



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9779/1
Permit type:	Area permit
Applicant name:	Shire of Lake Grace
Application received:	19 May 2022
Application area:	1.08 hectares of native vegetation (revised)
Purpose of clearing:	Expansion of landfill cells
Method of clearing:	Mechanical clearing
Property:	Lot 1 on Deposited Plan 65474
Location (LGA area/s):	Shire of Lake Grace
Localities (suburb/s):	Newdegate

1.2. Description of clearing activities

Lot 1 is approximately 25.57 hectares in area and hosts the Newdegate Waste Management Facility in the north-west portion of the lot. The Shire of Lake Grace (the Shire) propose to clear approximately 1.08 hectares of native vegetation for the purpose of expanding the current waste management facility to the south. This proposal involves the construction of a new landfill cell, to enable the existing landfill to be closed and rehabilitated (Shire of Lake Grace, 2022a).

The application area is within remnant vegetation adjacent to the Newdegate Waste Management Facility. The vegetation proposed to be cleared is contained within a single contiguous remnant surrounded by an extensively cleared landscape (see Figure 1, Section 1.5).

1.3. Decision on application

Decision:	Granted
Decision date:	9 July 2024
Decision area:	1.08 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 (department) advertised the application for 21 days and one submission was received. Consideration of matters raised in the public submission is summarised in Appendix B.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix C), relevant datasets (see Appendix H.1), the findings of a detailed flora and basic fauna survey (Natural Area consulting, 2022) (see Appendix G), the clearing principles set out in Schedule 5 of the EP Act (see Appendix D), relevant planning

instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also took into consideration:

- the existing landfill area is almost at capacity and the Shire is at risk of landfilling outside of the designated area set out in works approval license L8046/2009/2;
- that the landfill is proposed to provide a means of disposal of local wastes in Newdegate, other than normal disposal of municipal waste;
- the Shire is committed to rehabilitating the existing Newdegate tip site and the proposed new site after its use has been exhausted.
- The Shire investigated into potential alternative landfill sites in the Newdegate area for over 12 months and no alternative suitable site was identified.

The assessment identified that the proposed clearing will result in:

- The removal of 1.08 hectares of native vegetation considered a significant remnant of native vegetation that provides significant fauna habitat for local fauna in an extensively cleared landscape;
- The potential for the introduction and spread of weeds and dieback into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values;
- The potential for land degradation in the form of wind erosion and water erosion; and
- The potential mortality of fauna that may be utilising the application area during the time of clearing.

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 and dieback;
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity; and
- counterbalance the significant environmental impacts through the provision of a suitable offset proposal that includes rehabilitation and revegetation.

1.5. Site map



Figure 1 Map of the application area

The area crosshatched 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 1.4), 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)
- *Soil and Land Conservation Act 1945* (WA)

Relevant policies considered during the assessment include:

- *Environmental Offsets Policy* (2011)

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)
- *Environmental Offsets Guidelines* (August 2014)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

The Shire previously applied for a clearing permit application to clear 2.5 hectares of native vegetation. However, this clearing permit application was withdrawn by the Shire. Following the withdrawal, the Shire reduced the clearing area to 1.15 hectares as per the works approval licence amendment application, avoiding the clearing of entire contiguous vegetation previously proposed (Shire of Lake Grace, 2022a).

During the assessment, the Shire moved the clearing area towards the east on the property to align with the works approval licence application, further reducing the proposed clearing area to 1.08 hectares.

It was advised that the existing landfill area is almost at capacity and the Shire is at risk of landfilling outside of the designated area set out in License L8046/2009/2. The tip is a prescribed Category 62 and 64 premises (Shire of Lake Grace, 2022b).

Alternative options for a landfill that were considered by the Shire include:

- Negotiations to purchase a cleared land from a farmer was the first preference. However, this failed and the Shire feared resistance to purchasing of land that is currently or can readily provide economic value to the landowner (Shire of Lake Grace, 2022b).
- Alternative site investigations were undertaken by Landform Research in 2007 in preparation of the closure of the old Newdegate landfill site. It was determined that these sites will take approximately four years from conception to implementation and were considered infeasible for solving the immediate issue of running out of available landfill space (Shire of Lake Grace, 2022b).
- Landfill trenches were explored however, the area consisted of hard rock rendering it too difficult to run a trench and fill operations (Shire of Lake Grace, 2022b).
- Other potential options were constrained by the presence of significant areas of salt lakes near Newdegate, which must have sufficient buffers associated with the salt lakes (Shire of Lake Grace, 2022b).

In addition to the above, the Shire investigated into alternative landfill areas at the existing site. The initial plan was to move the existing solid waste areas to the covered landfill trenches and move the new landfill areas to the soil waste area. Testings were conducted and found that the ground underneath the shallow surface layer of the solid

waste area consisted of hard rock, making it difficult to accommodate the required purpose (Shire of Lake grace, 2022b).

The Shire then had no other option but to select the area that is now under application. The application area did not contain a hard granite layer within a 2-metre depth and was found suitable for the trench and fill operations. Testing of this site was completed prior to commissioning the facility in 2009 (Shire of Lake grace, 2022b).

The Shire has informed the department that rehabilitation of the entire site (3.24 hectares) will occur following the site's landfill potential had been exhausted. The Shire proposes to begin revegetating the landfilled areas up to the point where there is still vehicle access to the proposed landfill area. The revegetation activities are proposed to be undertaken in two stages, which is within the old landfill site and the proposed landfill site following its exhaustion. The Shire has commissioned Natural Area Consulting to prepare a revegetation plan to guide the revegetation activities. The current revegetation plan is developed for the implementation of stage one revegetation only (1.01 hectares). The stage two revegetation (2.23 ha) is proposed for 2032, once the new landfill is no longer operational. The current revegetation plan will be updated with the learnings from stage one revegetation, prior to the commencement of stage two revegetation activities (Natural Area Consulting, 2024).

It is also noted that approximately one-hectare rehabilitation would be undertaken at the same time as the proposed clearing. As illustrated in Figure 2 below, the remaining area (stage 2) is proposed for rehabilitation once current landfill activities are completed, which is likely in 6-9 years (Shire of Lake grace, 2022b). Given the uncertainty of the stage two rehabilitation, the department has only considered the approximately one hectares of rehabilitation as mitigation when calculating the area required for an environmental offset.

After consideration of avoidance and mitigation measures, including revegetation of 1 hectares with native vegetation as proposed above, it was determined that an offset to counterbalance the significant residual impacts to clearing native vegetation within an extensively cleared area was necessary. In accordance with the Government of Western Australia's *Environmental Offsets Policy* and *Environmental Offsets Guidelines*, these significant residual impacts have been addressed through the conditioning of environmental offset requirements on the permit.

To counterbalance the impacts of clearing native vegetation within the application area, the Shire has initiated a conservation covenant under Section 30B of the *Soil and Land Conservation Act 1945* over 19.65 hectares of vegetation within the Lot 1 on Deposited Plan 65474. The Department of Primary Industries and Regional Development (DPIRD) has approved the conservation covenant on 13 May 2024. The Shire of Lake Grace propose to utilise a portion of this area towards the Shire's offset requirements as planned, and bank the remaining area. The nature and suitability of the offset provided is further summarised in Section 4.

