



Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	9804/1
Permit type:	Area Permit
Applicant name:	Meteor Stone Pty Ltd
Application received:	12 July 2022
Application area:	6.495 hectares
Purpose of clearing:	Limestone Extraction
Method of clearing:	Mechanical Removal
Tenure:	Mining Lease 70/138
Location (LGA area/s):	City of Wanneroo
Colloquial name:	Westco Road Project

1.2. Description of clearing activities

Meteor Stone Pty Ltd proposes to clear up to 6.495 hectares of native vegetation within a boundary of approximately 6.495 hectares, for the purpose of limestone extraction. The project is located approximately 35 kilometres north of Perth, within the City of Wanneroo.

The application is to allow for the expansion of limestone mining activities on Mining Lease 70/138. Mining started on the tenement over 20 years ago and the proposed clearing would be for a satellite area of limestone extraction.

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	26 September 2024
Decision area:	6.495 hectares of native vegetation

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 Energy, Mines, Industry Regulation and Safety (DEMIRS) on 12 July 2022. DEMIRS advertised the application for a public comment for a period of 21 days, and two submissions were received. The submissions primarily raised concerns at the potential loss of significant current and future foraging habitat for Carnaby's cockatoo (*Zanda latirostris*). The details of the submissions are summarised under Appendix B.

In making this decision, the Chief Executive Officer (CEO) had regard for the site characteristics (Appendix C), relevant datasets (Appendix H), supporting information provided by the applicant (Appendix A) including the results of a flora and vegetation survey (Appendix G), the clearing principles set out in Schedule 5 of the EP Act (Appendix E), proposed avoidance and minimisation measures (Section 3.1), relevant planning instruments and any other matters considered relevant to the assessment (Section 3.3).

The CEO considered that there are increasing pressures on the supply of basic raw materials in the Perth-Peel region. Previously supplies of limestone have been quarried from deposits close to where they are needed however, these deposits are becoming exhausted, while demand continues to grow (Gozzard, 2010). There are 15 operating limestone quarries within 10 kilometres of the application area however, many of these are smaller parts of a larger quarry site and some have since been exhausted so the actual number of operating limestone quarries in the local area is smaller (GIS Database). Consideration was given in making this decision that the proposed quarrying activity is part of an existing quarry site and does not require additional clearing for the establishment of existing facilities.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the CEO determined the proposed clearing will result in the following significant residual impacts (SRI):

- the loss of 6.495 hectares of native vegetation that provides significant foraging habitat for Carnaby's cockatoo (*Zanda latirostris*)

To address the above SRI and applying the WA Environmental Offsets Metric, the CEO determined that the following land acquisition and rehabilitation offsets are required:

- acquisition of 38.9 hectares of foraging habitat for Carnaby's cockatoo;
- revegetation activities within the area of land acquired to improve the quality of the foraging habitat for Carnaby's cockatoo.

The assessment identified that the proposed clearing may also result in:

- the loss of 6.495 hectares of Northern Spearwood shrublands and woodlands ('floristic community type 24') Priority 3 priority ecological community (PEC);
- the potential introduction and spread of weeds and dieback into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values;
- the loss of 6.495 hectares of native vegetation that is a significant remnant of native vegetation and an ecological linkage.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing is likely to have long-term adverse impacts on Carnaby's cockatoo and is seriously at variance to clearing principle (b). Under section 51O(3) of the EP Act, the Chief Executive Officer may approve clearing which is seriously at variance with a clearing principle if, and only if, in the CEO's opinion there is a good reason for doing so. In this instance, the CEO considers that the following good reasons exist for granting a clearing permit:

- The limestone within the application area has been identified as a significant geological supply under State Planning Policy 2.4;
- The limestone from this quarry is required to support road upgrades for the larger Mitchell Freeway extension project. The Mitchell Freeway extension project is understood to provide the following social and economic benefits:
 - Improved network connectivity, accessibility and road safety for all road users;
 - A more direct route to Perth's northern suburbs and relieve traffic build up on nearby roads;
 - Facilitate economic and social development to communities in Perth's northern suburbs;
- The limestone is also required in the construction of the Alkimos Seawater Desalination Plant (ASDP) which is understood to provide the following environmental and social benefits:
 - The ASDP will help reduce dependence on rainfall and groundwater;
 - The ASDP will aid in the security of water sources into the future accounting for a drying climate and population growth;
- The limestone is also required in the construction of houses;
- The impacts of clearing have been avoided or mitigated to the extent practicable;
- The significant residual impacts of the clearing have been appropriately offset in accordance with the WA Offset Policy 2011 and WA Environmental Offset Guidelines (2014).

The CEO decided to grant a clearing permit subject to conditions to:

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback;
- undertake slow, progressive one-directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity;
- commence construction no later than three months after undertaking clearing to reduce the risk of erosion;
- retain cleared vegetation and topsoil and respread this on a cleared area of equivalent size within the adjacent existing gravel extraction area within 12 months of clearing to ensure fauna habitat is not permanently lost.

1.5. Site map

A site map of proposed clearing is provided in Figure 1 below.







LEGEND		GCS: GDA2020 Datum: GDA2020 Map Units: Degree	
Mining Act Tenure			
CPS 9804/1		Scale: 1:3,704	GOVERNMENT OF WESTERN AUSTRALIA

Figure 1. Map of the application area. The yellow area indicates the area within which conditional authorised clearing can occur under the granted clearing permit.




LEGEND

-  Offset Area
- Regional Cadastre
- TENURE_TYPE
-  FREEHOLD


0  0.42 km
Scale: 1:8,257

GCS: GDA2020
Datum: GDA2020
Map Units: Degree



**GOVERNMENT OF
WESTERN AUSTRALIA**

Figure 2. Map of the offset area. The red area indicates the area to which conditions 7 and 8 apply.

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 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.
- the polluter pays principle

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)
- *Mining Act 1978* (WA)

Relevant policies considered during the assessment include:

- *Environmental Offsets Policy* (2011)
- *State Planning Policy 2.4 – Planning for Basic Raw Materials*

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- Environmental Offsets Guidelines (August 2014)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2020)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

Meteor Stone have implemented the following avoidance and mitigation measures to reduce impacts from the proposed clearing (Meteor Stone Pty Ltd, 2024):

- The application area has avoided all records of Threatened and priority flora on the Mining Lease.
- The area of limestone extraction was selected to target areas which require minimal overburden removal. This results in a smaller area of clearing required to extract the resource.
- Areas will be rehabilitated following the completion of mining.

