



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 8284/1
Permit Holder:	Public Transport Authority of Western Australia
Duration of Permit:	9 July 2019 – 9 July 2024

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

PART I – CLEARING AUTHORISED

1. Purpose for which clearing may be done

Clearing for the purpose of creating a temporary access track.

2. Land on which clearing is to be done

Lot 501 on Deposited Plan 52412, Thornlie;
Lot 89 on Plan 10284, Thornlie; and
Lot 90 on Plan 10284, Thornlie.

3. Area of Clearing

The Permit Holder must not clear more than 0.208 hectares of native vegetation within the area hatched yellow on attached Plan 8284/1.

4. Application

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

PART II – MANAGEMENT CONDITIONS

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

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

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

6. 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*:

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

PART III - RECORD KEEPING AND REPORTING

7. Records to 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 size of the area cleared (in hectares);
- (d) actions taken to avoid, minimise and reduce the impacts and the extent of clearing in accordance with condition 5 of this Permit; and
- (e) actions taken to minimise the introduction and spread of *weeds* and *dieback* in accordance with condition 6 of this Permit.

8. Reporting

The Permit Holder must provide to the *CEO* the records required under Condition 7 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 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*

9 June 2019

Plan 8284/1

32.054479°S

32.054479°S

115.936653°E

115.941589°E







115.936653°E

115.941589°E

32.056562°S

32.056562°S

Legend

-  Imagery
-  Bridges / Tunnels (Line)
-  Cadastre
-  Clearing Instruments Activities



0 100m

1:2,469

(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

MF-6

Date 9 June 2019

Mathew Gannaway

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986



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1. Application details

1.1. Permit application details

Permit application No.: 8284/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Public Transport Authority of Western Australia
Application received date: 4 December 2018

1.3. Property details

Property: Lot 501 on Deposited Plan 52412
Lot 89 on Plan 10284
Lot 90 on Plan 10284
Local Government Authority: City of Gosnells
Localities: Thornlie

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
0.208		Mechanical Removal	Road Construction

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 9 June 2019

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 not likely to be at variance to any of the clearing principles.

In determining to grant a clearing permit subject to conditions, the Delegated Officer found that the proposed clearing is unlikely to lead to an unacceptable risk to the environment.

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.

2. Site Information

Clearing Description This application is for the proposed clearing of up to 0.208 hectares of native vegetation within Lot 501 on Deposited Plan 52412, Lot 89 on Plan 10284 and Lot 90 on Plan 10284, Thornlie, to facilitate the construction of a temporary emergency access track through the Tom Bateman Reserve. The proposed clearing area follows the alignment of an existing track which will be modified to be made more durable to allow heavy duty vehicles to utilise this track in an emergency. The Tom Bateman Reserve has undergone extensive historical clearing activities to facilitate the construction of the existing access track and to support urban and recreational developments.

Vegetation Description The application area is situated within mapped vegetation complex 42; Southern River Complex (Hedde et al. 1980). This vegetation complex is defined as open woodland of Marri (*Corymbia calophylla*) - Jarrah (*Eucalyptus marginata*) - *Banksia* species with fringing woodland of Flooded Gum (*Eucalyptus rudis*) - Swamp Paperbark (*Melaleuca rhapsiophylla*) along creek beds.

The applicant commissioned GHD to undertake a flora and vegetation assessment of the Thornlie to Cockburn Link Project (GHD 2018a). The components of the flora and vegetation assessment were undertaken between 6 - 8 September 2017 and 11 October 2018 (GHD 2018a). Field survey methods involved a combination of sampling quadrats and relevé located in identified vegetation units and traversing the survey area on foot (GHD 2018a). Twelve non-permanent quadrats ten metres in length and width and nine relevé were described throughout the survey area (GHD 2018a). Quadrats were located within each identified vegetation unit, with a minimum of two quadrats located within each identified vegetation unit where possible (GHD 2018a).

The field survey was undertaken to verify the results of desktop assessments, identify and describe the dominant vegetation units found in the survey area, assess vegetation condition and identify and record the vascular flora taxa present at the time of the survey (GHD 2018a). The survey methodology referenced the *Technical Guidance – Flora and Vegetation Surveys for*

Environmental Impact Assessment (Environmental Protection Authority of Western Australia (EPA) 2016a). The application area comprises a component of the area surveyed within the Tom Bateman Reserve as part of the broader flora and vegetation survey.