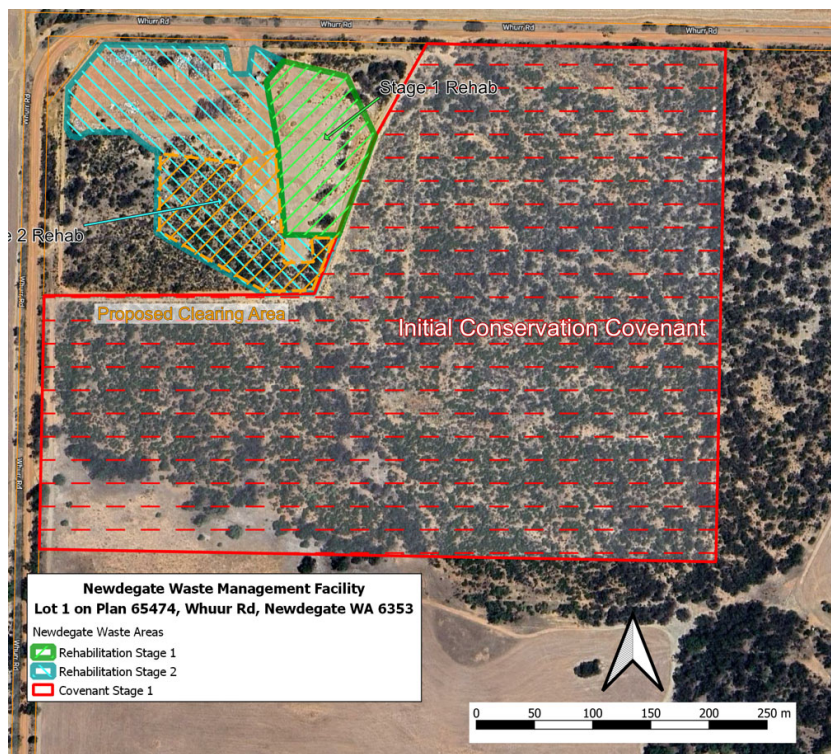


Figure 2: The Shire's proposed revegetation plan for Lot 1 on Deposited Plan 65474

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix C) 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 D) identified that the impacts of the proposed clearing present a risk to 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 (biodiversity, flora, and ecological communities) - Clearing Principles (a) (c) and (d)

The vegetation proposed to be cleared comprises of the vegetation type described as mixed Eucalyptus open Mallee Woodland. The upper storey consists of mixed native Eucalypts over a middle storey of mixed native shrubs dominated by *Melaleuca hamata*, *Westringia* spp. and *Acacia* spp. over an understorey of native grasses (*Austrostipa* spp. and *Neurachne alopecuroidea*) and native herbs. The vegetation is in excellent to completely degraded (Keighery, 1994) condition. The majority of the site is classified in excellent (49.6%) and very good (30.7%) condition (Keighery, 1994). The completely degraded (Keighery, 1994) area is due to the high weed presence and have been subject to previous disturbances associated with landfilling activities (Natural Area Consulting, 2022).

According to the desktop assessment, eight threatened and 39 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.

One threatened and four priority flora have been recorded within 20 kilometres of the application area from the same mapped soil and/or vegetation types within similar habitats. These are considered below.

- *Grevillea involuocrata* (Threatened): The Florabase website indicates that this species is known from 20 recorded populations (some records may overlap) in the local government areas of Kent, Kulin and Lake Grace with one record in the 20-kilometre radius local area. The Florabase website describes this species as a prostrate to low-domed open shrub to 0.15-0.3 metres high, up to 2 metres wide; flowers pink/pink-red in June or October; growing in gravelly sand and is associated with mallee heath including Eucalyptus spp., *Allocasuarina pinaster*, *Grevillea cogniana*, *Hakea cygna*, *Melaleuca pungens*, *Verticordia* spp., *Gastrolobium spinosum* and *Adenanthos argyreus* (WA Herb, 1998-). The nearest record is approximately 1.5 kilometres from the application area, from the mapped vegetation type that occurs within the application area. *Grevillea involuocrata* is a perennial flora species. This flora species was targeted in the flora survey and was not identified within the application area. *Grevillea* species present within the survey area were able to be identified to species level. Based on this, it is highly unlikely for *Grevillea involuocrata* to occur within the application area.
- *Thysanotus lavanduliflorus* (Priority 1): The Florabase website indicates that this species is known from eight recorded populations (some records may overlap) in the local government area of Lake Grace. The Florabase website describes this species as a caespitose perennial herb (with tuberous roots) to 0.25 metres high; flowers purple in November to December; growing in sand and sandy loam (WA Herb, 1998-). The nearest record is approximately 4.5 kilometres from the application area. Some records in the local area are from the same mapped soil and/or vegetation types as occur within the application area. Given this species would be flowering at the time of the survey, if to occur, the species would have been identified. No individuals of this species were detected during the flora survey (Natural Area Consulting, 2022).
- *Acacia drewiana* subsp. minor (Priority 2): The Florabase website indicates that this species is known from 26 recorded populations (some records may overlap) in the local government areas of Dumbleyung, Kent, Lake Grace and Wongan-Ballidu. The Florabase website describes this species as a spreading shrub to 0.15-0.5 metres high; flowers yellow in May to July; growing in sandy and gravelly soils (WA Herb, 1998-). The nearest record is approximately 9.9 kilometres from the application area, from mapped soil and vegetation types that occur within the application area. *Acacia drewiana* subsp. minor is a perennial flora species. This flora species was targeted in the flora survey and was not identified within the application area. *Acacia* species present within the survey area were able to be identified to species level. Based on this, it is highly unlikely for *Acacia drewiana* subsp. minor to occur within the application area.
- *Persoonia brevhirhachis* (Priority 3): The Florabase website indicates that this species is known from 39 recorded populations (some records may overlap) in the local government areas of Gnowangerup, Kent, Lake Grace and Ravensthorpe. The Florabase website describes this species as an erect, often spreading shrub to 0.3-2 metres high; flowers yellow in August to October; growing in white or yellow sand and gravelly sandy soils (WA Herb, 1998-). The nearest record is approximately 6.1 kilometres from the application area, from mapped soil and

vegetation types that occur within the application area. Some records in the local area are from the same mapped soil and/or vegetation types as occur within the application area. *Persoonia brevirhachis* is a perennial flora species. This flora species was targeted in the flora survey and was not identified within the application area. *Persoonia* species present within the survey area were able to be identified to species level. Based on this, it is highly unlikely for *Persoonia brevirhachis* to occur within the application area.

- *Grevillea prostrata* (Priority 4): The Florabase website indicates that this species is known from 39 recorded populations (some records may overlap) in the local government areas of Dundas, Esperance, Jerramungup, Kent, Kondinin, Lake Grace, Ravensthorpe and Yilgarn. The Florabase website describes this species as a loose, prostrate shrub to 0.04-0.1 metres high and 0.8-1.2 metres wide; flowers cream-white/pink-red in August to December or January; growing in white, grey or yellow sand or gravel on sandplains (WA Herb, 1998-). The nearest record is approximately 3.9 kilometres from the application area, from a mapped soil type that occurs within the application area. Some records in the local area are from a soil type mapped within the application area. Given this species would be flowering at the time of the survey, if to occur, the species would have been identified. No individuals of this species were detected during the flora survey.

A flora survey was conducted 23rd to 25th November 2021. A total of 114 flora species (taxa) were recorded from 34 families during the field survey, including 23 introduced (weeds) and 91 native species. The plant families which contained the most species were Myrtaceae, Asteraceae, Fabaceae and Poaceae. No priority or threatened flora species were identified within Lot 1. An orchid species was recorded during the survey, *Diuris* sp. which was unable to be identified to species level as the plant had already sensed. It is considered unlikely that this species is a conservation significant flora as there are no previous records of significant flora in this genus, within the region of the survey (Natural Area Consulting, 2022).

Conservation-significant ecological communities

Approximately 0.722 hectares of the application area is mapped as the 'Eucalypt woodlands of the Western Australian Wheatbelt (Eucalyptus woodland)' (Priority 3) Priority Ecological Community (PEC). This PEC is also a Commonwealth-listed Threatened Ecological Community (TEC) under the *Environment Protection and Biodiversity Conservation Act 1999*. Several occurrences of this PEC/TEC have been recorded in the local area.

