GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS
Area Permit Number: 8796/1
File Number: DWERVT5267
Duration of Permit: From 22 May 2020 to 22 May 2022

PERMIT HOLDER
DevelopmentWA

LAND ON WHICH CLEARING IS TO BE DONE
Lot 9004 on Deposited Plan 402043, Joondalup

AUTHORISED ACTIVITY
The Permit Holder shall not clear more than 0.37 hectares of native vegetation within the area hatched yellow on the attached Plan 8796/1.

CONDITIONS

1. **Avoid, minimise and reduce the impacts and extent of clearing**
   In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:
   (a) avoid the clearing of native vegetation;
   (b) minimise the amount of native vegetation to be cleared; and
   (c) reduce the impact of clearing on any environmental value.

2. **Dieback and Weed Control**
   When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds* and *dieback*:
   (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
   (b) ensure that no known *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
   (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

3. Record keeping

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

(a) In relation to the clearing of native vegetation authorised under this Permit:

(i) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;

(ii) the date(s) that the area was cleared;

(iii) the size of the area cleared (in hectares);

(iv) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 1 of this Permit; and

(v) actions taken to minimise the risk of the introduction and spread of *dieback* and *weeds* in accordance with condition 2 of this Permit.

4. Reporting

The Permit Holder must produce the records required under condition 3 of this Permit when required by the *CEO*.

DEFINITIONS

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

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

dieback means the effect of *Phytophthora* species on native vegetation;

fill means material used to increase the ground level, or fill a hollow;

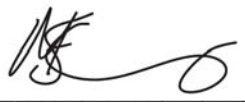
mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

weed/s means any plant -

(a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or

(b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or

(c) not indigenous to the area concerned.