Additional targeted searches for conservation significant flora species were undertaken within a survey area encompassing the original Thornlie to Cockburn Link Project survey area, as well as adjacent areas of native vegetation generally 20 metres beyond the survey area boundary (GHD 2018b). Additional areas included in the targeted flora survey were the Tom Bateman Reserve (the entirety of the reserve up to the Roe Highway), the Ken Hurst Park / Jandakot Airport Bush Forever Site (expanded out to a 50 metre buffer both north and south of the survey area), Ranford Road Station (incorporating a larger area to the south-west) and north and south of the Karel Avenue intersection (GHD 2018b). The targeted flora survey area covered 174.29 hectares, with the larger survey area utilised to inform an assessment of both potential direct and indirect offsite impacts to conservation significant flora species as a result of the Thornlie to Cockburn Link Project. GHD (2018b) undertook a 14.5 person day targeted conservation significant flora survey between 19 September and 11 October 2018. The sampling method employed during this survey comprised of walking traverses spaced approximately 5 metres apart in areas of native vegetation, equating to a 2.5 metre search either side of the traverse (GHD 2018b).

The flora and vegetation survey identified the following vegetation communities within the application area (GHD 2018a):

- VT03: Moonah (*Melaleuca preissiana*), Swamp Paperbark (*Melaleuca raphiophylla*) open woodland over Pale Rush (*Juncus pallidus*) isolated clumps of sedges over Couch (**Cynodon dactylon*), Kikuyu Grass (**Cenchrus clandestinus*) closed grassland;
- VT06: Marri (*Corymbia calophylla*) / Flooded Gum (*Eucalyptus rudis*) / Coastal Blackbutt (*Eucalyptus todtiana*) / Tuart (*Eucalyptus gomphocephala*) / *Eucalyptus* spp. isolated trees over introduced hermland / grassland;
- VT08: Marri (*Corymbia calophylla*) open woodland over Grey Stinkwood (*Jacksonia furcellata*), Prickly Moses (*Acacia pulchella*) sparse mid shrubland over *Phlebocarya ciliata* and Pineapple Bush (*Dasyogon bromeliifolius*) hermland; and
- Areas cleared of vegetation.

An inspection of the application area undertaken by Officers from the Department of Water and Environmental Regulation (DWER) on 9 April 2019 determined the application area and its immediate surrounds contains the following vegetation communities (DWER 2019):

- Open woodland of *Eucalyptus* sp., including Marri (*Corymbia calophylla*), over variable understorey;
- Isolated small occurrences of wetland grasses;
- Parkland cleared plain environment containing occasional occurrences of *Melaleuca* sp.; and
- Cleared areas devoid of vegetation.

Vegetation Condition

The flora and vegetation survey undertaken by GHD (2018a) determined that the vegetation communities found in the application area meet the following condition rankings:

- Good (Keighery 1994): Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it (Keighery 1994); to
- Completely Degraded (Keighery 1994): The structure of the vegetation is no longer intact and the area is completely or almost completely without native species.

The inspection undertaken by Officers from DWER (2019) determined the vegetation found in the application area meets the following condition rankings:

- Degraded (Keighery 1994): Basic vegetation structure severely impacted by disturbance. Scope for regeneration, but not to a state approaching good condition without intensive management (Keighery 1994); to
- Completely Degraded (Keighery 1994): The structure of the vegetation is no longer intact and the area is completely or almost completely without native species.

Soil type

The application area is mapped as occurring within the following land systems (Department of Primary Industries and Regional Development 2017).

- EnvGeol S8 Phase: Sand - very light grey at surface, yellow at depth, fine to medium-grained, sub-rounded quartz, moderately well sorted of eolian origin; and
- EnvGeol S10 Phase: Similar in composition to the EnvGeol S8 Phase, with a relatively thin veneer over sandy clay to clayey sand of eolian origin.

Comments

The local area referred to in the below assessment is defined as the area within a 10 kilometre radius of the application area.



Figure 1: The application area (shown in blue) depicted in comparison to the local lot boundaries (shown in yellow).



Figure 2



Figure 3



Figure 4

CPS 8284/1



Figure 5



Figure 6



Figure 7



Figure 8



Figure 9



Figure 10



Figure 11

Figures 2 – 11: The vegetation found in the application area and its immediate surrounds. The existing access track is shown in these photographs as the area of bare white sand.

3. Minimisation and mitigation measures

The inspection of the application area undertaken by DWER Officers determined the application area follows the alignment of an existing access track (DWER 2019). As discussed in Section 2 of this report, the vegetation in the application area is Degraded to Completely Degraded in condition. Positioning the application area within the confines of the existing access track will prevent the establishment of the upgraded access track and its associated clearing from impacting on the nearby *Eucalyptus* sp. open woodland vegetation community, which has value as foraging habitat for Black Cockatoo (*Calyptorhynchus* sp.) species as identified during the fauna survey undertaken by GHD (2018a). The application area has also been situated to avoid recorded occurrences of the Priority 3 flora species *Jacksonia gracillima*.

