of drought (Klunzinger et al., 2015). The Conservation advice for this species suggests that the decline in quality of habitat due to secondary salinisation, seasonal water availability and total nitrogen concentration are factors that result in the decline of extent of occurrence of Carter's freshwater mussel. Water extraction (causing dehydration and heat stress) and nutrient pollution have a severe-catastrophic and severe impact to the conservation of the species particularly in regulated rivers (such as the Harvey River). The species is at risk from reduction in seasonal water availability as a result of climate change, which interacts cumulatively with water extraction to amplify the risk (DWER, 2023a).

The assessment determined that the removal of vegetation and exposing the soil surface is likely to result in minor erosion, with additional sediment and nutrients moving into the watercourse. The sediment contaminated water will move downstream and potentially accumulate in the more permanent pools that are the habitat for the Carter's freshwater mussel. The Carter's freshwater mussel is fairly tolerant of excess sediment, but if sediment reduces the depth of pools the species will be at greater risk of dehydration and heat stress and pools may be at a greater risk of drying out. Nutrients from fertiliser applications from the final land use are likely to pose a water quality risk to both the surface water and groundwater. Even with nutrient stripping in the realigned drain, groundwater contamination is likely to impact downstream populations *W. carteri*, which are sensitive to nutrient pollution (DWER, 2023).

The proposed clearing alone is not likely to pose a significant impact to the Carter's freshwater mussel. It is the activities for which the clearing is proposed, and the activities planned on the cleared areas that are likely to have hydrological and water quality impacts that will have a potential significant impact on the Carter's freshwater mussel. Impacts from the final land use on the environmental values are assessed through the development approval process.

To mitigate the indirect impacts to the *W. carteri* species from the proposed clearing, it is important that management measures are implemented to mitigate the deterioration of surface water quality through sedimentation. The applicant has advised that a sedimentation fence will be installed if works are proposed to be undertaken during the winter period to ensure that sedimentation erosion into the waterway is prevented. To ensure no sedimentation erosion

occurs as a result of the proposed clearing, a condition would be required on the permit to restrict clearing activities to the dry months of the year, if granted.

Conclusion

Based on the above assessment, and mitigation measures provided by the applicant, the Delegated Officer has considered that the potential impacts of the proposed clearing on threatened species of black cockatoos can be managed by the planting of marri species and the indirect impacts to the Carter's freshwater muscle can be managed through restricting clearing to the dry months of the year. .

3.2.2. Significant remnant vegetation - Clearing Principles (e)

Assessment

The proposed application area is located within the Swan Coastal Plain Interim Biogeographic Regionalisation for Australia (IBRA) region of Western Australia. The Swan Coastal Plain bioregion has approximately 38.6 per cent of its original extent of native vegetation remaining (Government of Western Australia, 2019a).

The application area falls within the Guildford complex; described as a mixture of open forest to tall open forest of *Corymbia calophylla* (Marri) - *Eucalyptus wandoo* (Wandoo) - *Eucalyptus marginata* (Jarrah) and woodland of *Eucalyptus wandoo* (Wandoo) (with rare occurrences of *Eucalyptus lane-poolei* (Salmon White Gum)). Minor components include *Eucalyptus rudis* (Flooded Gum) - *Melaleuca raphiophylla* (Swamp Paperbark) (Webb et al, 2016).

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 percent of that present prior to the year 1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). The assessment notes that the vegetation in the application area consists of native vegetation in a degraded condition (Keighery, 1994). Based on the condition of the vegetation, it is unlikely for the proposed clearing to be representative of the highly cleared vegetation complex. Therefore, the proposed clearing is not considered significant as a remnant of native vegetation.

Within the local area (10-kilometre radius around the application area), approximately 29 per cent of its original native vegetation extent remains. This is below the 30 per cent retention threshold of the Commonwealth of Australia (2001). Based on this, the application area is considered to be within an extensively cleared landscape. Clearing of native vegetation within an extensively cleared landscape is considered a significant impact on the extent of remnant vegetation remaining. The applicant has committed to revegetating an area of 0.5 hectares to counterbalance the impact from the clearing.

Conclusion

The vegetation proposed to be cleared is surrounded by completely degraded (Keighery, 1994) or cleared farmland and paddocks. Given the overall degraded (Keighery, 1994) condition of the vegetation within the application area, the vegetation is not considered as representative of the mapped vegetation complex and is not considered to be a significant remnant. However, the loss of the vegetation through the clearing would impact on the extent of vegetation remaining within the local area. The applicant has made a commitment to replanting native vegetation within the property to mitigate any impacts to the extent of remaining vegetation within the local area.

