



## CLEARING PERMIT

*Granted under section 51E of the Environmental Protection Act 1986*

### PERMIT DETAILS

Area Permit Number: 8789/1

File Number: DWERTV5183

Duration of Permit: 17 July 2020 to 17 July 2022

### PERMIT HOLDER

Boral Resources (WA) Ltd

### LAND ON WHICH CLEARING IS TO BE DONE

Lot 457 on Plan 3327, Orange Grove

Lot 453 on Plan 3327, Orange Grove

### AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 0.96043 hectares of native vegetation within the area cross-hatched yellow on attached Plan 8789/1.

### 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 *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 provide to the *CEO* the records required under condition 3 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;

***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.

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Ryan Mincham  
MANAGER  
NATIVE VEGETATION REGULATION

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

24 June 2020




# Plan 8789/1




## Legend

### CPS layers

 CPS areas approved to clear

### base layers

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### Image

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Ryan Mincham

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Officer delegated under section 20 of the  
Environmental Protection Act 1986



GOVERNMENT OF  
WESTERN AUSTRALIA



## 1. Application details

### Permit application details

Permit application No.: 8789/1  
Permit type: Area Permit

### Applicant details

Applicant's name: Boral Resources (WA) Ltd  
Application received date: 15 January 2020

### Property details

Property: Lot 457 on Plan 3327 and Lot 453 on Plan 3327  
Local Government Authority: City of Swan  
Localities: Orange Grove

### Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.96043		Mechanical Removal	Road construction and upgrades

### Decision on application

Decision on Permit Application: Grant  
Decision Date: 24 June 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 not likely to be at variance with any of the clearing principles.

The proposed clearing may increase the spread of weeds and dieback into adjacent native vegetation which abuts the surrounding conservation reserves. To minimise this impact, a condition has been placed on the clearing permit requiring the implementation of weed and dieback management measures.

Given the above, the Delegated Officer determined to grant a clearing permit subject to weed and dieback management conditions.

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

## 2. Site Information

### Clearing Description

The application is to clear 0.96043 hectares of native vegetation within Lot 457 on Plan 3327 and Lot 453 on Plan 3327, Orange Grove, for the purposes of constructing an internal access road within the quarry site.

### Vegetation Description

One Beard vegetation association is located within the application area:  
**Vegetation association 4:** Medium woodland; marri and wandoo (Shepherd et al., 2001).

The vegetation within the application area is mapped as the following Matiske vegetation complex (Matiske and Havel 1998):

**Darling Scarp (DS2)** – Mosaic of open forest of *Eucalyptus marginata* subsp. *marginata* – *Corymbia calophylla*, with some admixtures with *Eucalyptus laeliae* in the north (subhumid zone), with occasional *Eucalyptus marginata* subsp. *elegantella* (mainly in subhumid zone) and *Corymbia haematoxylon* in the south (humid zone) on deeper soils adjacent to outcrops, woodland of *Eucalyptus wandoo* (subhumid and semiarid zones), low woodland of *Allocasuarina haugeliana* on shallow soils over granite outcrops, closed heath of Myrtaceae-Proteaceae species and lithic complex on or near granite outcrops in all climate zones.

A flora and vegetation survey was undertaken of the application area by 360 Environmental. It was conducted across three site visits: July 2019 (out of season), October 2019 (spring) and the third in November 2019 (spring). Boral increased the survey area between the first and second site visits to a total area of 1.02 hectares.



Two vegetation types were recorded within the application area by 360 Environmental (2019):

Cr: Closed shrubland of *Calothamnus rupestris* over an open grassland of *Poaceae* sp.

CcBs: Open woodlands of *Caorymbia calophylla* over shrubland of *Banksia sessilis*

#### Vegetation Condition

The vegetation condition within the application area ranges from Very Good to Completely Degraded based on the Keighery (1994) condition scale. The areas considered to be Completely Degraded have been cleared, and now consist of bare tracks and small areas of scattered individual native plants with a high density of weed species (360 Environmental, 2019).

#### Soil and Landform Type:

The application area is mapped as the following soil types (DPIRD 2019):

**Murray Valleys System**, Western Darling Range from the Avon Valley to Harvey. Characterised as deeply incised valleys with red loamy earths, shallow duplexes and rock outcrop and Jarrah-marri-wandoo forest and woodland with mixed shrubland (Mapping unit: 255Mv)

**Myara 1 Phase**, characterised by gently to steep valley sideslopes (5-35%) and narrow incised valley floors. Variable well drained duplex and gradational soils. Common rock outcrop. *Eucalyptus wandoo*, *Eucalyptus accedens* and *Eucalyptus marginata* on sandy gravels and *Acacia* spp. On shallow soils (Mapping unit 255MvMA1).