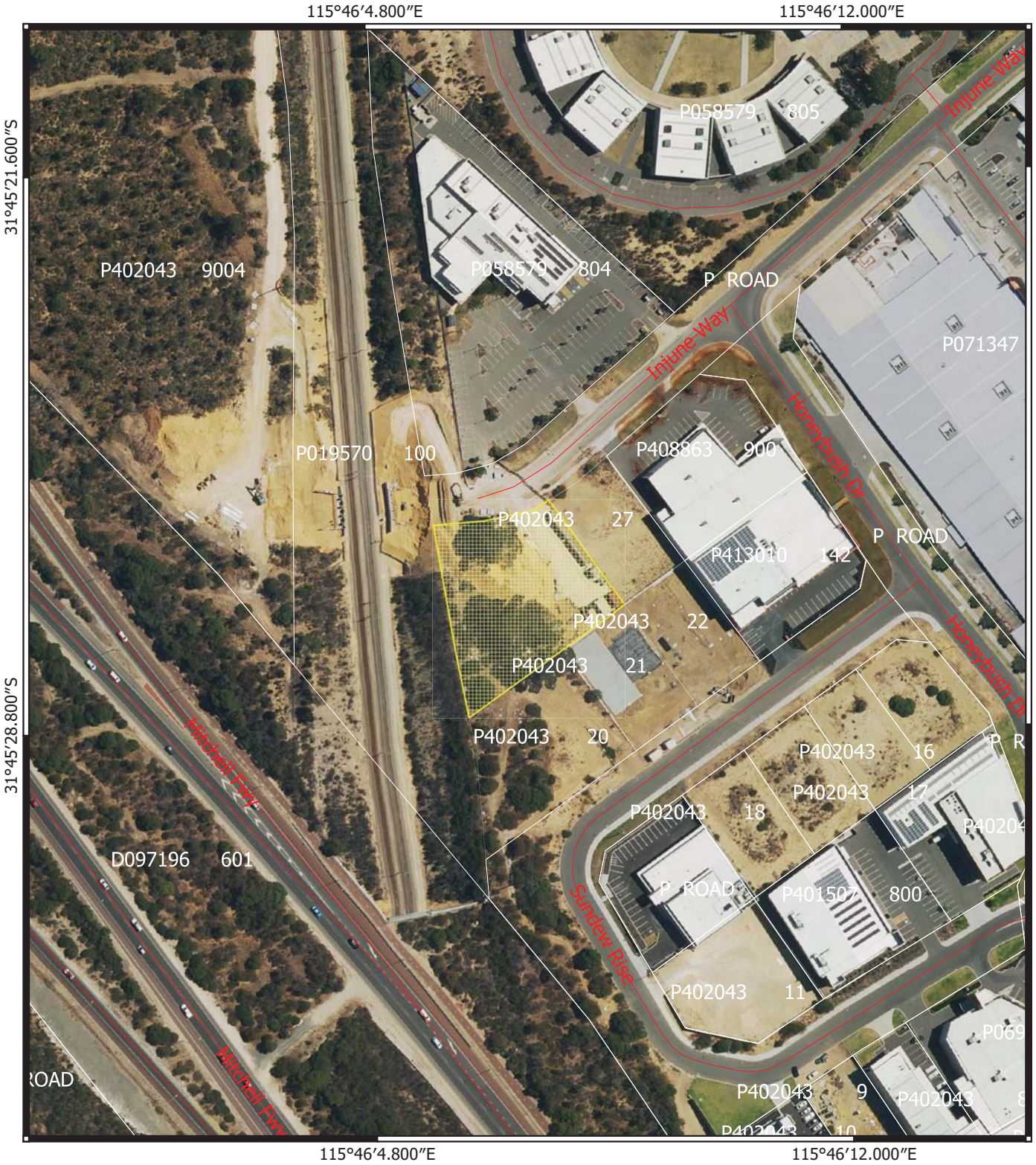


Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

22 April 2020

Plan 8796/1



Legend

CPS layers

CPS areas approved to clear

base layers

Road Centrelines

Cadastre - LGATE 218

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Officer delegated under section 20 of the Environmental Protection Act 1986

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GOVERNMENT OF WESTERN AUSTRALIA

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1. Application details

Permit application details

Permit application No.: 8796/1
Permit type: Area Permit

Applicant details

Applicant's name: Development WA
Application received date: 31 January 2020

Property details

Property: Lot 9004 on Deposited Plan 402043
Local Government Authority: City of Joondalup
Localities: Joondalup

Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.37		Mechanical Removal	Other development

Decision on application

Decision on Permit Application: Grant
Decision Date: 22 April 2020
Reasons for Decision: The clearing permit application has been assessed against the clearing principles, planning instruments, and other matters in accordance with section 51O of the *Environmental Protection Act 1986.* It has been concluded that the proposed clearing is not at variance with, or not likely to be at variance with the clearing principles.

The Delegated Officer determined that the proposed clearing may increase the spread of weeds and dieback into adjacent vegetation. To minimise this risk, a condition has been placed on the permit requiring the implementation of weed and dieback management measures.

The Delegated Officer determined that given size and location of the clearing, and the predominantly degraded condition of the vegetation present, the proposed clearing is not likely to lead to an unacceptable risk to the environment.

2. Site Information

Clearing Description

The applicant is the Western Australian Land Authority, trading as DevelopmentWA. The eastern portion of Lot 9004 on Deposited Plan 402043, Joondalup, is analogous with the native vegetation clearing permit application area of 0.37 hectares. Not all of the application area consists of native vegetation, with only approximately 0.29 hectares of clearing required for the Joondalup Bridge overpass and an eventual commercial development.

Vegetation Description

The vegetation within the application area is mapped as the Swan Coastal Plain vegetation complex 'Cottesloe Complex - Central and South' (System 6 ID 52) which is described as a mosaic of woodland of *Eucalyptus gomphocephala* (Tuart) and open forest of *Eucalyptus gomphocephala* (Tuart) - *Eucalyptus marginata* (Jarrah) - *Corymbia calophylla* (Marri); closed heath on the Limestone outcrops.

PGV Environmental (PGV 2019) described and mapped the vegetation within the application area as *Eucalyptus gomphocephala* (Tuart) over a sparse cover of native species such as *Acacia saligna, Jacksonia sternbergiana, Jacksonia calcicola, Acacia pulchella* and *Xanthorrhoea preissii* as well as abundant weed presence including **Chamelaucium uncinatum* (Geraldton Wax), **Oxalis pes-caprae, *Ehrharta calycina, *Briza maxima, *Lupinus cos*entinii and **Gladiolus caryophyllaceus.*

Vegetation Condition

The vast majority of the application area is in a Completely Degraded or Degraded condition based on the condition scale of Keighery (1994), with a very small section (2.3 per cent) in Good condition (Quadrat IW2 only) (PGV 2019).

