Supporting Documentation
Clearing Permit Application

Gosnells Quarry

Lot 3 Cockram Road, Martin

DOCUMENT NO:
(GOS-CPA-2017/09/15-V0)

Holcim Australia Pty Ltd
Level 3, 200 Adelaide Terrace
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REVISION HISTORY

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1. INTRODUCTION

1.1 OVERVIEW

This document presents information to support an Application by Holcim (Australia) Pty Ltd (HAUS) to clear up to 200 ha of vegetation progressively over the life of the quarry on land that it owns within the City of Gosnells, Western Australia in accordance with requirements of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004. HAUS owns and operates the Gosnells hard rock quarry located approximately 20 kilometres (km) south-east of the Perth central business district in the locality of Martin (Figure 1).

The Gosnells Quarry supplies aggregate for concrete which is used in residential and commercial construction, rock for road construction (base course), rail construction (ballast), armour rock, drainage aggregate along with specialist product for particular products. The quarry's operations comprise of but are limited to the following:

- material extraction from the pit;
- crushing and screening;
- stockpiling; and
- distribution of material.

It is important to note at the outset that the Gosnells Quarry has:

- Development Approval (Appendix A) issued by the Metropolitan Regional Planning Authority (MRPA) and the City of Gosnells in 1984 following submission of an Environmental Review and Management Programme (ERMP) to the Environmental Protection Authority (EPA) by Readymix in 1982 under the *Environmental Protection Act* 1971 (EP Act 1971) (Readymix, 1982; EPA Bulletin 120).
- Previously (1984) swapped 236.8 ha of land owned by HAUS (previously trading as Readymix) for 143 ha of land owned by the State of Western Australia as part of the Development Approval Agreement. At the time of the land swap, the land owned by HAUS was assessed as of higher conservation value than that owned by the State.
- An Exemption from referral to the Commonwealth of Australia under Section 43B of the *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act) (Appendix B).
- Been defined as a Key Extraction Area in the Statement of Planning Policy No. 2.4 Basic Raw Materials (Western Australian Planning Commission, 2000).

1.2 THE APPLICANT

The Applicant for the Clearing Permit is:

Holcim (Australia) Pty Ltd

Planning and Environment Team

Level 3, 200 Adelaide Terrace

East Perth, WA 6004

HAUS is a member of LafargeHolcim, a major supplier in the building materials industry. With 115,000 staff, and a local presence in 90 countries, Holcim in Australia and New Zealand employs 3,000 staff and operates over 300 sites across both countries. The Gosnells Quarry has been in operation since the 1930's and has been integral in servicing Western Australia's infrastructure, construction and mining industries for more than 110 years under the well-known Readymix, Humes and Aggregates brands.

The contact for the Applicant is:

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1.3 TENURE

The Gosnells Quarry, located on Lot 3 Cockram Road, Martin, Western Australia, is owned by HAUS. Lot 3 comprises two parts and is located on property title Lot 3 on Plan 14769 of Volume 1683 and Folio 198 (Figure 1 and 2). The first part comprises the quarry and measures 246.3 ha in area. The second part comprises the stockpiles and measures 21.7 ha in area. The total area for both parts of Lot 3 is 268 ha. HAUS also owns the following adjacent lots to the west of the Gosnells Quarry, Lots 27, 30, 31, 32, 35, 36, 37, 38, 233, 5000, 5003 and 5037, which comprise 87.5 ha in area (Figure 2).

The Gosnells Quarry is located within the City of Gosnells approximately 2 km east of the Gosnells town centre and 20 km south-east of the Perth Central Business District (CBD)(Figure 1). It is situated within the 'Rural Zone' of the Metropolitan Region Scheme and the 'Extractive Industry Zone' under the City of Gosnells Town Planning Scheme No. 6 (City of Gosnells, 2001).

The Gosnells Quarry is covered by Local Planning Policy (LPP) No. 5.4 – Gosnells Hard Rock Quarry – Lot 3 Cockram Road, Martin (City of Gosnells, 2010). LPP No. 5.4 clarifies the role and relationship between City of Gosnells planning approval and the current and future Extractive Industry Licence (EIL) granted to the Project Site.

The Gosnells Quarry is also defined as a Key Extraction Area in the Statement of Planning Policy No. 2.4 Basic Raw Materials as an "*area of recognised regional resources providing for the **long term** supply of basic raw materials. These areas should be protected in relevant town planning schemes.*" (Western Australian Planning Commission, 2000).

1.4 ENVIRONMENTAL APPROVALS HISTORY

1.4.1 CURRENT ENVIRONMENTAL APPROVALS

In addition to the Development Approval already mentioned in place for the life of the quarry, the Gosnells Quarry currently operates in accordance with the following licences and environmental management procedures:

- An EIL (Appendix C) granted to HAUS by the City of Gosnells in 2007 for a period of 21 years.
- Department of Water and Environmental Regulation (DWER) "Prescribed Premises" (Category 12) Licence L6821/1967/12 (Appendix D) issued under the Environmental Protection Act 1986 (EP Act 1986) and valid until 2027.
- Clearing Permit CPS 5543/2 (Appendix E) issued under the EP Act 1986.
- Department of Mines, Industry Regulation and Safety (DMIRS) Dangerous Goods Licence (DGS001429).
- The existing Gosnells Quarry Environmental Management Plan (EMP) prepared to support the EIL, as updated from time to time (HAUS, 2014).

The EIL granted by the City of Gosnells in 2007 refers to a Limit of Extraction for the quarry pit development that occurs within the Maximum Development Area, and was expected to be operational for a period of approximately 14 years (Figure 2). The Maximum Development Area was cited in the 1982 ERMP and refers to an area that could be operational for the life of the quarry.

HAUS was misinformed of the status of the existing environmental approvals and as a consequence, sought Clearing Permits [CPS 1752/1 (now expired) and CPS 5543/2] in 2007 and 2013, respectively, and submitted a Clearing Permit Application (CPS 5534/3) in 2013. Correspondence subsequently provided by the DWER in 2014 advised HAUS that clearing permits do apply to the Gosnells Quarry as the Development Approval for the site does not constitute an "implementation Agreement or Decision" under Schedule 6 Item 2(a) of the EP Act 1986.

HAUS withdrew the Clearing Permit Application in 2014 following the DWER's request for an offset. The DWER's request did not align with knowledge of the existing Development Approval where a land swap had already been enacted with the State Government in 1984.

As indicated earlier, in 2013, HAUS confirmed (via legal opinion and correspondence with the Commonwealth Department of Environment) that exemption from referral applies under Section 43B of the EPBC Act. Prior and future development of the Gosnells Quarry is in accordance with existing approvals, which are a lawful continuation of the land use and were in place immediately prior to the commencement of the EPBC Act (Appendix B).

In 2016, HAUS lodged a submission on Action Plan D of the Green Growth Plan for the Gosnells Quarry. HAUS supports the approach adopted for Existing Environmental Approvals as described in Section 3.1 of Action Plan D (ie., non-inclusion in Class of Action) and believes that it has all the necessary State and Commonwealth Government environmental and planning approvals required to further develop its Gosnells Quarry within its approved Maximum Development Area.

1.4.2 HISTORY OF DEVELOPMENT APPROVAL, LAND SWAP AND EIL

Prior to 1985, the Gosnells Quarry was located on Lots 45 to 49 Cockram Road, which was owned (together with other land in the vicinity) by HAUS. HAUS then proposed to extend the quarry to the south east and commenced considerable consultation and review of various options for further development of the quarry. This resulted in a report by the Darling Escarpment Aggregate Resources Committee to the Minister for Urban Development and Town Planning in 1981. The report presented the preferred option, referred to as Option 4, for development of the quarry that was determined following consultation. Option 4 involved a land-swap arrangement with the State, whereby in exchange for other land owned by HAUS, the State granted to HAUS the land the subject of Reserve 11681 (Figure 3). The reserve was to be cancelled and the subject land amalgamated with Lots 45 to 49 to form Lot 3.

In 1981, as required under Sections 55 and 56 of the *EP Act 1971*, the Minister for Urban Development and Town Planning and the MRPA, respectively, referred Option 4 to the EPA for assessment. The EPA determined that the proposal be assessed by public environmental review and requested that the ERMP be prepared by HAUS for public review and consideration. On 4 June 1982, HAUS published its ERMP for public comment. Preparation of the ERMP involved highly respected environmental experts, including Professor Brian J O'Brien and Dr Harry Butler. The public comment period closed on 30 July 1982.

The EPA submitted its Report and Recommendations to the Minister of the Environment on 11 October 1982 and recommended that the proposal for Option 4 as presented in the ERMP be implemented subject to a number of conditions (EPA Bulletin 120). One of these conditions was to obtain an EIL from the City of Gosnells which was to be supported by a Development and Environmental Program (DEP).

The land-swap was subsequently effected pursuant to an agreement dated 9 October 1984 (Agreement) at the highest levels of government between the Crown, HAUS and others. HAUS exchanged 236.8 ha of land held by HAUS for 143 ha of land held by the State. The land swap was formalised on site by a ceremony and a plaque installed in the presence of the Premier of Western Australia, Hon Brian Burke MLA on the 22nd of February 1985.

The 236.8 ha land held by HAUS and exchanged to the State was assessed in a System 6 study (The Darling System – Proposals for Parks and Reserves – The System 6 Study Report, 9 April 1981) as having greater conservation value than the State reserve (refer to EPA Bulletin 120). The land exchange area led to the creation of what is now referred to as Banyowla Regional Park. The 143 ha area previously held by the State is now the approved site for the Gosnells Quarry.

Development Approval was granted by the City of Gosnells and the MRPA on 10 and 23 January 1985, respectively. A 21 year EIL was granted to HAUS by the City of Gosnells in 1984 following submission of an application for an EIL and a DEP. The second EIL was granted in 2005 and expired in 2007. The current EIL was sought by HAUS and granted in 2007. This EIL expires on 30 June 2028.

Correspondence from the Office of the EPA in 2005 and 2007 at the time the 2007 EIL was being sought, states that environmental impact assessments undertaken by the

EPA under the *EP Act 1971* are valid assessments and if development occurs within the scope of the assessed defined proposal no further referral or assessment by the EPA is required (refer Appendices F and G).

In 2010, the City of Gosnells released Local Planning Policy 5.4 (Appendix H) to clarify the relationship between the City's original planning approval for the quarry (granted in 1984) and future EIL's relating to the quarry. It is clear from this Policy that the City of Gosnells recognised that:

1. The original Development Approval was a long term approval and that the quarry could be operational for the life of the resource.
2. The condition requiring the submission of a DEP to support the original EIL has now been discharged and is no longer applicable to the current quarrying operations.
3. The quarry perimeter delineated in Figure 14 of the 1982 ERMP represents the approved maximum extraction limit or footprint of the quarry.