4. 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 to this Principle

A review of available databases determined that 97 flora species of conservation significance have been recorded in the local

area, comprising nine Priority 1 flora species, nine priority 2 flora species, 38 Priority 3 flora species, 18 Priority 4 Flora species and 23 threatened flora species. The flora and vegetation survey undertaken by GHD (2018a) recorded 187 flora taxa representing 52 families and 140 genera within the survey area. This total comprised 119 native taxa and 68 introduced flora taxa (GHD 2018a). The dominant families recorded within the survey area included Myrtaceae (28 taxa), Fabaceae (25 taxa) and Poaceae (16 taxa) (GHD 2018a). Of the introduced taxa identified during the flora and vegetation survey, six are listed as Declared Pests under the *Biosecurity and Agriculture Management Act 2007* (GHD 2018a). The surveyed portion of the Tom Bateman Reserve was found to contain several recorded occurrences of weed species ranked as Declared Pests and Weeds of National Significance (GHD 2018a). The proposed clearing has the potential to introduce weed species and dieback into the surrounding vegetation, potentially degrading the condition of this vegetation further. Weed and dieback management measures should mitigate this potential impact.

The Priority 4 flora species *Dodonaea hackettiana* has been previously recorded within the survey area, near the Waste Transfer station on Ranford Road (GHD 2018a). Hence this species is deemed as 'known to occur in the survey area', however no individuals of this species were identified during the current flora and vegetation survey when this location was revisited (GHD 2018a). The known records of *Dodonaea hackettiana* are situated 5 kilometres west south-west of the application area and will not be impacted by the proposed clearing. The targeted survey for flora species of conservation significance identified 185 individuals of the Priority 3 flora species *Jacksonia gracillima* in open shrub land areas and in Marri woodland in Good and Good to Degraded condition in the Tom Bateman Reserve (GHD 2018b). The closest recorded occurrence of this species is situated approximately 9.5 metres to the east of the application area (GHD 2018b, Public Transport Authority of Western Australia 2019). Given the linear nature of the proposed clearing, no individuals of this species are expected to be adversely impacted by the proposed clearing activities.

The remaining conservation significant flora taxa identified by GHD (2018a) during the desktop assessments undertaken to inform the flora and vegetation survey are considered unlikely to occur within the survey area, due to the association of most of these species with the Brixton Street Wetlands which is situated within 1 kilometre of the survey area (GHD 2018a). This wetland system is the most floristically diverse Bush Forever Site on the Swan Coastal Plain, featuring a number of conservation significant flora species (GHD 2018a). GHD (2018a) consider a large proportion of the conservation significant flora found in this Bush Forever Site are unlikely to be present in the survey area due to degraded condition of vegetation within the survey area and the lack of suitable habitat for these species.

As discussed within Section 2 of this report, the inspection of the application area undertaken by Officers from DWER (2019) determined this area contains vegetation communities within a Degraded to Completely Degraded condition and follows the alignment of an existing access track. Given the above, the application area is unlikely to comprise suitable habitat for any flora species of conservation significance.

A review of available databases determined the application area is situated within a recorded occurrence of the Priority 3 'Banksia Dominated Woodlands of the Swan Coastal Plain Interim Biogeographic Regionalisation of Australia (IBRA) Region' priority ecological community (PEC). This ecological community is also listed as an 'Endangered' threatened ecological community (TEC) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This community is discussed further under principle (d). Another PEC, the Priority 4 'Central Northern Darling Scarp Granite Shrub Land Community' PEC occurs within the local area, the nearest of which is situated approximately 8 kilometres east of the application area. Given the separation distance between the application area and known occurrences of the above PEC, no impacts to this PEC are anticipated to result from the proposed clearing activities. A review of aerial photography of the local area determined the application area does not comprise part of an ecological linkage linking occurrences of PEC's to each other or other strands of remnant vegetation. Therefore, the proposed clearing will not likely impact on the biodiversity or species recruitment within any PEC's.

As discussed under principle (b), a review of available databases found that 37 fauna species of conservation significance have been recorded in the local area. As discussed under principle (b), the proposed clearing is not likely to result in the loss of suitable habitat for any fauna species of conservation significance.

Given the above, the application area is not likely to represent an area comprising a high level of biodiversity. The proposed clearing is not likely to be at variance to 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 not likely to be at variance to this Principle

A review of available databases determined that 37 fauna species of conservation significance have been recorded within the local area (DBCA 2007-). GHD (2018a) undertook a Level 1 fauna survey (reconnaissance survey) and a Black Cockatoo habitat assessment of the survey area between 6 – 8 September 2017 and 14 February 2018. The majority of the survey area was traversed on foot or via vehicle to identify and describe the dominant fauna habitat types present and their condition, assess habitat connectivity and identify and record fauna species within the survey area (GHD 2018a). The fauna survey methodology employed referenced the *Technical Guidance – Terrestrial Fauna Surveys* (EPA 2016b) (GHD 2018a). Opportunistic fauna searches were also conducted across the survey area (GHD 2018a). A targeted survey for habitat utilised by Black Cockatoo (*Calyptorhynchus* sp.) species was undertaken in accordance with the EPBC Act referral guidelines for these species (Department of Sustainability, Environment, Water, Populations and Communities 2012) (GHD 2018a). The fauna survey identified 66 fauna species within the survey area, comprising 45 bird species, 11 reptile species, seven mammal species and three frog species (GHD 2018a).