Soil and Landform Type: The application area consists of Karrakatta Sands (Yellow Phase) mapped as 211Sp, comprising low hilly to gently undulating terrain with yellow sands over limestone at one to two metres depth (Schoknecht *et al.,* 2004).

Comments: Due to the relatively small area and constrained nature of the site no options to avoid, eliminate or minimise could be proposed by the applicant. The local area referred to in the assessment of this application is defined as a 10 kilometre radius measured from the perimeter of the application area.

Figure 1: Landgate imagery (July 2019) (Left) and site photograph (right)

3. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biodiversity.

Proposed clearing is not likely to be at variance with this Principle

The application area is not located in an Environmentally Sensitive Area (ESA) or recognised ecological linkage. Vegetation consists of individual Tuart trees over a sparse cover of common native species (PGV 2019). Vegetation is predominantly in a Completely Degraded to Degraded condition based on the condition scale of Keighery (1994), with weeds prevalent consisting of fifteen species, and most commonly **Ehrharta calycina, *Briza maxima, *Lupinus cosentinii, *Gladiolus caryophyllaceus,* and **Oxalis pes-caprae* (PGV 2019).

According to available databases, three Threatened flora taxa and 22 Priority flora taxa have been recorded within 10 kilometres of the application area. One Threatened flora taxon has been recorded within one kilometre; *Marianthus paralius* (listed as Endangered under the *Biodiversity Conservation Act 2016* (BC Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)) approximately 820 metres to the north, with four Priority flora taxa recorded within one kilometre; *Jacksonia sericea* (P4), *Austrostipa mundula* (P3), *Baeckea* sp. Limestone (N. Gibson & M.N. Lyons 1425) (P1), and *Stylidium paludicola* (P3). Of these, *Jacksonia sericea* has been recorded closest to the application area at approximately 330 metres to the north.

PGV (2019) determined that just one conservation significant taxa, *Jacksonia sericea* (P4), had the potential to occur over the application area. *Jacksonia sericea,* however, was not recorded during the survey, nor any other conservation significant taxa. Furthermore, none were assessed as likely to occur (PGV 2019) due to the predominantly Degraded or Completely Degraded condition of the vegetation.

No Threatened Ecological Communities (TECs) listed under the BC Act or EPBC Act, or Priority Ecological Communities (PECs), have been mapped over the application area, nor is the application area within any buffer areas of any mapped TECs or PECs.

Two state-listed TECs and three state-listed PECs have been described and mapped within ten kilometres of the application area. The closest and most relevant to the application area is the 'Tuart *(Eucalyptus gomphocephala)* woodlands and forests of the Swan Coastal Plain' listed as a P3 PEC, and Critically Endangered under the EPBC Act. This community has been described and mapped approximately 1,040 metres to the east of the application area, immediately to the west of Lake Joondalup within the Yellagonga Regional Park.

The vast majority of the site is in a Completely Degraded or Degraded condition and not representative of any ecological communities recognised by Gibson *et al.* (1994) (PGV 2019). However, vegetation over the application area has been described as Tuart *(Eucalyptus gomphocephala)* over a sparse cover of native species which is broadly analogous to the listed Tuart woodlands and forests of the Swan Coastal Plain TEC (DoEE 2019).

PGV (2019) undertook an assessment of the vegetation present against the key diagnostic characteristics and criteria provided in the EPBC Approved Conservation Advice (incorporating listing advice) for the Tuart *(Eucalyptus gomphocephala)* woodlands and forests of the Swan Coastal Plain ecological community (DoEE 2019). The 0.37 hectare site consists of nine established Tuarts, in close proximity with each other, over a mix of weed and native species directly beneath and around the Tuarts, with bare sand and weeds surrounding the trees within 30 metres of the canopy.

PGV (2019) concluded that the Tuart vegetation did not meet the criteria for the Tuart woodlands and forests of the Swan Coastal Plain TEC because the size of the patch of 0.8 hectares, together with the condition category of Poor to Medium (DoEE 2019) did not meet the condition threshold criteria of DoEE (2019). Note that the patch described included the Tuart trees and understorey, as well as an area extending 30 metres around the Tuart tree canopies, and the identified patch therefore extends beyond the application area. The actual Tuart canopy within the application area itself is 0.10 hectares, or 27 per cent of the application area. A very small area of 0.02 hectares (or just 2.5 per cent of the site) was rated in High condition (DoEE 2019) but was too small to be representative of the overall condition of the patch (PGV 2019).