1.5 HOLCIM'S CURRENT SITUATION

It is HAUS's understanding based on correspondence received from the DWER in 2014 that clearing permits do apply to the Gosnells Quarry as the Development Approval for the site does not constitute an "implementation agreement or decision" under Schedule 6 Item 2(a) of the *EP Act 1986*. Therefore, continuation of quarry development in accordance within the Maximum Development Area under the Development Approval will require a clearing permit for the clearing of native vegetation.

HAUS does not believe that it should have to undergo further assessment under the *EP Act 1986* for future EIL applications, nor should it need to seek clearing permits, or provide additional offsets as it believes it has all the necessary State and Commonwealth government environmental and planning approvals required to further develop its Gosnells Quarry in accordance with Action Plan D of the Green Growth Plan, and has already provided a substantial offset via the land swap in 1984.

HAUS also believes that a major oversight was made when amendments to the *EP Act 1986* occurred during enactment of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 where prior environmental assessments undertaken under the *EP Act 1971* were not recognised as an "implementation agreement or decision". It is believed that the Gosnells Quarry may be one of few projects in Western Australia operating under an *EP Act 1971* approval.

However, in response to the DWER's correspondence received in 2014 advising that clearing permits do apply to the Gosnells Quarry, HAUS submits this Clearing Permit Application to seek approval to clear native vegetation within its Maximum Development Area and a surrounding area allowed for overburden placement for the ongoing extraction of this resource for the life of the quarry (Figure 2). In addition, HAUS requests that the land swap enacted with the State government in 1984 is recognised by DWER as an acceptable offset for this Clearing Application.

To this end, HAUS has assessed whether the basis of the original land swap assessment in 1982 still applies, ie that the land exchanged is of similar or better conservation value. HAUS has also responded to the comments raised by DWER in 2014 during the assessment of Clearing Permit Application CPS 5543/3 by undertaking a number of detailed and targeted flora and fauna surveys over the extent of the Clearing Permit Application Area (CPAA) and the Land Swap Area to quantify the conservation values of both areas as well as address requests for further information in relation to Black Cockatoos and the rare orchids, *Thelymitra magnifica* [Department of Biodiversity, Conservation and Attraction (DBCA) Priority 1] and *Thelymitra stellata* [Endangered under the *Biodiversity Conservation Act* 2016 (BC Act) and EPBC Act].

1.6 HOLCIM'S REQUEST

HAUS seeks clearing approval for the Maximum Development Area for pit development and surrounding area for overburden in accordance with the Development Approval within Lot 3. HAUS also seeks recognition of its prior Land Swap Area as an offset for clearing within Lot 3.

2. PROJECT DESCRIPTION

2.1 CLEARING PERMIT APPLICATION AREA

HAUS seeks clearing approval for the Maximum Development Area for pit development and surrounding area for overburden in accordance with the Development Approval within Lot 3, hereafter referred to as the Clearing Permit Application Area (CPAA). This area measures approximately 200 ha in size and includes the current operational pit and cleared areas (Figure 2). The area of native vegetation within the CPAA is approximately 138 ha, with an additional 6.9 ha of open regrowth and 54.1 ha of cleared area.

2.2 LAND SWAP AREA

HAUS seeks recognition of it's prior Land Swap Area as an offset for clearing within the CPAA. The area measures 236.8 ha in size and includes approximately 222 ha of native vegetation and approximately 14.7 ha of cleared area (Figure 3). The area is now referred to as Banyowla Regional Park.

3. EXISTING ENVIRONMENT

The following section describes the existing environment of the CPAA and the Land Swap Area. It is noted that some sections are relevant for both areas as they provide regional context.

3.1 LAND SYSTEMS AND SOILS

The land systems and soils at the CPAA and Land Swap Areas have a weathering zone up to approximately 10 m deep overlying the fresh granite. Lateritic soils overly a zone of sandy clay that extends to a few metres depth. This is underlain by a white kaolin clay zone derived from weathered granite that grades rapidly into fresh bedrock (URS, 2005).

The land systems and soils at the Gosnells Quarry have been modified by quarrying activities.

3.2 SURFACE WATER

The CPAA and the Land Swap Areas are located in the lower reaches of the Canning River catchment, on the edge of the Darling Scarp. The Canning River drains to the north-west through the Canning River Regional Park to the Canning and Swan River Estuaries at Perth. Major tributaries to the Canning River nearby include the Southern River, Ellis Brook and Bickley Brook (URS, 2005).

The CPAA has no major drainage lines and is high in the landscape. Surface hydrology at the quarry due to pit and supporting infrastructure development has been modified and surface water is currently managed in accordance with the surface water management programme at the site. A combination of groundwater and surface runoff water is stored in dams at the site.

The Land Swap Area includes several drainage lines as part of the Ellis Brook and contains the 60 Foot Falls.

3.3 GROUNDWATER

The CPAA and the Land Swap Areas occur in the Darling Scarp Province of Western Australia. Groundwater in the foothills of the Darling Scarp is generally located at the base of weathering of the local bedrock area and/or in fractures and joints in the bedrock. These aquifers are usually of limited areal extent and as such supplies of groundwater are small. Therefore, if these aquifers are pumped and dewatered then the impact is localised (URS, 2005).

Groundwater flow is to the west towards the existing quarry through fractures in the granite and dolerite. Inflows have been noted on the eastern and northern walls of the main pit and below the Main Dam. Inflows were noted in the steeply dipping zones of fractured granite and at the edge of dolerite dykes. Site personnel have reported that flows increase following heavy rainfall (URS, 2005). The groundwater flowing into the main pit comprises natural groundwater from the regional aquifer and rainfall recharge that exits the aquifer at the quarry face. The water in the dams

in the pit is composed of this groundwater and any rainwater falling directly into the pit.

Little is known regarding the hydrogeology of the Land Swap Area, however it is assumed that the groundwater flow would also be to the west through any fractures in the granite and dolerite.

3.4 FLORA AND VEGETATION

3.4.1 Studies Undertaken

A number of flora and vegetation studies have been undertaken over the last 12 years. These surveys/studies comprise:

1. Vegetation and Flora Readymix Quarry Gosnells (Bennett Environmental Consulting (Bennett), 2005).
2. Vegetation and Flora Readymix Quarry Gosnells (Bennett, 2006).
3. Gosnells Quarry Desktop Flora, Vegetation and Fauna Assessment (Astron, 2012a).
4. Gosnells Quarry Field Flora, Vegetation and Fauna Survey (Astron, 2012b).
5. Search for *Thelymitra stellata* and *Thelymitra magnifica* (Bennett, 2014).
6. Gosnells Quarry Flora, Vegetation and Targeted Orchid Assessment (AECOM, 2015).
7. Gosnells Quarry Flora, Vegetation and Targeted Orchid Assessment (AECOM, 2016).
8. Gosnells Quarry Flora, Vegetation and Targeted Survey (AECOM, 2017a).
9. Environmental Values Identification – Land Swap Areas, Gosnells Quarry (AECOM, 2017b)

Surveys/studies 1, 3, 6, 7 and 8 relate to the entire Gosnells Quarry site (CPAA). Survey 2 relates to an area of 0.5 ha that has been already quarried. Surveys 4 and 5 relate to an area of approximately 15 ha adjacent to the existing pit. Study 9 refers to the Land Swap Area.

The following information for the CPAA is primarily sourced from the survey undertaken by AECOM in 2016 (AECOM, 2017a) as this is the most current comprehensive survey available for the area and incorporates the AECOM surveys undertaken in 2014 and 2015. This has been supplemented with information from the searches for *Thelymitra stellata* [Endangered under the BC Act and EPBC Act] and *Thelymitra magnifica* (Priority 1) completed by Bennett in 2014. These surveys are attached in Appendices I and J, respectively.

The following information for the Land Swap Area is sourced from the study undertaken by AECOM in 2017 (AECOM, 2017b) and is attached in Appendix K.

3.4.2 Flora and Conservation Significant Flora

A total of 319 vascular flora species from 50 plant families and 150 genera and were recorded within the CPAA. This included 305 (95%) native species and 14 (5%) introduced (weed) species. None of the weeds recorded were listed as Declared Pests under the *Biosecurity and Agriculture Management Act* 2007, as Weeds of National Significance, or listed on the Swan Weeds database (DPaW, 2015). The most

abundant families represented include Proteaceae (44 taxa; all native), Fabaceae (36 taxa; all native), Myrtaceae (32 taxa; all native) and Asparagaceae (18 species).

A desktop assessment was undertaken to determine the likelihood of occurrence of conservation significant flora species within the CPAA and the Land Swap Area. This was informed by a DBCA database search for rare and Priority flora and prior surveys/studies conducted (AECOM, 2017a and b).

The following flora species of conservation significance are considered likely to occur or may occur in the CPAA (29 species) and Land Swap Area (33 species) as listed in Table 1 below.

Table 1: Conservation Significant Flora Species Likely or May Occur in the Clearing Permit Application Area and Land Swap Area

Taxa	Conservation status		Likelihood	
	State	Cmwlth	Clearing Permit Application Area (CPAA)	Land Swap Area
Acacia aphylla	T (VU)	VU	May	Likely
Acacia horridula	P 3	-	Likely	Known
Acacia lasiocarpa var. bracteolata long peduncle variant (G.J. Keighery 5026)	P 1	-		May
Acacia oncinophylla subsp. *patulifolia*	P 4	-	Known	Known
Allocasuarina grevilleoides	P 3	-	Likely	Likely/May
Andersonia sp. Audax (F. Hort, B. Hort & J.Hort 3179)	P 3		May	
Andersonia sp. Blepharifolia (F. & J. Hort 1919)	P 2	-	Likely	May
Andersonia sp. Saxatilis (F. & J. Hort 3324)	P 1		May	
Anthocercis gracilis	T (VU)	VU	May	Likely
Aponogeton hexatepalus	P 4	-		Likely
Asteridea gracilis	P 3	-	Known	Likely
Austrostipa jacobsiana	T (CR)		May	
Banksia kippistiana var. *paenepeccata*	P 3	-	Likely	Likely
Banksia mimica	T (VU)	EN	May	
Beaufortia purpurea	P 3	-	Known	Known
Boronia tenuis	P 4	-	Likely	May
Bylbis gigantea	P 3	-		Likely

Taxa	Conservation status		Likelihood	
	State	Cmwlth	Clearing Permit Application Area (CPAA)	Land Swap Area
Calothamnus accedens	P 4	-	Likely	May
Calothamnus graniticus subsp. *leptophyllus*	P 4	-	Known	May
Calytrix breviseta subsp. *breviseta*	T (CR)	EN		May
Darwinia apiculata	T (EN)	EN	Likely	May
Drosera occidentalis subsp. *occidentalis*	P 4	-		May
Goodenia arthrotricha	T (EN)	-	Likely	Known
Grevillea crowleyae	P 2		May	
Grevillea manglesii subsp. ornithopoda	P 2	-	May	Likely
Hemigenia rigida	P 1		May	
Halgania corymbosa	P 3	-	Likely	Known
Lasiopetalum glutinosum subsp. *glutinosum*	P 3	-	Likely	Known
Paracaleana gracilicordata	P 1	-	May	May
Paracaleana granitica	P 1	-		May
Pimelea rara	P 4	-	Likely	Known
Stackhousia sp. Red-blotched corolla	P 3	-	Likely	Likely
Tetratheca sp. Granite (S. Patrick SP1224)	P 3	-	Likely	Likely
Thelymitra magnifica	P 1	-	Likely	Likely
Thelymitra stellata	T (EN)	-	Likely	Likely
Thysanotus anceps	P 3	-		May
Verticordia lindleyi subsp. *lindleyi*	P 4	-		Likely
Total Number of Species			**29**	**33**

EPBC Act listed species: V = Vulnerable, E = Endangered, Ex = Extinct

BC Act listed species:, VU = Vulnerable, EN = Endangered, CR = Critically Endangered.