Three fauna species of conservation significance were either recorded, or evidence of their occurrence was identified, during

the fauna survey, namely (GHD 2018a):

- Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii* subsp. *naso*) (listed as 'Vulnerable' under both the *Biodiversity Conservation Act 2016* (BC Act) and the EPBC Act);
- Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) (listed as 'Endangered' under both the BC Act and the EPBC Act); and
- Southern Brown Bandicoot (*Isodon obesulus* subsp. *fusciventer*) (Priority 4).

During the fauna survey undertaken by GHD (2018a), occurrences of the Forest Red-tailed Black Cockatoo were observed within the surveyed portion of Tom Bateman Reserve, along with diggings belonging to the Southern Brown Bandicoot. This survey also identified that several Marri, Flooded Gum and Tuart trees in the application areas surrounds had the potential to be utilised by Black Cockatoo species and determined that Marri trees in the application areas surrounds had been utilised by Black Cockatoo species for foraging (GHD 2018a). The fauna survey undertaken by GHD (2018a) determined that there was no evidence of breeding by Black Cockatoo species within the survey area during the 2017 and 2018 field survey campaigns. The fauna survey identified 176 trees with a suitable diameter at breast height to support Black Cockatoo nesting now, or to develop hollows within the next 100 years, within the survey area (GHD 2018a). Of these 176 trees, two had hollows suitable for Black Cockatoo breeding, however one is currently occupied by a bee hive (GHD 2018a).

As discussed earlier in this report, the application area follows the alignment of an existing access track. When this is considered alongside the Degraded to Completely Degraded condition of the vegetation in the application area, as identified during the inspection of this area undertaken by Officers from DWER (2019), the proposed clearing is not likely to result in the loss of feeding, breeding or roosting habitat utilised by Black Cockatoo species. The proposed clearing is also not likely to result in the loss of suitable habitat for any other fauna species of conservation significance.

Given the above, the proposed clearing is not likely to be at variance to this principle.

(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 to this Principle

As discussed under principle (a), a review of available databases determined 23 threatened flora species have been recorded within the local area, of which 21 have been listed under the EPBC Act. GHD (2018a) note that the threatened flora species *Caladenia huegelii* has been previously recorded within the survey area within the Caladenia Grove Wetland Reserve. GHD (2018a) staff were provided access to this fenced reserve to inform the targeted flora survey's completed during September and October 2018, with 15 individuals of *Caladenia huegelii* recorded in this location (GHD 2018a and 2018b). Thirteen individuals of this species were also recorded within the northern section of Ken Hurst Park (GHD 2018b). All except two of the recorded individuals of this species were in areas where *Caladenia huegelii* had previously been recorded and physically marked with aluminium pegs or protective wire (GHD 2018b). Within the survey area, the identified vegetation communities Firewood Banksia (*Banksia menziesii*) and Slender Banksia (*Banksia attenuata*) woodland (VT01) and *Banksia* sp. isolated trees over *Regelia inops* and White Myrtle (*Hypocalymma angustifolium*) shrub land (VT02a) meet the habitat requirements of *Caladenia huegelii* (GHD 2018a and GHD 2018b). Neither of these vegetation communities were identified within the application area, or its immediate surrounds, during the flora and vegetation survey (GHD 2018a).

GHD (2018a and 2018b) also noted that the threatened flora species *Tetraria australiensis* could occur within a patch of open Marri woodland habitat present in the Tom Bateman reserve. While very limited suitable habitat is present within the survey area for this species, this species has a cryptic nature and flowers outside of the timeframe of the targeted surveys for conservation significant flora species (GHD 2018b). As discussed under principle (a), GHD (2018a) determined the other conservation significant flora species identified during the desktop reviews are unlikely to occur within the survey area due to the degraded condition of the vegetation within the survey area and the lack of suitable habitat for these species.

Given the Degraded to Completely Degraded condition of the vegetation found in the application area, as identified during the inspection of the application area undertaken by Officers from DWER (2019), and the knowledge that the application area follows the alignment of an existing access track, the application area is unlikely to comprise suitable habitat for any threatened flora species.