The Endangered Carnaby's Cockatoo *(Calyptorhynchus latirostris)* is known from the local area. However, the Tuart trees present do not contain any hollows (PGV 2019) and are unlikely to provide roosting or breeding habitat, and due to the Degraded to Completely Degraded condition of the site quality foraging habitat is not present for this species.

The application area is not likely to support high levels of species diversity, ecosystem diversity or genetic diversity due to its Completely Degraded to Degraded condition, lack of habitat to support Priority or Threatened species, small area, and the significant areas of native vegetation in better condition within the local area. Therefore, the proposed clearing is not likely to be at variance with Principle (a).

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.

Proposed clearing is not likely to be at variance with this Principle

According to available databases 21 birds, four mammals, and one reptile of conservation significance have been recorded within a 10 kilometre radius of the application area.

Fifteen of these birds are associated with marine, estuarine or wetland habitats not present over the application area. The migratory Fork-tailed Swift *(Apus pacificus),* and Peregrine Falcon *(Falco peregrinus)* (other specially protected fauna) may overfly the application area without utilising any of the habitats present.

None of the mammals or reptile identified are likely to occur due to the small and isolated nature of the application area and the Degraded to Completely Degraded condition of the vegetation. The Quenda *(Isoodon fusciventer)* (P4) is known locally with a relatively recent record within one kilometre but requires a dense understorey for cover that is not present over the application area. Of the vertebrate fauna species of conservation significance identified, the species most likely to occur over the application area are the three vagile species of black cockatoo known from the Perth metropolitan area that could utilise the tree canopy present and, in particular, the Endangered Carnaby's Cockatoo *(Calyptorhynchus latirostris)*.

There are numerous records (greater than 670) of the Endangered Carnaby's Cockatoo *(Calyptorhynchus latirostris)* within ten kilometres of the application area (DBCA 2007-), with the closest within 600 metres. Black cockatoo habitat can be considered in terms of breeding habitat, night roosting habitat, and foraging habitat. Black cockatoos will generally forage up to 12 kilometres from an active breeding site (DoEE 2017; DPaW 2013; DSEWPaC 2012). Following breeding, they will flock in search of food, usually within six kilometres of a night roost (Commonwealth of Australia 2017; DPaW 2013; DSEWPaC 2012), but may range up to 20 kilometres (Commonwealth of Australia 2017). Food resources within the range of breeding sites and roost sites are important to sustain populations, particularly within the Perth metropolitan area (EPA 2019), and foraging resources are therefore viewed in the context of known breeding and night roosting sites, particularly within 12 kilometres of an impact area (Commonwealth of Australia 2017).

Black cockatoo night roosts are usually located in the tallest trees of an area, and in close proximity to both a food supply and surface water (DAWE 2020a; Le Roux 2017). A confirmed night roost is located approximately 3.6 kiilometres to the north/north-east, with a known breeding area focused at Edith Cowan University Joondalup campus located approximately one kilometre to the north-east (BirdLife Australia 2017).

Of the nine Tuarts present over the application area, five recorded a diameter at breast height greater than 50 centimetres, however, no trees contained hollows or spouts (PGV 2019) and due to a lack of hollows or significant tree height no breeding or roosting habitat is likely to be present. However, due to the location of Carnaby's Cockatoo night roosting and breeding sites within 3.6 kilometres of the application area foraging habitat located within these buffer areas becomes vital.

The application area is not located in a mapped area of Carnaby's Cockatoo *'areas requiring investigation as feeding habitat in the Swan Coastal Plain'*. However, such a mapped area is located immediately to the west of the application area. Over the application area itself, along with Tuart, of the 28 native flora species recorded *Banksia sessilis* (parrot bush), *Xanthorrhoea preissii* (Grass Tree), *Hakea trifurcata,* and *Hakea lissocarpa* are rated medium or high value foraging species for Carnaby's Cockatoo (Bamford 2013; Groom 2011). However, due to the Degraded to Completely Degraded condition of vegetation within the application area, and the low abundance and scaterred nature of the native understorey species present, quality foraging habitat is not available, and the site has very little foraging value for Carnaby's Cockatoo (PGV 2019). Additionally, large tracts of foraging habitat within four kilometres of the application area occur to the north and east of the application area, and in particular

Neerabup National Park and Yellagonga Regional Park, with over 5,100 hectares of native vegetation retained within ten kilometres of the application area.