The majority of the adjacent vegetation in the broader remnant, as well as a nearby remnant on the opposite side of Whurr Road, are mapped as the same PEC/TEC. There is potential that the proposed clearing activities could result in the introduction or spread of weeds into this adjacent vegetation, which could impact on the PEC/TEC.

Natural Area Consulting undertook a biological survey of the site which also comprised of identifying whether the Eucalypt woodlands occur within the application area. The assessment considered the key diagnostic features that are required to meet a Eucalypt woodland and compared the vegetation within the application area against these criteria (see Figure 7 Appendix G). The survey determined that all the trees present within the survey boundary were mallees and therefore, does not meet the requirement for this area to be classified as the Eucalypt Woodlands TEC. The key diagnostic features for at least five mature trees per hectare with a Diameter at Breast Height (DBH) of more than 30 centimetres was also not met on site (Natural area consulting, 2022). Based on these findings, the vegetation within the application area does not represent the Eucalypt woodlands of the Western Australian Wheatbelt.

One vegetation association as described by Shepherd et al. (2001) have been mapped within the application area, which is the Hyden vegetation association (945), described as mosaic: medium woodland; salmon gum (*Eucalyptus salmonophloia*) / shrublands; mallee scrub, redwood (*Eucalyptus transcontinentalis*) and black marlock (*Eucalyptus redunca*). Association 945 has just 19.63 per cent of its pre-European vegetation extent remaining (Government of Western Australia 2019). Given the vegetation description provided within the flora survey, it is considered for the vegetation within the application area to represent this highly cleared vegetation association and therefore represent a remnant of native vegetation that contains high biodiversity compared to the surrounding extensively cleared landscape.

Conclusion

The assessment has determined that the proposed clearing is unlikely to impact on conservation significant flora species or threatened ecological communities. However, it has been found that the vegetation under application represents a highly cleared vegetation association and contains high biodiversity compared to surrounding cleared landscape.

Weeds have the potential to out-compete native flora and reduce the biodiversity of an area. The application area is adjacent to native vegetation in good to excellent condition. Potential impacts to biodiversity as a result of the

introduction and spread of weeds may occur due to the proposed clearing. To minimise this impact weed management measures are required.

Conditions

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

- avoid and minimise clearing, to minimise the direct impacts to native vegetation.
- weed and dieback management, to minimise the risk of the introduction and spread of weeds and dieback into adjacent vegetation.
- Revegetation and offset proposal to counterbalance environmental impacts.

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

The fauna survey has identified that the different vegetation structures within the application area is likely to provide shelter, food and nesting capacity for reptiles, invertebrates and small bird species. During the fauna survey, a total of 18 fauna species were recorded, including 13 birds (all native), two reptiles (both native), and three mammals (one native, two introduced). However, the survey did not record any conservation significant fauna within the application area (Natural Area Consulting, 2022).

According to the desktop assessment, four threatened, three priority, one 'conservation dependent' and one 'other specially protected' fauna, and one fauna protected under an international agreement, 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.

The survey by Natural Area Consulting (2022) included habitat assessment for Carnaby's cockatoo (*Zanda latirostris*), to determine if the survey area contained potential habitat for Carnaby's cockatoos. The assessment found no suitable habitat trees within the survey area as there were no trees that met the habitat tree size requirements of DBH of greater than 500 millimeters. Eucalyptus sp. (all classified as mallee) are present throughout the survey. No signs of foraging by Carnaby's cockatoos were observed within the survey boundary and no individuals or other signs of their presence were observed during the survey. Based on distant observation, the adjacent reserve to the survey area appears to contain larger Eucalypt trees which may provide suitable habitat.

Noting the vegetation type and that the application area is part of a broader remnant, the application area may be utilised by three threatened, one priority, one 'conservation dependent' and one 'other specially protected' fauna. These are considered below:

- Woylie/brush-tailed bettong (*Bettongia penicillata* subsp. *ogilbyi*; Critically Endangered): The distribution of this species is concentrated in the southwest of WA at Perup, Kingston, Dryandra woodland and Tutanning nature reserve, with translocated populations reaching as far north as Shark Bay and as far east as the New South Wales and South Australian border. This species is currently known from a variety of habitats and historically the broader brush-tailed bettong species occupied many more. The current habitat includes tall eucalypt forest and woodland, dense myrtaceous shrubland, kwongan (proteaceous) or mallee heath, which include thickets and provide refuges against predators (Yeatman and Groom, 2012). The nearest record is approximately 4.7 kilometres from the application area, recorded in 1991. A fauna survey (Natural Area Consulting, 2022) conducted within the application area did not find evidence of Woylies.. Given this finding and the historical record of woylie within the local area, it is not considered likely for woylie to utilized the vegetation under application.
- *Calyptorhynchus* sp. 'white-tailed black cockatoo' (Endangered): This record is most likely for Carnaby's black cockatoo (*Calyptorhynchus latirostris*), as the local area is not within the current distribution of Baudin's black cockatoo (*Calyptorhynchus baudinii*). Published literature sets out the habitat preferences of this species, which in the Wheatbelt includes salmon gum (*Eucalyptus salmonophloia*) and wandoo (*Eucalyptus wandoo*) for nesting, and Proteaceous woodlands and shrublands and some non-native plants for feeding (Department of Parks and Wildlife, 2013). The nearest record is approximately 17.9 kilometres from the application area. The fauna survey states that the application includes marginal and low quality foraging habit to the Carnaby's cockatoos (Natural Area Consulting, 2022). In assessing every species that was identified during the flora survey, only the *Hakea scoparia*, *Acacia saligna* and *Callitris preissii* are identified as species that provides low foraging value within the application area. The impact to Carnaby's black cockatoos from the proposed clearing is not considered to result in a significant residual impact due to the lack of suitable habitat.
- 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 is approximately 4.2 km from the application area, with 59 records in the local area. The fauna survey did not identify individuals of malleefowl or evidence of malleefowl utilising the application area. Given that application area consist of habitat preferred by Malleefowl, the bird may be a transient visitor to the application area. Vegetation adjacent to the application area may also provide habitat for malleefowl. Given this, it is not considered for the proposed clearing to impact on critical habitat for the Malleefowl.

- Red-tailed phascogale/kenngoor (*Phascogale calura*; Conservation Dependent): This species inhabits wandoo (*Eucalyptus wandoo*) and sheoak (*Allocasuarina huegeliana*) woodland associations, with populations being most dense in the latter vegetation type. This species shows a preference for long unburnt habitat with a continuous canopy, as well as tree hollows. Wandoo trees provide excellent nesting sites in the form of hollow logs and limbs, which the species line with grass and feathers. Nest sites occur in highly flammable areas, and may often be in dead sheoaks, skirts of live (or stumps of dead) grasstree (*Xanthorrhoea* spp.). Populations are currently known from several isolated nature reserves in the south-west of Western Australia, from the wheat belt to the south coast, such as Dryandra Woodland and Tutanning, Boyagin, Dongolocking, and Parkeyerring Nature Reserves, as well as remnant vegetation on private property (Department of Environment and Conservation, 2012a). The nearest record is approximately 2.5 kilometres from the application area. Based on the vegetation within the application area, it is not likely that habitat for this species is present within the application area given the lack of continuous canopy, the absence of wandoo and sheoak woodland and the absence of hollow bearing trees. It is not considered for the proposed clearing to impact of suitable habitat for the red-tailed phascogale.
- 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 2.9 km from the application area. This species is widespread and highly mobile, and is found in various habitats, and may utilise the application area. The nearest record is approximately 11.1 kilometres from the application area. Given the large home range and the lack of preferred habitat of for this bird, it is unlikely the application area will impact on the Peregrine falcon.