After consideration of avoidance and mitigation measures, it was determined that an offset to counterbalance the significant residual impacts to foraging habitat for the Carnaby's cockatoo is necessary. In accordance with the Government of Western Australia's Environmental Offsets Policy and Environmental Offsets Guidelines, these significant residual impacts have been addressed through the conditioning of environmental offset requirements on the permit. The nature and suitability of the offset is provided are summarised in Section 4.

3.2. Assessment of impacts on environmental values

In assessing the application, the CEO has had regard for the site characteristics (see Appendix C) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles identified that the impacts of the proposed clearing present a risk to biological values (fauna, flora and vegetation) and significant remnant vegetation. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

3.2.1. Biological values (flora and vegetation) - Clearing Principles (a), (c) and (d)

Assessment

A total of 119 flora species have been recorded from flora surveys over the greater mining lease area (PGV Environmental, 2021). This total includes 32 species of introduced flora (PGV Environmental, 2021). The number of native flora species was considered low based on the size of the survey area however, it is not unexpected as there was a low diversity of vegetation types identified (PGV Environmental, 2021).

Based on known records and the vegetation of the application area there are 17 species of threatened or priority flora which the application area potentially provides habitat (PGV Environmental, 2021; GIS Database). The current survey recorded three species of priority flora; *Leucopogon* sp. Yanchep (M. Hislop 1986) (P3), *Pimelea calcicola* (P3) and *Stylidium maritimum* (P3). None of these species were recorded within the application area (PGV Environmental, 2021). An individual of *Melaleuca* sp. Wanneroo (G.J. Keighery 16705) (EN) has been previously recorded on the mining lease however, it was cleared during the expansion of the quarry in 2015 (PGV Environmental, 2021). A previous survey in 2013 also recorded *Sarcocolla bicarinata* (P3) however, it was not able to be confirmed due to the absence of flowering material (GHD, 2010). Based on the photo of a seedling

identified as *Sarcozona bicarinata*, it is considered that the individuals recorded are more likely to be the introduced species *Carpobrotus edulis* due to the sharp edges of the leaves which are not a characteristic of *Sarcozona bicarinata* (PGV Environmental, 2021). Given these findings, it is not considered for the application area to provide habitat for priority of threatened flora.

The following vegetation associations were recorded within the application area (PGV Environmental, 2021):

- BsHt: *Banksia sessilis/Hakea trifurcata/Xanthorrhoea preissii* Tall Open Scrub over *Hibbertia hypericoides/Calothamnus quadrifidus/Acacia pulchella* Open Low Heath; and
- Ms: *Melaleuca systema/ Melaleuca huegelii* Open Heath.

The BsHt vegetation type was considered to be similar to the 'Northern Spearwood shrublands and woodlands ('floristic community type 24') ecological community which is considered a Priority Ecological Community (PEC) (PGV Environmental, 2021). Approximately 331 hectares of this community has been mapped in the local area (10 kilometre radius). Many of the patches of the PEC in the local area are within land managed by the Department of Biodiversity, Conservation and Attractions (DBCA) (GIS Database). Patch sizes vary from over 250 hectares to less than one hectare (GIS Database). Whilst it has not been fully mapped, it is likely that the occurrence of the PEC, within the application area, is one of the largest in the local area. Whilst the proposed clearing will impact on this patch of the PEC, the majority of the patch will be retained. Given the amount of this PEC being retained and the presence of other occurrences within DBCA managed land, the proposed clearing is not likely to significantly impact on the occurrence of this PEC in the local area.

This community can be a component of the 'Banksia Woodlands of the Swan Coastal Plain' ecological community which is listed as a Threatened Ecological Community (TEC) under the *Environment Protection and Biodiversity Conservation Act 1999*. The BsHt vegetation type does not have any of the key diagnostic species of banksia, so it is not representative of the TEC (PGV Environmental, 2021; TSSC, 2016).

The flora survey also considered that the MsMh vegetation type identified within the survey area was representative of the *Melaleuca huegelii – Melaleuca systema* shrublands of limestone ridges TEC (PGV Environmental, 2021). This TEC was not located within the application and is situated approximately 100 metres north, adjacent to the existing quarry. It is considered that the clearing is unlikely to result in significant impacts to this TEC patch, or the conservation status of this TEC as a whole, noting that there is 100 metres of vegetation between the application area and the patch, which is considered to be large enough to prevent the spread of weeds and dieback and prevent impacts from dust. Permit conditions to manage weeds, dieback and wind erosion causing dust will further reduce the likelihood of any potential impacts.

Weeds were identified during the greater flora survey which included the application area (PGV Environmental, 2021). Weeds have the potential to significantly change the dynamics of a natural ecosystem and lower the biodiversity of an area. No dieback assessment has been undertaken over the application area (PGV Environmental, 2021). Potential impacts to the biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed and dieback management condition.

Conclusion

Based on the above assessment, the proposed clearing is not likely to impact on vegetation with a high level of floral diversity, however, it will result in the clearing of approximately 6.495 hectares of Northern Spearwood shrublands and woodlands ('floristic community type 24') PEC, which also provides significant foraging habitat for Carnaby's cockatoo. This PEC will retain sufficient representation in the local and regional area and impacts can be managed by conditions.

Conditions

To address the above impacts, the following management measures will be required as conditions of the permit:

- Take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback;
- Commence construction no later than three months after undertaking clearing to reduce the risk of erosion and dust impacting surrounding vegetation; and
- Revegetation of previously cleared areas, post extraction.

3.2.2. Biological values (fauna) - Clearing Principles (b)

Assessment

The Carnaby's cockatoo (*Zanda latirostris*) (Endangered) has been recorded within the local area. Carnaby's cockatoos nest in hollows in live or dead trees of karri, marri, wandoo, tuart, salmon gum, jarrah, flooded gum, York gum, powder bark, bullich and blackbutt (Commonwealth of Australia, 2017). They are known to forage on the seeds and flowers of a large variety of plants including Banksia, Eucalypt and Corymbia species (Valentine & Stock, 2008). Carnaby's cockatoo habitat can be considered in terms of breeding habitat, night roosting habitat, and foraging habitat. Carnaby's cockatoos will generally forage up to 12 kilometres from an active breeding site (DSEWPac, 2012; DoEE, 2017; DPaw, 2013). Following breeding, they will flock in search of food, usually within six kilometres of a night roost (DSEWPac, 2012; DoEE, 2017; DPaw 2013), but may range up to 20 kilometres (Commonwealth of Australia, 2017). Food resources within the range of breeding sites and roost sites are important to sustain populations, and foraging resources are therefore viewed in the context of known breeding and night roosting sites, particularly within 12 kilometres of an impact area (Commonwealth of Australia, 2017).