3.2.3. Land and water resources - Clearing Principles (g)

Assessment

The application area is recorded within two soil landscaping map units which are Forrestfield F3 phase and the Pinjarra P3 phase (DPIRD, 2019). Soils within the Forrestfield F3 phase is described as yellow and, less commonly, acidic grey duplex soils and the soils within the Pinjarra P3 phase is described as deep acidic gradational yellow or grey-brown earths and mottled yellow duplex soils, with loam to clay loam surface horizons (CSLC, 2023a). The primary land degradation risks identified with these soil types include water erosion and waterlogging (DPIRD, 2019). Advice was sought from the Commission of Soil and Land Conservation (CSLC) on the potential land degradation issues as a result of the proposed activities. Based on the DPIRD's land degradation assessment, CSLC advised that the risk of water erosion and waterlogging as a result of the proposed clearing is potentially high but can be adequately managed (CSLC, 2023a).

More specifically, CSLC (2023a) advised that:

- The likelihood of the proposed clearing causing wind erosion is low.

- The soils of the application area display some signs of water erosion. CSLC recommended that the management of ground cover will reduce the risk of any potential water erosion and the clearing of native vegetation is not likely to increase water erosion.
- The risk of the proposed clearing causing land degradation from increased salinity is low.
- The eastern area of the application area is prone to waterlogging and inundation. CSLC has recommended that by applying good management practices, clearing of native vegetation is unlikely to increase the likelihood of waterlogging in this location.
- The swamp landform and the poorly drained soils present a high risk of eutrophication, particularly from the lateral movement of water into the drain. However, CSLC has advised that the clearing of native vegetation is not expected to increase the risk of phosphorous export.

The soils and landform of the subject site pose phosphorus export, waterlogging and water erosion hazards (CSLC, 2023a). Due to the relatively small scale of the proposed clearing, the removal of the native vegetation is unlikely to cause appreciable land degradation on this site. No significant change is expected. The applicant has advised that the proposed work to the drainage channel will result in nutrient stripping and this would reduce turbidity. The works are proposed to improve the water quality and reduce the water erosion (Accendo, 2023).

If the proposed clearing was to occur during the winter period, installation of a sedimentation fence is proposed by the applicant to avoid sedimentation runoff into the minor watercourse which is likely to transport the sediment downstream to Harvey River. The effectiveness of the sedimentation wall is not known. Therefore, restricting the proposed clearing to dry months will be required if the permit was to be granted.

Conclusion

Noting the relatively small size of the application area and the lack of intact understorey within the application area, the risk of appreciable land degradation in the form water erosion, waterlogging and phosphorus export is likely to be minimal.

3.2.4. Land and water resources - Clearing Principles (f and i)

Assessment

Wetland

According to available databases, the application area is mapped within the Geomorphic Wetlands Swan Coastal Plain dataset as a multiple-use wetland (MUW) with the Unique Feature Identifier (UFI) 15809. UFI 15809 is characterised as a seasonally waterlogged flat that forms part of an extensive wetland system that extends along the Swan Coastal Plain from Boyanup in the northeast down to Carburnup River to the west.

MUW's are wetlands with few important ecological attributes and functions remaining. Use, development and management should be considered in the context of ecologically sustainable development and best management practice catchment planning through landcare. All reasonable management measures should be taken to retain the wetland's hydrological function (Water and Rivers Commission, 2001). The wetland appears to be highly modified at the landscape level by previous clearing for agriculture, grazing and other human needs, as noted by the aerial imagery and the photographs provided (Accendo, 2023). The trees proposed for clearing are riparian in nature, however, the vegetation is in a degraded condition (Keighery, 1994) with no midstory and understory present. Based on this, the area appears to retain limited wetland values and is unlikely to contribute to degradation of the mapped wetland.

Given the extent of the proposed clearing, the impact to the wetland is not likely to be significant. The applicant intends to mitigate the loss of riparian vegetation by undertaking wetland replanting to improve the current value of the wetland area. The applicant proposes revegetate with marri, melaleuca and Jacaranda species.