DBCA Priority Species: P1 – P4 = Priority 1 - 4.

Five flora species of conservation significance were recorded within the CPAA and two flora species of conservation significance were recorded within the Land Swap Area. These were all Priority flora species. No species listed under the EPBC Act or the BC Act were recorded. The conservation significant flora species recorded comprised:

- *Acacia horridula* (Priority 3) recorded in both the CPAA and Land Swap Area.
- *Acacia oncinophylla* subsp. *palustre* (Priority 4) recorded in the Land Swap Area.

- *Acacia oncinophylla* subsp. *patulifolia* (Priority 4) recorded in the CPAA.
- *Asteridea gracilis* (Priority 3) recorded in the CPAA
- *Beaufortia purpurea* (Priority 3) recorded in the CPAA.
- *Lasiopetalum glutinosum* subsp. *glutinosum* (Priority 3) recorded in the CPAA.

There are also records of *Lasiopetalum glutinosum* subsp. *glutinosum* (Priority 3), *Halgania corymbosa* (Priority 3), *Goodenia arthrotricha* (Endangered under the BC Act), *Beaufortia purpurea* (Priority 3) and *Pimelea rara* (Priority 4) from the WA herbarium within the Land Swap Area, however these were unconfirmed during the field assessment.

Targeted surveys for the conservation significant species *Thelymitra magnifica* (Priority 1), *Thelymitra stellata* (Endangered under the BC Act and EPBC Act), *Darwinia apiculata* (Endangered under the BC Act and EPBC Act) and *Goodenia arthrotricha* (Endangered under the BC Act) were conducted within the CPAA during ideal detection periods with methodology confirmed by DPaW prior to commencement of the surveys (Bennett, 2014, AECOM, 2015, 2016 and 2017a). None of these species were recorded from within the CPAA

3.4.3 Vegetation Communities

A total of nine native vegetation communities were mapped within the CPAA, this included four heath communities, one Calothamnus thicket, three forest communities and one woodland community (AECOM, 2017a). These vegetation communities are shown on Figure 4.

The above communities were amalgamated into a total of four vegetation types to enable high level comparison with the Land Swap Area.

Key Vegetation Soil Associations (VSAs) in the CPAA comprise (Figure 5):

- VSA 1 (99.7 ha) - Open Jarrah/Marri woodland to forest over open banksia and mixed shrub understorey on lateritic gravels high in the landscape.
- VSA 2 (5.1 ha) - Open Wandoo woodland over a mixed high to low shrub understorey on lateritic gravels.
- VSA 3 (33 ha) - Mixed heath and thicket on sandy-gravels around granite outcrops; scattered trees include Jarrah, Marri and Wandoo.
- VSA 4 (6.9 ha) - Open regrowth and rehabilitation (including planted non-native species in some areas) with few remnant trees over disturbed understorey.
- Cleared, disturbed and operational areas (54.1 ha) (Bamford, 2017a).

Key VSAS in the Land Swap Area comprise (Figure 5):

- VSA 1 (72.7 ha) - Open Jarrah/Marri woodland to forest over open banksia and mixed shrub understorey on lateritic gravels high in the landscape.
- VSA 2 (38.4 ha) - Open Wandoo woodland over a mixed high to low shrub understorey on lateritic gravels.
- VSA 3 (111 ha) - Mixed heath and thicket on sandy-gravels around granite outcrops; scattered trees include Jarrah, Marri and *Eucalyptus lane-poolei* in Banyowla Regional Park.

- VSA 4 - Seasonal watercourse and wetlands (including Ellis Brook Valley Reserve in Banyowla Regional Park) with associated riparian vegetation. Area is included in VSA 3 (Mixed Heath).
- Cleared areas (14.7 ha) (Bamford, 2017b).

The majority of the vegetation in the CPAA and Land Swap Area were both in 'Excellent' condition (AECOM, 2017a and b). The CPAA comprised 140.13 ha of native vegetation, 4.58 ha of completely degraded areas that were devoid of native vegetation with only weed species present and 53.84 ha of cleared areas. Degradation from weeds and rubbish was observed within the narrow riparian zone associated with Ellis Brook Valley Reserve.

No Threatened Ecological Communities (TEC) or Priority Ecological Communities (PEC) were identified within either the CPAA or the Land Swap Area (AECOM, 2017a and b).

3.4.4 Comparison Between the Clearing Permit Application Area and Land Swap Area

The environmental values of the land swap and the CPAA are very similar in both extent and significance. The heath vegetation occurring within the CPAA extends considerably into the Land Swap Area, providing suitable habitat for Priority flora species historically recorded at HAUS.

The total number of conservation significant flora species is similar (Table 1); the broad vegetation associations is similar (Figure 5); and no TECs or PECs were recorded in either of the two areas.

3.5 FAUNA AND HABITAT

3.5.1 Studies Undertaken

A number of vertebrate fauna studies have been undertaken over the last five years. These studies and surveys comprise:

1. Gosnells Quarry Desktop Flora, Vegetation and Fauna Assessment (Astron, 2012a).
2. Gosnells Quarry Field Flora, Vegetation and Fauna Survey (Astron, 2012b).
3. Gosnells Quarry Black-Cockatoo Tree Inspection (Astron, 2013).
4. Targeted Qualitative Black-Cockatoo and Quenda Habitat Assessment of the Holcim Gosnells Quarry and Adjacent Areas (Bamford Consulting Ecologists (Bamford), 2014).
5. Holcim Gosnells Quarry Targeted Black-Cockatoo Habitat Assessment (Bamford, 2015).
6. Holcim Gosnells Quarry - Fauna Assessment of the Quarry Area (Bamford, 2017a).
7. Holcim Gosnells Quarry - Fauna Assessment of the Land Swap Area (Banyowla Regional Park) (Bamford, 2017b)

Study 1 and Survey 6 extend over the entire Gosnells Quarry site (CPAA). Surveys 2, 3, 4 and 5 extend over an area of up to approximately 15 ha adjacent to the existing pit. Survey 7 relates to the Land Swap Area.

The following information for the CPAA is primarily sourced from the survey undertaken by Bamford in 2016 (2017a). This study also summarises the past surveys/studies and is appended as Appendix L.

The following information for the Land Swap Area is sourced from the study undertaken by Bamford in 2016 (Bamford, 2017b) and is attached in Appendix M.

3.5.2 Fauna and Conservation Significant Fauna

The desktop study identified 194 vertebrate fauna species as potentially occurring in the CPAA: 13 frogs, 42 reptiles, 106 birds, 23 native and 10 introduced mammals and 202 vertebrate fauna species as potentially occurring in the Land Swap Area: 6 fish, 13 frogs, 42 reptiles, 108 birds, 23 native and 10 introduced mammals. No fish species are likely to occur in the CPAA due to the lack of suitable habitat, however six fish species are expected to be visitors to Ellis Brook Valley Reserve in the Land Swap Area when this flows in winter.

The current vertebrate assemblage potentially includes 34 species of conservation significance in the CPAA and 35 species of conservation significance in the Land Swap Area, with a further five conservation significant species considered to be locally extinct in both areas (Table 2). Conservation significant species that are likely to occur in both the CPAA and Land Swap Areas and regularly use the sites are similar and include the Brush-tailed Phascogale and both the Forest Red-tailed and Carnaby's Black-Cockatoos.

Table 2: Conservation Significant Vertebrate Fauna Species Likely To Occur in the Clearing Permit Application Area and Land Swap Area

Common Name	Latin Name	Conservation Status	Clearing Permit Application Area		Land Swap Area	
			Confirmed	Expected Status	Confirmed	Expected Status
FISH						
Pouched Lamprey	*Geotria australis*	P1				Visitor
REPTILES						
Darling Range South-west Ctenotus	*Ctenotus delli*	P4		Resident		Resident
Carpet Python	*Morelia spilota imbricata*			Resident		Resident
Common Death Adder	*Acanthophis antarcticus*	P3		Resident		Resident
BIRDS						
Fork-tailed Swift	*Apus pacificus*	M S5		Migrant		Migrant
Painted Button-quail	*Turnix varius*			Resident		Resident
Peregrine Falcon	*Falco peregrinus*	S7		Resident		Resident
Masked Owl	*Tyto novaehollandiae*	P3		Irregular visitor		Irregular visitor
Barking Owl	*Ninox connivens*	P2		Irregular visitor		Irregular visitor

Common Name	Latin Name	Conservation Status	Clearing Permit Application Area		Land Swap Area	
			Confirmed	Expected Status	Confirmed	Expected Status
Rainbow Bee-eater	*Merops ornatus*	S5		Migrant		Migrant
Forest Red-tailed Black-Cockatoo	*Calyptorhynchus banksii naso*	V S3	X	Resident		Resident
Baudin's Black-Cockatoo	*Calyptorhynchus baudinii*	V S2		Migrant		Migrant
Carnaby's Black-Cockatoo	*Calyptorhynchus latirostris*	E S2		Migrant		Migrant
Rufous Treecreeper	*Climacteris rufus*			Irregular visitor		Irregular visitor
Red-winged Fairy-wren	*Malurus elegans*			Visitor		Visitor
Splendid Fairy-wren	*Malurus splendens*		X	Resident	X	Resident
Southern Emu-wren	*Stipiturus malachurus*			Resident		Resident
Inland Thornbill	*Acanthiza apicalis*			Resident		Resident
Western Thornbill	*Acanthiza inornata*			Resident		Resident
White-browed Scrubwren	*Sericornis frontalis*		X	Resident	X	Resident
Grey Shrike-thrush	*Colluricincla harmonica*		X	Resident	X	Resident
Crested Shrike-tit	*Falcunculus frontatus*			Visitor		Visitor
White-breasted Robin	*Eopsaltria georgianus*			Visitor		Visitor
Western Yellow Robin	*Eopsaltria griseogularis*			Visitor		Visitor
Hooded Robin	*Melanodryas cucullata*			Irregular visitor		Irregular visitor
Red-capped Robin	*Petroica goodenovii*			Visitor		Visitor
Scarlet Robin	*Petroica multicolor*			Resident		Resident
Red-eared Firetail	*Stagonopleura oculata*			Visitor	X	Visitor
MAMMALS						
Chuditch	*Dasyurus geoffroii*	V S3		Resident		Resident
Brush-tailed Phascogale	*Phascogale tapoatafa tapoatafa*	S3	X	Resident		Resident
Numbat	*Myrmecobius fasciatus*	V S2		Locally extinct		Locally extinct
Woylie	*Bettongia penicillata ogilbyi*	E S1		Locally extinct		Locally extinct

Common Name	Latin Name	Conservation Status	Clearing Permit Application Area		Land Swap Area	
			Confirmed	Expected Status	Confirmed	Expected Status
Boodie	*Bettongia lesueur*	Ex V S4 S6		Locally extinct		Locally extinct
Brush Wallaby	*Macropus irma*	P4	X	Resident		Resident
Tammar Wallaby	*Macropus eugenii*	P4		Locally extinct		Locally extinct
Quokka	*Setonix brachyurus*	V S3		Vagrant		Vagrant
Western Ringtail Possum	*Pseudocheirus occidentalis*	V S1		Locally extinct		Locally extinct
Quenda	*Isoodon obesulus*	P4	X	Resident		Resident
Western False Pipistrelle	*Falsistrellus mackenziei*	P4	X	Resident		Resident
Rakali	*Hydromys chrysogaster*	P4		Visitor		Visitor
Total Number of Species			**8**	**34**	**4**	**35**

EPBC Act listed species: V = Vulnerable, E = Endangered, Ex = Extinct, M = Migratory.