Given the above, the proposed clearing is not at variance to 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 to this Principle

As discussed under principle (a), a review of available databases determined that several ecological communities of conservation significance occur within the local area, with the application area intercepting a recorded occurrence of the Priority 3 'Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region' priority ecological community (PEC). This PEC is also listed as an 'Endangered' TEC under the EPBC Act. This ecological community mainly occurs on the Bassendean and Spearwood coastal sand dune systems, with occurrences of this ecological community on the Quindalup dune system less common (Threatened Species Scientific Committee 2016). This ecological community features a low woodland to forest structure with a distinctive upper sclerophyllus layer of low trees, typically dominated or co-dominated by one or more *Banksia* sp. (Threatened Species Scientific Committee 2016). The canopy of this community is most commonly dominated by Slender Banksia (*Banksia attenuata*) and Firewood Banksia (*Banksia menziesii*), with other *Banksia* species potentially occurring in this

community including Acorn Banksia (*Banksia prionotes*) and Holly-Leaved Banksia (*Banksia ilicifolia*) (Threatened Species Scientific Committee 2016). This ecological community may feature an emergent tree layer of medium or tall (over 10 metres in height) *Eucalyptus* sp. or *Allocasuarina* sp. above the canopy formed by the *Banksia* sp. (Threatened Species Scientific Committee 2016). The Threatened Species Scientific Committee (2016) advises that this ecological community contains an understory that is often highly species rich and comprises a layer of sclerophyllous shrubs of various heights and an herbaceous ground layer of cord rushes, sedges and perennial and ephemeral forbs, which may include grasses (Threatened Species Scientific Committee 2016).

The survey undertaken by GHD (2018a) and the inspection undertaken by Officers from DWER (2019) did not identify vegetation communities consistent with this TEC within the application area or its immediate surrounds. The proposed clearing will not result in adverse impacts to this TEC, or to vegetation necessary for the maintenance of this TEC.

Due to the separation distances between the application area and recorded TEC occurrences within the local area, no impacts to any TEC's are expected to result from the proposed clearing activities. A review of aerial photography of the local area determined the application area does not comprise an ecological linkage linking TEC's to each other or other strands of remnant vegetation. Therefore, the proposed clearing is not likely to adversely impact biological diversity or species recruitment within any TEC's.

Given the above, the application area neither comprises part of a TEC nor is necessary for the maintenance of a TEC. The proposed clearing is not likely to be at variance to 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 at variance to 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) (Commonwealth of Australia 2001). This is the threshold level below which species loss appears to accelerate exponentially at an ecosystem level.

The EPA recognises the Perth Metropolitan Region to be a constrained area, within which a minimum 10 per cent representation threshold for ecological communities is recommended (EPA, 2008). The application area is located within the mapped extent of the Perth Metropolitan Region Scheme. Noting that the EPA considers a constrained area to be an area where there is an expectation that development will proceed, and that the cleared area is zoned 'Urban' in the Perth Metropolitan Region Scheme, the 10 per cent threshold applies in this instance.

As indicated in Table 1, the Swan Coastal Plain IBRA region retains approximately 38.6 per cent of its pre-European native vegetation extent (Government of Western Australia 2019a). The Southern River Complex currently retains approximately 18.4 per cent of its pre-European native vegetation extent (Government of Western Australia 2019b). A review of available databases determined the local area retains approximately 14.9 per cent of its pre-European native vegetation extent. The remaining extents of native vegetation within the bioregion and mapped vegetation complexes are above the minimum 10 per cent representation threshold for a constrained area.

Noting the application area does not comprise of a high biodiversity and is not likely to contain conservation significant flora, fauna or vegetation communities, the proposed clearing is not considered to be a significant remnant. The proposed clearing is not at variance to this principle.

Table 1: Vegetation extents

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Current Extent in DBCA Managed Lands	
				(ha)	(%)
IBRA Bioregion*					
Swan Coastal Plain	1,501,221.93	579,813.47	38.62	222,916.97	38.45
Vegetation Complex					
42: Southern River Complex	58,781.48	10,832.18	18.43	940.36	1.60

(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 to this Principle

A review of aerial photography of the application area, available databases and the site inspection undertaken by Officers from DWER (2019) determined no watercourses exist within the application area. Therefore, no vegetation associated with a watercourse will be impacted by the proposed clearing activities.