Available aerial indicate that the application area is part of a broader contiguous remnant of approximately 32.44 hectares in size, which extends across approximately 20.15 hectares of Lot 1 (including the application area) and onto an adjacent land parcel. Roadside vegetation connects this remnant with other patches of remnant vegetation nearby, including on the opposite side of Whurr Road as well as vegetation associated with a chain of salt lakes to the west. No mapped significant ecological linkages occur in the local area. However, it is considered for the application area to be a part of a significant remnant of native vegetation within an extensively cleared landscape that provides suitable habitat for local fauna species as well as Malleefowl. The application area is considered to contribute to a broader remnant that is a refuge and steppingstone for fauna while moving through the landscape.

Conclusion

Noting that the local area has been extensively cleared, the native vegetation within the application area is likely to facilitate the movement of fauna across the extensively cleared landscape.

It is considered that potential impacts to fauna and adjacent vegetation can be managed to be environmentally acceptable by undertake clearing in a slow directional manner. In addition, a revegetation offset will adequately address the potential impact on an ecological steppingstone and fauna refuge. The revegetation of 1 hectare would ensure that the native vegetation within the proposed clearing area is not permanently lost.

Conditions

The following management measures will be required as conditions on the clearing permit.

- avoid and minimise clearing, to minimise the direct impacts to native vegetation.
- directional clearing, which requires slow, progressive, one directional clearing to allow terrestrial fauna to disperse ahead of the clearing activity should these species occur on site at the time of clearing.
- Revegetation and offset proposal to counterbalance the environmental impacts.

3.2.3. Significant remnant vegetation and conservation areas - Clearing Principles (e)

Assessment

The National Objectives and Targets for Biodiversity Conservation 2001-2005 include a target to have clearing controls in place that prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750 (i.e., pre-European settlement) (Commonwealth of Australia 2001). This is the threshold level below which species loss appears to accelerate exponentially. The application area is located within the Mallee Interim Biogeographic Regionalisation of Australia (IBRA) bioregion, which retains approximately 56.53 per cent of its pre-European vegetation extent.

One vegetation association as described by Shepherd et al. (2001) have been mapped within the application area, which is the Hyden vegetation association (945), described as mosaic: medium woodland; salmon gum (*Eucalyptus salmonophloia*) / shrublands; mallee scrub, redwood (*Eucalyptus transcontinentalis*) and black marlock (*Eucalyptus redunca*). Association 945 has just 19.63 per cent of its pre-European vegetation extent remaining (Government of Western Australia 2019). The vegetation under application is considered to represent this highly cleared vegetation association and is considered to be part of a significant remnant of vegetation that acts as a stepping stone and refuge for local fauna.

Approximately 21,182 hectares of native vegetation remains within the 20 kilometres radius of the application area representing 16.73 per cent of original pre-European extent. Noting the extent of native vegetation remaining in the local area and given the mapped vegetation association retain less than 30 per cent of their pre-European vegetation extent, the application area is considered to be a significant remnant within an extensively cleared landscape.

Conclusion

For the reasons set out above, it is considered that the impacts of the proposed clearing on a significant remnant of native vegetation in an area that has been extensively cleared cannot be mitigated by the applicant's avoidance and minimisation strategies and an offset is required to counterbalance the significant residual impact remaining. This is consistent with the Government of Western Australia's Environmental Offsets Policy and Environmental Offsets Guidelines.

Conditions

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

- avoid, minimise to reduce the impacts and extent of clearing.
- offset to counterbalance the significant residual impacts to 1.08 hectares of native vegetation representing a significant remnant of native vegetation in an area that has been extensively cleared.

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

Assessment

According to the available databases, the application area is mapped within two soil landscape mapping systems.

- Newdegate 6 Subsystem (250Nw_6), described as areas of significant rock outcrop including monadnocks, and sheet rock; associated soils include stony soils, yellow/brown deep sandy duplex soils, deep sands and red soils (DPIRD, 2019) (mapped across approximately 0.907 ha of the application area).
- Newdegate 2 Subsystem (250Nw_2), described as: Lower to upper slopes, broad crests and upland plains; soils are mainly grey and yellow/brown sandy duplex soils, often alkaline with hard-setting surfaces, and duplex sandy gravels (DPIRD, 2019) (mapped across approximately 0.173 ha of the application area).

The primary land degradation risks associated with the soil types mapped across the application area are a high risk of subsurface acidification across the whole application area, a moderate to high risk of salinity and a high to extreme risk of wind erosion across the application area (DPIRD, 2019).

Noting the small extent of the proposed clearing, the location of the application area adjacent to an existing landfill site, 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. Associated with this, there is the potential for an increase in surface water run-off following the removal of deep-rooted perennial vegetation. With regard for the distance to the nearest water feature and the extent of adjacent vegetation, it is considered that any impacts to surface water quality is minimal.

Conclusion

Based on the above assessment, the proposed clearing is likely to increase the risk of wind erosion and sheet flow. However, with adequate land management practices, this risk can be managed.

Condition

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

- commence the proposed land use activities within three months of cessation of the clearing activities.

3.3. Relevant planning instruments and other matters

The application area is zoned as General Agriculture under the Shire of Lake Grace local planning scheme number 4 and is freehold land owned by the Shire of Lake Grace for the purpose of a landfill site.

Other relevant authorisations required for the proposed land use include a licence issued under Part V Division 3 of the EP Act, which the Shire of Lake Grace holds (L8406/2009/2) for the Newdegate Waste Management Facility. The Newdegate Waste Management Facility is a Category 64 Class II putrescible landfill and a Category 62 solid waste depot operated by the Shire of Lake Grace (Licence Holder) under existing licence L8406/2009/2. On 19 May 2022, the Shire applied for an amendment to the licence L8406/2009/2 under section 59B of the EP Act 1986 to increase the landfill area for the trenches of new landfill cells. This amendment to the licence was granted to Shire of Lake Grace on 13 September 2022 with an expiry date 07 March 2036.

No Aboriginal sites of significance have been mapped within the application area. The nearest registered site is an Aboriginal Heritage Place known as 'Lake Bidy', located approximately 12.73 km from the application area, separated by cleared farmland, salt lakes, some remnant vegetation and road reserves. Given the separation distance, the proposed clearing is unlikely to impact on this site. In any event, 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.

Lot 1 is subject to a restrictive covenant under section 129BA of the *Transfer of Land Act 1893*. The restrictive covenant was required as a condition of subdivision approval and restricts the construction or placement of a dwelling on the subject land for the benefit of the Shire of Lake Grace.

4 Suitability of offsets

Through the detailed assessment outlined in Section 3.2 above, the Delegated Officer has determined that the following significant residual impacts remain after the application of the avoidance and mitigation measures summarised in Section 3.1:

- Removal of 1.08 hectares of native vegetation considered a significant remnant of native vegetation that contains high biodiversity and significant habitat for local fauna species, in an extensively cleared landscape.
- Removal of 1.08 hectares of the Hyden vegetation association 945 which is extensively cleared, in very good to excellent condition.

To offset the significant residual impact, the Shire has explored both rehabilitation and land acquisition options.

- **Revegetation/Rehabilitation** – The Shire intends to undertake the rehabilitation of the old landfill site and the application area which equates to approximately 3.66 hectares. The rehabilitation/revegetation is proposed to occur in two stages (stage 1 - 1 ha; stage 2 - 2.66 ha). The application area is covered by the stage 2 of the proposed revegetation/rehabilitation. The exact timing of when these activities could commence is unknown as the Shire expect the proposed landfill area (within application) to last another 6-9 years. The Shire has indicated that the revegetation/rehabilitation of approximately one hectares will commence alongside the clearing activities (Stage 1 - 1 ha) and the remainder of the proposed revegetation will commence after the landfill activities are complete (Stage 2 – 2.66ha). The commissioner of Soil and Land Conservation has advised that the Commissioner prefer to see the revegetation/rehabilitation in place prior to a conservation covenant can be placed over the entire revegetation area. The rehabilitation plan provided by the applicant is to support stage one of revegetation/rehabilitation activities, which equated to approximately one hectare. The department has only considered this area as mitigation in offset calculations.