BC Act listed species: S1 – S7 = Schedule 1 – 7.

DBCA Priority Species: P1 – P5 = Priority 1 - 5.

Only one invertebrate species of conservation significance is likely to occur in the CPAA and three invertebrate species of conservation significant invertebrates are likely to occur in the Land Swap Area (Table 3), however none were recorded during the survey.

Table 3: Conservation Significant Invertebrate Fauna Species Likely To Occur in the Clearing Permit Application Area and Land Swap Area

Common Name	Latin Name	Conservation Status (State)	Likelihood	
			Clearing Permit Application Area	Land Swap Area
Scorpionfly	*Austromerope poultoni*	P2	Likely	Likely
freshwater snail	*Glacidorbis occidentalis*	P2		Likely
Carter's Freshwater Mussel	*Westralunio carteri*	S3		Likely

BC Act listed species: S1 – S7 = Schedule 1 – 7.

DBCA Priority Species: P1 – P5 = Priority 1 - 5.

Species recorded of other significance in the Land Swap Area were the Short Range Endemic (SRE) woodlouse *Buddelundia '04'* and the SRE land snail *Bothriembryon*

kendricki. The SRE woodlouse is common in Jarrah forests around Perth and the SRE land snail is not uncommon on the Perth Coastal Plain and adjacent Scarp. The granite outcrops have the characteristics that should encourage the evolution of SRE invertebrate species and the Land Swap Area has large areas of granites and larger areas of mesic refugia along Ellis Brook Valley Reserve.

All of these species (including other species that were not recorded) in both the CPAA and Land Swap Area are likely to be represented in adjacent conservation estates and in similar vegetation complexes within the Darling Range (Bamford, 2017a and b).

3.5.3 Cockatoo Presence and Foraging Habitat

Carnaby's Black-Cockatoo

Carnaby's Black-Cockatoos are expected to be regular migrants in both the CPAA and the Land Swap Area. The overall foraging value of the CPAA was slightly higher at 3-4 (Low/Moderate to Moderate) compared to the Land Swap Area which was 2-3 (Low/Low to Moderate).

Foraging values for Carnaby's Black-Cockatoo within the CPAA and within the Land Swap Area are presented on Figure 6. Further discussion of VSAs is provided in a subsequent section.

Forest Red-tailed Black-Cockatoo

Forest Red-tailed Black-Cockatoos are expected to be resident in both the CPAA and Land Swap Area, with foraging habitat well-represented due to the presence of preferred native food sources (such as Marri and Jarrah). The overall foraging value of the CPAA was slightly higher at 3 (Low/Moderate) compared to the Land Swap Area which was 2 (Low).

Foraging values for the Forest Red-tailed Black-Cockatoo within the CPAA and within the Land Swap Area are presented on Figure 7.

Baudin's Black-Cockatoo

Baudin's Black-Cockatoo is expected to be at least an occasional visitor to both the CPAA and Land Swap Area as it occurs regularly nearby and the area provides suitable foraging habitat. The overall foraging value of the CPAA was higher at 4 (Moderate) compared to the Land Swap Area which was 2 (Low).

Foraging requirements of Baudin's Black-Cockatoo are similar to those of the Forest Red-tailed Black-Cockatoo and are presented on Figure 7.

3.5.4 Roosting and Breeding Habitat

The breeding tree transects found that the CPAA had a density of 11.6 potential breeding trees per hectare with an estimated total of 1,679 trees, whilst the Land Swap Area had a density of 9.6 potential breeding trees per hectare with an estimated total of 2,133 trees as presented in Table 4. These estimates assume that the areas covered by the transects are representative of the total area.

Table 4: Summary of Results from Breeding Tree Transects

Site	Bamford Score					Total	Trees/ha	Estimated Total Trees
	1	2	3	4	5			
Quarry Area	0	2	72	91	253	418	11.6	1679
Land Swap Area	0	0	31	17	216	264	9.6	2133

Note: Density calculations do not include cleared areas

Bamford scores:

1. Active nest observed.
2. Suitable hollow with chew marks.
3. Suitable hollow without chew marks.
4. Potentially suitable hollow.
5. Tree>500mm Diameter Breast Height, no hollows.

Most of the trees in both the CPAA and Land Swap Area are regrowth which are not yet big enough to serve as roosting or breeding habitat.

Only two trees (0.5% of total trees) with a score of 2 (large hollow with recent chew-marks around entrance) were found in the CPAA. These are not confirmed but are highly likely to be active or recently active black-cockatoo nests. Two adult Forest Red-tailed Black-Cockatoos with a dependent chick were observed within the area and may well have used one of these hollows. The remaining trees observed within the CPAA comprised 72 trees (17.2% of total trees) with a score of 3 (suitable hollow without chew marks), 91 trees (22.8% of total trees) with a score of 4 (potentially suitable hollow) and 253 trees (60.5% of total trees) with a score of 5 (tree >500 mm Diameter Breast Height, no hollows).

No trees with a score of 1 or 2 (active nest observed; large hollow with recent chew-marks around entrance, respectively) were found in the Land Swap Area. The only trees observed within the Land Swap Area comprised 31 trees (11.7% of total trees) with a score of 3 (suitable hollow without chew marks), 17 trees (6.4% of total trees) with a score of 4 (potentially suitable hollow) and 216 trees (81.8% of total trees) with a score of 5 (tree >500mm Diameter Breast Height, no hollows).

3.5.5 Comparison Between the Clearing Permit Application Area and Land Swap Area

In comparison with the Land Swap Area, the CPAA is of greater value to Black-Cockatoo and woodland species due to the slightly higher density of large trees. Whilst the Land Swap Area is of greater value to aquatic and wetland fauna because of the presence of Ellis Brook, and granite heath specialists, because of the larger area of exposed granite rock

These differences can be quantified with the density of potential breeding trees being slightly higher in the CPAA than in the Land Swap Area (11.6/ha compared with 9.6/ha). However, when considering the greater size of the Land Swap Area, the estimated number of potential breeding trees is about 15% more in the Land Swap Area than in the CPAA (1,679 compared with 2,133 respectively, refer Table 4).

It is likely over the life of the quarry that the size of larger trees suitable for breeding in the land swap area will increase over time.

Other conservation significant fauna species that have been recorded in the CPAA include the Brush-tailed Phascogale, Quenda and Brush Wallaby. These species (including other species that were not recorded, e.g. Chuditch, Carpet Python, Peregrine Falcon and Darling Range Ctenotus) are likely to be represented in the Land Swap Area, adjacent conservation estates and in similar vegetation complexes within the Darling Range.

3.6 CONSERVATION AREAS

There are a number of conservation areas in proximity to the CPAA:

- Ellis Brook Valley Reserve - a Category A status reserve listed on the register of National Estate (ID. 181050) for its landscape and wildlife values. It is located approximately 1.5 km north of the CPAA
- Wrights Brook Regional Open Space – located approximately 1.5 km to the south of the CPAA.
- Banyowla Regional Park – surrounding the CPAA and extends 3 km to the south, east and north.
- Korung National Park - occurs adjacent to the east of the CPAA
- Canning River - a Bush Forever site (Site 224) located more than 1 km from Lot 3.

All habitats and species of the CPAAare represented within the Land Swap Area and are likely to be represented in State Forest and National Parks within the Darling Range (Bamford, 2017a and b).

4. CLEARING PRINCIPLES

4.1 OVERVIEW

This section provides responses to the Clearing Principles (A to J) that are used by the DWER to assess the effect of the clearing of native vegetation on the local and regional environment. The principles cover a range of environmental aspects that may be impacted as a result of native vegetation clearing including:

- Biodiversity
- Significant fauna habitat
- Significant flora and vegetation communities
- TECs
- Riparian vegetation
- Land degradation
- Environmental values of conservation areas
- Surface water quality
- Flooding.

4.2 CLEARING PRINCIPLE A

Native vegetation should not be cleared if it comprises a high level of biological diversity

The richness of flora and fauna is related to the variety of habitats present and the presence of large areas of nearby habitats, such as the Ellis Brook Valley Reserve and Wrights Brook Regional Open Space, which form part of the Banyowla Regional Park, and the Korung National Park.

The CPAA lies within the Northern Jarrah Forest subregion, which is described as having moderate species richness, ranging from 400 – 600 species per km (Williams and Mitchell, 2001). Markey (1997) undertook a floristic survey of the northern Darling Scarp, of which the CPAA falls within, and recorded a species richness of 621 native taxa for the region.

Surveys which have been undertaken in the adjacent Ellis Brook Valley Reserve have recorded 550 flowering plant species (Astron, 2012a). A total of 319 vascular flora species from 50 plant families and 150 genera and were recorded within the CPAA (inclusive of the 2014, 2015 and 2016 field surveys by AECOM). This included 305 native species and 14 introduced (weed) species. Higher biological diversity was observed on the granite outcrop areas within the CPAA. These granite outcrops were also observed in the Land Swap Area. Given this record of flora species and occurrence of granite outcrops, the surrounding remaining remnant vegetation including that of the Land Swap Area is likely to be of a similar diversity as the CPAA.

The proposed clearing is unlikely to result in significant impacts to biodiversity due to the presence of large areas retained and protected in regional park, national park and State forest of surrounding similar remnant native vegetation in very good condition. These areas would be of similar biodiversity to the CPAA and are located within the Land Swap Area (Banyowla Regional Park) given to the State as part of the Development Approval for the quarry (236.8 ha).