The Carnaby's cockatoo recovery plan (DPaw, 2013) summarises habitat critical to the survival for Carnaby's cockatoos as:

- The eucalypt woodlands that provide nest hollows used for breeding, together with nearby vegetation that provides feeding, roosting and watering habitat that supports successful breeding;
- Woodland sites known to have supported breeding in the past and which could be used in the future, provided adequate nearby food and/or water resources are available or are re-established; and

- In the non-breeding season the vegetation that provides food resources as well as the sites for nearby watering and night roosting that enable the cockatoos to effectively utilise the available food resource.

The Carnaby's cockatoo recovery plan states that there are multiple reasons for the decline of Carnaby's cockatoos, however the decline to date has primarily been through the extensive clearing of nesting and feeding habitat (DPaW, 2013). Ongoing counts of Carnaby's cockatoo numbers on the Perth-Peel Coastal Plain estimate that there has been a 35 per cent reduction in their population from 2010-2019 (Peck, Barrett and Williams, 2019). The long-term survival of Carnaby's cockatoos depends on the availability of suitable breeding habitat and hollows, as well as foraging habitat capable of providing enough food to sustain the population (DPaW, 2013).

The application area does not contain any tall Eucalypts which could be used by Carnaby's cockatoos for breeding or roosting (PGV Environmental, 2021) and therefore it is not considered for the proposed clearing to impact breeding or roosting habitat for black cockatoos.

The application area includes known foraging species for Carnaby's cockatoos including the high value species *Banksia sessilis* and *Hakea trifurcata* and the medium value species *Xanthorrhoea preissii* (PGV Environmental, 2021). *Banksia sessilis* and *Xanthorrhoea preissii* were the most abundant species across the application area with the density of *Banksia sessilis* in some locations reaching 70% (PGV Environmental, 2021). Foraging evidence by black cockatoos was observed on *Banksia sessilis* during the flora survey (PGV Environmental, 2021).

The northern banksia woodlands of the Perth metropolitan area, within which the application area occurs, are a known important foraging area during the non-breeding season for the Carnaby's cockatoo. The EPA technical advice for Carnaby's cockatoo notes that Banksia species (predominately *Banksia attenuata*, *Banksia menziesii* and *Banksia sessilis*) provide the most important natural food source on the Swan Coastal Plain (SCP) for this species (EPA 2019). The significance of the banksia woodland habitat on the SCP has been confirmed through foraging studies which determine that Carnaby's cockatoo exploit all areas of available Banksia food resources on the SCP (EPA, 2019). Banksia woodland in the Perth metropolitan area has been reduced to one third of its pre-European extent. The remaining portions are fragmented with the majority (82 per cent) of remnant patches under 10 hectares in size (EPA, 2019).

Pine plantations on the Swan Coastal Plain have become an increasing important food source for Carnaby's cockatoos in areas where insufficient native foraging habitat remains (Valentine & Stock, 2008). Results from the Great Cocky Count in 2019 found that over 70% of the Carnaby's cockatoos recorded in the Perth-Peel region were recorded within the Gnangara pine plantation and a roost in Yanchep National Park which has historically been used by cockatoos feeding in the Gnangara pine plantation (Peck, Barrett and Williams, 2019). Tracking of individual birds has shown that the cockatoos will primarily feed on pine seeds before switching to exclusive use of native vegetation following the depletion of pine cones (Murdoch University, 2022). As pine plantations are cleared, it will force Carnaby's cockatoos to switch to feeding on native vegetation earlier in the season as pine cones are depleted more quickly. Therefore, areas of foraging habitat in close proximity to cleared pine plantations are of greater significance to help provide enough food to sustain large numbers of Carnaby's cockatoos. The application area is located approximately 500 metres from pine plantations within the Gnangara-Moore River State Forest (GIS Database). Significant areas of the pine plantation in the local area (surrounding 10 kilometres) have been progressively felled over the previous 25 years, reducing the availability of foraging areas for Carnaby's cockatoos (GIS Database).

Adding to the pressures of food availability were the bushfires which have occurred in the previous five years. The 2019-20 Yanchep bushfires destroyed over 12,000 hectares of foraging habitat and within the local area, approximately 20% of the native vegetation has also been burnt during this time period (GIS Database). This elevates the importance of the foraging habitat within the application area in the short term as these burn areas recover and pines continued to be harvested.

There are 72 known black cockatoo roosting sites within 20 km of the application area; the range in which black cockatoos are known to forage from their roost sites. The closest of these is 1 km south of the application area. In addition, the application area is also within 12 kilometres of one of the last remaining breeding areas for Carnaby's cockatoo in the Perth metropolitan area (GIS Database). There are 17 known breeding sites present within 12 km; the range in which black cockatoos are known to forage from their breeding sites. The closest of these is 8 kilometres south of the application area. Success of breeding is dependent on the availability of adequate foraging habitat within 12 kilometres of the breeding site (Glossop et al., 2011). Given the vegetation within the application area provides high value foraging habitat that is likely to support black cockatoo populations roosting and breeding in the local area, it is considered that the proposed clearing of significant foraging habitat for Carnaby's Cockatoos is likely to impact the species at a local and regional scale.

Other fauna

The application area may also provide habitat for the following conservation significant fauna species:

- *Leioproctus contrarius* (a short-tongued bee) (Priority 3) - This bee species has been recorded from Eurardy in the north to Dardanup in the south. It uses the native species *Scaevola repens* var. *repens* and *Lechenaultia* spp. (Houston 2000). Noting its wide range and remaining suitable habitat adjacent to and surrounding the application area the proposed clearing would be unlikely to result in significant impacts to this species.
- Douglas's broad headed bee (*Hesperocolletes douglasii*) (Critically Endangered). In 1994, this species was gazetted as 'Presumed Extinct' and had only been recorded on one occasion, a single male species recorded at Rottneest Island in 1938. A second individual was collected in 2015 at the Australian Department of Defence Muchea Air Weapons Range. This species was recorded from Banksia woodland however, the species may be a generalist forager as it was carrying pollen from a diverse set of plant species from Banksia woodland (Pille Arnold et al., 2019). Whilst its preferred habitat is unknown, it is possible the vegetation proposed to be cleared could be utilised by the species. Noting the rarity of this species and similar habitat adjacent to and surrounding the application area, the proposed clearing would be unlikely to result in significant impacts to this species.