Watercourse

There are trees proposed to be cleared along the Weeks brook, which is a natural and a non-perennial watercourse, within the application area. The clearing of this riparian vegetation may disturb the soils on the banks and beds of the watercourse. This may result in increased transport of sediment and nutrient and degrade the river water quality downstream. The applicant has applied for a bed and banks permit under the RIWI Act. The Department's assessment of this application will consider the implications of disturbing the bed and banks on the flow regime and erosion (DWER, 2023b).

Conclusion

Based on the above assessment, it has been determined that the proposed clearing will impact on wetland dependent vegetation and may impact the bed and banks of the watercourse. Evidence of a bed and banks approval under the RIWI Act is required.

3.3. Relevant planning instruments and other matters

Other relevant authorisations required for the proposed land use include:

- development approval under the *Planning and Development Act 2005* (issued by the Shire of Harvey); and
- permit to interfere with bed and banks under the RIWI Act.

The application area is zoned as intensive farming under the Shire of Harvey's (the Shire) Local planning scheme no 1. The Shire advised that local government approvals are required for the works proposed. The applicant has submitted an application for a DA, but to date, a DA is outstanding.

On 18 April 2023, the Department requested the applicant to provide evidence of planning approvals by 26 May 2023.

Planning matters have been unresolved for a considerable length of time and a clear timeline as to when a DA may be obtained has not been provided by the applicant.

The proposed clearing lies within the Harvey Irrigation District surface water area, proclaimed under the RIWI Act. The applicant is required to obtain a permit to interfere with bed banks. The Department has received an application under the RIWI Act for the proposed work. No approval has been issued to date.

The drainage channel that is proposed to be upgraded is an irrigation channel. The flow of this irrigation channel is received by Water Corporation's Weeks Brook Main Drain. It is understood that this Drain runs through the application area and is managed by the Water Corporation. Permission from the Water Corporation is required prior to any modification to the drain occurring.

Advice received from the Water Corporation includes a request that the applicant lodges an application to Water Corporation prior to the proposed modification works if the proposed upgrade is to increase the channels capacity to carry additional flow. Additional flow will impact Water Corporation's drainage operations downstream (Water Corporation, 2023). The Department has communicated this matter to the applicant. The applicant advised that they do not plan to increase the downstream flow of water. A such no changes to Water Corporation's drainage operations will occur. The proposed works will involve nutrient stripping and reductions in turbidity which would mitigate the flow of water downstream (Accendo, 2023). The Department has requested that the applicant contact Water Corporation directly to resolve this matter.

The application area is mapped within the Peel Harvey Environmental Protection Policy and Harvey Estuary - Harvey River catchment boundaries. CSLC has advised that under the *Soil and Land Conservation Regulations (1992)* all proposed drainage work in the Peel-Harvey Catchment Area are notifiable (CSLC, 2023b). This matter was also communicated to the applicant to ensure they notify DPIRD of the proposed works. The Department considers this matter to be a responsibility of the applicant.

The CSLC has also advised that there is a moratorium on all drainage works in the Peel-Harvey catchment and there maybe requirements to submit an 'intent to drain' with the Officer of the Commissioner under the *Soil and Land Conservation Regulations (1992)* (CSLC, 2022b). This matter was communicated to the applicant. The Department requested that the applicant liaise with the CSLC to confirm the requirements of lodging an 'intent to drain application' with DPIRD. The applicant has informed the Department of communication with CSLC that an 'intent to drain' submission is not required. However, the Department has not received written notification of this communication.

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

End

Appendix A. Additional information provided by applicant

Information	Description
A supporting information document prepared by Accendo Australia on behalf of the applicant (Accendo, 2022)	This document provides background information to the proposed project and includes an assessment of the ten clearing principals. This document also contains photographs of the proposed clearing area.
Response to the Department's request for further information letter dated 18 April 2023 (Accendo, 2023)	Accendo Environmental provided a response to each of the items listed in a 'request for further information' letter sent to the applicant.
Planting Plan submitted to the Department on 23 November 2023	The applicant's proposed planting plan was submitted to the Department by Accendo Australia. This include a map representing the locations where the planting is proposed to occur.

Appendix B. Site characteristics

B.1. 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 the Department 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.