Given the above, the CPAA is not considered to represent an area with higher biodiversity than those found in adjacent areas and is not likely to comprise an area with a high level of biological diversity and be at variance to this Clearing Principle.

4.3 CLEARING PRINCIPLE B

Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia

In terms of diversity of fauna species, a comparison of the CPAA to the Land Swap Area (Bamford 2017a and b) found that the fauna values of both areas are similar (Section 3.5.5). Both areas provide residential habitat to 18 conservation significant fauna species including the Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*; Vulnerable under the EPBC Act and Schedule 3 under the BC Act) and the Chuditch (*Dasyurus geoffroii*; Vulnerable under the EPBC Act and Schedule 3 under the BC Act), and seven to eight regular visitors.

All three Black-Cockatoo species have been recorded in the region (DPaW, 2016) and suitable foraging and breeding habitat occurs in the CPAA and Land Swap Area. Carnaby's Black-Cockatoo and the Forest Red-tailed Black-Cockatoo were also recorded in the CPAA by Astron (2012b). Other conservation significant fauna species that have been recorded in the CPAA include the Brush-tailed Phascogale, Quenda and Brush Wallaby.

All of these species (including other species that were not recorded, e.g. Chuditch, Carpet Python, Peregrine Falcon and Darling Range Ctenotus) are likely to be represented in the Land Swap Area, adjacent conservation estates and in similar vegetation complexes within the Darling Range.

The proposed clearing is unlikely to result in significant impacts to a significant fauna habitat due to the presence of large areas of surrounding similar remnant native vegetation and fauna habitat in very good condition. This includes the Land Swap Area bequeathed to the State government as part of the original Development Approval for the Gosnells Quarry following submission of the ERMP in 1982, adjacent conservation estates and in similar vegetation complexes within the Darling Range.

As such, clearing of native vegetation within the CPAA will not affect the maintenance of, a significant habitat for fauna indigenous to Western Australia and be at variance to this Clearing Principle.

4.4 CLEARING PRINCIPLE C

Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora

No rare flora were observed in the CPAA during targeted flora surveys conducted in 2014, 2015 and 2016 by Bennett and AECOM (Bennett, 2014; AECOM, 2015, 2016 and 2017a).

Therefore, it is unlikely that clearing activities within the CPAA will have a significant impact on rare flora species and be at variance to this Clearing Principle.

4.5 CLEARING 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

No TECs or PECs listed by DBCA were identified within the CPAA during the flora and vegetation survey conducted by AECOM (2017a) or the fauna survey conducted by Bamford (2017a).

Therefore, the clearing of vegetation within the CPAA will not have an impact on a TEC or PEC and be at variance with this Clearing Principle.

4.6 CLEARING 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

The CPAA lies within two Beard (1979) vegetation associations, including West Darling 3 medium forest; Jarrah-Marri and, West Darling 4: medium woodland Marri and Wandoo. Currently there is 79.6% and 32.4% of the pre-European vegetation extent remaining within these two vegetation associations respectively. Each of these vegetation complexes has greater than 30% of their pre-European extent remaining and the vegetation of the study area is therefore not considered to be of regional significance or below the critical threshold in accordance with EPA Position Statement 2 (AECOM, 2017a).

In addition, HAUS have provided a significant area of protected native vegetation (now known as the Banyowla Regional Park) as part of the offset requirements for the Gosnells Quarry during the assessment of the ERMP in 1982, which protects native vegetation in the region.

Therefore, the vegetation to be cleared is not considered to be a significant area of remnant native vegetation in an area that has been extensively cleared and at variance to this Clearing Principle.

4.7 CLEARING 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

As described in Section 3.2, there are no watercourses or wetlands within the CPAA.

As there are no wetlands or watercourses in the CPAA, no native vegetation will be cleared that is associated with a watercourse or wetland and as such is not at variance with this Clearing Principle.

4.8 CLEARING PRINCIPLE G

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

Activities associated with the clearance of vegetation have the potential for increasing land degradation through increased surface water run-off and the spread of dieback and weed species.

An existing EMP is in place for the Gosnells Quarry and HAUS will continue to implement the EMP measures for the CPAA and revise and update the EMP as necessary during extension of the pit. As for the current operational pit, it is likely that surface water will collect within the pit extension. Roads will have appropriate gullying and surface water infrastructure will be installed, if required. Therefore, HAUS have sufficient management processes in place to control any run off or increase in sediment load as a result of the vegetation clearance.

There is the potential for dieback to occur within the area, in addition to a number of weeds recorded throughout the CPAA. Therefore, there is the potential for heavy vehicle and plant movement to spread introduced species and dieback. HAUS has an existing Dieback and Weed Management Plan in place as part of the Gosnells Quarry EMP (HAUS, 2014) to reduce the spread of weeds and dieback and will revise and update the EMP as necessary during extension of the pit.

There is the potential for impacts to surrounding areas from dust emissions generated through clearing activities. Dust related impacts are controlled through the Gosnells Quarry EMP (HAUS, 2014), which has the following mitigation measures:

- Regularly wet down with water cart / truck dust prone unsealed surfaces.
- Undertake progressive rehabilitation in accordance with the Progressive Rehabilitation Plan (PRP).
- Undertake dust monitoring as per the Dust Management Plan. Undertake progressive rehabilitation in accordance with the PRP.
- Implementing additional dust control measures.

This EMP will be revised and updated as necessary during extension of the pit within the CPAA.

Due to the controls in place, it is unlikely that appreciable land degradation will occur due to clearing of native vegetation and unlikely to be at variance to this Clearing Principle.

4.9 CLEARING 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

The CPAA is located close to Ellis Brook Valley Reserve which forms part of the Banyowla Regional Park. To the south is the Wrights Brook Regional Open Space. Ellis Brook Valley Reserve is a Category A status reserve listed on the register of National Estate (ID. 181050) for its landscape and wildlife values. To the east is the Korung National Park.

These conservation areas represent areas of remnant native vegetation and may provide habitat for conservation significant flora and fauna species. The Land Swap Area occurs within Banyowla Regional Park which was bequeathed to the State government as part of the original Development Approval for the Gosnells Quarry following submission of the ERMP in 1982. This provided an offset opportunity for the loss of vegetation and fauna habitat from the quarry.

Potential impacts to adjacent conservation areas can occur through weed and dieback invasion which may lower the environmental value of the conservation areas. In order to manage impacts, appropriate management plans are in place to control weed and dieback propagation. In addition, the Gosnells Quarry EMP (HAUS, 2014) has specific mitigation measures surrounding control of water.

There is the potential for impacts to surrounding conservation areas from dust emissions from clearing activities. Dust related impacts are controlled through the EMP (HAUS, 2014).

This EMP will be revised and updated as necessary during extension of the pit within the CPAA.

Therefore, controls are in place to prevent the spread of impacts and no native vegetation will be cleared that is considered to have an impact on the environmental values of any adjacent or nearby conservation area. As such, this is not at variance to this Clearing Principle.

4.10 CLEARING 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.

As detailed in the Gosnells Quarry EMP (HAUS, 2014), erosion and sedimentation of surface water from cleared areas may occur during rainfall events. Activities associated with the clearance of vegetation have the potential for increasing land degradation through increased surface water run-off.

As with the current operations, sedimentation runoff will be minimised in accordance with the existing surface water management programme within the Gosnells Quarry EMP. This EMP will be revised and updated as necessary during extension of the pit within the CPAA. Roads will have appropriate gullying and surface water infrastructure will be installed around the pit extension, if required. Therefore, HAUS has sufficient management processes in place to control any run off or increase in sediment load as a result of the vegetation clearance. Loose topsoil will be removed and stockpiled for use in site rehabilitation.

Given that the groundwater aquifers occurring at the Gosnells Quarry are of limited areal extent and groundwater inflows have been noted on the eastern and northern walls of the existing main pit and below the Main Dam in small quantities, clearing of vegetation is unlikely to cause the groundwater level to rise.

Following the appropriate management measures, the clearance of native vegetation in the CPAA is unlikely to cause the deterioration in the quality of surface or underground water and be at variance to the Clearing Principle.

4.11 CLEARING 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

It is unlikely that the clearing of vegetation will cause or exacerbate the incidence of flooding as all surface water flows through the CPAA will be managed in

accordance with the Gosnells Quarry existing surface water management programme within the EMP. This EMP will be revised and updated as necessary during extension of the pit within the CPAA.

As for the current operational pit, it is likely that surface water will collect within the pit extension. Roads will have appropriate gullying and surface water infrastructure will be installed around the pit extension, if required.

Flooding is not currently an issue at the quarry and it is unlikely that the clearing of vegetation within the CPAA will change this. Therefore, the clearing of vegetation within the CPAA is unlikely to cause, or exacerbate, the incidence or intensity of flooding and be of variance to this Clearing Principle.

5. CONCLUSION

The assessment of Clearing Principles presented in Section 4.0 concludes that none of the Principles are likely to be adversely impacted by the proposed clearing.

In Section 3.0 of this Clearing Permit Application, HAUS has detailed and compared the conservation values of both the original Land Swap Area and the CPAA to assess whether the basis of the original land swap assessment in 1982 still applies, ie that the land exchanged is of similar or greater conservation value than the land given to HAUS.

The land held by HAUS and exchanged to the State in 1984 was originally assessed in a System 6 study (The Darling System – Proposals for Parks and Reserves – The System 6 Study Report, 9 April 1981) as having greater conservation value than the State reserve (refer to EPA Bulletin 120) in 1982. At the time, the Land Swap Area was assessed as having the significant features of the 60 Foot Falls, Ellis Brook Valley Reserve and a group of *Eucalyptus lane-poolei* (considered rare when the ERMP was assessed, it has since been delisted).

In the last 12 years, HAUS has undertaken a number of detailed flora and fauna surveys over the extent of the CPAA and the Land Swap Area to quantify the conservation value of both areas as well as to address DWER requests for further information in relation to the presence of Black Cockatoos and the rare orchids, *Thelymitra magnifica* (Priority 1), *Thelymitra stellata* (Endangered under the BC Act and EPBC Act) in the CPAA.

Targeted flora surveys commissioned by HAUS (Bennett, 2014 and AECOM 2015a, 2015b and 2017a) have confirmed that these rare orchids do not occur in the CPAA. Vegetation surveys have confirmed that the same vegetation communities and soil associations occur in both the CPAA and the Land Swap Area, with the exception of a riparian vegetation association occurring adjacent Ellis Brook Valley Reserve in the Land Swap Area. The presence of the Ellis Brook in the Land Swap Area provides for greater biodiversity and a source of water for resident fauna. The same vegetation surveys have confirmed that there are no TEC's or PEC's in either area.

Hence, the floristic values of the CPAA and the Land Swap Area are similar in both extent and significance (Section 3.4).