- The graceful sun-moth (*Synemon gratiosa*) (Priority 4) is known to occur in disjunct populations from Kalbarri to Binningup (GIS Database). The larvae of the species feed only on *Lomandra hermaphrodita* and *Lomandra maritima* (DEC, 2012a). There is *Lomandra hermaphrodita* recorded within the application area (PGV Environmental, 2021). Given the presence of this host species and the large number of graceful sun-moth records in the local area, it is likely that this species would utilise the application area. Noting its wide range and remaining suitable habitat adjacent to and surrounding the application area, the proposed clearing would be unlikely to result in significant impacts to this species.
- *Neelaps calonotos* (black-striped snake, black-striped burrowing snake) (Priority 3) – This species is restricted to coastal sandplains from near Dongara to Mandurah (Bush et al., 2010). Within the Perth Metropolitan area this species may be restricted to large reserves (How and Shine, 1999). It is possible that this species may occur within the application area, however noting its wide range and remaining suitable habitat adjacent to and surrounding the application area, the proposed clearing would be unlikely to result in significant impacts to this species.
- *Isoodon fusciventer* (quenda, southwestern brown bandicoot) (Priority 4) – This species inhabits dense scrubby, often swampy, vegetation with dense cover and adjacent forest and woodland (DBCA, 2018). This species is likely to occur within the application area, however noting its wide range and remaining suitable habitat adjacent to and surrounding the application area, the proposed clearing would be unlikely to result in significant impacts to this species.
- *Notamacropus irma* (western brush wallaby) (Priority 4) - Optimum habitat for this species is open forest or woodland, particularly favouring open, seasonally-wet flats with low grasses and open scrubby thickets across the south west of Western Australia (DEC, 2012b). While this species may utilise the application area as habitat, noting the range of this species and remaining suitable habitat adjacent to and surrounding the application area, the proposed clearing is unlikely to have a significant impact upon this species.

A condition requiring the applicant conduct clearing in a slow progressive manner will help to prevent impacts to individuals of the above species, particularly western brush wallaby and quenda.

Conclusion

Based on the above assessment, the proposed clearing will result in the clearing of 6.495 hectares of significant foraging habitat for Carnaby's cockatoos and will have significant residual impacts for this species. The vegetation is also part of an ecological linkage and provides habitat for other species of conservation significance.

Conditions

To address the above impacts, the following offset and management measures will be required as conditions of the permit:

- Directional clearing, which requires slow, progressive, one directional clearing to allow terrestrial fauna to disperse ahead of the clearing activity should they occur on site at the time of clearing;
- Offset – acquisition of 38.9 hectares land parcel comprising native vegetation that provides significant foraging habitat for Carnaby's cockatoo;
- Offset – Revegetation of offset site including infill planting and weed management to improve the condition of foraging habitat for Carnaby's cockatoo.

3.2.3. Environmental values (significant remnant vegetation) - Clearing Principle (e)

Assessment

The application area falls within the Swan Coastal Plain Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 38.62% of the pre-European vegetation still exists in the Swan Coastal Plain Bioregion (Government of Western Australia, 2019). Heddle et al. (1980) described and mapped the area as the Cottesloe complex-central and south which has approximately 32% remaining (GIS Database). Spatial data indicates the local area (10 kilometre radius from area proposed to be cleared) retains approximately 40% of the original native vegetation cover.

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre the year 1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). These vegetation units are all above the 30 per cent threshold of the Government of Western Australia (2019).

The eastern portion of the application area is within a linkage (9 - Links Bush Forever Sites 290, 293) mapped in the *Perth Regional Ecological Linkages* (WALGA, 2004). This ecological linkage dataset represents the first step in the process of identifying patches of native vegetation that can act as stepping stones to form the Regional Ecological Linkages. This linkage corresponds with conceptual linkage identified by the *Ecological linkages proposed for the Gnangara Groundwater System* (Brown et al, 2009). Conceptual linkages are described by Brown et. al. (2009) as "proposed ecological linkages based on past studies and new linkages across the landscapes with <60% native vegetation retained or on core landscapes that are predominantly over private property".

While it is acknowledged that the application area is within the above mapped linkage and the clearing will remove a portion of this linkage, it is considered that the proposed clearing will not entirely remove this linkage and that there is sufficient vegetation remaining outside the application area to allow for fauna and flora movement within the landscape. Nevertheless, the proposed clearing will impact on vegetation that is a part of a linkage between vegetation immediately to the north and Lake Joondalup to the south.

The application area is located within a remnant of vegetation surrounded by pine plantation to the east, cleared agricultural area to the west with existing cleared areas for limestone extraction in the north and south (see Figure 2). The application area is located within the centre of this remnant. The location of the clearing within the remnant is likely to have a greater impact on the remnant than an expansion of existing cleared areas. During a site visit by DEMIRS, it was observed that there are high levels of weeds in existing cleared areas on the tenement. Clearing areas in the centre of the remnant has the potential to increase the

spread of weeds throughout the remnant. The clearing of an access road to the satellite mining area also has the potential to impede the movement of fauna through the remnant. More mobile species such as birds and kangaroos are not likely to be significantly impeded however, smaller animals such as reptiles and insects may be less likely to move across cleared areas (Molloy et al., 2009).

The proposed clearing footprint has been minimised to reduce the amount of clearing of this remnant. Whilst the majority of the remnant will be retained, there are two additional clearing permit applications (CPS 8020/1 and CPS 9197/1) which propose to clear 1.967 hectares and 15.54 hectares respectively. Therefore, this remnant faces threats from potential cumulative impacts. Taking into consideration the total clearing of all three applications, the remnant will still retain sufficient vegetation to act as an ecological linkage and will maintain ecological function.

Conclusion

Based on the above assessment, the proposed clearing will contribute to the fragmentation and has potential to further degrade a local and mapped regional ecological linkage and will therefore impact on a significant remnant of vegetation in a highly cleared area. Whilst the clearing will impact a significant remnant, it will not completely sever the ecological linkage and there will be enough vegetation retained for the remnant to maintain its ecological function. Impacts from the clearing can be minimised by ensuring areas are revegetated when no longer needed to reduce the time areas are devoid of vegetation. The remnant is significant in providing foraging habitat for Carnaby's cockatoo. Impacts to significant Carnaby's cockatoo foraging habitat within the remnant are being offset through the acquisition of a land parcel containing suitable foraging habitat. Given the portion of the remnant being retained, it is not considered that the proposed clearing will have significant residual impacts on the remnant that require a separate offset. The parcel of land for the black cockatoo offset will also protect a remnant of native vegetation.

Conditions

To address the above impacts, the following management measures will be required as conditions of the permit:

- Revegetation of previously cleared areas, post extraction;
- Take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 22 July by DEMIRS inviting submissions from the public. Two submissions were received in relation to this application. Details of the submissions are outlined under Appendix B.

