



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: CPS 8619/1

File Number: DWERT3184

Duration of Permit: From 14 March 2020 to 14 March 2022

ADVICE NOTE

Monetary contributions to a fund maintained for the purpose of establishing or maintaining native vegetation (offset).

As part of approval 2008/4601 under the *Environment Protection and Biodiversity Conservation Act 1999* the proponent provided a total of \$614, 111 to the former Department of Environment and Conservation on 23 April 2010 for the purchase of 459 hectares of land containing Carnaby's cockatoo (*Calyptorhynchus latirostris*) foraging habitat north of Gingin and 477 hectares of Carnaby's cockatoo (*Calyptorhynchus latirostris*) foraging habitat east of Badgingarra.

PERMIT HOLDER

Northern Corridor Developments Ltd

LAND ON WHICH CLEARING IS TO BE DONE

Lot 1002 on Deposited Plan 61236, Alkimos and Jindalee

AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 23.04 hectares of native vegetation within the area cross hatched yellow on attached Plan 8619/1.

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. Direction of clearing

The Permit Holder shall conduct clearing in a slow, progressive manner from north-east to south-west to allow fauna to move into adjacent areas ahead of the clearing activity, and away from residential areas and main roads.

3. 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) shall only move soils in *dry conditions*;
- (c) ensure that no known *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- (d) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

4. Wind erosion management

The Permit Holder shall not clear native vegetation unless bulk earth works commence within two months of the clearing being undertaken.

5. Records must be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit, in relation to the clearing of native vegetation authorised under this Permit:

- (a) 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;
- (b) the date that the area was cleared;
- (c) the date that bulk earthworks commenced;
- (d) the direction of clearing;
- (e) the size of the area cleared (in hectares);
- (f) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 1 of this Permit; and
- (g) actions taken to minimise the risk of the introduction and spread of *weeds* and *dieback* in accordance with condition 3 of this Permit.

6. Reporting

The Permit Holder must provide to the *CEO* the records required under condition 5 of this Permit, when requested by the *CEO*.

Definitions

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

CEO means the Chief Executive Officer of the Department responsible for administering the *Environmental Protection Act 1986*;

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

dry conditions means when soils (not dust) do not freely adhere to rubber tyres, tracks, vehicle chassis or wheel arches;

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 Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



Mathew Gannaway
SENIOR MANAGER
NATIVE VEGETATION REGULATION

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

13 February 2020

CPS 8619/1, 13 February 2020

Plan 8619/1

115°41'6.000"E

115°41'24.000"E

31°37'30.000"S

31°37'30.000"S

31°37'48.000"S

31°37'48.000"S




115°41'6.000"E

115°41'24.000"E


Legend

CPS layers

 CPS areas approved to clear

base layers

 Road Centrelines

 Cadastre - LGATE 218



MGA 94

Geocentric Datum of Australia 1994

0 50 100 150 200 m



Mathew

Gannaway

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Officer delegated under section 20 of the Environmental Protection Act 1986



GOVERNMENT OF WESTERN AUSTRALIA



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 8619/1
Permit type: Area Permit

1.2. Applicant details

Applicant's name: Northern Corridor Developments Ltd
Application received date: 17 July 2019

1.3. Property details

Property: Lot 1002 on Deposited Plan 61236, Alkimos and Jindalee
Local Government Authority: Wanneroo, City Of
Localities: Alkimos and Jindalee

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
23.04		Mechanical Removal	Bulk earthworks prior to residential development

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 13 February 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* (EP Act). It has been concluded that the proposed clearing is at variance with Principle (b), may be at variance with Principles (a) and (g), and is not likely to be at variance with any of the remaining clearing Principles.

The assessment determined that the clearing will lead to the loss of up to 3.4 hectares of native vegetation that contains significant Carnaby's cockatoo (*Calyptorhynchus latirostris*) foraging habitat.