#### Comments:

360 Environmental Pty Ltd undertook a flora and vegetation survey and an assessment of black cockatoo breeding trees within the application area in 2019. A report of the findings have been provided as part of the supporting documentation. The application area is 0.05957 hectares smaller than the study area referred to in the report due to a potential black cockatoo habitat tree being excised from the application area.

The local area referred to in the assessment of this application is defined as a 10 kilometre radius measured from the boundary of the application area. The local area contains approximately 36 per cent native vegetation cover.



Figure 1: Application area

### 3. Avoidance and minimisation measures

In accordance with Ministerial Statement 170, Boral Resources has an approved Environmental Management Plan (EMP) for the management of the site including noise, dust emissions and fire control. Boral Resources submits an annual compliance report to the Environmental Protection Authority (EPA) assessed against their ministerial statement.

To minimise the risk of impact from the activities associated with the proposed clearing, the following environmental management measures will be implemented by the applicant:

- Induction of all contractors and/or internal personnel undertaking the clearing in accordance with Boral's internal procedures. GPS coordinates of clearing permit area to be supplied to contractor;
- Prior to clearing and earthworks commencing within the clearing permit area, the area will be clearly outlined (by barrier tape or star pickets) to ensure that no over-clearing occurs beyond the permitted area;
- Prior to clearing activities, areas of native vegetation to be retained will be clearly demarcated by star pickets, coloured tape or bunting and all personnel should be made aware of the requirement to protect native vegetation in these areas;
- Cleared native vegetation will be mulched and reused on site for rehabilitation activities.

Boral Resources have advised that the position of the proposed access road has been amended to avoid the potential black cockatoo habitat tree (*Eucalyptus camaldulensis*) with hollows identified by 360 Environmental (2019).

#### **4. Assessment of application against clearing principles**

##### **(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.**

###### **Proposed clearing is not likely to be at variance with this principle**

The application is to clear 0.96043 hectares of vegetation to facilitate the construction of an access road within the existing Orange Grove Hard Rock Quarry. A flora and vegetation survey of the application was completed by 360 Environmental over multiple site visits in July 2019, October 2019 and November 2019. The vegetation within the application area consists of Closed shrubland of *Calothamnus rupestris* over an open grassland of Poaceae sp. (Cr) and an Open woodland of *Corymbia calophylla* over shrubland of *Banksia sessilis* (CcBs). The vegetation condition ranged from Very Good to Completely Degraded (Keighery, 1994). Approximately 71 per cent of the application area has been mapped as Degraded to Completely Degraded condition. The area assessed to be Completely Degraded has been cleared, and consists of bare tracks and small areas of scattered individual native plants with a high density of weed species (360 Environmental, 2019).

No threatened or priority ecological communities have been recorded within the application area, however, there are fourteen threatened (TEC) and priority ecological communities (PEC) which have been recorded within the local area (10 km radius). The closest TEC/PEC to the application area is the 'Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region' located approximately 215 metres south-west of the application area. The application area falls just outside of the buffer area of this TEC/PEC which is 200 metres. None of the vegetation types identified during the flora and vegetation survey undertaken by 360 Environmental (2019) are considered representative of any threatened or priority ecological communities. The vegetation under application is not likely to comprise or be necessary for the maintenance of a threatened or priority ecological community.

A Naturemap report indicated a total of 1310 native plant species and 480 fauna species that have been recorded in the local area. The flora and vegetation survey recorded a total of 39 flora species from 18 families and 34 genera within the application area (360 Environmental, 2019). Of these, 12 are introduced species, representing 28 per cent of the total taxa. Three of these species are listed as Declared Pests under the *Biosecurity and Agriculture Management Act 2007* (*\*Asparagus asparagoides*, *\*Echium plantagineum* and *\*Opuntia stricta*) and two of these species are also listed as Weeds of National Significance (WONS) (*\*Asparagus asparagoides* and *\*Opuntia stricta*) (360 Environmental, 2019).

According to available databases 102 conservation significant flora have been recorded in the local area. The closest known records are *Asteridea gracilis* (Priority 3) located approximately 1.3 kilometres south and *Conospermum undulatum* (Threatened) with multiple records located approximately 1.4 kilometres from the application area. No threatened or priority flora species have been recorded within the application area (360 Environmental, 2019). A likelihood of occurrence assessment of threatened and priority flora was undertaken by 360 Environment (2019) which determined the application area is unlikely to support conservation significant flora species due to the conditions of the site (360 Environmental, 2019).