The permit area is within the South West Native Title Settlement area (DPLH, 2024). This settlement resolves Native Title rights and interests over an area of approximately 200,000 square kilometres within the south west of Western Australia. The mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered Aboriginal Sites of Significance within the application area (DPLH, 2024). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Other relevant authorisations required for the proposed land use include:

- A Mining Proposal / Mine Closure Plan approved under the *Mining Act 1978*.

Several mining proposals have been previously approved for the proposed limestone extraction on this tenement. A mine closure plan for the rehabilitation of the mine was approved in 2016.

The application area is within an area mapped as significant geological supply under State Planning Policy 2.4: Planning for Basic Raw Materials. Under this policy significant geological supplies are areas identified as having State significance due to the size of the resources, relative scarcity, demand and/or location near growth areas and transport routes (Western Australian Planning Commission, 2021).

It is noted that the proposed clearing will impact on Carnaby's cockatoo, which is a protected matter under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). The proposed clearing was deemed to be a controlled action under the EPBC Act (EPBC 2022/09324). Approval to clear 6.495 hectares of native vegetation was approved subject to conditions including an offset on 9 September 2024.

It is the proponent's responsibility to liaise with the Department of Water and Environmental Regulation and the Department of Biodiversity, Conservation and Attractions, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

4. Suitability of offsets

Through the detailed assessment outlined in Section 3.2 above, the CEO has determined that the following significant residual impacts remain after the application of the avoidance and mitigation measures summarised in Section 3.1:

- The loss of 6.495 hectares of Carnaby's cockatoo foraging habitat.

In assessing whether the proposed offset is adequate and proportionate to the significance of environmental values being impacted, a calculation using the WA State Offset Metric was undertaken for the vegetation yet to be cleared under CPS 9804/1. The calculation indicates that the proposed offset will counterbalance 100 percent of the significant residual impacts of clearing and is therefore consistent with the WA Environmental Offsets Policy, September 2011. The justification for the values used in the offset calculation is provided in Appendix F.

Using the WA State Offset Metric calculator, the following actions are required to offset the significant residual impact of the proposed clearing:

- The acquisition of land approximately 88 kilometres north of the application area, containing 38.9 hectares of native vegetation that is significant foraging habitat for Carnaby's cockatoo (Figure 2).
- The placement of a covenant under section 30B of *the Soil and Land Conservation Act 1945* over the area to conserve the vegetation in perpetuity
- Restoration actions within the offset area including infill planting and active weed management to improve the quality of the vegetation as foraging habitat for Carnaby's cockatoo

The offset site is part of a larger land acquisition which will be used as a strategic offset for other clearing applications. The delivery of a strategic offset approach was considered in determining the value of this offset to counterbalance the residual impacts of the clearing. Whilst not part of the current offset, consideration was also given to the presence of an area of dampland adjacent to the offsite site (and still within the larger area of land acquisition) which contains a slight depression which retains water. The presence of suitable water sources is a significant factor in the value of habitat for Carnaby's cockatoo, and increases the value of the site as a suitable offset.

The CEO considers that this adequately counterbalances the significant residual impacts listed above.

End

Appendix A. Additional information provided by applicant

Summary of comments	Consideration of comment
<p>DEMIRS review of the proposed clearing and associated supporting information identified that the proposed clearing would result in significant environmental impacts including:</p> <ul style="list-style-type: none"> The loss of 6.495 hectares of significant foraging habitat for Carnaby's cockatoos; The loss of vegetation significant as a remnant of vegetation. 	<p>Meteor Stone provided additional information which proposed the acquisition of a block of land for the purpose of long term conservation. There will be 38.9 hectares of this block set aside under a conservation covenant section 30B of <i>the Soil and Land Conservation Act 1945</i>. Infill planting and active management of the site will also improve the quality of the vegetation as foraging habitat for Carnaby's cockatoo.</p>
<p>DEMIRS requested further details on avoidance and mitigation measures for the proposed application.</p>	<p>Meteor Stone provided further information indicating that the area selected would involve the removal of less overburden which will reduce the amount of clearing required.</p>

Appendix B. Details of public submissions

Summary of comments	Consideration of comment
<p>There is an increased importance on all remaining foraging habitat in the local area, given the loss of foraging habitat from clearing (actual and proposed) of the Gngara Pine Plantation and the 2019-20 Yanchep fires and 2021 bushfires.</p>	<p>Considered as part of assessment of Principle (b)</p>
<p>The application area is important as it is within 12 km to one of the last remaining Carnaby's cockatoo breeding sites in the Perth area.</p>	<p>Considered as part of assessment of Principle (b)</p>
<p>The application area is important as it is within close proximity to known roosting sites.</p>	<p>Considered as part of assessment of Principle (b)</p>
<p>It is important to consider cumulative impacts when assessing clearing applications.</p>	<p>Considered as part of assessment of Principle (e)</p>
<p>It is important to have adequate and appropriate mitigation measure and consideration should also be given to whether the application should be refused.</p>	<p>Mitigation measures are detailed in section 3.1. Consideration on the reasons for granting the clearing permit are outlined in section 1.4.</p>
<p>The City of Wanneroo commented that the vegetation on site is mapped as Cottesloe Complex - Central and South, which has 32 per cent of its original extent currently protected within the City of Wanneroo. As such, this vegetation complex is a medium priority for further protection according to the City's Local Biodiversity Plan 2018/19 – 2023/24.</p>	<p>Considered as part of assessment of Principle (e)</p>
<p>The City of Wanneroo did not support the clearing at the time of submission due to there not being an Extractive Industry Licence or Development Approval application covering the area proposed to be cleared.</p>	<p>Basic Raw Material (BRM) extraction on private land (freehold) requires approval under the Planning and Development Act 2005 (Development Approval) and the Local Government Act 1995 (Extractive Industry Licences). BRM extraction on Crown Land requires a Mining Lease and approval of the mining activities is approved via a mining proposal. Therefore, an extractive industry licence or development approval is not required for this clearing.</p>

Appendix C. 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 DEMIRS at the time of this assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix D.