To offset the significant residual environmental impacts to Carnaby's cockatoo foraging habitat, and as part of approval 2008/4601 under the *Environment Protection and Biodiversity Conservation Act 1999*, the applicant provided \$614,111 to the former Department of Environment and Conservation (DEC) on 23 April 2010. These funds are for the purchase of 459 hectares of land containing Carnaby's cockatoo foraging habitat north of Gingin and 477 hectares of Carnaby's cockatoo foraging habitat east of Badgingarra. The offset was based upon the clearing of a total of 157 hectares of Carnaby's cockatoo foraging habitat for the Trinity Estate development, which includes the proposed clearing of 3.4 hectares of foraging habitat for this application. The applicant finalised the offset and the two land parcels (totalling 936 hectare remnants) were purchased by the former DEC for conservation purposes.

The assessment also identified that the clearing may result in appreciable land degradation through wind erosion. The implementation of a wind erosion management condition that require bulk earthworks to be undertaken within two months of clearing will help to mitigate the effects of wind erosion on site.

The proposed clearing may increase the risk of weeds and dieback spreading into nearby vegetated areas. A weed and dieback management condition has been placed on the permit to mitigate this impact.

The applicant has received development approval for the bulk earthworks from the City of Wanneroo, subject to conditions. This factor has been taken into consideration in the decision to grant a clearing permit.

Given the above, the Delegated Officer decided to grant a clearing permit subject to conditions.

2. Site Information

Clearing Description The application is to clear 23.04 hectares of native vegetation within Lot 1002 on Deposited Plan 61236, Alkimos and Jindalee, for the purpose of facilitating bulk earthworks prior to residential development (Figure 1).

Vegetation Description

The vegetation within the application area is mapped as:

- Cottesloe-Complex-Central and South: 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 (Hedde et al., 1980).
- Quindalup Complex: Coastal dune complex consisting mainly of two alliances - the strand and fore-dune alliance and the mobile and stable dune alliance. Local variations include the low closed forest of *Melaleuca lanceolata* (Rottnest Teatree) - *Callitris preissii* (Rottnest Island Pine), the closed scrub of *Acacia rostellifera* (Summer-scented Wattle) and the low closed *Agonis flexuosa* (Peppermint) forest of Geographe Bay (Hedde et al., 1980).

A 2004 flora and vegetation survey described the application area as comprising the following vegetation associations (ATA Environmental, 2004):

- AcMs: *Acacia cochlearis* / *Melaleuca systema* Low Shrubland;
- AsXp: *Acacia saligna* / *Xanthorrhoea pressii* Open Scrubland;
- BaCq: *Banksia attenuata* Low Open Woodland over *Calothamnus quadrifidus* Heath;
- Cq: *Calothamnus quadrifidus* mixed Heath;
- Ds: *Dryandra sessilis* (now *Banksia sessilis*; Parrot Bush) Closed Scrub; and
- MsLm: *Melaleuca systema* Low Open Shrubland over *Lomandra maritima* Herbland.

Vegetation Condition

The vegetation condition within the application area is completely degraded to excellent (Keighery, 1994) condition (ATA Environmental, 2004; Coterra, 2019a):

Vegetation condition ratings are defined as follows:

- Excellent: Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species (Keighery, 1994).
- Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).
- Good: Vegetation structure significantly altered by very obvious signs of multiple disturbance; retains basic structure or ability to regenerate (Keighery, 1994).
- Degraded: Basic vegetation structure severely impacted by disturbance; scope for regeneration but not to a state approaching Good condition without intensive management (Keighery, 1994).
- Completely Degraded: The structure of the vegetation is no longer intact and the area is completely or almost completely without native species (Keighery, 1994).

