GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 8948/1
Permit Holder:	Capitary No. 3 Pty Ltd
Duration of Permit:	25 November 2020 – 25 November 2025

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
Completing site rehabilitation works for clay excavation operation.

2. Land on which clearing is to be done
Lot 3 on Diagram 38894, Morangup.

3. Area of Clearing
The Permit Holder must not clear more than 5 hectares of native vegetation within the area hatched yellow on attached Plan 8948/1.

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 – ASSESSMENT SEQUENCE AND MANAGEMENT PROCEDURES

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:
(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.

6. Fauna management – potential black cockatoo breeding trees
This Permit does not authorise the Permit Holder to clear:
- jarrah (*Eucalyptus marginata*) and marri (*Corymbia calophylla*) trees with a diameter at breast height of 50 centimetres or greater, and
- wandoo (*Eucalyptus wandoo*) trees with a diameter at breast height of 30 centimetres or greater.

7. Dieback and weed management

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.

PART III – RECORD KEEPING AND REPORTING

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

9. Reporting

The Permit Holder must provide to the *CEO* the records required under condition 8 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 the Department of Environment and Conservation Regional Weed Assessments, regardless of ranking; or
(c) not indigenous to the area concerned.

Ryan Mincham
2020.11.02
11:40:37
+08'00'

_____

Ryan Mincham
MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

2 November 2020

Plan 8948/1

Map Layers

- CPS areas approved to clear
- Land TenureLGATE - 226
- Local Government Authorities

N

0 0.25 0.5 km

1:13478

MGA Zone 50
Geocentric Datum of Australia 1994

Ryan Mincham
2020.11.02
11:39:53
+08'00'

Officer delegated under section 20 of the Environmental Protection Act 1986

GOVERNMENT OF WESTERN AUSTRALIA

Clearing Permit Decision Report

1. Application details and outcome

1.1. Permit application details

Permit number:	CPS 8948/1
Permit type:	Purpose permit
Applicant name:	Capitary No. 3 Pty Ltd
Application received:	19 June 2020
Application area:	5 hectares (ha) of native vegetation
Purpose of clearing:	Completing site rehabilitation works for clay excavation operation
Method of clearing:	Mechanical
Property:	Lot 3 on Diagram 38894, Morangup
Location (LGA area/s):	The Shire of Toodyay
Localities (suburb/s):	Morangup

1.2. Description of clearing activities

The vegetation applied to be cleared is comprised of small patches of vegetation contained within a single, contiguous application area (see Figure 1, Section 1.5).

The proposed clearing area comprises 5 hectares of predominantly native vegetation regrowth as well as some patches of remnant vegetation, within an 18.3 hectare footprint that is almost completely cleared as part of Capitary No. 3 Pty Ltd (previously Boral Bricks Western Australia) Morangup Road clay excavation operation. The application area is surrounded by uncleared remnant native vegetation on all sides.

Aerial imagery and spatial data indicate the local area (10 kilometre radius of the proposed clearing area) retains approximately 48% of the original native vegetation cover. Less than 0.7 hectares of vegetation within the application area is mapped as remnant vegetation and all this vegetation is fringing the outside borders of the clay extraction operation. Historical aerial imagery shows that much of the vegetation on the quarry perimeter has been cleared in the past and is most likely natural regrowth vegetation rather than actual pre-European remnant vegetation (Land Insights, 2020).

1.3. Decision on application and key considerations

Decision:	Granted
Decision date:	2 November 2020
Decision area:	5 hectares (ha) of native vegetation as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Water and Environmental Regulation (DWER) on 19 June 2020. DWER advertised the application for public comment and no submissions were received.

In undertaking their assessment, and in accordance with section 51O of the EP Act, the Delegated Officer has given consideration to the Clearing Principles in Schedule 5 of the EP Act (see Appendix B), relevant planning instruments, and any other pertinent matters they deemed relevant to the assessment (see Section 3).

In particular, the Delegated Officer has determined that:

- the implementation of a suitable management condition is appropriate to avoid impacts to potential black cockatoo breeding trees (see Section 3.2.1);
- the implementation of a suitable weed and dieback management condition is appropriate to mitigate the impact of spreading weeds into adjacent vegetation.
- the applicant has suitably demonstrated avoidance and minimisation measures (see Section 3.1)

The Delegated Officer noted that the purpose of the clearing is to rehabilitate the completely disturbed clay excavation site and that this would facilitate the return of the area to native vegetation.

In determining to grant a clearing permit subject to conditions, the Delegated Officer found that the proposed clearing is not likely to lead to an unacceptable risk to the environment.