Characteristic	Details
Local context	<p>The area proposed to be cleared consists of small, isolated remnants in the intensive land use zone of Western Australia. It is surrounded by cleared agricultural land. The property is located approximately 2.7 kilometres south of Cookernup townsite within the Shire of Harvey.</p> <p>Aerial imagery and Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 29.4 per cent of the original native vegetation cover.</p>
Ecological linkage	The area proposed to be cleared is not part of any mapped ecological linkage and is not considered to contribute to any local linkages.
Conservation areas	The application area is not mapped within a conservation area. The closest conservation area is the Dwellingup state forest located approximately 3.2 kilometres to the east of the application area.
Vegetation description	<p>Photographs supplied by the applicant (Accendo, 2022) and information provided by DPIRD (CSLC, 2023a) indicate the vegetation within the proposed clearing area consists of <i>Melaleuca raphiophylla</i> (Swamp Paperbark), <i>Eucalyptus rudis</i> (Flooded Gum) and <i>Corymbia calophylla</i> (Marri) trees over pasture. Representative photos are available in Appendix E.</p> <p>This is inconsistent with the Guildford vegetation complex, which is described as a mixture of open forest to tall open forest of <i>Corymbia calophylla</i> (Marri) - <i>Eucalyptus wandoo</i> (Wandoo) - <i>Eucalyptus marginata</i> (Jarrah) and woodland of <i>Eucalyptus wandoo</i> (Wandoo) (with rare occurrences of <i>Eucalyptus lane-poolei</i> (Salmon White Gum)). Minor components include <i>Eucalyptus rudis</i> (Flooded Gum) - <i>Melaleuca raphiophylla</i> (Swamp Paperbark).</p> <p>The mapped vegetation type retains approximately 5.09 per cent of the original extent (Government of Western Australia, 2019).</p>
Vegetation condition	<p>Photographs supplied by the applicant (Accendo, 2023) and the information provided by DPIRD (CSLC, 2023a) indicate the vegetation within the proposed clearing area is in degraded (Keighery, 1994) condition. The full Keighery (1994) condition rating scale is provided in Appendix D.</p> <p>Representative photos are available in Appendix E.</p>

Characteristic	Details
Climate and landform	<p>The property is in the 750-1000mm rainfall zone. DPIRD weather station at Harvey (6 km south-west of the property) has recorded an annual average rainfall of 808 millimetres between 2011 and 2022 (CSLC, 2023a).</p> <p>The proposed clearing area is at the break of a gentle slope where the flats of the Pinjarra Plain meet the footslopes of the Ridge Hill Shelf. It has a high point of approximately 30 metre Australian Height Datum (AHD) to the east, descending to 28 metres on the western side. The land identified for clearing is mainly flat to very gently undulating with semi-wet and shallow duplex soils. The site is a basin that receives water from sloping land to the east (CSLC, 2023a).</p>
Soil description	<p>The application area is mapped within two soil landscape map units, which are the Forrestfield F3 phase (0.23 hectares) and the Pinjarra P3 phase (0.11 hectares).</p> <p>The soil within these landforms are described as (CSLC, 2023a):</p> <ul style="list-style-type: none"> • Forrestfield F3 phase - Yellow and less commonly, acidic grey duplex soils. • Pinjarra P3 phase - Deep acidic gradational yellow or grey-brown earths and mottled yellow duplex soils, with loam to clay loam surface horizons.
Land degradation risk	The land degradation table C.4. below outlines the land degradation risk levels for the Forrestfield F3 phase and Pinjarra P3 phase.
Waterbodies	<p>The application area is mapped within a geomorphic wetland of the Swan Coastal Plain which is identified as a palusplain multiple use wetland.</p> <p>The desktop assessment and aerial imagery indicated that a non-perennial minor watercourse runs along the proposed clearing area which is named Weeks Brook.</p>
Hydrogeography	<p>The application area falls within the Harvey Irrigation District surface water area proclaimed under the RIWI Act (DWER-037).</p> <p>The application area is not mapped within:</p> <ul style="list-style-type: none"> • a groundwater area proclaimed under the RIWI Act (DWER-034) • an area subject to the <i>Country Areas Water Supply Act 1917</i>; or • within any Public Drinking Water Source Areas (DWER-033). <p>Groundwater salinity mapped 3000-7000 total dissolved solids (milligrams per litre)</p>
Flora	The desktop assessment identified 28 conservation significant flora species within the local area which comprise of four threatened flora and 24 priority flora. The closest species recorded was the <i>Synaphea odocoileops</i> located approximately 2.24 kilometres from the application area.
Ecological communities	<p>The application area is not mapped within a Threatened Ecological Community or within a Priority Ecological Community. The species identified within the application area do not represent a conservation significant ecological community.</p> <p>The nearest mapped ecological community record is the Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region (Banksia woodlands TEC), located approximately 0.59 kilometres to the north east of the application area.</p>
Fauna	<p>The desktop assessment identified 21 conservation significant fauna species within the local area which include ten birds, two invertebrate, seven mammals, one reptile and one fish.</p> <p>The application area is mapped within the distribution zone for all three threatened black cockatoo species. Within the 12 kilometres radius of the application area, there are one confirmed, natural forest red tailed black cockatoo breeding site and three artificial, potential white tailed black cockatoo breeding sites mapped. Five black cockatoo roost sites are mapped within the 12 kilometres radius of the application area.</p>