- Land acquisition – the Shire has also proposed to conserve remnant native vegetation in very good condition that represents the highly cleared vegetation association, and is a significant remnant within an extensively cleared landscape (18 hectares). The location of the offset site is located immediately adjacent to the proposed clearing area within Lot 1 on Deposited Plan 65474, Newdegate.

In assessing whether the proposed offset is adequately proportionate to the significance of the environmental values being impacted, calculations using the WA environmental offset metric was undertaken. The calculations have determined that:

- To offset clearing of 1.08 hectares of native vegetation within an extensively cleared area, the proposed revegetation of stage 1 within the landfill site (1.01 hectares) will mitigate 19.4 per cent of the significant residual impacts of the proposed clearing.
- To offset the remaining 80.6 per cent of the significant residual impacts to a significant remnant of native vegetation within an extensively cleared area, an area of 4.36 hectares of native vegetation in very good (Keighery, 1994) condition is to be secured for the purpose of conservation under the proposed conservation covenant.

The remainder of the conservation covenant area (15.29 hectares) is proposed to be banked for any future clearing permit applications for the Shire.

Given the above, the offset proposed by the Shire adequately counterbalance the significant residual impact listed above by 100 per cent. The justification for the values used in the offset calculation is provided in Appendix F.

End

Appendix A. Additional information provided by applicant

Information	Description
Detailed Flora and Basic Fauna Survey: Newdegate Waste Management Facility (Natural Area Consulting, 2022)	The Shire has commissioned Natural Area Consulting Management Services (Natural Area) to undertake biological surveys within the proposed clearing site. Surveys included a detailed flora and vegetation survey and a basic fauna survey, including a targeted declared rare and priority listed species (DRF) search and black cockatoo habitat assessment.
Landform Researcher's report of alternative sites submitted as part of the department's Request for Further Information letter dated 01 August 2022 (Shire of Lake Grace, 2022b).	The Shire has provided the department a copy of a study that was conducted by Landform research to locate alternative sites for the purpose of a landfill site.
Revegetation plan (Natural Area Consulting, 2024)	<p>A revegetation plan has been prepared by Natural Area consulting to support the clearing permit application. The revegetation plan includes the following.</p> <ul style="list-style-type: none"> • revegetation offset site and staged approach. • analyse of the reference site, including species list and density. • completion criteria including limitations and potential issues. • revegetation methodology including: <ul style="list-style-type: none"> - plant and seed sources - seed collection - site preparation - revegetation techniques - site maintenance and contingencies - hygiene management - monitoring and reporting requirements - indicative schedule.

Appendix B. Details of public submissions

Summary of comments	Consideration of comment
Further clearing within a highly cleared landscape (Wheatbelt/Newdegate) should not be supported.	<p>The department's assessment recognises that the proposed clearing area is located within an extensively cleared landscape and identified that the proposed clearing will result in a significant residual impact to the remaining remnant of native vegetation within an extensively cleared area.</p> <p>To counterbalance the significant residual impact of the clearing, the department has implemented an offset condition on the clearing permit. See section 4 and Appendix F of the decision report for further details.</p>
Clearing of intact/excellent condition vegetation should not be approved for a non-critical activity when land that is previously cleared is available.	<p>When making the decision to grant the clearing permit application, the delegated officer had regard to the following:</p> <ul style="list-style-type: none"> • the landfill is proposed to provide a means of disposal of local wastes in Newdegate, other than normal disposal of municipal waste.

Summary of comments	Consideration of comment
	<ul style="list-style-type: none"> the Shire is committed to rehabilitating the existing Newdegate tip site. The existing landfill area is almost at capacity and the Shire is at risk of landfilling outside of the designated area set out in License L8046/2009/2. This proposal involves the construction of a new landfill/recycling centre, to enable the existing landfill to be closed and rehabilitated. <p>As outlined under section 3.1 of the decision report, the Shire has considered alternative options for the new landfill site.</p> <p>The department is of the view that the Shire has made reasonable efforts to mitigate potential impacts on the environment and has considered alternative locations.</p>
The supporting vegetation survey was undertaken very late in the season and does not include the peak flowering time of geophytes, including the orchid species noted in the desktop assessment.	<p>Under section 3.2.1, there is a detailed analysis of each flora species that was considered likely to occur within the application area based on the soil and vegetation types preferred by the flora species.</p> <p>According to the department's assessment, the conservation significant flora likely to occur within the application area are perennial and the survey timing was considered adequate to identify threatened species, if present.</p>

Appendix C. Site characteristics

C.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 D.

Characteristic	Details															
Local context	The application area is within remnant vegetation adjacent to the Newdegate Waste Management Facility. The local area considered in the assessment of this application is defined as a 20-kilometre (km) radius from the perimeter of the application area, and retains approximately 17.53 per cent of native vegetation cover.															
Ecological linkage	No formal ecological linkages are mapped within the application area. However, given the extensively cleared landscape, fauna may utilise the vegetation within the application area as shelter and stepping stone to move across the landscape between isolated remnants.															
Conservation areas	<p>Nineteen conservation areas are mapped in the local area, comprising lands managed by the Department of Biodiversity, Conservation and Attractions (DBCA) and privately-managed conservation areas. Those within 4 km of the application area are outlined below.</p> <table border="1"> <thead> <tr> <th>Theme</th> <th>Description</th> <th>Proximity (m)</th> </tr> </thead> <tbody> <tr> <td>DBCA Land for Wildlife Sites</td> <td>730</td> <td>786</td> </tr> <tr> <td>Proposed National Parks, FMP</td> <td></td> <td>786</td> </tr> <tr> <td>DBCA Managed Lands</td> <td>Lake Bidy Nature Reserve, Conservation Commission Of WA</td> <td>2668</td> </tr> <tr> <td>DBCA Covenants</td> <td>L106989: 16/10/2009</td> <td>2776</td> </tr> </tbody> </table>	Theme	Description	Proximity (m)	DBCA Land for Wildlife Sites	730	786	Proposed National Parks, FMP		786	DBCA Managed Lands	Lake Bidy Nature Reserve, Conservation Commission Of WA	2668	DBCA Covenants	L106989: 16/10/2009	2776
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DBCA Land for Wildlife Sites	730	786														
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DBCA Managed Lands	Lake Bidy Nature Reserve, Conservation Commission Of WA	2668														
DBCA Covenants	L106989: 16/10/2009	2776														