Soil Description

The application area is mapped as occurring within the following mapped soil types (Schoknecht et al., 2004):

- Quindalup South second dune Phase: The second phase. A complex pattern of dunes with moderate relief. Calcareous sands have organic staining to about 20 centimetres, passing into pale brown sand; some cementation below 1 metre;
- Quindalup South deep sand flat Phase: Undulating landscapes with deep calcareous sands overlying limestone. Soils have dark grey-brown sand to about 50 centimetres and then pale brown sand. Remnants of hummocks are often present;
- Quindalup South oldest dune Phase: The oldest phase. Dunes or remnants with low relief. Calcareous sands have organic staining to about 30 centimetres, overlying pale brown sand with definite cementation below 1 metre;
- Karrakatta Sand Yellow Phase: Low hilly to gently undulating terrain. Yellow sand over limestone at 1-2 metres. *Banksia* species woodland with scattered emergent *Eucalyptus gomphocephala* and *Eucalyptus marginata* and a dense shrub layer; and
- Karrakatta shallow soils Phase: Low hills and ridges. Bare limestone or shallow siliceous or calcareous sand over limestone. Dense low shrub dominated by *Dryandra sessilis* (now *Banksia sessilis*), *Melaleuca huegelii* and species of *Grevillea*.

Comments

The local area considered in the assessment of this application is defined as a 10 kilometre radius measured from the perimeter of the application area. According to available aerial imagery, approximately 47 per cent native vegetation cover is remaining in the local area.



Figure 1. Application area (crops-hatched blue).



Figure 2. Photographs of the application area (Coterra, 2020).

3. Minimisation and mitigation measures

The Local Structure Plan (LSP) for Lots 1001 and 1002 Marmion Avenue, Alkimos, earmarks the entire application area for residential development for the Trinity Estate.

The applicant initially proposed to clear 24.79 hectares of native vegetation within Lot 1002 on Deposited Plan 61236, Alkimos, for the purpose of facilitating bulk earthworks prior to the subdivision approval process (Northern Corridor Developments, 2019). However, the development approval (DA2019/889) issued by the City of Wanneroo outlined two areas for retention within the application area for public open spaces (POS). Given this, the application area was revised to exclude these two areas, and the amount of clearing has been minimised to 23.04 hectares of native vegetation (Figure 1; Coterra, 2019c).

4. Assessment of application against clearing principles

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

Proposed clearing may be at variance with this Principle

As described in section 2, the flora and vegetation survey identified six vegetation associations within the application area (ATA Environmental, 2004). The previous survey identified these vegetation associations to range from a completely degraded to excellent (Keighery, 1994) condition. Based on aerial imagery and photographs of the application area, it is evident that since the survey in 2004, the vegetation condition in the application area has altered. Areas previously identified as 'cleared' are showing natural regeneration, and other areas that were in good to excellent (Keighery, 1994) condition have been cleared for access tracks and geotechnical investigations (under clearing permit CPS 6356/1). Overall, the majority of the application area is currently in a completely degraded to very good (Keighery, 1994) condition with approximately 5 hectares being cleared.

According to available databases, three threatened and sixteen priority flora species have been recorded within the local area (Western Australian Herbarium, 1998-). None of these records occur within the application area. Based on the mapped soil units and vegetation associations recorded within the application area, it is possible that some areas of the application area could contain habitat for eight priority (P) flora species, including *Leucopogon maritimus* (P1), *Acacia benthamii* (P2), *Conostylis bracteata* (P3), *Conostylis pauciflora* subsp. *euryrhipis* (P4), *Conostylis pauciflora* subsp. *pauciflora* (P4), *Leucopogon* sp. Yanchep (M. Hislop 1986) (P3), *Pimelea calcicola* (P3) and *Jacksonia sericea* (P4) (Western Australian Herbarium, 1998-).

The previous survey did not record any threatened or priority flora species within the application area, however one priority 4 flora species, *Conostylis pauciflora* subsp. *euryrhipis* was recorded, as common, in an adjacent area within the Trinity Estate (ATA Environmental, 2004). Based on the current distribution and population records, it is considered that if any of the abovementioned priority flora species did occur within the application area, that they may not be significant as viable populations. Given this, the proposed clearing is not likely to impact the conservation status of these species, should any individuals occur within the application area.