C.1. Site characteristics

Characteristic	Details
Local context	<p>The area proposed to be cleared is part of a larger remnant of native vegetation in the intensive land use zone of Western Australia. It is adjacent to existing areas of disturbance including pine plantation, quarries and rural blocks (see Figure 1). The proposed clearing area contributes to an ecological linkage in the local area.</p>

Characteristic	Details
	Spatial data indicates the local area (10 kilometre radius from the centre of the area proposed to be cleared) retains approximately 40 per cent of the original native vegetation cover.
Ecological linkage	The application area contributes towards a larger ecological linkage in the local area which connects to the Gnangara-Moore River State Forest (GIS Database).
Conservation areas	The closest conservation area is the Gnangara-Moore River State Forest which is located approximately 500 metres northwest of the application area (GIS Database).
Vegetation description	<p>The vegetation of the application area is broadly mapped as the following Heddle Vegetation Complex (GIS Database):</p> <ul style="list-style-type: none"> - Cottesloe Complex – Central and South. <p>A flora and vegetation survey was conducted over the application area by PGV Environmental during October 2021 and GHD in November 2013. The following vegetation associations were recorded within the application area (PGV Environmental, 2021):</p> <p>BsHt: <i>Banksia sessilis/Hakea trifurcata/Xanthorrhoea preissii</i> Tall Open Scrub over <i>Hibbertia hypericoides/Calothamnus quadrifidus/Acacia pulchella</i> Open Low Heath; and</p> <p>Ms: <i>Melaleuca systema/ Melaleuca huegelii</i> Open Heath.</p>
Vegetation condition	<p>The vegetation survey (PGV Environmental, 2021) indicates the vegetation within the proposed clearing area is in excellent to good (Keighery, 1994) condition. Over 99% of the application area was mapped as excellent with a small section of the access road in the east mapped as good (PGV Environmental, 2021).</p> <p>The full Keighery (1994) condition rating scale is provided in Appendix E.</p>
Climate and landform	The application area is mapped within elevations of 80-95 metres AHD. The annual average rainfall (Perth Metro) is 736.8 millimetres (BoM, 2022).
Soil description	The soil is mapped as soil untis 211Sp_Kls and 211Sp_Ky (DPRID, 2024). 211Sp_Kls is described as low hills and ridges. Bare limestone or shallow siliceous or calcareous sand over limestone (DPIRD, 2022). 211Sp_Ky is described as low hilly to gently undulating terrain. Yellow sand over limestone at 1-2 metres (DPIRD, 2024).
Land degradation risk	Parts of the application area have a high wind erosion risk (DPIRD, 2024). The application area has a low risk of water erosion, flood risk or waterlogging (DPIRD, 2024).
Waterbodies	The desktop assessment and aerial imagery indicated that there are no waterbodies or wetlands within the area proposed to be cleared (GIS Database).
Hydrogeography	There are no Public Drinking Water Source Areas within or in close proximity to the application area (GIS Database). The groundwater salinity within the application area is less than 500 milligrams per litre of Total Dissolved Solids (TDS) (GIS Database). This is considered to be fresh water.
Flora	There are no records of conservation significant flora within the application area. There are records of one Threatened species and 16 priority flora within 10 kilometres. There were three species of priority flora recorded with the greater flora survey (PGV Environmental, 2021).
Ecological communities	The vegetation of the application area has been identified as being the 'Northern Spearwood shrublands and woodlands ('floristic community type 24')' Priority 3 PEC (PGV Environmental, 2021).
Fauna	There are records of 26 conservation significant fauna species within the local area, 13 of which have been recorded within similar vegetation and habitat types to the application area. Evidence of Carnaby's cockatoo foraging within the application area was recorded during the habitat assessment (PGV Environmental, 2021).

C.2. Vegetation extent

	Pre-European area (ha)	Current extent (ha)	Extent Remaining %	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA Managed Lands

IBRA Bioregion - Swan Coastal Plain	1,501,222	579,813	~39	222,917	~18
IBRA Subregion - Perth	1,117,757	466,143	~42	183,164	~21
Hedde Vegetation Complexes					
Cottesloe Complex – Central and South	45,300	14,568	~32	6,606	949

Government of Western Australia (2019)

C.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix H.1), and biological survey information, impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Are surveys adequate to identify? [Y, N, N/A]
<i>Acacia benthamii</i>	Priority 2	Y	Y	Y	<5	Y
<i>Baeckea</i> sp. Limestone	Priority 1	Y	Y	Y	<5	Y
<i>Beyeria cinerea</i> subsp. <i>cinerea</i>	Priority 3	Y	Y	Y	<20	Y
<i>Conostylis bracteata</i>	Priority 3	Y	Y	Y	<10	Y
<i>Eucalyptus argutifolia</i>	Threatened	Y	Y	Y	<2	Y
<i>Eucalyptus foecunda</i> subsp. <i>foecunda</i>	Priority 4	Y	Y	Y	<2	Y
<i>Hibbertia leptotheca</i>	Priority 3	Y	Y	Y	<10	Y
<i>Jacksonia sericea</i>	Priority 4	Y	Y	Y	<2	Y
<i>Lasiopetalum membranaceum</i>	Priority 3	Y	Y	Y	<15	Y
<i>Lecania sylvestris</i>	Priority 2	Y	Y	Y	<20	Y
<i>Leucopogon maritimus</i>	Priority 1	Y	Y	Y	<15	Y
<i>Leucopogon</i> sp. Yanchep	Priority 3	Y	Y	Y	<2	Y
<i>Melaleuca</i> sp. Wanneroo	Threatened	Y	Y	Y	<2	Y
<i>Pimelea calcicola</i>	Priority 3	Y	Y	Y	<2	Y
<i>Rinodina bischoffii</i>	Priority 2	Y	Y	Y	<20	Y
<i>Sarcozona bicarinata</i>	Priority 3	Y	Y	Y	<15	Y
<i>Stylidium maritimum</i>	Priority 3	Y	Y	Y	<2	Y

C.4. Fauna analysis table

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Apus pacificus</i> (fork-tailed swift)	Migratory	Y	Y	<7	3	Y
<i>Austrosaga spinifer</i> (spiny katydid (Swan Coastal Plain))	Priority 2	Y	Y	<4	2	N
<i>Botaurus poiciloptilus</i> (Australasian bittern)	Endangered	N	N	<8	3	Y
<i>Calidris ferruginea</i> (curlew sandpiper)	Critically Endangered	N	N	<8	1	Y
<i>Calidris ruficollis</i> (red-necked stint)	Migratory	N	N	<8	2	Y
<i>Calyptorhynchus banksii naso</i> (forest red-tailed black cockatoo)	Vulnerable	Y	Y	<7	2	Y
<i>Dasyurus geoffroi</i> (chuditch)	Vulnerable	Y	Y	<5	1	Y