According to available databases, 31 conservation significant fauna species have been recorded in the local area. A likelihood of occurrence assessment undertaken by 360 Environmental (2019) identified four conservation significant fauna species as being likely to occur within the application area; Carnaby's cockatoo (*Calyptorhynchus latirostris*), Baudin's cockatoo (*Calyptorhynchus baudinii*), Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) and Quenda (*Isodon fusciventer*) and one species as possible to occur, the Southern death adder (*Acanthophs antarcticus*). Suitable habitat is present within the application area for the quenda and southern death adder, however, given historical disturbances to the application area, proximity to the existing quarry and availability of suitable habitat in the adjacent nature reserves, the impact to these species is not considered significant.

As discussed under Principle (b), the application area provides 0.21 hectares of suitable foraging habitat for black cockatoos. There are no potential breeding trees with hollows within the application area (360 Environmental, 2019). The application area is within a confirmed breeding area and within 6 kilometres of confirmed roosting sites for the Carnaby's cockatoo. The closest confirmed roost site for black cockatoos is located 1.6 kilometres south of the application area. No evidence of black cockatoo roosting, breeding or foraging was observed during the survey (360 Environmental, 2019).

Historical aerials show that the vegetation within and surrounding the application area has been previously cleared between 1883 and 1985 (360 Environmental, 2019). It is also evident that existing remnant vegetation has been subject to various disturbances that have impacted on the diversity, density and community structure.

Given the small size and condition of the application area and absence of conservation significant flora or ecological communities, the application area is not considered to contain a high level of biological diversity.

The proposed clearing is not likely to 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 not likely to be at variance with this principle**

According to available databases 480 fauna species, including 31 conservation significant fauna species have been recorded in the local area. There are no conservation significant fauna records located within the application area.

A likelihood of occurrence assessment based on the habitat types present, was undertaken by 360 Environmental (2019) which identified four conservation significant fauna species as likely to occur within the application area; Carnaby's cockatoo

(*Calyptorhynchus latirostris*), Baudin's cockatoo (*Calyptorhynchus baudinii*), Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) and Quenda (*Isoodon fusciventer*) and one species as possible to occur, the Southern death adder (*Acanthophis antarcticus*). Suitable habitat is present within the application area for the quenda and southern death adder, however, given historical disturbances to the application area, proximity to the existing quarry and availability of suitable habitat in the adjacent nature reserves, the impacts to these species is not considered significant.

360 Environmental completed a Black Cockatoo habitat survey in November 2019. The survey identified five planted river gums (*Eucalyptus camaldulensis*) trees within the southern end of the survey area. Only one of the trees contained hollows of sufficient size (as judged from the ground) to enable entry. River gums are generally not considered suitable breeding trees for black cockatoos unless suitable hollows are present. This tree is no longer located within the application area and will not be impacted by the clearing. The vegetation within the application area is considered to be suitable foraging habitat for black cockatoos including marri, *Banksia sessilis*, *Grevillea bipinnatifida* and *Hakea* spp. The application area is within a confirmed breeding area and within 6 kilometres of confirmed roosting sites for the Carnaby's cockatoo. The closest confirmed roost site for black cockatoos is located 1.6 kilometres south of the application area. The application area is outside of the known breeding range for the Baudin's cockatoo.

Based on the vegetation mapping provided by 360 Environmental (2019), there is approximately 0.21 hectares of suitable foraging habitat (vegetation type CcBs) present within the application area, of which approximately 62 per cent is in Degraded condition and the remaining 38 per cent in Very Good condition. No evidence of black cockatoo roosting, breeding or foraging was observed during the survey (360 Environmental, 2019). The area proposed to be cleared does not contain any water sources and while suitable foraging habitat exists within the application area, is not likely to represent significant foraging habitat for black cockatoos given the availability of foraging resources within the local area, much of which is within conservation estate.

The majority of the application area is not considered high-quality vegetation and is located within an existing quarry and associated infrastructure. The vegetation within the application area does not provide a significant ecological linkage function to the adjacent extensive tract of excellent quality, similar habitat which abuts conservation reserves.

The application area is not considered necessary for the maintenance of a significant habitat for fauna indigenous to Western Australia.

The proposed clearing is not likely to be at variance with 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 likely to be at variance with this principle**

According to available databases, 23 Threatened flora species have been recorded in the local area. The closest known record of Threatened flora is *Conospermum undulatum*, located approximately 1.4 kilometres from the application area.