B.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Swan Coastal plain	1,501,221.93	579,813.47	38.62	222,916.97	14.85
vegetation complex					
Guildford Complex	90,513.13	4,607.91	5.09	287.49	0.32
Local area					
10km radius	32,1316	9,455.53	29.4	-	-

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

B.3. Fauna analysis table

Conservation significant fauna species identified from the local area that required further consideration.

Species scientific name	Species common name	Conservation status	Year of the most recent record	Number of known records (total)	distance of closest record to application area (km)
<i>Calyptorhynchus banksii naso</i>	forest red-tailed black cockatoo	VU	2018	6	3.91
<i>Calyptorhynchus baudinii</i>	Baudin's cockatoo	EN	2012	13	5.88
<i>Calyptorhynchus latirostris</i>	Carnaby's cockatoo	EN	2014	18	2.85
<i>Calyptorhynchus</i> sp. 'white-tailed black cockatoo'	White-tailed black cockatoo	EN	2018	10	1.91
<i>Westralunio carteri</i>	Carter's freshwater mussel	VU	2010	6	4.45

B.4. Land degradation risk table

Risk categories	213Fo__F3	213Pj__P3
Wind erosion	66% of map unit has a high to extreme hazard	0% of map unit has a high to extreme hazard
Water erosion	0% of map unit has a very high to extreme hazard	0% of map unit has a very high to extreme hazard
Salinity	0% of map unit has a moderate hazard	5% of map unit has a moderate hazard
Subsurface Acidification	71% of map unit has a high susceptibility	95% of map unit has a high susceptibility
Flood risk	0% of the map unit has a moderate to high hazard	0% of the map unit has a moderate to high hazard
Water logging	15% of map unit has a moderate to very high risk	100% of map unit has a moderate to very high risk
Phosphorus export risk	0% of map unit has a high to extreme hazard	0% of map unit has a high to extreme hazard

Appendix C. 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> <i>“Native vegetation should not be cleared if it comprises a high level of biodiversity.”</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared contains three trees that may be suitable for providing foraging habitat to threatened black cockatoo species. The application area is not likely to provide significant habitat for any other conservation significant fauna or flora species identified within the local area. The application area is unlikely to comprise a high level of biodiversity.</p>	Not likely to be at variance	No
<p><u>Principle (b):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.”</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared contain three marri trees that may provide foraging habitat for black cockatoo species.</p>	At variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared is unlikely to contain habitat for flora species listed under the BC Act given the degraded (Keighery, 1997), fragmented nature of the application area.</p>	Not likely to be at variance	No
<p><u>Principle (d):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.”</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared does not contain species that can indicate a threatened ecological community.</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u></p> <p>The extent of the mapped vegetation type and extent of native vegetation within the local area is inconsistent with the national objectives and targets for biodiversity conservation in Australia.</p>	At variance	Yes <i>Refer to Section 3.2.2, above.</i>
<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></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 value: land and water resources		
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u></p> <p>A multiple use wetland is recorded within the application area. However, the proposed clearing is unlikely to impact on- or off-site hydrology and water quality.</p> <p>The proposed clearing will include the removal of riparian vegetation.</p>	At variance	Yes <i>Refer to Section 3.2.4, above.</i>
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u></p> <p>The mapped soils are susceptible to eutrophication, waterlogging and sub-surface acidification. Noting the extent of the application area, condition of the vegetation and the implementation appropriate management measure during the drainage works, the proposed clearing is not likely to have an appreciable impact on land degradation.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2,3, above.</i>
<p><u>Principle (i):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.”</i></p> <p><u>Assessment:</u></p> <p>Given the watercourse that is recorded within the application area, the proposed clearing may impact surface water quality however, no groundwater will be intercepted from the proposed clearing.</p>	May be at variance	Yes <i>Refer to Section 3.2.4, above.</i>
<p><u>Principle (j):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u></p> <p>The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding.</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
CSLC advised that the clearing of native vegetation within the application area will not result in an increase to risk of flooding (CSLC, 2023a).		