A review of available databases determined the application area is situated within Wetlands UFI 7446 and UFI 13621. These wetlands correspond with Object ID 6530, a Swan Coastal Plain Dampland determined to be of high value for conservation and multiple use purposes and Object ID 6529, a Swan Coastal Plain Dampland determined to be of lower value for conservation and multiple use purposes. PGV Environmental were commissioned by the applicant to undertake a wetland assessment for the Thornlie to Cockburn Link Project in 2018, which includes the application area. PGV Environmental staff

undertook a field assessment of the wetlands intercepted by the Thornlie to Cockburn Link Project on 2 and 3 October 2018 (PGV Environmental 2018). This field assessment was undertaken in accordance with *A methodology for the evaluation of specific wetland types on the Swan Coastal Plain, Western Australia* (Department of Parks and Wildlife 2013), *EPA Position Statement No. 4 Environmental Protection of Wetlands* (EPA 2004) and the *Protocol for proposing modifications to the Geomorphic Wetlands Swan Coastal Plain Dataset for wetland boundaries* (Department of Environment and Conservation 2007) (PGV Environmental 2018). The site survey included walking the areas mapped as a wetland and surveying these locations with on-ground photographs from all directions including the wetland core, across the wetland boundary and across lot boundaries to depict the vegetation types found in the wetland and the condition of the wetland (PGV Environmental 2018). Areas that contained native vegetation also had the soil profile examined in the wetland, transitional zone and dryland areas where possible (PGV Environmental 2018). The soil profile was described by digging a pit to approximately 30 centimetres in depth and describing each of the soil horizons (PGV Environmental 2018).

A review of aerial photography undertaken by PGV Environmental (2018) determined wetland UFI 13621 was largely uncleared in 1953 within the extent of the Tom Bateman Reserve, with some parts of the Tom Bateman Reserve playing fields situated within this wetland constructed between 1995 and 2000. Drainage lakes were constructed in the eastern extent of this wetland in 2003 (PGV Environmental 2018). PGV Environmental (2018) proposed changes to the wetland boundary to exclude residential development, the existing rail line and the playing fields, with the area to the north that is dug out and contains water proposed to remain mapped as a wetland. PGV Environmental (2018) recommended the areas which are consistent with a wetland environment retain their 'multiple use' conservation ranking. The review of UFI 7445 undertaken by PGV Environmental (2018) recommended some changes to the boundary of this wetland, but advised this wetland maintain its ranking as a conservation category wetland (PGV Environmental 2018).

The inspection of the application area undertaken by Officers from DWER (2019) determined the application area was not representative of a wetland environment in terms of its soil structure and the structure of its vegetation communities. In addition, the vegetation communities found in the application area were in Degraded to Completely Degraded condition and the application area followed the path of an existing access track. When the above is considered alongside the small size of the application area, the proposed clearing is not likely to adversely impact vegetation growing in association with a wetland environment.

Given the above, the proposed clearing is not likely to be at variance to this principle.

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

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

A review of available databases determined the application area is situated within the EnvGeol S8 Phase and EnvGeol S10 Phase land systems (Department of Primary Industries and Regional Development 2017). These land systems have a moderate to high risk of wind erosion, a low to moderate risk of water erosion and salinity and a low risk of subsurface acidification (Department of Primary Industries and Regional Development 2017). The EnvGeol S8 Phase land system also has a low risk of subsurface compaction, flooding and water logging and a moderate to high risk of phosphorous export (Department of Primary Industries and Regional Development 2017). The EnvGeol S10 Phase land system has a moderate risk of subsurface compaction, flooding and phosphorous export and a moderate to high risk of waterlogging (Department of Primary Industries and Regional Development 2017).

The inspection of the application area undertaken by Officers from DWER (2019) did not identify any land degradation impacts within the application area or its surrounds, despite the extensively cleared nature of the Lots the proposed clearing will be undertaken within. The final land use will be a more durable access track which will facilitate heavy vehicle access in emergency situations, with the construction of this track anticipated to stabilise the ground post construction. When the above is considered alongside the small extent of the clearing area, no land degradation impacts are expected to result from the proposed clearing.

Given the above, the proposed clearing is not likely to be at variance to this principle.

(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 to this Principle

A review of available databases determined the local area contains numerous conservation reserves, the nearest of which is an unnamed conservation reserve situated approximately 1.9 kilometres northeast of the application area. Given the separation distances between the application area and conservation reserves, no impacts to any conservation reserves are anticipated to result from the proposed clearing activities. A review of aerial photography of the local area determined the application area does not comprise part of an ecological linkage connecting conservation reserves to each other or other strands of remnant vegetation. Therefore, no ecological linkages promoting species diversity and recruitment within conservation reserves will be impacted by the proposed clearing activities.

A review of available databases determined the application area is situated within Bush Forever Site 456. Advice received from the Department of Planning, Lands and Heritage (DPLH) noted the Degraded to Completely degraded condition of the vegetation in the application area and acknowledged the proposed access track is aligned with the existing unsealed access track (DPLH 2019). The DPLH advised that since the proposed clearing is associated with essential works, the DPLH held no objections to the proposed clearing (DPLH 2019). When the above is considered alongside the small area of clearing

proposed, the proposed clearing is not anticipated to result in any adverse impacts to the ecological values of the above Bush Forever Site. A review of aerial photography of the local area determined the application area does not comprise part of an ecological linkage connecting Bush Forever Sites to each other or other strands of remnant vegetation. Therefore, no ecological linkages promoting species diversity and recruitment within Bush Forever Sites will be impacted by the proposed clearing activities.