According to available databases, no threatened or priority ecological communities (TEC and PEC respectively) are mapped within the application area. The closest ecological community of conservation significance is the Priority 3 "Northern Spearwood shrublands and woodlands" ecological community, located approximately 2.5 kilometres from the application area in the Neerabup National Park. Vegetation associations 'Ds' and 'Cq' were inferred as corresponding closely with floristic community (FCT) 24, which represents this PEC (ATA Environmental, 2004). Vegetation associations 'AcMs', 'AsXp' and 'MsLm' were inferred as corresponding closely with FCT 29b, which represents the 'Acacia shrublands on taller Quindalup dunes' Priority 3 PEC (ATA Environmental, 2004). The closest mapped occurrence of this PEC is approximately 7.5 kilometres from the application area. This community stretches from Seabird to south of Mandurah. Whilst there is no consistent dominant species, *Acacia rostellifera*, *Acacia lasiocarpa*, and *Melaleuca acerosa* (now *Melaleuca systema*) on the larger dunes are considered important for this PEC (DBCA, 2019). Both PECs are well represented within the local area, 'Northern Spearwood shrublands and woodlands' PEC within the Neerabup National Park, and the 'Acacia shrublands on taller Quindalup dunes' within Bush Forever site 322; therefore it is not expected that the proposed clearing will impact on the conservation status of these communities.

The previous survey did not record any vegetation associations within the application area to resemble any Commonwealth or state listed TECs (ATA Environmental, 2004). A review of currently available data did not identify any vegetation associations recorded during the previous survey to resemble any TECs.

The proposed clearing may increase the risk of weeds and dieback spreading into adjacent vegetation and POS areas. The implementation of weed and dieback management practices will help to mitigate the impact of spreading weeds and dieback.

As discussed under Principle (b), the previous fauna survey of the application area recorded Carnaby's cockatoo (*Calyptorhynchus latirostris*) and approximately 3.4 hectares of foraging habitat for this species within the application area (ATA Environmental, 2008). Given the significant impact of the clearing for the wider Trinity Estate development, the applicant referred the entire development footprint to the former Department of the Environment, Water, Heritage and the Arts (DEWHA), now the Department of the Environment and Energy (DotEE). The development of the wider estate was approved under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), subject to offset conditions.

Based on the above, the proposed clearing may be at variance with this Principle.

(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 at variance with this Principle

According to available databases, seven threatened fauna species, six priority fauna species, one specially protected fauna species, and nine fauna species protected under international agreement have been recorded within the local area (Department

of Biodiversity Conservation and Attractions, 2007-). Of these species, the Carnaby's cockatoo (*Calyptorhynchus latirostris*) was recorded during the previous fauna survey (ATA Environmental, 2008).

The Carnaby's cockatoo is listed as Endangered under the *Biodiversity Conservation Act 2016* (BC Act) and the EPBC Act. This species breeds in the hollows of live or dead trees of karri, marri, wandoo, tuart, salmon gum, jarrah, flooded gum, York gum, powder bark, bullich and blackbutt, generally within woodlands or forests, but also in isolated trees (DSEWPC, 2012). They have a preference for foraging habitat that includes jarrah and marri woodlands, and forest heathland and woodland, dominated by proteaceous plant species such as *Banksia* sp., *Hakea* sp. and *Grevillea* sp. (DSEWPC, 2012).

The previous fauna survey recorded two fauna habitat types, *Banksia sessilis* Heath, and *Banksia* sp. Woodland that provide foraging habitat for Carnaby's cockatoo within the application area (ATA Environmental, 2008). No suitable breeding habitat has been identified within the application area. The northern region of the Swan Coastal Plain, where the application area is located, is considered a particularly important area for Carnaby's cockatoo foraging (Shah, 2006). Up to 3.4 hectares of foraging habitat is proposed to be cleared with this application. In considering the cumulative impacts of the clearing for the wider Trinity Estate development, the applicant referred the entire development footprint to the former DEWHA. The development of the wider estate was approved under the EPBC Act (EPBC 2008/4601), subject to offset conditions (DEWHA, 2009).