Appendix D. Vegetation condition rating scale

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

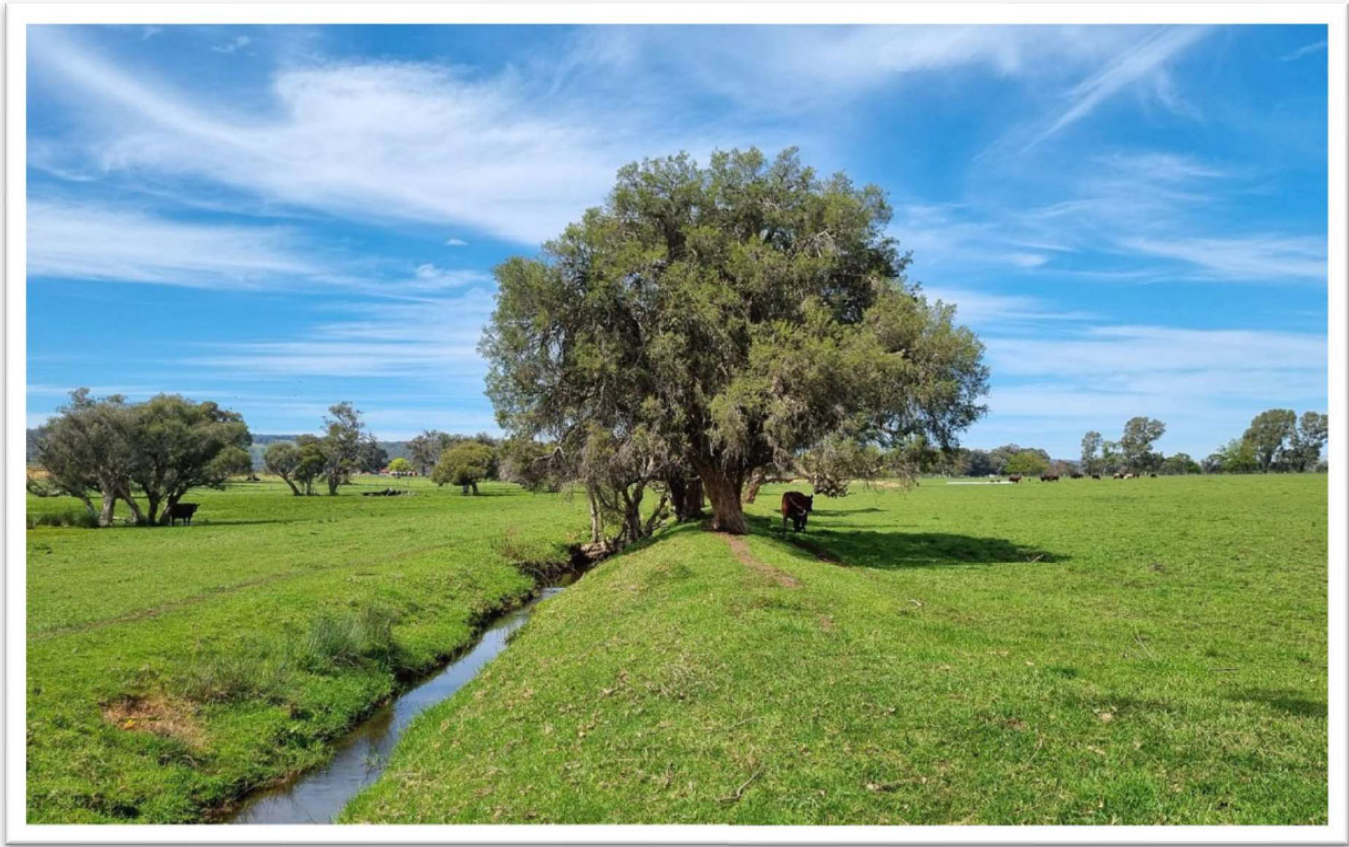
Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

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 E. Photographs of the vegetation (Accendo, 2022), (CSLC, 2023)

Photographs from Accendo Environmental





Photographs from the DPIRD's assessment





Appendix F. Sources of information

G.1. GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- 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)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- 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
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

G.2. References

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