Characteristic	Details		
	DBCA Covenants	K926099: 01/05/2009	3687
Vegetation description	<p>The flora and vegetation survey (Natural Area Consulting, 2022) indicate the vegetation within the proposed clearing area consists of one vegetation type that is described as Mixed <i>Eucalyptus</i> open Mallee Woodland with an upper storey of mixed native Eucalypts over a middle storey of mixed native shrubs dominated by <i>Melaleuca hamata</i>, <i>Westringia</i> spp. and <i>Acacia</i> spp. over an understorey of native grasses (<i>Austrostipa</i> spp. and <i>Neurachne alopecuroidea</i>) and native herbs. Representative photos and the full survey descriptions and maps are available in Appendix G.</p> <p>The application area is mapped as the vegetation Association 945, described as: Mosaic: medium woodland; salmon gum (<i>Eucalyptus salmonophloia</i>) / shrublands; mallee scrub, redwood (<i>Eucalyptus transcontinentalis</i>) and black marlock (<i>Eucalyptus redunca</i>). The vegetation under application is considered representative of the mapped vegetation association. The mapped vegetation type retains approximately 19.63 per cent of the original extent (Government of Western Australia, 2019).</p>		
Vegetation condition	<p>The flora and vegetation survey (Natural Area Consulting, 2022) indicate the vegetation within the proposed clearing area ranged from completely degraded to excellent (Keighery, 1994) condition. The majority of the site is classified in excellent (49.6%) and very Good (30.7%) condition. The areas of the site in completely degraded (Keighery, 1994) condition contained areas of no native vegetation, high weed presence and have been subject to previous disturbances associated with landfilling activities.</p> <p>The full Keighery (1994) condition rating scale is provided in Appendix E. Representative photos and the full survey descriptions and mapping are available in Appendix G.</p>		
Climate and landform	<p>The climate experienced in the area is mediterranean, with dry, hot summers and cool, wet winters. The site is elevated but relatively flat, with Australian Height Datum (AHD) ranging from 316 m in the south- west corner of the site to 318 m in the north-east corner of the site.</p> <p>Rainfall: 370 mm per annum Geology: Granite and gneiss Acid Sulfate Soil Risk: No</p>		
Soil description	<p>The application area is mapped within two soil landscape units:</p> <ul style="list-style-type: none"> Newdegate 6 Subsystem (250Nw_6), described as areas of significant rock outcrop including monadnocks, and sheet rock; associated soils include stony soils, yellow/brown deep sandy duplex soils, deep sands and red soils. Newdegate 2 Subsystem (250Nw_2), described as: Lower to upper slopes, broad crests and upland plains; soils are mainly grey and yellow/brown sandy duplex soils, often alkaline with hard-setting surfaces, and duplex sandy gravels. 		
Land degradation risk	Land degradation risk is summarised in the table C.5.		
Waterbodies	The desktop assessment and aerial imagery indicated that there are no perennial watercourses that transect the area proposed to be cleared.		
Hydrogeography	<p>The application area is within the 'South East Zone of Ancient Drainage' hydrological zone.</p> <p>The application area is not mapped within any surface or groundwater areas proclaimed under the <i>Rights in Water and Irrigation Act 1914</i> (the RIWI Act) and does not transect any water resources proclaimed under either the <i>Metropolitan Water Supply Sewerage and Drainage Act 1909</i> or <i>Country Areas Water Supply Act 1947</i> (CAWS Act). The application area is not mapped within a Public Drinking Water Source Area.</p> <p>Groundwater salinity within the application area is mapped at more than 3500 milligrams per litre total dissolved solids.</p>		

Characteristic	Details
Flora	There are records of 47 conservation significant flora within the local area, the closest of which to the application area is <i>Grevillea involucrate</i> , identified 1.59 kilometres from the application area. There are 39 records of priority flora and eight records of the threatened flora within the local area.
Ecological communities	<p>According to the DBCA mapping available to the department, approximately 60 per cent of the application area is mapped within the Eucalypt woodlands of the Western Australian Wheatbelt which is listed as a Priority Ecological Community by the DBCA and a Threatened Ecological Community under the EPBC Act.</p> <p>The field survey determined that all the trees present within the survey boundary were mallees and therefore does not meet the requirement for this area to be classified as the Eucalypt Woodlands of the Western Australian Wheatbelt TEC. The key diagnostic features for at least 5 mature trees per hectare with a DBH of >30 cm was also not met on site.</p>
Fauna	<p>A total of four threatened, three priority, one migratory, one 'conservation dependent' and one 'other specially protected' fauna species have been recorded within in the local area. Of these, the closest record to the application area is red-tailed phascogale, kenngoor (<i>Phascogale calura</i>), recorded 2.60 kilometres from the application area.</p> <p>The application area is mapped within the distribution zone of the Carnaby's black cockatoos. No known black cockatoo breeding habitat and roosting habitat has been mapped within a 20 kilometres radius of the application area.</p>

C.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*					
Mallee	7,395,894.36	4,180,937.68	56.53	1,289,384.8	17.43
Vegetation complex					
Hyden vegetation association 945 *	141,353.72	27,748.20	19.63	2,420.45	1.71
Local area					
20km radius	126,612.16	21,182.34	16.73	-	-

*Government of Western Australia (2019)

C.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix H.1), and biological survey information, impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Was survey adequate to identify? [Y, N, N/A]
<i>Acacia drewiana</i> subsp. minor	Priority 1	Y	Y	9.8	8	Y
<i>Grevillea prostrata</i>	Priority 4	Y	Y	3.9	4	Y
<i>Grevillea involucrate</i>	Threatened	Y	Y	1.59	2	Y

Species name	Conservation status	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Was survey adequate to identify? [Y, N, N/A]
<i>Persoonia brevirhachis</i>	Priority 3	Y	Y	6.25	8	Y
<i>Thysanotus lavanduliflorus</i>	Priority 1	Y	Y	4.36	12	Y

C.4. Fauna analysis table

Scientific name	Common name	Conservation status	Number of known records (total)	Year of the most recent record	Distance of closest record to application area (km)	Class of the species
<i>Bettongia penicillata ogilbyi</i>	woylie, brush-tailed bettong	CR	2	1992	4.76	Mammal
<i>Calidris ruficollis</i>	Red-necked stint	MI	1	2001	5.62	Bird
<i>Calyptorhynchus</i> sp. 'white-tailed black cockatoo'	White-tailed black cockatoo	EN	1	1977	17.89	Bird
<i>Falco peregrinus</i>	Peregrine falcon	OS	2	2002	11.15	Bird
<i>Leipoa ocellata</i>	malleefowl	VU	59	2015	4.34	Bird
<i>Notamacropus irma</i>	Western brush wallaby	P4	4	1991	16.11	Mammal
<i>Phascogale calura</i>	red-tailed phascogale, kenngoor	CD	19	2018	2.60	Mammal
<i>Pseudomys occidentalis</i>	western mouse	P4	2	1991	16.46	Mammal
<i>Pseudomys shortridgei</i>	Heath mouse, heath rat, Dayang	VU	4	0	13.28	Mammal
<i>Thinornis rubricollis</i>	hooded plover, hooded dotterel	P4	8	1998	3.85	Bird

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

C.5. Land degradation risk table

Risk categories	Land Unit 250Nw_6
Wind erosion	M1: 18% of map unit has a high to extreme hazard
Water erosion	L1: 0% of map unit has a very high to extreme hazard
Salinity	L1: 0% of map unit has a moderate hazard
Subsurface Acidification	H1: 60% of map unit has a high susceptibility
Flood risk	L1: 0% of the map unit has a moderate to high hazard
Water logging	L1: 0% of map unit has a moderate to very high risk
Phosphorus export risk	L1: 0% of map unit has a high to extreme hazard
Risk categories	Land Unit 250Nw_2
Wind erosion	M2: 43% of map unit has a high to extreme hazard
Water erosion	L1: 1% of map unit has a very high to extreme hazard
Salinity	L2: 6% of map unit has a moderate hazard
Subsurface Acidification	H2: 80% of map unit has a high susceptibility
Flood risk	L1: 1% of the map unit has a moderate to high hazard
Water logging	L1: 1% of map unit has a moderate to very high risk
Phosphorus export risk	L1: 1% of map unit has a high to extreme hazard

Appendix D. 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 application area is part of a broader contiguous remnant of approximately 32.44 ha in size containing the same mapped vegetation types as the application area.</p> <p>The application area includes vegetation that is habitat for conservation significant flora. However, no conservation significant flora species were identified during a flora survey within the application area. The vegetation within the application area is not representative of any priority ecological communities.</p> <p>The vegetation proposed for clearing represents a highly cleared beard vegetation community and provides important habitat for fauna species. Fauna species within the local area are likely to utilise the application area for dispersal through the extensively cleared landscape. Given this, it is considered for the vegetation under application to comprise of high level of biodiversity when compared to the extensively cleared surrounding landscape.</p>	At variance	Yes <i>Refer to Section 3.2.1, above.</i>
<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>Roadside vegetation connects the application area with other patches of remnant vegetation nearby. The application area may comprise suitable habitat for indigenous fauna, including ground dwelling and avian fauna who are likely to use the application area for foraging or dispersal. The clearing will reduce the ability of fauna to move across the landscape which has been extensively cleared. However, it is noted that a large patch of intact vegetations till remains within Lot 1 that the fauna can utilise during the clearing activities.</p>	At variance	Yes <i>Refer to Section 3.2.2, 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>According to the desktop assessment, eight threatened flora species were identified from the local area, where one threatened flora has been recorded within 4 km of the application area from the same mapped soil and vegetation type. However, no threatened flora species were identified through the targeted flora survey.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<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>No threatened ecological communities have been recorded in the local area and the vegetation proposed for clearing is not representative of any threatened ecological communities.</p>	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		