A third fauna habitat type 'degraded fauna habitat' was also recorded, which comprised majority of the application area. At the time of the survey, this habitat type was identified as offering little to no value as a fauna habitat (ATA Environmental, 2008). This fauna habitat type remains relatively degraded, consisting of a weedy understorey and is interspersed with access tracks that were previously cleared for geotechnical investigations (granted under CPS 6356/1). However, based on recent photographs of the application area, this fauna habitat type appears to have regrown since the 2008 survey, and therefore likely to offer some opportunities for refugia for avian and small ground-dwelling fauna species. To minimise the risk of displacing fauna into surrounding residential development or onto main roads, including Marmion Avenue, the clearing permit will be conditioned so that the activity of clearing will be undertaken directionally from north-east of the application area to the south-west.

Based on the above, the proposed clearing is at variance with this Principle.

The significant residual impact to Carnaby's cockatoo has been offset as part of approval 2008/4601 under the EPBC Act. The offset was based on the clearing of up to 157 hectares of Carnaby's cockatoo habitat within 226 hectares of the Trinity Estate development; of which 142 hectares of Carnaby's cockatoo habitat has been cleared to date. The proposed clearing of 3.4 hectares of foraging habitat for the clearing permit application is included in the 157 hectares. The offset required that the applicant provide a total of \$614,111 to the former Department of Environment and Conservation on 23 April 2010 for the purchase of 459 hectares of land containing Carnaby's cockatoo (*Calyptorhynchus latirostris*) foraging habitat north of Gingin and 477 hectares of Carnaby's cockatoo (*Calyptorhynchus latirostris*) foraging habitat east of Badgingarra. The offset also requires that 5.52 hectares of Carnaby's cockatoo foraging habitat be retained in the wider Trinity Estate development area. This area for retention is located outside of the application area.

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

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

According to available databases, three threatened flora species have been recorded within the local area including *Eucalyptus argutifolia*, *Marianthus paralius* and *Melaleuca* sp. Wanneroo (G.J. Keighery 16705) (Western Australian Herbarium, 1998-).

Eucalyptus argutifolia is found between Wanneroo and Guilderton in the Perth area, and at Lake Clifton near Mandurah. This species grows on slopes or gullies close to the summits of limestone ridges, where soils are shallow, well drained and grey, with outcrops of limestone (DEWHA, 2008). Species in association includes heath of *Banksia sessilis* and *Melaleuca huegelii*.

Marianthus paralius is known from two locations north of Perth, one near Iluka and the other near Seabird. The species grows amongst coastal heath in areas of white sand and brown loam, on coastal limestone cliffs (DEC, 2009). This species co-occurs within the "Coastal shrublands on shallow sands, southern Swan Coastal Plain (community type 29a)" PEC, which is described as mostly heaths on shallow sands over limestone close to the coast. No single dominant but important species include *Spyridium globulosum*, *Rhagodia baccata* and *Olearia axillaris* (DEC, 2009). The survey did not record any vegetation associations within the application area to be representative of this PEC (ATA Environmental, 2004).

Melaleuca sp. Wanneroo (G.J. Keighery 16705) (DotEE, 2019) is currently known from two locations within the locality of Nowergup. Critical habitat for this species include limestone ridges and upper slopes, and/or a high level of limestone outcropping (DotEE, 2019). It is often associated with *Melaleuca systema*.

The previous flora and vegetation survey did not record any threatened flora species within the application area or the wider Trinity Estate development area (ATA Environmental 2004). Given the age of the survey, a recent likelihood of occurrence assessment was undertaken, which took into consideration the current on-ground conditions. This assessment determined that the application area is not likely to be necessary for the continued existence of any threatened flora species.

The survey recorded species that are associated with the above listed threatened flora species, however all the abovementioned threatened flora species occur in areas of limestone ridges or cliffs, or in areas with limestone outcrops. Only one vegetation association, Cq, recorded within the application area was identified as occurring on very shallow sand in areas of limestone outcropping (ATA Environmental, 2004). Approximately 0.045 hectares of this vegetation association is mapped within the application area, of which half of this mapped area has been cleared for an access track. The remainder of the application area ranges from deep to shallow sand over limestone of the Spearwood Dune system, and includes a portion of a parabolic dune of the Quindalup Dune system. Given the minor extent within the application area where limestone outcropping occurs, and that it

occurs in a disturbed state, the application area is not likely to provide critical habitat for the abovementioned threatened flora species.