In terms of diversity of fauna species, a comparison of the CPAA to the Land Swap Area (Bamford 2017a and b) found that the fauna values of both areas are similar (Section 3.5.5). Both areas provide residential habitat to 18 conservation significant fauna species including the Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*; Vulnerable under the EPBC Act and Schedule 3 under the BC Act) and the Chuditch (*Dasyurus geoffroii*; Vulnerable under the EPBC Act and Schedule 3 under the BC Act), and seven to eight regular visitors.

All three Black-Cockatoo species have been recorded in the region (DpaW, 2016) and suitable foraging and breeding habitat occurs in the CPAA and Land Swap Area. Carnaby's Black-Cockatoo and the Forest Red-tailed Black-Cockatoo were also recorded in the CPAA by Astron (2012b). Other conservation significant fauna

species that have been recorded in the CPAA include the Brush-tailed Phascogale, Quenda and Brush Wallaby.

All of these species (including other species that were not recorded, e.g. Chuditch, Carpet Python, Peregrine Falcon and Darling Range Ctenotus) are likely to be represented in the Land Swap Area, adjacent conservation estates and in similar vegetation complexes within the Darling Range (Bamford, 2017a).

Given the above, HAUS believes it has demonstrated that the historical Land Swap Area given to the State in 1985 is of similar conservation value to the portion of Lot 3 given to HAUS by the State.

HAUS also believes that the Land Swap Area should be considered by DWER to be a suitable offset for the clearing of native vegetation within the CPAA given that:

- None of the Clearing Principles are likely to be adversely impacted by the proposed clearing.
- The land area given to the State Government was a much greater area (236.8 ha) than that given to HAUS (143 ha).
- The clearing does not need assessment under the EPBC Act (Appendix B).

As indicated earlier in Section 1.4.1, HAUS has confirmed (via legal opinion and correspondence with the Commonwealth Department of Environment) that exemption from referral applies under Section 43B of the EPBC Act. Prior and future development of the Gosnells Quarry is in accordance with existing approvals, which are a lawful continuation of the land and were in place immediately prior to the commencement of the EPBC Act.

Therefore, HAUS requests that clearing approval is given for the CPAA and that the historic Land Swap Area is recognised as an acceptable offset without the need to seek further clearing approvals or provide further offsets for the progressive development of the resource for the life of the quarry, as this was entirely the intention of the original land swap.

6. REFERENCES

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Figures

GOSNELLS QUARRY
SITE LOCATION MAP

Author: RNM	Office: Perth, WA	Date: 5/09/2017
Aerial Photography: N/A	Digital Mapping: N/A	
Contour Interval: N/A	Grid: N/A Vertical Datum: N/A	Figure 1
Scale: 1:350,000 (A4) Path: Gosnells_20170727\02_MXDs\GQCPA_July2017		Version: 1 Plan: GQCPA

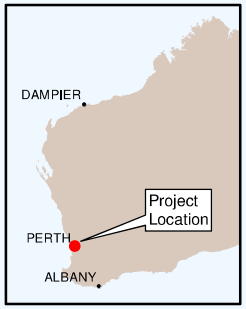
N

0 5 10 15 20

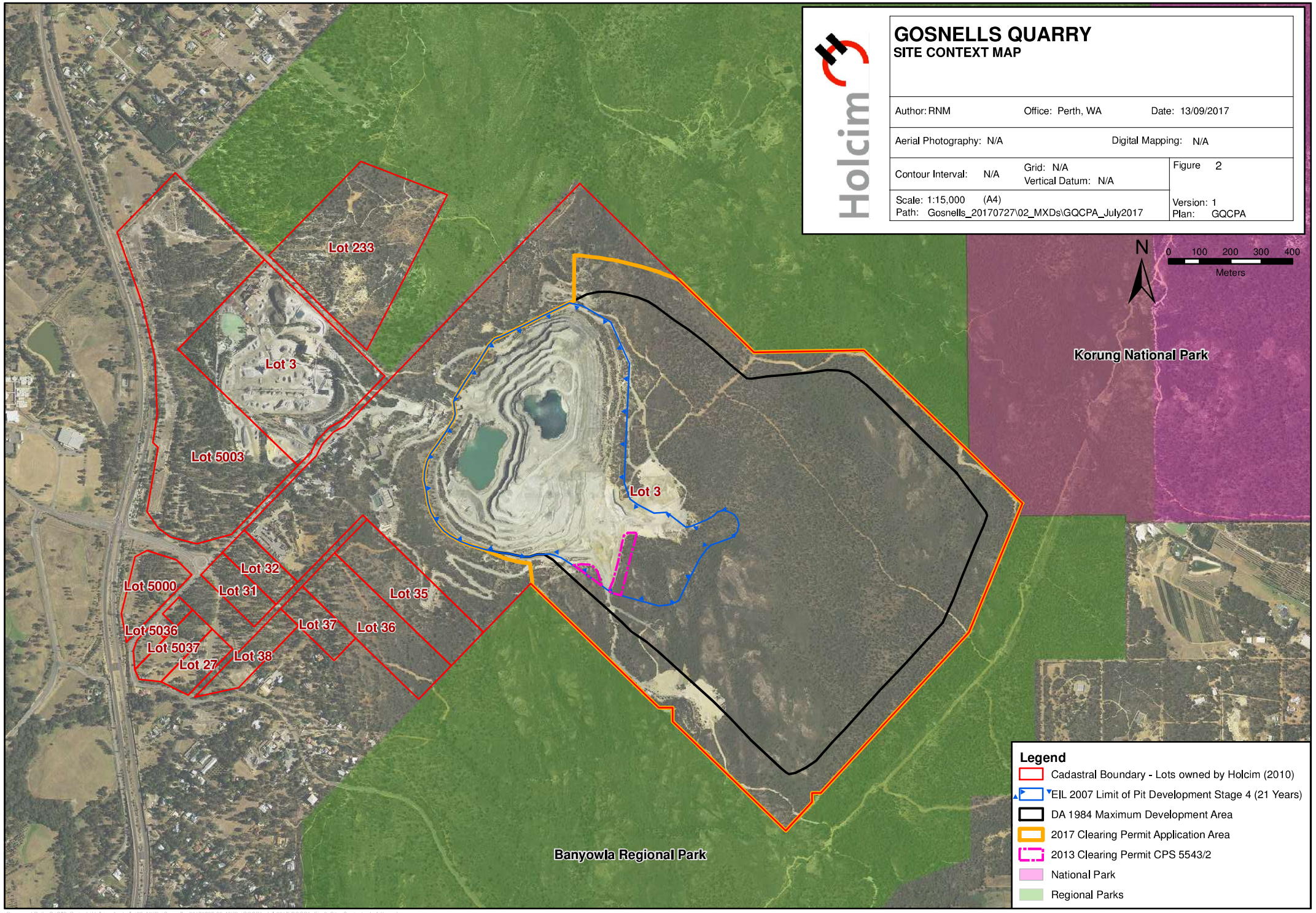
Kilometers

Legend

- Cadastral Boundary - Lots owned by Holcim
- Major Watercourse
- Railways
- Major Road
- Minor Road



MITCHELL FREEWAY
WANNEROO ROAD
N HIGHWAY
TOODYAY ROAD
HERNE HILL
REID HIGHWAY
TONKIN HIGHWAY
CHIDLOW
MOUNT HELENA
MUNDARING
PERTH
STIRLING HIGHWAY
CANNING HIGHWAY
ROE HIGHWAY
LEACH HIGHWAY
GOSNELLS QUARRY
BARTONS MILL
STOCK ROAD
KWINANA FREEWAY
ARMADALE
BROOKTON HIGHWAY
ROCKINGHAM ROAD
SOUTH WESTERN HIGHWAY
BYFORD
ALBANY HIGHWAY
MEDINA
ROCKINGHAM