Assessment against the clearing principles	Variance level	Is further consideration required?
<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 native vegetation in the local area is inconsistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is considered to be part of a significant remnant in an extensively cleared landscape.</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>The nearest conservation area is a privately managed land for Wildlife site, located approximately 0.78 km from the application area. The nearest DBCA-managed land is Lake Biddy Nature Reserve, located approximately 2.66 km from the application area. Given the separation distances, the proposed clearing is unlikely to impact on the environmental values of these 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>The nearest water feature is a wetland located approximately 1.4 km from the application area. The vegetation proposed to be cleared is unlikely to be growing in association with this wetland.</p>	Not likely to be at variance	No
<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 primary land degradation risks associated with the soil types mapped across the application area are a high risk of subsurface acidification across the whole application area, a moderate to high risk of salinity, and a high to extreme risk of wind erosion. The proposed clearing is unlikely to cause an appreciable increase in salinity or sub-surface acidification given the small area proposed to be cleared, however the proposed clearing activities (and subsequent land use) may result in land degradation in the form of wind erosion. Impacts in this regard are likely to be short term and minimal.</p>	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>Noting the risk of wind erosion associated with the mapped soil types, the potential for an increase in surface water run-off has the potential to lead to mobilisation of sediments. With regard for the distance to the nearest water feature and the extent of adjacent vegetation, impacts in this regard are likely to be minimal and localised. Taking into account the topography and the underlying groundwater salinity, the proposed clearing is unlikely to cause deterioration in underground water quality.</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (j)</u>: “Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</p> <p><u>Assessment</u>:</p> <p>The soil types mapped within the application area have a low flooding risk.</p>	Not likely to be at variance	No

Appendix E. 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 F. Offset calculator value justification

During assessment of the application, the department identified that the proposed clearing would result in the following significant residual impacts:

- the loss of 1.08 hectares (ha) of native vegetation that is considered to be significant as a remnant of native vegetation in an extensively cleared area.

Revegetation offset (mitigation)

Field	Score	Rationale for scores applied
Area of impact (habitat/community)	1.08	1.08 hectares of native vegetation

or Quantum of impact (features/individuals)		
Quality of impacted area	8	vegetation survey has mapped approximately 83% of the application area as very good to excellent (Keighery, 1994) condition. The area provides shelter for fauna species and because the surrounding area has small portion of vegetation remaining, the quality of this area is considered high.
Time over which loss is averted (habitat/community)	20	20 years is the maximum value associated with this field.
Time until ecological benefit	11	Time taken for native vegetation to be established within the revegetation area. Infill planting will be conditioned in the permit. Applicant will be required to provide a timeline of the proposed activities to ensure native vegetation is established within 10 years.
Start area (hectares)	1.01	Area of stage one revegetation/rehabilitation.
Risk of loss (%) without offset	30	security of site will not change and therefore risk of loss remains the same.
Risk of loss (%) with offset	30	The revegetation area will be placed under a conservation covenant after the revegetation of the landfill site is complete which is expected to be in 8 years. The commissioner of soil is not confident to place a covenant over this area yet as revegetation has not been established. Therefore, security of site will not change, and risk of loss remains the same.
Confidence in result (%)	80	Revegetation and on-ground management is proposed with a revegetation management plan in place. There is medium confidence that the revegetation in accordance with the revegetation plan will achieve result. Infill planting is proposed to restore required diversity and annual reporting of the revegetation success will be conditions on the permit.
Start quality (scale of 1-10)	1	The proposed offset site is an old gravel pit and is in a completely degraded condition. Site is approximately 99% cleared.
Future quality without offset (scale of 1-10)	1	due to past use, it is unlikely the site could regenerate with remnant vegetation over the next 20 years without intensive management. No change is anticipated from current quality.
Future quality with offset (scale of 1-10)	4	It is assumed that the potential revegetation, if undertaken successfully, could improve the condition of the vegetation to a largely good condition. The animal control, weed management and ongoing monitoring will assist to reach the good condition vegetation.
% of impact offset	19.4	Obtained through the input of variables explained above.

Land acquisition offset.

Field	Score	Rationale for scores applied
Area of impact (habitat/community) or Quantum of impact (features/individuals)	1.08	1.08 hectares of native vegetation located within an extensively cleared landscape.
Quality of impacted area	8	vegetation survey has mapped approximately 83% of the application area as very good to excellent (Keighery, 1994) condition. The area provides shelter for fauna species and because the surrounding area has small portion of vegetation remaining, the quality of this area is considered high.
Time over which loss is averted (habitat/community)	20	the offset site will be conserved in perpetuity under a conservation covenant. 20 years is the maximum value associated with this field.

Time until ecological benefit	1	ecological benefit already exists given the established vegetation on the property
Start area (hectares)	4.36	area required to counterbalance the remaining significant residual impact of the clearing, taking into account the mitigation revegetation.
Risk of loss (%) without offset	30	without the long-term security over the proposed offset area, this area maybe subject to the ongoing landfill expansions. Zoned as general agriculture.
Risk of loss (%) with offset	5	placing a conservation covenant over the proposed offset area will reduce the risk of loss of native vegetation on this property. The risk of catastrophic events (fire, dieback etc.) remain.
Confidence in result (%)	95	there is a high level of confidence of the offset proceeding.
Start quality (scale of 1-10)	8	given the area of the vegetation proposed for the covenant is within the same property, immediately adjacent to the application area and by looking at the aerial imagery and photographs submitted to the department, the condition of the vegetation within the proposed offset area seems to be 'like for like' being in a very good condition.
Future quality without offset (scale of 1-10)	8	It is considered that the quality of the native vegetation would be maintained without the offset.
Future quality with offset (scale of 1-10)	8	native vegetation condition is considered unlikely to decline beyond its current quality over the next 20 years.
% of impact offset	80.7	obtained through the input of variables explained above.

Appendix G. Biological survey information excerpts and photographs of the vegetation (Natural Area Consulting, 2022), (Shire of Lake Grace,4).



Figure 3: Boundary of the survey area



Smooth Cats-ear
 (**Hypochaeris glabra*)



Iceplant (**Mesembryanthemum crystallinum*)



Umbrella Sedge (**Cyperus eragrostis*)



**Acacia iteaphylla*



Bearded Oat
 (**Avena barbata*)



Black Berry Nightshade
 (**Solanum nigrum*)



Dampiera eriocephala (Woolly-headed Dampiera)



Cheiranthra brevifolia



Eucalyptus tenera
(Common Southern Mallee)



Verticordia eriocephala
(Common Cauliflower)



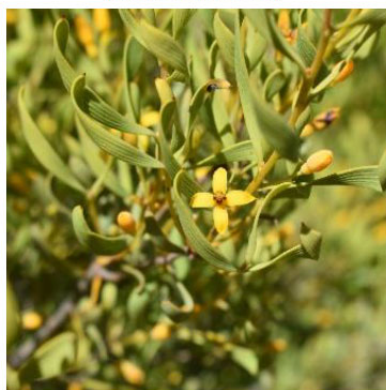
Anthotium rubriflorum
(Red Anthotium)



Grevillea didymobotrya subsp.
didymobotrya



Templetonia rossii



Persoonia quinquenervis



Eremophila drummondii
(Drummond's Eremophila)

Figure 4: Photographs of the flora recorded from the survey area.