Based on the above, the proposed clearing is not likely to be at variance with this Principle.

(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 likely to be at variance with this Principle

According to available databases, the application area is not located within the boundary or buffer of any state listed TECs. The nearest state listed TEC is the “*Melaleuca huegelii* - *Melaleuca acerosa* (currently *Melaleuca systema*) shrublands on limestone ridges (Gibson et al., 1994 type 26a)” ecological community, located over 2 kilometres from the application area. The flora and vegetation survey did not record any vegetation associations to be representative of any state listed TECs.

Based on the above, the proposed clearing is not likely to be at variance with this Principle.

(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 likely to be 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-1750 (i.e. pre-European settlement). Below this extent, species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). In the Perth Metropolitan and Bunbury regions, the Environmental Protection Authority (EPA) has a modified objective to retain at least 10 per cent of the pre-clearing extent of vegetation complexes for defined constrained areas (i.e. areas of urban development in cities and major towns) (EPA, 2008; EPA, 2015; Government of Western Australia, 2000).

The application area is located within the Swan Coastal Plain Interim Biogeographic Regionalisation of Australia (IBRA) bioregion, which retains approximately 38 per cent of its pre-European vegetation extent (Government of Western Australia, 2019). The mapped Swan Coastal Plain ‘Cottesloe Complex-Central and South’ and ‘Quindalup’ vegetation complexes retains approximately 32 per cent and 60 per cent of its pre-European vegetation extent within the bioregion, respectively (Government of Western Australia, 2019).

The local area retains approximately 47 per cent native vegetation cover. Noting that the application area is located within a constrained area, and that all the abovementioned remnant vegetation extents are above the 30 per cent threshold, the proposed clearing is not likely to be significant as a remnant of native vegetation in an area that has been extensively cleared.

Based on the above, the proposed clearing is not likely to be at variance with this Principle.

Table 1. Vegetation statistics

	Pre-European extent (ha)	Current extent (ha)	% remaining	Current extent in all DBCA managed land (ha)	% Current Extent in all DBCA managed land (proportion of Pre-European extent)
IBRA bioregion:					
Swan Coastal Plain	1,501,221.93	579,813.47	38.62	222,916.97	14.85
Vegetation complex:					
Quindalup Complex	54,573.87	33,011.64	60.49	5,994.64	10.98
Cottesloe Complex-Central and South	45,299.61	14,567.87	32.16	6,606.12	14.58

(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 likely to be at variance with this Principle

No watercourses or wetlands are mapped within the application area. The nearest waterbody is the Carabooda Lake, which is located approximately 2.7 kilometres east of the application area.

The flora and vegetation survey conducted over the application area did not record any vegetation associations as growing in association with a watercourse or wetland (ATA Environmental, 2004).

Based on the above, the proposed clearing is not likely to be at variance with this Principle.

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

Proposed clearing may be at variance with this Principle

As described in section 2, the application area is within the mapped Quindalup South second dune Phase, Quindalup South oldest dune Phase, Quindalup South deep sand flat Phase, Karrakatta Sand Yellow Phase, and Karrakatta shallow soils Phase (Schoknecht et al., 2004).

These soil types are comprised of shallow siliceous or calcareous sand over limestone. Sandy soils are highly susceptible to wind erosion and if left exposed for any length of time post-clearing, wind erosion has the potential to result in appreciable land degradation.

Based on the above, the proposed clearing may be at variance with this Principle. Soil erosion management practices, such as staged clearing to limit the amount of time that bare soil is present on site, will mitigate this risk.

(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 within a conservation area. The nearest conservation area is a Bush Forever site (397) located approximately 1.2 kilometres from the application area. However, this area is separated from the application area by residential development. Given this separation, the proposed clearing is not likely to impact on the environmental values of any conservation areas.