1.5. Site map

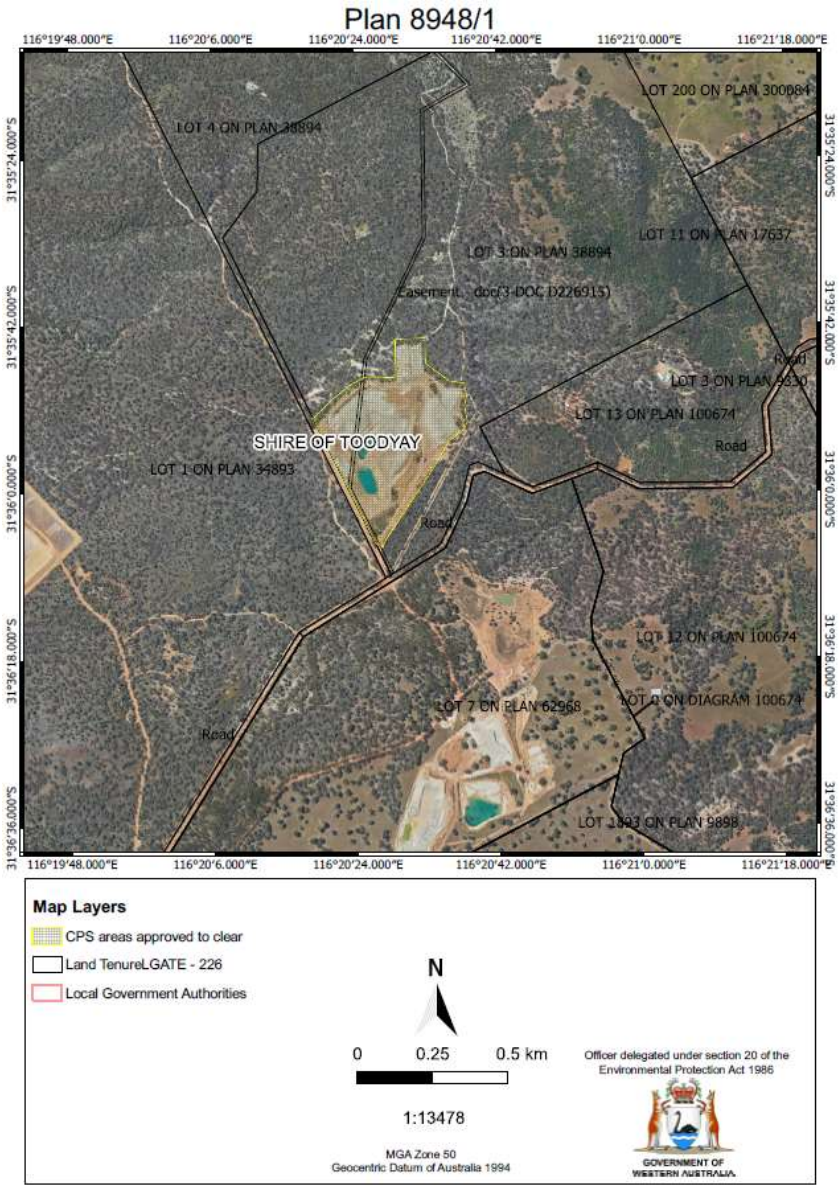

Figure 1. Map of the application area.
The area cross-hatched yellow indicates the area authorised to be cleared under the granted clearing permit.

2. Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.3), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

1. the precautionary principle;
2. the principle of intergenerational equity;
3. the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

Mature Jarrah-Marri trees with a Diameter at Breast Height (DBH) of greater than 500 millimetres and mature Wandoo trees with a DBH greater than 300 millimetres are present within the application area. These trees are potentially suitable black cockatoo breeding trees and the applicant has committed to avoiding and retaining these trees.

3.2. Assessment of environmental impacts

In assessing the application in accordance with section 51O of the EP Act, the Delegated Officer has examined the application and site characteristics (Appendix B) and considered whether the clearing poses a risk to environmental values. The assessment against the Clearing Principles is contained in Appendix C.

This assessment identified that the clearing may pose a risk to the environmental value of biological values, and this required further consideration. The detailed consideration and assessment of the clearing impacts against the specific environmental values of the area is provided below.

3.2.1 Environmental value: biological values (fauna) – Clearing Principle (b)

Assessment:

The application area is within the modelled distribution of three black cockatoo species; Carnaby's cockatoo (*Calyptorhynchus latirostris*), Baudin's cockatoo (*Calyptorhynchus baudinii*) and forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) and suitable habitat is found within the local area for these species. According to currently available databases, black cockatoo records are found within the local area with the closest confirmed breeding and roosting trees being located approximately 8.3 kilometres and 9.4 kilometres from the application area respectively.