No Threatened flora species have been recorded within the application area (360 Environmental, 2019). A likelihood of occurrence assessment of threatened and priority flora was undertaken by 360 Environment (2019) which determined the application area is unlikely to support conservation significant flora species due to the conditions of the site (360 Environmental, 2019).

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, 11 threatened ecological communities (TECs) have been recorded within the local area (10 km radius). There are no TECs or their buffer areas located within the application area. The closest State listed TEC to the application area is the '*Corymbia calophylla-Eucalyptus marginata* woodlands on sandy clay soils of the southern Swan Coastal Plain' (Vulnerable) located approximately 1.5 kilometres south of the application area.

None of the vegetation types identified during the flora and vegetation survey undertaken by 360 Environmental (2019) are considered representative of any threatened ecological communities. The vegetation under application is not likely to comprise or be necessary for the maintenance of a threatened ecological community.

Given 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 area under application is located within the Jarrah Forest Interim Biogeographic Regionalisation of Australia (IBRA) bioregion. This IBRA bioregion has approximately 53 per cent of its pre-European vegetation extent remaining (Government of Western Australia, 2019).

The vegetation under application is mapped as South West Forest vegetation complex Darling Scarp (DS2) (Mattiske and Havel, 1998) of which there is approximately 42 per cent of its pre-European vegetation extent remaining (Government of Western Australia 2019).

The area under application is located within the City of Gosnells of which there is approximately 80 per cent pre-European vegetation extent remaining on the Darling Plateau (Government of Western Australia, 2019). The Darling Scarp (DS2) vegetation complex retain approximately 78 per cent of their pre-European vegetation extent within the City of Gosnells.

The local area (10 kilometre radius) retains approximately 36 per cent native vegetation cover, of which 70 per cent is secured within conservation reserves and regional parks.

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, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

Given the vegetation representations outlined above, the area under application is not considered to be a significant remnant located within an extensively cleared area.

The clearing as proposed is not likely to be at variance with this principle.

**Table 1: Remnant native vegetation extents (Government of Western Australia, 2019)**

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent remaining in DBCA managed lands (%)
<b>IBRA Bioregion</b>				
Jarrah Forest	4,506,660.25	2,399,838.15	53.25	39.43
<b>LGA</b>				
City of Gosnells (Darling Plateau)	3,144.68	2,519.3	80.11	-
<b>Vegetation Complexes – South West Forests</b>				
Darling Scarp (DS2)	32,448.29	13,586.40	41.87	10.13
Darling Scarp (DS2) within the City of Gosnells LGA	1,121.51	871.10	77.67	-
<b>Local Area</b>				
10 kilometre radius	32,167.60	11,651.96	36.22	-

**(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**

There are no watercourses or wetlands located within, or in the immediate vicinity of the application area. The vegetation mapped within the application area consists of marri woodland and *Calothamnus rupestris* shrubland. No riparian vegetation has been identified within the application area.

The application area is located near a quarry pit that holds water used for dust suppression. It has little, if any, ecological value (360 Environmental, 2019).

No vegetation growing in, or in association with, an environment associated with a watercourse or wetland will be impacted as a result of the proposed clearing. 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 is not likely to be at variance with this principle**

Two soils types have been mapped within the application area which are described as:

- **Myara 1 Phase**, Gentle to steep valley sideslopes (5-35%) and narrow incised valley floors. Variable well drained duplex and gradational soils. Common rock outcrop. (Mapping unit: 255MvMA1);
- **Murray Valleys System**, Western Darling Range from the Avon Valley to Harvey. Deeply incised valleys with red loamy earths, shallow duplexes and rock outcrop (Mapping unit: 255Mv).

The mapped soil types have a low to moderate risk of wind and water erosion and a low risk of leading to salinity and waterlogging. Given the small size and degraded condition of a large percentage of the application area and its close proximity



to existing infrastructure and quarry, it is not considered likely the clearing within the application will cause appreciable land degradation.