The application area does not comprise the whole or a part of, and is not necessary for the maintenance of a significant habitat for fauna, and the proposed clearing is not likely to be at variance with Principle (b).

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, Threatened flora.

Proposed clearing is not at variance with this Principle

The application area is small in size and predominantly Degraded or Completely Degraded with scattered native understorey species present. No Threatened flora taxa have been recorded within the application area (PGV 2019). According to available databases, three Threatened flora taxa have been recorded within a ten kilometre radius of the application area; *Marianthus paralius* (EN), *Eucalyptus argutifolia* (VU) and *Caladenia huegelii* (CR).

The closest Threatened flora taxa recorded was *Marianthus paralius* (EN), approximately 820 metres to the north. Due to the small and isolated nature of the application area, and Degraded to Completely Degraded condition of the vegetation present, no Threatened flora taxa are likely to occur. Vegetation present is not necessary for the continued existence of, Threatened flora, and proposed clearing is therefore not at variance with Principle (c).

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Proposed clearing is not at variance with this Principle

No Threatened Ecological Communities (TECs) listed under the *Biodiversity Conservation Act 2016* have been mapped or identified over the application area, nor is the application area located within any buffer areas of any mapped state-listed TECs.

Two state-listed TECs have been described and mapped within ten kilometres of the application area:

- SCP20a (EN): *Banksia attenuata* woodlands over species rich dense shrublands (floristic community type 20a as originally described in Gibson *et al.* (1994))
- SCP30a (VU): *Callitris preissii* (or *Melaleuca lanceolata*) forests and woodlands, Swan Coastal Plain (floristic community type 30a as originally described in Gibson *et al.* (1994)

The closest of these is community SCP30a which has been described and mapped approximately 3.5 kilometres to the south of the application area. However, vegetation described over the application area is not representative of these two communities, nor any ecological communities recognised by Gibson *et. al.* (1994) (PGV 2019). The proposed clearing is not at variance with Principle (d).

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Proposed clearing is not at variance with this Principle

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

The application area is located within the Swan Coastal Plain bioregion as described by Thackway and Cresswell (1995). The Swan Coastal Plain (IBRA) bioregion retains approximately 38.6 per cent of its pre-European vegetation extent (Government of Western Australia 2019a).

The Environmental Protection Authority (EPA) recognises the Perth Metropolitan Region as a constrained area, which provides for the reduction of vegetation complexes to a minimum of 10 per cent of their pre-European extent (EPA 2008). The Beard vegetation association of Spearwood 998 (Shepherd *et. al*., 2001) has been mapped over the application area. Beard vegetation association Spearwood 998 has 36.6 per cent of its pre-European vegetation extent remaining (Government of Western Australia 2019a).

Although now in a Degraded to Completely Degraded condition the vegetation present over the application area is broadly analogous with the description of the regional Cottesloe Complex (Central and South) mapped by Heddle *et al*, (1980) over the application area. The Cottesloe Complex (Central and South) has 32.2 per cent of its pre-European vegetation extent remaining (Government of Western Australia 2019b).

At the local scale of a ten kilometre radius from the application area approximately 5,109 hectares of native vegetation remains, representing approximately 21.2 per cent of native vegetation cover. This figure is augmented by extensive areas to the north and east of the application area, and in particular Neerabup National Park and Yellagonga Regional Park. Noting the Degraded to Completely Degraded condition of the vegetation present, the application area is not considered significant as a remnant of native vegetation in an area that has been extensively cleared, and is therefore not at variance with Principle (e).

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Proposed clearing is not at variance with this Principle

The application area is located within the Swan Coastal basin of the South West division, and within the Yanchep Consanguineous Wetlands Suite (of microscale to macro-scale, mainly elongate to locally irregular; fresh or poikilohaline and forming a chain of wetlands).

No wetlands or watercourses are present over the application area. There are no Ramsar listed wetlands present within a ten kilometre radius of the application area, and the closest area listed within the Directory of Important Wetlands is Lake Joondalup (WA081) located approximately 1.3 kilometres to the east. Lake Joondalup is also a recognised 'Conservation' category Geomorphic Wetland (EPA 2004).