The vegetation within the application area ranges from Good to Completely Degraded (Keighery, 1994) condition, with vegetation being predominantly Degraded as supported by photographs provided by the applicant (Appendix E). These photographs show vegetation that includes suitable foraging species for black cockatoos and Jarrah-Marri trees that have a DBH greater than 500 millimetres, as well as Wandoo trees that have a DBH greater than 300 millimetres. Trees that meet these DBH specifications may be potential breeding trees for black cockatoos if suitable hollows are present. The applicant has committed to the retention of mature trees that meet these DBH specifications, thereby avoiding impacts to potential breeding trees (Land Insights, 2020).

Jarrah-Marri woodland and Wandoo woodland both contain species suitable for foraging by black cockatoos. However, given that the amount of clearing will limited to 5 hectares of vegetation in predominantly Degraded condition and that there are large tracts of the comparable vegetation immediately surrounding the application area, it is unlikely that the removal of this vegetation will impact locally significant foraging habitat, or the conservation status of any species of black cockatoo which may utilise the application area.

Outcome:

Based on the above assessment, the Delegated Officer has determined that the proposed clearing is considered acceptable in relation to this environmental value.

Conditions:

A fauna management condition has been imposed on the permit requiring the retention of jarrah, marri and wandoo trees that may provide potential breeding habitat for threatened black cockatoo species.

3.3. Relevant planning instruments and other matters

The Shire of Toodyay issued an extractive industry licence the application area in October 2018 and has expressed no objection to the proposed activity.

It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972* (WA) and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Appendix A – Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to DWER at the time of this assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix B.

1. Site characteristics

Site characteristic	Details
Local context	The area proposed to be cleared comprises 5 hectares of predominantly native vegetation regrowth within a 18.3 hectare footprint that is almost completely cleared as part of the Capitary No. 3 Pty Ltd (previously Boral Bricks Western Australia) historic clay quarry. The application area is surrounded by uncleared remnant native vegetation on all sides. Aerial imagery and spatial datasets indicate that the local area (10 kilometre radius of the proposed clearing area) retains approximately 48% of the original native vegetation cover.
Vegetation description	Photographs were supplied by the applicant which indicate the vegetation within the proposed clearing area to comprise of Jarrah-Marri woodland grading to Wandoo low woodland in the west, as well as regrowth vegetation (Land Insights, 2020). The supporting information document also described the vegetation as consisting of *Eucalyptus marginata* and *E. calophylla* (*Corymbia calophylla*) with generally open understorey and patches of vegetation in better condition typified by an understorey of *Acacia pulchella*, *Leucopogon propinquus*, *Phyllanthus calycinus*, *Hibbertia hypericoides* with a number of *Asteraceae* and in patches *Dryandra sessilis* (*Banksia sessilis*) (Land Insights, 2020). Representative photos of vegetation within and adjacent to the application area are available in Appendix D. The above description provided by the applicant and the accompanying photos are roughly consistent with the mapped vegetation types: • Mattiske vegetation complex Yalanbee, which is described as Woodland of *Eucalyptus wandoo* - *Eucalyptus accedens*, less consistently open forest of *Eucalyptus marginata subsp*. *thalassica-Corymbia calophylla* on lateritic uplands and breakaway landscapes in arid and perarid zones; and • Mattiske vegetation complex Coolakin, which is described as Woodland of *Eucalyptus wandoo* with mixtures of *Eucalyptus patens*, *Eucalyptus marginata subsp. thalassica* and *Corymbia calophylla* on the valley slopes in arid and perarid zones.
Vegetation condition	Photographs were supplied by the applicant within supporting documents provided by Land Insights (2020) which indicate the vegetation within the proposed clearing area to range from Good to Completely Degraded (Keighery, 1994) condition, described as: • Good - Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing. • Completely Degraded - The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Site characteristic	Details
	The full Keighery condition rating scale is provided in Appendix C, below. Representative photos including aerial photos showing areas of disturbance are available in Appendix D.
Soil description	The soil is mapped as: Yalanbee Subsystem (253ByYA) Yalanbee Subsystem (253WnYA) Leaver Subsystem (253ByLV) (very small area within the application, only 0.02 hectares and for all significant impact assessment purposes irrelevant).
Land degradation risk	All land degradation risks are low with the exception of subsurface acidification and wind erosion, both of which are high.
Waterbodies	The desktop assessment and aerial imagery indicated that no watercourses or wetlands transect the application area.
Conservation areas	The nearest conservation area is a DBCA legislated Timber Reserve (R 30193) which is approximately 4.3 kilometres to the west of the application area. Avon Valley National Park is approximately 5.5 kilometres to the north west of the application area.
Climate and landform	Rainfall: 700mm per year Evapotranspiration: 700mm per year Geology: Granite and Gneiss Acid Sulfate Soil Risk: No Groundwater Salinity (Total Dissolved Solids): 3000-7000 mg/L