Given the above, the proposed clearing is not likely to be at variance to 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 to this Principle

As discussed under principle (f), no watercourses were identified within the application area during the review of available databases undertaken to support this assessment or the inspection of the application area undertaken by Officers from DWER (2019). While the application area is situated within Wetlands UFI 7446 and UFI 13621, as discussed under principle (f), the vegetation communities and soils identified within the application area were not consistent with those found in a wetland environment (DWER 2019). No discernible surface water features were identified within the application area or its immediate surrounds during the inspection of the application area or the review of aerial photography of the application area. When the above is considered alongside the small size of the application area, the Degraded to Completely Degraded condition of the vegetation within the application area and the knowledge the application area follows the alignment of an existing access track, no impacts to surface water quality or flows are expected to result from the proposed clearing.

A review of available databases determined the local groundwater resources have been mapped as having a total dissolved solids content of between <500 and 1,000 milligrams per litre. Given the extensively cleared nature of the local area and the small extent of the proposed clearing, the proposed clearing is unlikely to result in adverse impacts to the quality of the local groundwater resources.

Given the above, the proposed clearing is not likely to be at variance to 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 at variance to this Principle

A review of available databases determined the application area is situated within the Swan Avon – Canning River catchment. This catchment has an area of approximately 1,379 square kilometres. The database review also determined that the application area is situated within a relatively flat environment which varies in height by 40 metres within a three kilometre radius of the application area.

As discussed in principle (f), the application area does not occur within a watercourse or an environment characteristic of a wetland. When the above is considered alongside the aforementioned existing access track alignment the application area follows, the proposed clearing is not likely to cause or exacerbate the incidence or intensity of flooding.

Given the above, the proposed clearing is not at variance to this principle.

Planning instruments and other relevant matters

On 6 March 2019 the EPA gave authorisation under Section 41A(3) of the EP Act to construct the proposed temporary access track while the remainder of the Thornlie to Cockburn Link Project undergoes assessment under Section 38 of the EP Act. Schedule 1 of this authorisation requires the rehabilitation of the access track to be undertaken in accordance with EPA guidelines, or if an implementation statement is issued for the Thornlie to Cockburn Link Project, in accordance with any implementation conditions relating to rehabilitation. The applicant is advised to ensure they comply with all EP Act requirements pertaining to this temporary access track.

The clearing permit application was advertised on the DWER website on 9 April 2019 with a 14 day submission period. No public submissions have been received in relation to this application.

On 26 April 2019 the Southwest Aboriginal Land and Sea Council advised on the behalf of their clients, the Whadjuk People Native Title Claimants, that they reserve the right to request measures to protect Aboriginal Heritage within the application area. The applicant is advised to ensure the proposed clearing is undertaken in accordance with the requirements contained in the *Aboriginal Heritage Act 1972*. The DPLH can be contacted for further information regarding the requirements which exist under this Act. A review of available databases indicate that no Aboriginal sites of significance have been mapped within the application area.

On 9 May 2019 the DPLH advised that the application area is situated within a subject site reserved as 'Parks and Recreation' in the Metropolitan Region Scheme and has a Bush Forever implementation category of 'Bush Forever Reserves' (DPLH 2019). The DPLH (2019) advised that *State Planning Policy 2.8 – Bushland Policy for the Perth Metropolitan Region* (SPP 2.8), section 5.1.2.1 outlines specific policy measures for Bush Forever Reserves. These include a general presumption against the clearing of regionally significant bushland, except where a proposal *is consistent with the overall purpose.... or can be reasonably justified with regard to wider environmental, social, economic or recreation needs,... and reasonable offset strategies are secured to offset any loss of regionally significant bushland, where appropriate and practical* (DPLH 2019). As noted earlier in this report, the DPLH had no objections to the proposed clearing, but expressed concerns the use of the access track could result in drainage and contamination impacts on the wetlands intercepted by the proposed access track. As discussed under principle's (f), (g) and (i), the proposed clearing is not likely to impact wetland environments, result in land degradation impacts or impact surface water quality. The DPLH (2019) recommended the following conditions form part of any clearing permit approval:

- That an offset package be prepared and approved by DWER prior to the clearing of any native vegetation, in accordance with the *Western Australian Environmental Offsets Policy* (2011) and Appendix 4 of *State Planning Policy 2.8*. The DPLH recommended that the offset measures are provided onsite at Bush Forever Site 456; and
- No other disturbance or clearing of any other native vegetation within Bush Forever Site 456 is to occur beyond that required for the proposed temporary access track.