Based on the above, the proposed clearing is not likely to be at variance with this Principle.

(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

As discussed under Principle (f), there are no wetlands or watercourses mapped within the application area. As the application area is located in an area surrounded by residential development, the proposed clearing is not likely to cause deterioration in the quality of surface water or groundwater.

Based on the above, the proposed clearing is not likely to be at variance with this Principle.

(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 likely to be at variance with this Principle

The mapped soil units within the application has a relatively low risk to flooding, waterlogging, and is generally not susceptible to water erosion (van Gool et al., 2005).

Based on the above, the proposed clearing is not likely to be at variance with this Principle.

Planning instruments and other relevant matters.

In November 2008, the LSP for the former Lot 3 Romeo Road, Alkimos (which includes the area under application) was referred to the former DEWHA, due to Carnaby's cockatoo being recorded on site during a fauna survey. DEWHA assessed the impact of the proposed development on this species and granted approval (EPBC 2008/4601) with conditions on 11 September 2009, with a subsequent correction notice made on 9 November 2009, and a variation to condition on 29 September 2011 (DEWHA, 2009). The applicant was approved for the clearing of 157 hectares of significant habitat for Carnaby's cockatoo within the Trinity Estate urban development proposal (total footprint of 226 hectares) and required that an offset be provided. This offset requirement included:

- Providing funds to acquire 459 hectares of Carnaby's cockatoo foraging habitat north of Gingin;
- Providing funds to acquire 477 hectares of Carnaby's cockatoo foraging habitat east of Badgingarra; and
- Retaining as part of reserves, 5.52 hectares of Carnaby's cockatoo foraging habitat within public open spaces.

The applicant has provided the offset funds to the now Department of Biodiversity, Conservation and Attractions for the purchase of the abovementioned land parcels for conservation.

The applicant was granted a clearing permit in April 2015 (CPS 6356/1) to clear 1.82 hectares of native vegetation within Lot 1002 on Deposited Plan 61236 for the purpose of geotechnical investigations. This permit expires in April 2020.

The clearing permit application was advertised on the DWER website on 26 August 2019 with a 21 day submission period. No public submissions have been received in relation to this application.

The applicant has advised that the proposed clearing is "*required in advance of subdivision as excess fill and topsoil generated from development areas to the east of Marmion Avenue has been allocated to the landholdings to the west of Marmion Avenue so that issues associated with importing fill into this area (including environmental issues such as sustainability sourcing fill, transport emissions, etc.) can be avoided. Clearing of the vegetation is therefore required to accommodate this material*" (Coterra, 2019c).

The applicant has received a development approval (DA2019/889) for the proposed bulk earthworks from the City of Wanneroo, subject to conditions (Coterra, 2019b). The clearing permit application area was revised during the assessment of the proposed clearing to align with the development approval (DA2019/889) footprint.

The application area is located within the Priority 3 Perth Coastal and Gwelup Underground Water Pollution Control, Public Drinking Water Source Area (PWDSA). Priority 3 areas occur within PDWSAs where the land is zoned for urban and commercial or light industrial uses (DoW, 2016). The purpose of the proposed clearing is acceptable within Priority 3 PDWSAs.

No Aboriginal sites of significance have been mapped within the application area.

The EPA's modified objective to retain at least 10 per cent of the pre-clearing extent of vegetation complexes for defined constrained areas within the Perth Metropolitan and Bunbury regions was considered in assessing Principle (e) (EPA, 2008; EPA, 2015; Government of Western Australia, 2000).

5. References

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GIS Databases:

- Aboriginal Sites of Significance
- Department of Biodiversity, Conservation and Attractions, Managed Tenure
- Geomorphic Wetlands Management Category
- Hydrography Linear – Linear
- Hydrography WA 250K – Surface Water Lines
- IBRA Australia
- Land Degradation Hazards
- SAC bio datasets
- Swan Coastal Plain – Vegetation Complex Mapping
- Threatened and Priority Fauna Data October 2019
- TPFL Data October 2019
- WA Herb Data October 2019
- WA TECPEC Boundaries