No riparian vegetation is present over the application area (PGV 2019), and the native vegetation present is not growing in, or in association with, an environment associated with a watercourse or wetland. Proposed clearing is not at variance with Principle (f).

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Proposed clearing is not at variance with this Principle

The application area is located on the Swan Coastal Plain consisting of an alluvial, shoreline, and aeolian deposits. The area has been mapped as unconsolidated sediments and limestone over sedimentary rocks (Schoknecht *et al.,* 2004).

The soil of the application area consists of Karrakatta Sands (Yellow Phase) known as System 211Sp (Schoknecht *et al.,* 2004). This broad category consists of low hilly, to gently undulating, terrain with permeable yellow sand over limestone at one to two metres depth.

These soils have high permeability and are unlikely to contribute to acid sulfate soil, and have a low water erosion risk (DPIRD 2017). Groundwater salinity over the application area is mapped at 500 to 1,000 total dissolved salts (TDS) milligrams per litre (mg/L), that is, 'fresh'. Salinity risk over the application area is associated with the soil type delineations and is rated low (DPIRD 2017). Due to their unconsolidated nature, however, Karrakatta Sands have a high risk of wind erosion (DPIRD 2017).

Soils present have high permeability and are unlikely to contribute to acid sulfate soil or off-site run-off. The soil type is susceptible to wind erosion but the site is sheltered reducing the wind erosion risk, and standard construction processes should eliminate residual risk, with the cleared area eventually stabilised.

The proposed clearing is minimal and vegetation is currently in a Degraded to Completely Degraded condition. Given the location, small scale of clearing, surrounding landscape, and standard construction methodologies it is unlikely that the proposed clearing would contribute to, or cause, appreciable land degradation. Proposed clearing is therefore not at variance with Principle (g).

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Proposed clearing is not likely to be at variance with this Principle

The application area is not located in an Environmentally Sensitive Area (ESA) or recognised ecological linkage, with the closest ESA located approximately one kilometre to the east (ID 20953) associated with Yellagonga Regional Park.

A number on un-named reserves managed for nature conservation by the DBCA occur within ten kilometres of the application area, the closest of which are approximately 980 metres to the east associated with Bush forever Site 299 and the Yellagonga Regional Park, and immediately west of the Lake Joondalup Nature Reserve.

The proposed clearing area is surrounded by developed commercial and urban areas, with the Mitchell Freeway 75 metres to the west and the Joondalup railway line even closer. However, remnant vegetation is present within this road and rail tenure, as well as on the 5.7 hectare component of Lot 9004 on Deposited Plan 402043 to the north-west.

Due to the small scale of clearing required, the lack of adjacent or nearby conservation areas, and the distances to known conservation areas, proposed clearing is not likely to have any impact on any associated environmental values, and is therefore not at variance with Principle (h). However, the application area is located adjacent to areas of remnant native vegetation to the north-west and to the south, and weed and dieback management measures will assist in mitigating impacts to surrounding vegetation.

(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.

Proposed clearing is not likely to be at variance with this Principle

The application area is located within the Perth Groundwater Area proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act), as well as the Perth Coastal and Gwelup Underground Water Pollution Control Area. That is, a Public Drinking Water Source Area (PDWSA) under the *Country Areas Water Supply Act 1947* (CAWS Act).

The application area is located well outside of any RIWI Act proclaimed surface water areas, irrigation districts, or rivers. Similarly, no wetlands or watercourses occur over the application area, with the closest water body being Lake Joondalup, approximately 1.3 kilometres to the east.

The annual rainfall average over the past 25 years is approximately 733 millimetres per annum (BoM 2020), with evapotranspiration rates at approximately 700 millimetres per annum. Soils consist of Karrakatta Sands consisting of low hilly to gently undulating terrain with permeable yellow sand. Groundwater salinity is mapped at 500 to 1,000 TDS mg/L, that is, 'fresh'.

The application area is well-drained due to its permeable soils. There are no defined drainage paths over the application area or nearby. Surface flow may occur over short distances for short periods during, and immediately after, very intense rainfall, however proposed clearing will not cause any deterioration in the quality of any surface waters. Given the small scale of the proposed clearing and standard construction methodologies employed, the proposed clearing is not likely to cause deterioration in the quality of surface or underground water and is therefore not likely to be at variance with Principle (i).