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Hesperocolletes douglasi</i> (Douglas's broad-headed bee)	Critically Endangered	Y	Y	<9	1	N
<i>Hydromys chrysogaster</i> (water rat)	Priority 4	N	N	<7	1	Y
<i>Hylaeus globuliferus</i> (woolybush bee)	Priority 3	Y	N	<5	5	N
<i>Idiosoma sigillatum</i> (Swan Coastal Plain shield-backed trapdoor spider)	Priority 3	Y	Y	<7	2	N
<i>Isodon fusciventer</i> (quenda)	Priority 4	Y	Y	<2	90	Y
<i>Falco peregrinus</i> (peregrine falcon)	Other Specially Protected Fauna	Y	Y	<7	9	Y
<i>Leioproctus contrarius</i> (a short-tongued bee)	Priority 3	Y	Y	<8	1	N
<i>Limosa lapponica</i> (bar-tailed godwit)	Migratory	N	N	<8	1	Y
<i>Limosa limosa</i> (black-tailed godwit)	Migratory	N	N	<10	1	Y
<i>Neelaps calonotos</i> (black-striped snake)	Priority 3	Y	Y	<7	3	Y
<i>Notamacropus irma</i> (western brush wallaby)	Priority 4	Y	Y	<3	8	Y
<i>Oxyura australis</i> (Blue-billed duck)	Priority 4	N	N	<4	59	Y
<i>Pandion cristatus</i> (osprey)	Migratory	N	Y	<8	1	Y
<i>Plegadis falcinellus</i> (glossy ibis)	Migratory	N	N	<8	15	Y
<i>Synemon gratiosa</i> (graceful sunmoth)	Priority 4	Y	Y	<5	229	N
<i>Thalasseus bergii</i> (crested tern)	Migratory	N	N	<8	5	Y
<i>Tringa nebularia</i> (common greenshank)	Migratory	N	N	<6	19	Y
<i>Zanda baudinii</i> (Baudin's cockatoo)	Endangered	Y	Y	<8	3	Y
<i>Zanda latirostris</i> (Carnaby's cockatoo)	Endangered	Y	Y	0	574	Y

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

Appendix D. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> "Native vegetation should not be cleared if it comprises a high level of biodiversity."</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared does not contain any records of Threatened or priority flora (PGV Environmental, 2021). There is an occurrence of the 'Northern Spearwood shrublands and woodlands (floristic community type 24)' Priority 3 PEC (PGV Environmental, 2021). The application area contains foraging habitat for Carnaby's cockatoo and is likely to support other fauna species as it is a significant remnant of native vegetation.</p> <p>The number of flora species recorded during the flora survey was considered to be low however, the vegetation within the application area is significant in supporting the local diversity of flora and fauna.</p>	At variance	Yes <i>Refer to Section 3.2.1, above.</i>

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (b):</u> <i>“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.”</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared contain 6.485 hectares of significant foraging habitat for Carnaby’s cockatoo. The vegetation is also significant part of a remnant of vegetation and contributes to an ecological linkage in the local area.</p>	<p>Seriously at variance</p>	<p>Yes</p> <p>Refer to Section 3.2.2, above.</p>
<p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u></p> <p>There are no records of Threatened flora within the application area (GIS Database). A flora survey over the application did not identify any species of Threatened flora (PGV Environmental, 2021)</p>	<p>Not likely to be at variance</p>	<p>Yes</p> <p>Refer to Section 3.2.1, above.</p>
<p><u>Principle (d):</u> <i>“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.”</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared does not contain species that can indicate a threatened ecological community.</p>	<p>Not likely to be at variance</p>	<p>Yes</p> <p>Refer to Section 3.2.1, above.</p>
<p>Environmental value: significant remnant vegetation and conservation areas</p>		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u></p> <p>The vegetation within the application area is part of a remnant of vegetation within an extensively cleared area. This remnant of vegetation is likely to act as an ecological linkage through the landscape and is a significant foraging area for Carnaby’s cockatoos.</p>	<p>At variance</p>	<p>Yes</p> <p>Refer to Section 3.2.3, above.</p>
<p><u>Principle (h):</u> <i>“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.”</i></p> <p><u>Assessment:</u></p> <p>The closest conservation area is the Gngangara-Moore River State Forest which is located approximately 500 metres northeast of the application area (GIS Database). The area of the state forest closest to the application area is primarily pine plantation which has been harvested in the last 15 years. The proposed clearing is not likely to impact on the environmental values of the state forest.</p>	<p>Not likely to be at variance</p>	<p>No</p>
<p>Environmental value: land and water resources</p>		
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u></p> <p>Given there are no water courses or wetlands are recorded within the application area, the proposed clearing is unlikely to impact on hydrology and water quality in the local area.</p>	<p>Not at variance</p>	<p>No</p>
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u></p> <p>The application area has been mapped as having a low risk of water erosion, flood risk and water logging. The majority of the application area is mapped as having a higher risk of wind erosion (DPIRD, 2024). If areas are left open for long periods of time there is an increased risk of wind erosion. Potential impacts from wind erosion may be minimised by the implementation of a erosion management condition requiring that cleared areas are utilised soon after clearing. The applicant will revegetate the cleared areas following the completion of quarrying activity which will help ensure that the risk of erosion in the future is reduced.</p>	<p>At variance</p>	<p>No</p>

Assessment against the clearing principles	Variance level	Is further consideration required?
<p>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.”</p> <p><u>Assessment:</u></p> <p>Given no water courses, wetlands or Public Drinking Water Sources Areas are recorded within the application area, the proposed clearing is unlikely to impact surface or ground water quality.</p>	Not likely to be at variance	No
<p>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.”</p> <p><u>Assessment:</u></p> <p>The application area has a low risk of waterlogging (DPIRD, 2024). The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding.</p>	Not likely to be at variance	No

Appendix E. 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.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

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 F. Offset calculator value justification

WA Environmental Offsets Calculator rationale for scores used in the offset calculator