GOSNELLS QUARRY
SITE CONTEXT MAP
Holcim
Author: RNM
Office: Perth, WA
Date: 13/09/2017
Aerial Photography: N/A
Digital Mapping: N/A
Contour Interval: N/A
Grid: N/A
Vertical Datum: N/A
Figure 2
Scale: 1:15,000 (A4)
Path: Gosnells_20170727\02_MXDs\GQCPA_July2017
Version: 1
Plan: GQCPA
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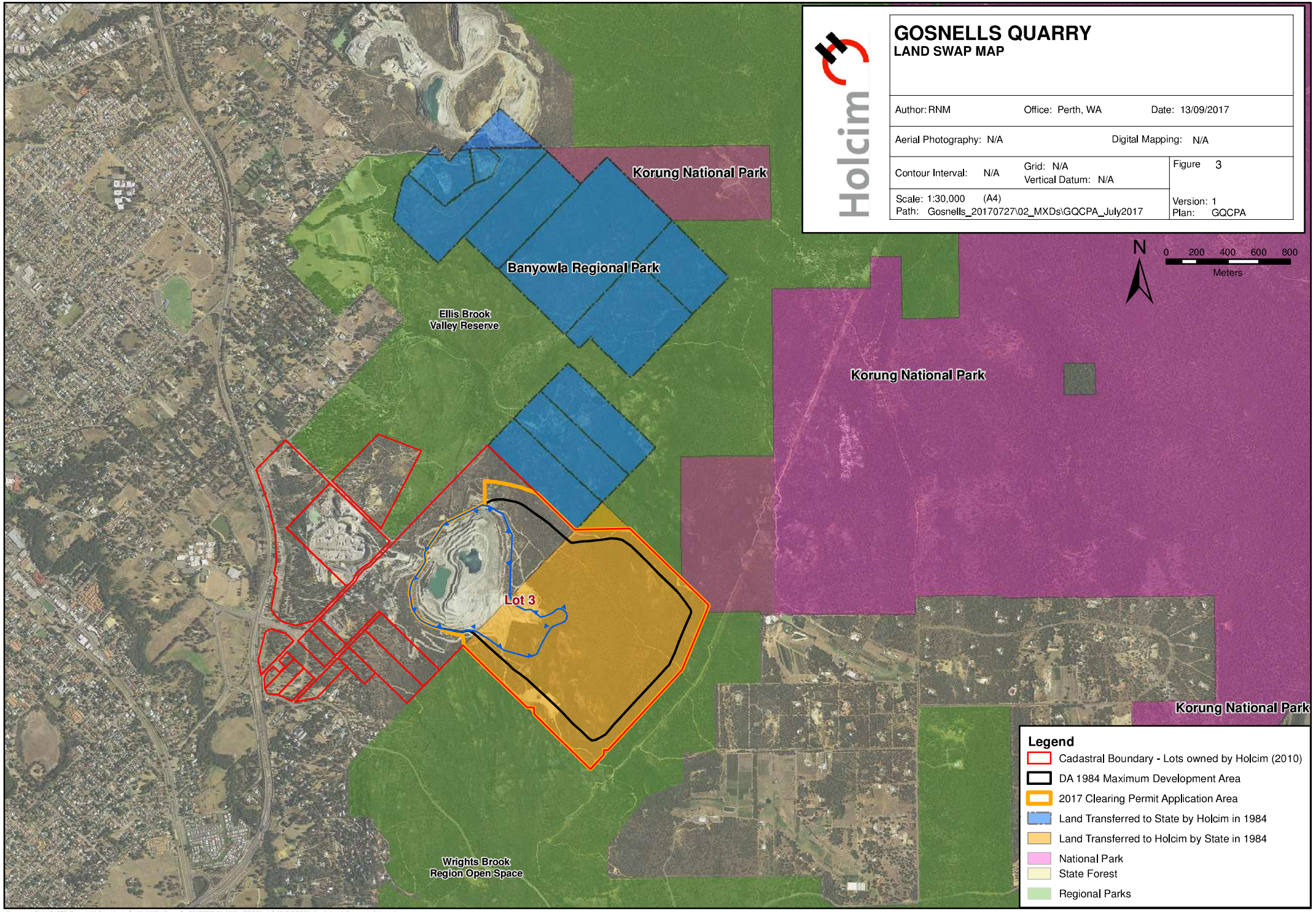
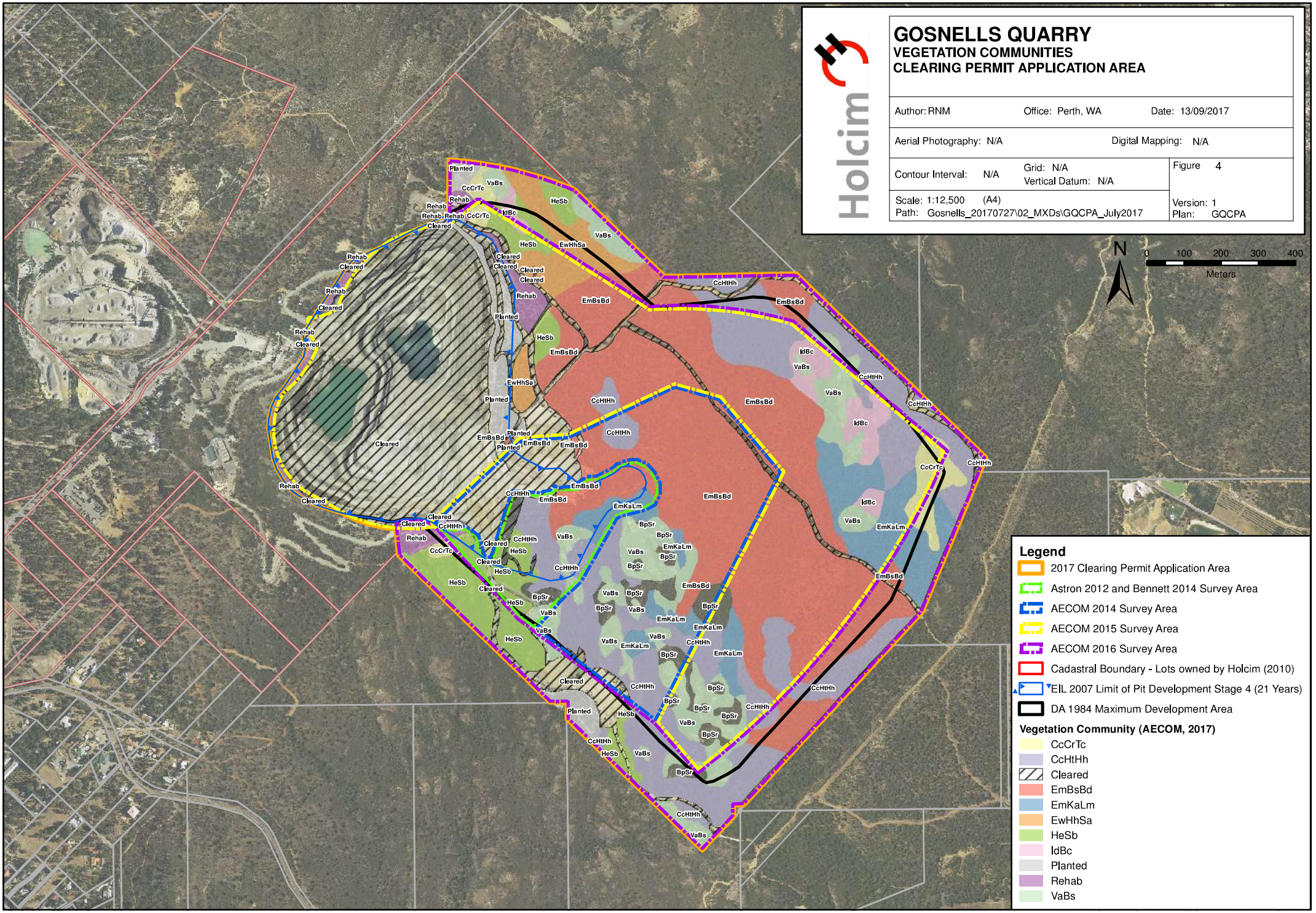
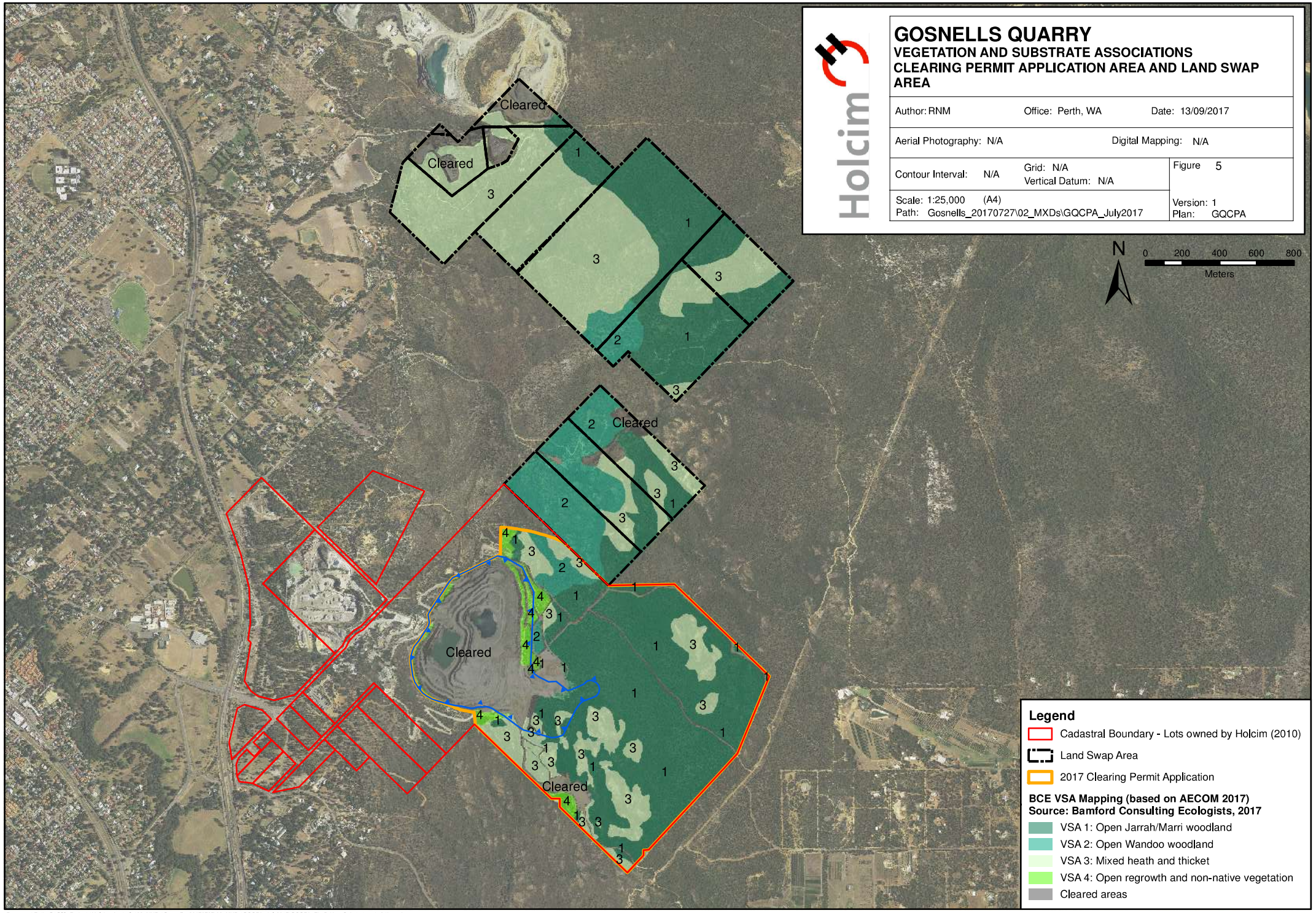
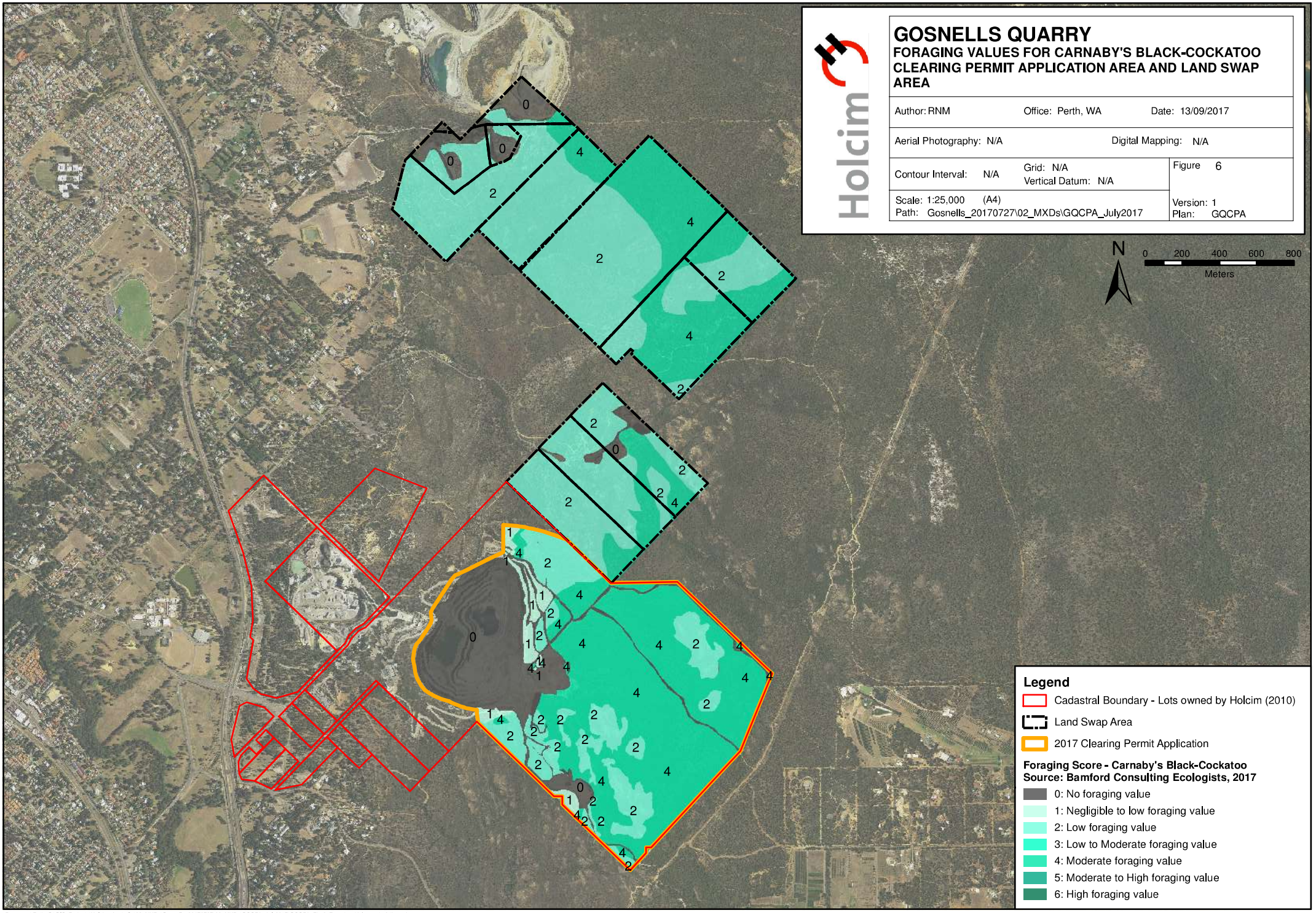
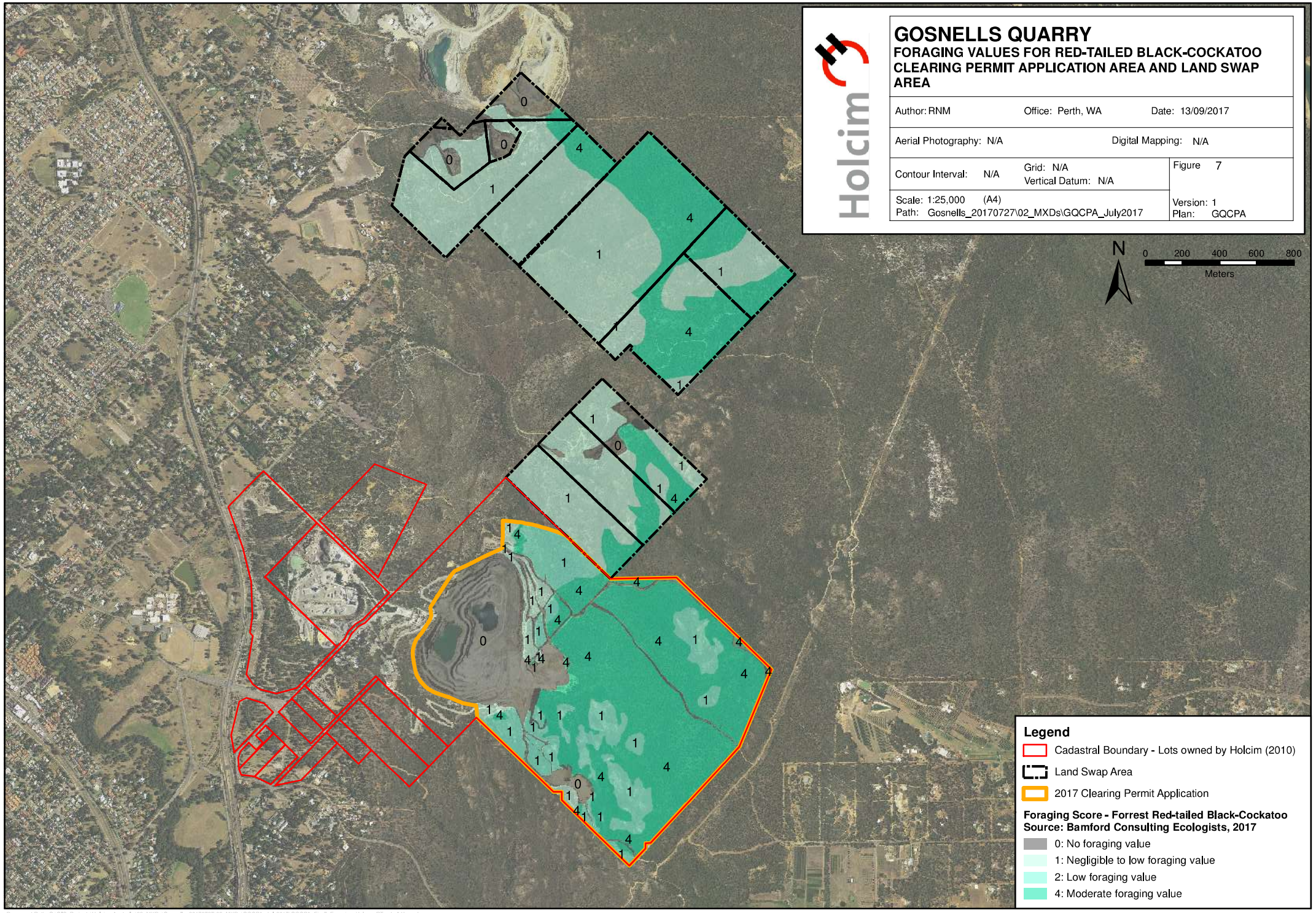
Meters
Lot 233
Lot 3
Lot 5003
Lot 3
Lot 32
Lot 31
Lot 5000
Lot 35
Lot 37
Lot 36
Lot 5036
Lot 5037
Lot 38
Lot 27
Korung National Park
Banyowla Regional Park
Legend
Cadastral Boundary - Lots owned by Holcim (2010)
EIL 2007 Limit of Pit Development Stage 4 (21 Years)
DA 1984 Maximum Development Area
2017 Clearing Permit Application Area
2013 Clearing Permit CPS 5543/2
National Park
Regional Parks