2. Flora, fauna and ecosystem analysis

Currently available databases indicate there are sixteen conservation significant flora species recorded in the local area, including three Threatened flora species. One floristic ecological community of conservation significance is recorded within the local area. Twelve threatened fauna species, including three Vulnerable, four Endangered, one Priority 3 and two Priority 4 fauna species are recorded within the local area.

With consideration for the site characteristics set out above and relevant datasets (see Appendix E), it is unlikely that conservation significant flora species, and ecological communities will be impacted by the clearing. The application area is within the known range of black cockatoos and records of black cockatoos are found within the local area. Some of the trees proposed for clearing are known to be species used for foraging, roosting and breeding by threatened black cockatoo species. Some of the trees within the application area also have the potential to be breeding trees if suitable hollows are present. Due to the predominantly Degraded condition of the vegetation proposed for clearing and the habitat requirements of other conservation significant species recorded within the local area, it is not likely that the vegetation is significant for the maintenance of habitat required to support the long-term viability of other conservation significant species of fauna. The impacts of clearing in relation to this environmental value has been assessed in further detail under Section 3.2.1.

3. Vegetation extent

	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					
Jarrah Forrest	4,506,660.25	2,399,838.15	53.25	1,777,041.28	37.14
Vegetation complex					
Yalanbee	197,849.0124	92,080.877	46.541	41,703.155	21.078
Coolakin	163,991.68	64,204.65	39.15	33,002.38	20.12

Appendix B – Assessment against the clearing principles

Assessment against the Clearing Principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: According to currently available databases and information provided by the applicant (Land Insights, 2020), the proposed clearing area does not contain locally or regionally significant flora, fauna, habitats or assemblages of plants. Historical disturbance, which is evident from historical aerial photography and comparison to adjacent intact vegetation is likely to have reduced the biodiversity values of the vegetation proposed for clearing.	Not likely to be at variance	No
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."* Assessment: The area proposed to be cleared comprises of flora species which may be provide foraging, roosting or breeding habitat for conservation significant fauna namely Carnaby's cockatoo (*Calyptorhynchus latirostris*), Baudin's cockatoo (*Calyptorhynchus baudinii)* and forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*). Due to the predominantly Degraded condition of the vegetation proposed for clearing and the unique habitat requirements of other conservation significant species recorded within the local area, it is not likely that the vegetation is significant for the maintenance and long term viability of other conservation significant species.	May be at variance	Yes. See Section 3.2.1.
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: The proposed clearing area is unlikely to contain habitat for threatened flora species listed under the *Biodiversity Conservation Act 2016* (BC Act). Due to the vegetation being mostly regrowth and predominantly in Degraded condition within close proximity to Completely Degraded quarry areas, the vegetation proposed for clearing is not likely to be necessary for the continued existence of threatened flora.	Not likely to be at variance	No
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."* Assessment: The proposed clearing area does not contain species, or assemblages of species that are representative of a Threatened Ecological Community (TEC) as listed under the *BC Act*.	Not likely to be at variance	No
Environmental values: significant remnant vegetation and conservation areas		
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."* Assessment:	Not likely to be at variance	No

Assessment against the Clearing Principles	Variance level	Is further consideration required?
The extent of the mapped vegetation type and native vegetation in the local area is above the national objective to prevent the clearing of ecological communities with an extent below 30 per cent of that present prior to European settlement (DEH, 2001). Vegetation in the proposed clearing area is not considered to be part of a significant ecological linkage in the local area.		
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."* Assessment: The nearest conservation area is a DBCA legislated Timber Reserve (R 30193) which is approximately 4.3 kilometres to the west of the application area. Given the lack of direct topographic connectivity to the application area, the proposed clearing is not likely to have an impact on the environmental values of conservation areas.	Not likely to be at variance	No
Environmental values: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: Given that no wetlands or watercourses are recorded within the application area, with the closest watercourse being the Avon River located 2.23 km north of the proposed clearing area, the clearing is unlikely to result in impacts to wetlands or watercourses.	Not likely to be at variance	No
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The mapped soils are not susceptible to water erosion, nutrient export or salinity. Subsurface acidification and wind erosion risks are both mapped as high. The proposed clearing is considered unlikely to cause appreciable land degradation, noting the extent, location and condition of the vegetation proposed to be cleared. It also noted that the end land use is for rehabilitation of the site, which will include backfilling parts of excavated landscape and replanting of vegetation to increase ground cover (Landform Research, 2018).	Not likely to be at variance	No
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."* Assessment: Given no watercourses, wetlands or Public Drinking Water Sources Areas are recorded within the proposed clearing area, the clearing is unlikely to appreciably impact surface or ground water quality.	Not likely to be at variance	No
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment:	Not likely to be at variance	No