Environmental value to be offset		
Calculation	Score (Area)	Rationale
Conservation significance		
Description	Carnaby's Cockatoo Foraging Habitat	The application area will clear 6.495 ha of significant foraging habitat for Carnaby's cockatoo.
Type of environmental value	Species (flora/fauna)	Carnaby's Cockatoo
Conservation significance of environmental value	Rare/threatened species - endangered	Carnaby's Cockatoo are listed as Endangered.
Landscape-level value impacted	yes/no	No
Significant impact		
Description	Clearing of 6.495 ha of excellent quality foraging habitat	
Significant impact (hectares) / Type of feature	6.50	
Quality (scale) / Number	8.00	The area of foraging habitat is mostly in an excellent condition and contains suitable species for black cockatoo feeding. Evidence of foraging has been observed in the area and there are roosting sites within 2 km of the permit area and a known breeding site within 12 km
Rehabilitation credit		
Description	N/A	Rehabilitation will not be undertaken in a time period suitable to be given a rehabilitation credit.
Proposed rehabilitation (area in hectares)	0.00	
Current quality of rehabilitation site / Start number (of type of feature)	0.00	
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00	
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00	
Time until ecological benefit (years)	0.00	
Confidence in rehabilitation result (%)	0	
Offset		
Description	Revegetation of a previously cleared area.	
Proposed offset (area in hectares)	38.90	This value represents 100% of the significant residual impact.
Current quality of offset site / Start number (of type of feature)	7.00	The offset site contains suitable foraging species for Carnaby's cockatoo and there is evidence of foraging. An assessment of the habitat quality for cockatoos found the majority of the offsite was rated as 7.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	7.00	It is assumed that the offset vegetation will retain the same value into the future.
Future quality WITH offset (scale) / Future number WITH offset	8.00	The applicant has committed to weed management and infill planting within the offset area. This will help ensure that the value of the offset area improves into the future.
Time until ecological benefit (years)	17.00	It is estimated that the Banksia species being planted as part of revegetation activities will take 15 years to mature enough to be used as a foraging resources. Two years has also been allowed for the rehabilitation activities to commence.
Confidence in offset result (%)	0.8	Given the proposed weed management and infill planting activities, there is some uncertainty regarding the success of the activities.
Duration of offset implementation (maximum 20 years)	20.00	The offset site would be protected in perpetuity and therefore the maximum value of 20 years has been selected.
Time until offset site secured (years)	2.00	It is expected that the land for acquisition for conservation could be made within 2 years.
Risk of future loss WITHOUT offset (%)	15.0%	Assumed that the land acquired would be zoned rural or similar, and not be subject to any existing approvals.
Risk of future loss WITH offset (%)	5.0%	The future conservation (in perpetuity) of the site would result in a substantial increased security and reduce the risk of loss.
Offset ratio (Conservation area only)	N/A	

Appendix G. Photographs of the vegetation from DEMIRS site visit



Plate 1: Example of vegetation community BsHt



Plate 2: Example of vegetation community BsHt



Plate 3: Aerial view of vegetation within the application area (proposed permit boundary has been included on image for reference) (Landform Research, 2022)

Appendix H. Sources of information

H.1. GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Bush Forever (Regional Scheme) (DPLH-022)
- Cadastre (LGATE-218)
- Contours (DPIRD-073)
- Clearing Regulations – Schedule One Areas (DWER-057)
- 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)
- Hydrographic Catchments – Catchments (DWER-028)
- Hydrography – Inland Waters – Waterlines
- Hydrography, Linear (DWER-031)
- IBRA Vegetation Statistics
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Interim Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)

- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available (DPIRD-027)
- Soil Landscape Mapping – Rangelands (DPIRD-064)
- WA Now Aerial Imagery

Restricted GIS Databases used:

- Black Cockatoo WTBC Breeding
- Black Cockatoo FRTBC Breeding
- Black Cockatoo BC Roosts
- Black Cockatoo BC Feeding SCP
- Black Cockatoo Feeding JF
- Black Cockatoo Feeding Areas Buffered
- Black Cockatoo Baudins Distribution
- Black Cockatoo Forest Red Tail Distribution
- Black Cockatoo Carnabys Distribution
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

H.2. References

- BoM (2024) Bureau of Meteorology Website – Climate Data Online, Perth Metro. Bureau of Meteorology. <http://www.bom.gov.au/climate/data/> (Accessed 10 July 2024).
- Brown, P.H., Davis, R.A., Sonneman, T. & Kinloch, J. (2009). Ecological Linkages Proposed For The Gngara Groundwater System. Government of Western Australia, Perth.
- Bush, B., Maryan, B., Browne-Cooper, R., and Robinson, D. (2010). Field Guide to Reptiles and Frogs of the Perth region. Western Australian Museum, Welshpool, Western Australia.
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5. Glossary

Acronyms:

BC Act	<i>Biodiversity Conservation Act 2016</i> , Western Australia
BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia (now DPLH)
DAFWA	Department of Agriculture and Food, Western Australia (now DPIRD)
DAWE	Department of Agriculture, Water and the Environment, Australian Government
DBCA	Department of Biodiversity, Conservation and Attractions, Western Australia
DER	Department of Environment Regulation, Western Australia (now DWER)
DMIRS	Department of Mines, Industry Regulation and Safety, Western Australia
DMP	Department of Mines and Petroleum, Western Australia (now DMIRS)
DoEE	Department of the Environment and Energy (now DAWE)
DoW	Department of Water, Western Australia (now DWER)
DPaW	Department of Parks and Wildlife, Western Australia (now DBCA)
DPIRD	Department of Primary Industries and Regional Development, Western Australia
DPLH	Department of Planning, Lands and Heritage, Western Australia
DRF	Declared Rare Flora (now known as Threatened Flora)
DWER	Department of Water and Environmental Regulation, Western Australia
EP Act	<i>Environmental Protection Act 1986</i> , Western Australia
EPA	Environmental Protection Authority, Western Australia
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
PEC	Priority Ecological Community, Western Australia

RIWI Act *Rights in Water and Irrigation Act 1914*, Western Australia
TEC Threatened Ecological Community

Definitions:

{DBCA (2019) Conservation Codes for Western Australian Flora and Fauna. Department of Biodiversity, Conservation and Attractions, Western Australia}:-

T Threatened species:

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

Threatened fauna is that subset of 'Specially Protected Fauna' listed under schedules 1 to 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for Threatened Fauna.

Threatened flora is that subset of 'Rare Flora' listed under schedules 1 to 3 of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR Critically endangered species

Threatened species considered to be "*facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for critically endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.

EN Endangered species

Threatened species considered to be "*facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for endangered flora.

VU Vulnerable species

Threatened species considered to be "*facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for vulnerable fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for vulnerable flora.

Extinct Species:

EX Extinct species

Species where "*there is no reasonable doubt that the last member of the species has died*", and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

Published as presumed extinct under schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for extinct fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for extinct flora.

EW Extinct in the wild species

Species that "*is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form*", and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.

Specially protected species:

Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species;

cetaceans; species subject to international agreement; or species otherwise in need of special protection.

Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.

MI Migratory species

Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

CD Species of special conservation interest (conservation dependent fauna)

Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

Published as conservation dependent fauna under schedule 6 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

OS Other specially protected species

Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Published as other specially protected fauna under schedule 7 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

P Priority species:

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

P1 Priority One - Poorly-known species

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

P2 Priority Two - Poorly-known species

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

P3 Priority Three - Poorly-known species

Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included

if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

P4 Priority Four - Rare, Near Threatened and other species in need of monitoring

(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.

(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent.

(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Principles for clearing native vegetation:

- (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.
- (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.
- (c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.
- (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.
- (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.
- (f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.
- (g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.
- (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.
- (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.
- (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.