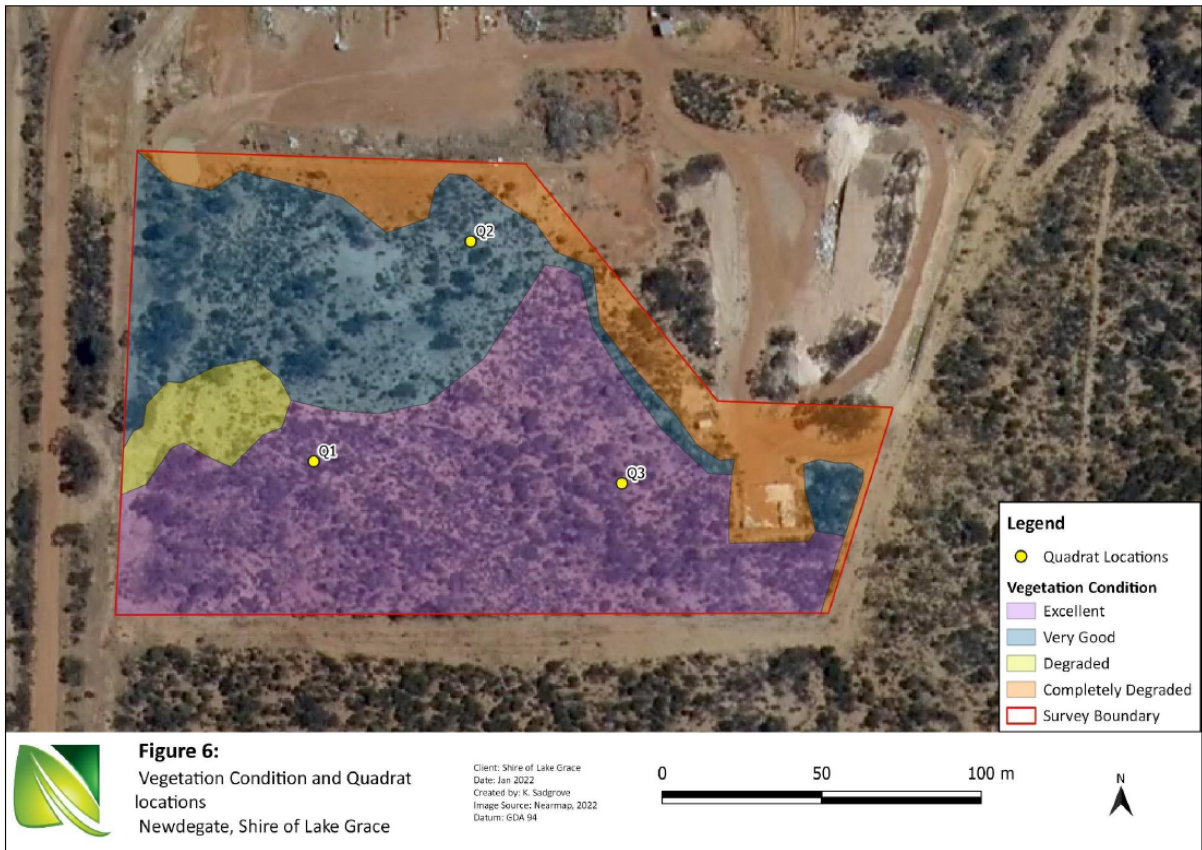


Figure 5: Vegetation condition within the survey area.

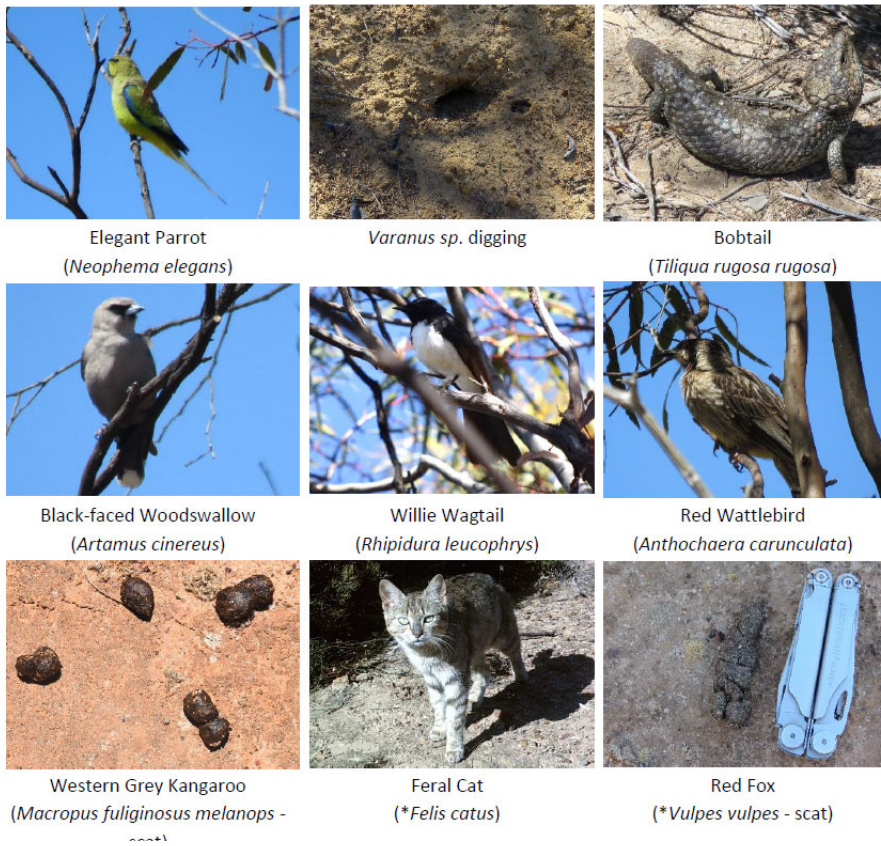


Figure 6: Photographs of the fauna species found within the survey area.

4.2.4 Threatened and Priority Communities

Eucalypt Woodlands of the Western Australian Wheatbelt were identified as potentially occurring within the survey area when the desktop analysis was undertaken. The Wheatbelt Woodlands TEC is recognised by the below key diagnostic features (Commonwealth of Australia, 2016):

- Occurs within the Eucalypt Woodlands of the WA Wheatbelt region of Western Australian, although this has some exceptions including, it does not include woodlands which are dominated by mallee trees.
- Patch size requirements for areas which are not located on roadsides:
 - A minimum of 2 ha in size:
 - high quality native vegetation with no more than 30% total vegetation cover of introduced (weed) species, or
 - introduced plant species account for over 30 to 50% total vegetation understorey cover AND mature trees are present, with at least 5 mature trees per half hectare. Mature trees are to have a diameter at breast height (DBH) of 30 cm or greater.
 - A minimum of 5 ha in size:
 - introduced (weed) species coverage of 30 to 50% total vegetation understorey, no less than 5 mature trees present per half hectare, or
 - introduced species account for over 50 to 70% total vegetation understorey cover and mature trees are present, with at least 5 such trees per half hectare.

The field survey determined that all the trees present within the survey boundary were mallees and therefore does not meet the requirement for this area to be classified as the Eucalypt Woodlands of the Western Australian Wheatbelt TEC. The key diagnostic features for at least 5 mature trees per hectare with a DBH of >30 cm was also not met on site. Although many species present are those classified as present within WA Wheatbelt Woodlands ecological communities and are identified in the species list provided in Appendix 6.

Figure 7: Expert from the flora and vegetation survey that explains the criteria used to analyse the Eucalyptus woodland of the of the Western Australian Wheatbelt

The following photographs are representing the broader conservation covenant area within Lot 1 on Deposited Plan 65474.





The following photographs are representing the stage one revegetation/rehabilitation area within Lot 1 on Deposited Plan 65474.





Appendix H. Sources of information

H.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
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