**Table 2: Land degradation risk levels**

<b>Risk categories</b>	<b>Myara 1 Phase (255MvMA1)</b>	<b>Murray Valleys System (255Mv)</b>
Wind erosion	0% of map unit has a high to extreme wind erosion risk	26% of map unit has a high to extreme wind erosion risk
Water erosion	30% of map unit has a high to extreme water erosion risk	35% of map unit has a high to extreme water erosion risk
Salinity	0% of map unit has a moderate to high salinity risk or is presently saline	2% of map unit has a moderate to high salinity risk or is presently saline
Subsurface Acidification	50% of map unit has a high subsurface acidification risk or is presently acid	74% of map unit has a high subsurface acidification risk or is presently acid
Subsurface compaction	15% of the map unit has a high subsurface compaction risk	60% of the map unit has a high subsurface compaction risk
Flood risk	0% of the map unit has a moderate to high flood risk	3% of the map unit has a moderate to high flood risk
Waterlogging	0% of map unit has a moderate to very high waterlogging risk	2% of map unit has a moderate to very high waterlogging risk
Water repellence	0% of map unit has a high water repellence risk	4% of map unit has a high water repellence risk
Phosphorus export risk	>75% of map unit has a high to extreme phosphorus export risk	60% of map unit has a high to extreme phosphorus export risk

The proposed clearing is not likely to be at variance with 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 with this principle**

The application area does not occur within any Regional Parks or DBCA Managed Lands. According to available databases, the nearest conservation area is Banyowla Regional Park. The Banyowla Regional Park is located to the north, east and south of the quarry boundary and is approximately 350 m from the application area at its nearest point. The Banyowla Regional Park contains several parcels of land which are managed by the DBCA. The Korung National Park is located approximately 1.2 kilometres from the application area. Based on the small scale of clearing required and distance from nearby conservation reserves, it is unlikely that the environmental values of these reserves will be directly compromised as a result of the proposed clearing.

The proposed clearing may increase the risk of weeds and dieback being spread into adjacent native vegetation which abuts the surrounding conservation reserves. To mitigate the potential for this impact, a condition has been placed on the clearing permit requiring the implementation of weed and dieback management measures.

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**

There are no wetlands or watercourses located within or adjacent to the application area. The application area is not located within a Public Drinking Water Supply Area (GIS Database).

Groundwater salinity within the application area is mapped between 500 - 1000 milligrams per litre total dissolved solids. Based on the mapped soil type, the application area has a low risk of salinity.

Noting the small size of the application area, the presence of better quality remnant vegetation adjacent to the application area and within the local area, and considerable distance from nearby surface water features and wetlands, the proposed clearing is not likely to cause deterioration in the quality of surface or underground water.

Given 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 soils within the application area consist of variable, well drained duplex and gradational soils, red loamy earths, sandy gravels and rock outcrops (Schoknecht et al., 2004). These soils have a very low risk of flooding.

There are no wetlands or watercourses located within or adjacent to the application area.

Stormwater runoff is captured on site and stored within pit areas in accordance with the site Environmental Management Plan (EMP) (360 Environmental, 2019).

Given the above, it is considered unlikely that the small scale of the proposed clearing will cause, or exacerbate, the incidence or intensity of flooding.

The proposed clearing is not likely to be at variance with this principle.

#### **Planning instruments and other relevant matters.**

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

The clearing permit application was advertised on the DWER website on 12 February 2020 with a 21 day submission period. No public submissions have been received in relation to this application.

#### **4. References**

- 360 Environmental Pty Ltd (2019) Orange Grove Quarry Native Vegetation Clearing Permit: Supporting Documentation, prepared for Boral Resources (WA) (Quarries).
- 360 Environmental Pty Ltd (2019) Boral Quarries – Browns Creek, Orange Grove Flora and Vegetation Reconnaissance Survey Draft – unpublished report prepared for Boral Resources (WA) (Quarries).
- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- Commonwealth of Australia (2012) EPBC Act referral guidelines for three threatened black cockatoo species. Department of Sustainability, Environment, Water, Populations and Communities, Canberra.
- 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 June 2020.
- Department of Environment and Conservation (DEC) (2008) Forest Black cockatoo (Baudin's cockatoo) (*Calyptorhynchus baudinii*) and forest red-tailed back cockatoo (*Calyptorhynchus banksii naso*) Recovery Plan. Department of Environment and Conservation, Perth, Western Australia.
- Department of Parks and Wildlife (Parks and Wildlife) (2013) Carnaby's cockatoo (*Calyptorhynchus latirostris*) Recovery Plan. Department of Parks and Wildlife, Perth, Western Australia.
- Government of Western Australia. (2019) 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions, Perth.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Mattiske, E.M. and Havel, J.J. (1998) Vegetation Complexes of the South-west Forest Region of Western Australia. Maps and report prepared as part of the Regional Forest Agreement, Western Australia for the Department of Conservation and Land Management and Environment Australia.
- Western Australian Herbarium (1998-). FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions. <https://florabase.dpaw.wa.gov.au/> Accessed June 2020.