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Proposed clearing is not at variance with this Principle

The application area experiences an annual average rainfall of approximately 733 millimetres, with the majority received during the winter months, with the wettest being June to August (BOM 2020). The application area has permeable soils and has a low risk of flooding, with less than three per cent of the mapped L1 unit over the area having a moderate to high flood risk.

Similarly, due to the soil type, the application area also has a low risk of water-logging (L1), and a low risk of water erosion (L1). Any potential for flooding will be managed through appropriate drainage design and proposed clearing is not likely to cause, or exacerbate, the incidence or intensity of flooding, and is therefore not at variance with Principle (j).

Planning instruments and other relevant matters.

The applicant is the Western Australian Land Authority (Landcorp) trading as DevelopmentWA; the State Government's central development agency.

Application CPS 8796/1 was advertised on the DWER website for a 21 day public comment period on 10 March 2020. No public submissions were received in relation to this application.

The application area is zoned as 'Central City Area' under the Perth Metropolitan Region Scheme; and 'Centre' under the City of Joondalup Town Planning Scheme No. 3. Subdivision approval was granted by the Western Australian Planning Commission (WAPC) on 28th March 2018 (PGV 2020) to allow for the construction of the Joondalup Bridge (overpass) and the creation of an easement that bisects the application area.

The application area is located within the Perth Groundwater Area proclaimed under the RIWI Act, as well as the Perth Coastal and Gwelup Underground Water Pollution Control Area; a Public Drinking Water Source Area (PDWSA) under the CAWS Act. Noting the purpose for the proposed clearing, approvals under the RIWI Act or CAWS Act are not required.

The application area is located within the boundaries of the Whadjuk People Native Title Registered Claim (WAD242/2011) and Indigenous Land Use Agreement (WI2017/015). No Aboriginal sites of significance have been recorded within the application area. Bonorin Hill (ID 3533) is a registered heritage site, the boundary of which is located approximately 135 metres to the south. It is the applicant's responsibility to ensure compliance with any obligations under the *Aboriginal Heritage Act 1972.*

4. References

Bamford Consulting Ecologists (Bamford) (2013). Plants known to be used for foraging, roosting and nesting by black-cockatoos in south-western Western Australia. Data compiled from the literature (Davies, 1966; Saunders, 1974, 1979a, b, 1980; Saunders *et al.* 1982; Saunders, 1986; Johnstone and Storr, 1998; Higgins 1999; Johnstone and Kirkby, 1999, 2008; Groom, 2011; Johnstone *et al*. 2011; DSEWPaC, 2012a, b; c, R. Johnstone *pers. comm.*) in Bamford (2013) Wedgetail Circle, Parkerville Fauna Assessment. Prepared for Coterra Environment. Bamford Consulting Ecologists. Prepared by Jeff Turpin, Simon Cherriman and Mike Bamford. 14th August 2013.

BirdLife Australia (2017). Cocky Notes. Issue 24: Summer 2016-17. http://birdswa.com.au/Cockatoos/CockyNotes/Cocky%20Notes%2024%20-%20Jan%202017.pdf

Bureau of Meteorology (BOM) (2020) Climate Data Online. Available online at: www.bom.gov.au./climate/data/index.shtml.

Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.

Commonwealth of Australia (2017) Revised draft referral guideline for three threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black Cockatoo.

Department of Agriculture, Water and the Environment (DAWE) (2020a) *Calyptorhynchus latirostris* - Carnaby's Cockatoo, Carnaby's Black-Cockatoo, Short-billed Black-Cockatoo. Department of Agriculture, Water and the Environment, Canberra. Available from: http://www.environment.gov.au/sprat. Accessed February 2020.

Department of Biodiversity, Conservation and Attractions (DBCA) (2007-) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. URL: http://naturemap.dpaw.wa.gov.au/. Accessed February 2020.

Department of Environment and Energy (DoEE) (2019) Now the Department of Agriculture, Water and the Environment (DAWE). EPBC Approved Conservation Advice (incorporating listing advice) for the Tuart *(Eucalyptus gomphocephala)* woodlands and forests of the Swan Coastal Plain ecological community

Department of Parks and Wildlife (DPAW) (2013) Carnaby's Cockatoo *(Calyptorhynchus latirostris)* Recovery Plan. Western Australian Department of Parks and Wildlife (Now the Department of Biodiversity, Conservation and Attractions). Perth. Western Australia.