Assessment against the Clearing Principles	Variance level	Is further consideration required?
The mapped soils and topographic contours within and surrounding the application area do not indicate the proposed clearing is likely to contribute to an increased incidence or intensity of flooding.		

Appendix C – Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Measuring Vegetation Condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very Good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely Degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix D – Photographs of vegetation within and surrounding the application area

Photo 1. Regrowth vegetation on overburden bunds. Regrowth has occurred within the past five to ten years. Photo taken at the south-west corner of the site. Dryandra is the dominant species. Vegetation condition appears to be between Good and Degraded.

Photo 2. Regrowth vegetation on overburden bund at the south-west corner of the site. Regrowth has occurred within the past five to ten years.

Photo 3. Regrowth vegetation on overburden bund at the southern side of the site. Regrowth has occurred within the last few years judging from the size and maturity of the Dryandra plants. Vegetation condition appears degraded.

Photo 4. Regrowth vegetation on overburden bund at the edge of the quarry showing that regrowth which has occurred within the past five to ten years.

Photo 5. Mature trees within the quarry footprint.

Photo 6. Vegetation regrowth on overburden bunds at the edge of the quarry.

Photo 7. Photo of quarry demonstrating the depth of the pit showing the rehabilitation area.

Photo 8. Wandoo trees located at the north-east corner of the quarry.

Photo 9. Wandoo woodland on the eastern side of the quarry. Some of this vegetation will be cleared however the applicant has committed retaining the mature Marri-Jarrah trees with a DBH greater than 500 millimetres and Wandoo with a DBH greater than 300 millimetres for Wandoo. Vegetation condition appears to be Good.

Photo 10. Wandoo woodland at the eastern side of the quarry on the bund which will be cleared. Vegetation condition appears to range between Good and Degraded.

Photo 11. Wandoo woodland at the eastern side of the quarry which will be cleared. Vegetation condition appears to be Good.

Photo 12. Jarrah-marri woodland located on the northern side of the quarry. The vegetation in this area was previously cleared as can be seen in the aerial photographs below. This regrowth has occurred over the past 30 years. Vegetation condition appears to be Good.

Photo 13. Jarrah-marri woodland located on the northern side of the quarry. The vegetation in this area is regrowth that has occurred over the past 30 years. Vegetation condition appears to range between Good and Degraded.

Photo 14. Jarrah-marri woodland located on the northern side of the quarry. This is regrowth that has occurred over the past 30 years. Vegetation condition appears to be Good.

Aerial Photo 1. Photo from 2000 showing the area that was cleared at that time.

Aerial Photo 2. Photo from 2010 showing the area that was cleared at that time.

Aerial Photo 3. Aerial photo from 2015 showing the area that was cleared at that time.

Appendix E – References and databases

1. GIS datasets

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- Aboriginal Heritage Places (DPLH-001)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- IBRA Vegetation Statistics
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Regional Parks (DBCA-026)
- Soil and Landscape Mapping – Best Available

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

2. References

Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, 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 August 2020.

Department of the Environment and Heritage (2001), National Objectives and Targets for Biodiversity Conservation 2001–2005, Canberra.

Department of Primary Industries and Regional Development (DPIRD) (2017). NRInfo Digital Mapping. Accessed at https://maps.agric.wa.gov.au/nrm-info/ Accessed September 2020. Department of Primary Industries and Regional Development. Government of Western Australia.

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

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. https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics

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

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

Land Insights (2020), Clearing Permit Application, Lot 3 Morangup Road, Morangup, Prepared for Boral Bricks Western Australia PTY LTD (Midland Brick), June 2020.

Landform Research (2018), Excavation and Rehabilitation Management Plan, Lot 3 Morangup Road, Morangup.

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

Landform Research (2018), Excavation and Rehabilitation Management Plan, Midland Brick, Lot 3 Morangup Road, Morangup, 15 May 2018.