The Delegated Officer determined that due to the small extent of the Bush Forever Site proposed to be cleared (approximately 0.3 percent), its limited connectivity to remnant native vegetation in the surrounding environment and the Degraded to Completely Degraded condition of the vegetation within the application area that contains no conservation significant flora, fauna, or community values, the proposed clearing is not likely to have a significant residual impact upon this Bush Forever Site and an offset is not required.

The application area is situated within the Perth Groundwater Area, as proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act). Any groundwater abstraction in this proclaimed area is subject to licensing by DWER, other than supply from the shallow watertable (superficial aquifer) for domestic and non-intensive stock watering purposes. The availability of water resources can be viewed at DWER's public water register at <https://maps.water.wa.gov.au/#/webmap/register>. The applicant is advised to contact DWER to determine licensing and permitting requirements under the RIWI Act.

5. References

- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001 - 2005, Canberra. Department of Biodiversity, Conservation and Attractions (2007-) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. URL: <http://naturemap.dpaw.wa.gov.au/>. Accessed May 2019.
- Department of Environment and Conservation (2007) Protocol for Proposing Modifications to the Geomorphic Wetlands Swan Coastal Plain Dataset. Perth, Western Australia.
- Department of Parks and Wildlife (2013) A methodology for the evaluation of specific wetland types on the Swan Coastal Plain, Western Australia Perth, Western Australia. Trial for a 12 month period. Available from: https://www.dpaw.wa.gov.au/images/documents/conservation-management/wetlands/Draft_Swan_Coastal_Plain_Evaluation_Methodology_2013.pdf.
- Department of Planning, Lands and Heritage (2019) CPS 8284/1 – Application to clear native vegetation. Available on DWER's internal achieve system (A1789466).
- Department of Primary Industries and Regional Development (2017). NRInfo Digital Mapping. Department of Primary Industry and Regional Development. Government of Western Australia. URL: <https://maps.agric.wa.gov.au/nrm-info/>. Accessed April 2019.
- Department of Sustainability, Environment, Water, Population and Communities (2012) EPBC Act referral guidelines for three threatened Black Cockatoo species: Carnaby's Cockatoo (Endangered) *Calyptorhynchus latirostris*, Baudin's Cockatoo (Vulnerable) *Calyptorhynchus baudinii* and Forest Red-tailed Black Cockatoo (Vulnerable) *Calyptorhynchus banksii naso*. Prepared for the Commonwealth of Australia 2012.
- Department of Water and Environmental Regulation (2019) Site Inspection Report: Native Vegetation Regulation, CPS 8284/1. Maintained on DWER's digital achieve system (A1792124).
- Environmental Protection Authority (2004) Environmental Protection of Wetlands – Position Statement No. 4. Perth, Western Australia.
- Environmental Protection Authority (2008) Environmental Guidance for Planning and Development – Guidance Statement No. 33. Perth, Western Australia.
- Environmental Protection Authority of Western Australia (2016a) Technical Guidance: Flora and vegetation surveys for environmental impact assessment. Published by the Environmental Protection Authority December 2016.
- Environmental Protection Authority of Western Australia (2016b) Technical Guidance: Terrestrial fauna surveys. Published by the Environmental Protection Authority December 2016.
- GHD (2018a) Public Transport Authority Thornlie – Cockburn Link Project, Flora and Fauna survey, October 2018.
- GHD (2018b) Memorandum to the Public Transport Authority from GHD, Additional Targeted Flora Survey. Dated 23 October 2018. Job no. 6136327 and 6137062.
- Government of Western Australia (2019a) 2018 Statewide Vegetation Statistics (formerly the CAR Reserve Analysis): Full Report. Remote Sensing and Spatial Analysis Program. Biodiversity and Conservation Science. Department of Biodiversity, Conservation and Attractions (DBCA). Published March 2019.
- Government of Western Australia (2019b) 2018 South West Vegetation Complex Statistics Report. Remote Sensing and Spatial Analysis Program. Biodiversity and Conservation Science. Department of Biodiversity, Conservation and Attractions (DBCA). Published March 2019.
- Hedde, 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.

Threatened Species Scientific Committee (2016) *Environment Protection and Biodiversity Conservation Act 1999* Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community. Conservation Advice approved 26 August 2016. Listing effective 16 September 2016.

PGV Environmental (2018) Thornlie to Cockburn Link: Wetland Assessment. Prepared for the Public Transport Authority of Western Australia. Version 1, report number 2018-396. Report date: 2 November 2018.

Public Transport Authority of Western Australia (2019) Shapefiles depicting the location of *Jacksonia gracillima*. Retained in the DWER digital achieve system (A1792045).

Western Australian Herbarium (1998-) FloraBase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions. <https://florabase.dpaw.wa.gov.au/>.

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
- SAC bio datasets
- Swan Coastal Plain – Vegetation Complex Mapping
- TPFL March 2018
- WA Herb Data March 2018
- WA TEC PEC Boundaries