GOSNELLS QUARRY
LAND SWAP MAP
Author: RNM
Office: Perth, WA
Date: 13/09/2017
Aerial Photography: N/A
Digital Mapping: N/A
Contour Interval: N/A
Grid: N/A
Vertical Datum: N/A
Figure 3
Scale: 1:30,000 (A4)
Path: Gosnells_20170727\02_MXDs\GQCPA_July2017
Version: 1
Plan: GQCPA
Holcim
N
0 200 400 600 800
Meters
Korung National Park
Banyowla Regional Park
Ellis Brook Valley Reserve
Korung National Park
Lot 3
Korung National Park
Wrights Brook Region Open Space
Legend
Cadastral Boundary - Lots owned by Holcim (2010)
DA 1984 Maximum Development Area
2017 Clearing Permit Application Area
Land Transferred to State by Holcim in 1984
Land Transferred to Holcim by State in 1984
National Park
State Forest
Regional Parks


GOSNELLS QUARRY
VEGETATION COMMUNITIES
CLEARING PERMIT APPLICATION AREA
Holcim
Author: RNM
Office: Perth, WA
Date: 13/09/2017
Aerial Photography: N/A
Digital Mapping: N/A
Contour Interval: N/A
Grid: N/A
Vertical Datum: N/A
Figure 4
Scale: 1:12,500 (A4)
Path: Gosnells_20170727\02_MXDs\GQCPA_July2017
Version: 1
Plan: GQCPA
N
0 100 200 300 400
Meters
Legend
2017 Clearing Permit Application Area
Astron 2012 and Bennett 2014 Survey Area
AECOM 2014 Survey Area
AECOM 2015 Survey Area
AECOM 2016 Survey Area
Cadastral Boundary - Lots owned by Holcim (2010)
EIL 2007 Limit of Pit Development Stage 4 (21 Years)
DA 1984 Maximum Development Area
Vegetation Community (AECOM, 2017)
CcCrTc
CcHtHh
Cleared
EmBsBd
EmKaLm
EwHhSa
HeSb
IdBc
Planted
Rehab
VaBs


Cleared
Cleared
Cleared
Cleared
Cleared
Holcim
GOSNELLS QUARRY
VEGETATION AND SUBSTRATE ASSOCIATIONS
CLEARING PERMIT APPLICATION AREA AND LAND SWAP AREA
Author: RNM
Office: Perth, WA
Date: 13/09/2017
Aerial Photography: N/A
Digital Mapping: N/A
Contour Interval: N/A
Grid: N/A
Vertical Datum: N/A
Figure 5
Scale: 1:25,000 (A4)
Path: Gosnells_20170727\02_MXDs\GQCPA_July2017
Version: 1
Plan: GQCPA
N
0 200 400 600 800
Meters
Legend
Cadastral Boundary - Lots owned by Holcim (2010)
Land Swap Area
2017 Clearing Permit Application
BCE VSA Mapping (based on AECOM 2017)
Source: Bamford Consulting Ecologists, 2017
VSA 1: Open Jarrah/Marri woodland
VSA 2: Open Wandoo woodland
VSA 3: Mixed heath and thicket
VSA 4: Open regrowth and non-native vegetation
Cleared areas


GOSNELLS QUARRY
FORAGING VALUES FOR CARNABY'S BLACK-COCKATOO CLEARING PERMIT APPLICATION AREA AND LAND SWAP AREA
Author: RNM
Office: Perth, WA
Date: 13/09/2017
Aerial Photography: N/A
Digital Mapping: N/A
Contour Interval: N/A
Grid: N/A
Vertical Datum: N/A
Figure 6
Scale: 1:25,000 (A4)
Path: Gosnells_20170727\02_MXDs\GQCPA_July2017
Version: 1
Plan: GQCPA
N
0 200 400 600 800
Meters
Legend
Cadastral Boundary - Lots owned by Holcim (2010)
Land Swap Area
2017 Clearing Permit Application
Foraging Score - Carnaby's Black-Cockatoo
Source: Bamford Consulting Ecologists, 2017
0: No foraging value
1: Negligible to low foraging value
2: Low foraging value
3: Low to Moderate foraging value
4: Moderate foraging value
5: Moderate to High foraging value
6: High foraging value


GOSNELLS QUARRY
FORAGING VALUES FOR RED-TAILED BLACK-COCKATOO
CLEARING PERMIT APPLICATION AREA AND LAND SWAP AREA
Author: RNM
Office: Perth, WA
Date: 13/09/2017
Aerial Photography: N/A
Digital Mapping: N/A
Contour Interval: N/A
Grid: N/A
Vertical Datum: N/A
Figure 7
Scale: 1:25,000 (A4)
Path: Gosnells_20170727\02_MXDs\GQCPA_July2017
Version: 1
Plan: GQCPA
N
0 200 400 600 800
Meters
Legend
Cadastral Boundary - Lots owned by Holcim (2010)
Land Swap Area
2017 Clearing Permit Application
Foraging Score - Forrest Red-tailed Black-Cockatoo
Source: Bamford Consulting Ecologists, 2017
0: No foraging value
1: Negligible to low foraging value
2: Low foraging value
4: Moderate foraging value