Department of Primary Industries and Regional Development (DPIRD) (2017). NRInfo Digital Mapping. Accessed at https://maps.agric.wa.gov.au/nrm-info/ Accessed September 2018. Department of Primary Industries and Regional Development. Government of Western Australia.

Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) (2012) EPBC Act referral guidelines for three threatened black cockatoo species: Carnaby's cockatoo (Endangered) *Calyptorhynchus latirostris*, Baudin's cockatoo (Vulnerable) *Calyptorhynchus baudinii*, Forest red-tailed black cockatoo (Vulnerable) *Calyptohynchus banksii naso*. Department of Sustainability, Environment, Water, Population and Communities (now the Department of Environment and Energy), Canberra.

Environmental Protection Authority (EPA) (2004). Revised Draft Environmental Protection (Swan Coastal Plain Wetlands) Policy and Regulations 2004. Environmental Protection Authority (EPA). November 2004.

Environmental Protection Authority (EPA) (2008) Environmental Guidance for Planning and Development Guidance Statement No 33. Environmental Protection Authority, Western Australia.

Environmental Protection Authority (EPA) (2019) EPA Technical Report: Carnaby's Cockatoo in Environmental Impact Assessment in the Perth and Peel Region. Advice of the Environmental Protection Authority under Section 16(j) of the Environmental Protection Act 1986. Environmental Protection Authority. Perth WA.

Gibson, N., Keighery, B., Keighery, G., Burbidge, A and Lyons, M. (1994*). A floristic survey of the Southern Swan Coastal Plain*. Unpublished report for the Australian Heritage Commission prepared by the Department of Conservation and Land Management and the Conservation Council of Western Australia (Inc.).

Government of Western Australia (2019a) 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions. https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics

Government of Western Australia (2019b) 2018 South West Vegetation Complex Statistics. Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions, Perth, https://catalogue.data.wa.gov.au/dataset/dbca

Groom (2011) Plants Used by Carnaby's Black Cockatoo. List prepared by Christine Groom. Western Australian Department of Parks and Wildlife (now the Department of Biodiversity, Conservation and Attractions). Perth. Western Australia.

Heddle, E. M., Loneragan, O. W., and Havel, J. J. (1980) Vegetation Complexes of the Darling System, Western Australia. In Department of Conservation and Environment, Atlas of Natural Resources, Darling System, Western Australia.

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Le Roux, C. (2017) Nocturnal roost tree, roost site and landscape characteristics of Carnaby's Black-Cockatoo *(Calyptorynchus latirostris)* on the Swan Coastal Plain. Thesis. Edith Cowan University. School of Science. https://ro.ecu.edu.au/theses/2017

PGV Environmental (PGV) (2019) Lot 827 Injune Way Joondalup. Flora and Vegetation Assessment. Prepared for Landcorp. 8th August 2019. Version 2. Report No 2019-455

PGV Environmental (PGV) (2020) Supporting information for clearing permit application CPS 8796/1 (DWER Ref: A1884294).

Schoknecht, N., Tille, P. and Purdie, B. (2004) Soil-landscape mapping in South-Western Australia – Overview of Methodology and outputs' Resource Management Technical Report No. 280. Department of Agriculture.

Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.

Thackway, R and Cresswell, I.D. (eds) (1995) An interim biogeographical regionalisation of Australia. Australian Nature Conservation Agency (now Department of Agriculture, Water and the Environment), Canberra.

Western Australian Herbarium (WAH) (1998-). FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions. https://florabase.dpaw.wa.gov.au/ Accessed February 2020.

5. GIS Datasets

- Aboriginal Sites of Significance
- Clearing Regulations - Environmentally Sensitive Areas
- Carnaby's cockatoo: breeding, roosting, feeding
- Department of Biodiversity Conservation and Attractions, Tenure
- Geomorphic Wetlands, Swan Coastal Plain
- Groundwater salinity, statewide
- South west forest vegetation complexes
- Hydrology, linear
- IBRA Australia
- Land for Wildlife
- PDWSA, CAWSA, RIWI Act Areas
- Remnant vegetation
- SAC Biodatasets (accessed January 2019)
- Soils, statewide
- South coast significant wetlands
- Town Planning Scheme Zones