Comet Vale Sand Project
Proposed Offset Strategy

EPBC 2023/09460

October 2024

MLG Document Review Table

Version	Title	Task	Name	Company	Date
1	Comet Vale Sand Project Preliminary Documentation	Prepared By	Erin Lee	RPM Advisory Services Pty Ltd	13/08/2024
		Approved By	Murray Leahy	MLG Oz Limited	16/09/2024

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1. Introduction

1.1 Background

MLG Oz Limited (MLG) is proposing to develop the Comet Vale Sand Project (Comet Vale, or the Proposed Action), located approximately 96 km north of Kalgoorlie in the Goldfields Region of Western Australia. The Proposed Action was referred to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) on 28 March 2023 under the *Environment Protection and Biodiversity Conservation 1999* (EPBC Act).

1.2 Purpose and Scope

This Proposed Offset Strategy (POS) has been prepared to provide DCCEEW with a proposed strategy to satisfy biodiversity offset requirements for the Comet Vale Sand Project. The strategy considers the constraints and opportunities of securing biodiversity offsets in the arid region of Western Australia.

The purpose of this POS is to provide a framework for the implementation, monitoring and reporting requirements to ensure a successful offset arrangement. The POS will outline the partnership opportunity identified by MLG and the potential projects to be considered that will aim to provide a positive outcome for the impacted Matters of National Environmental Significance (MNES).

1.3 Regulatory Context

The strategy was developed in accordance with the following legislation, policy and guidelines:

- *Environmental Protection Act 1986* (EP Act);
- *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act, 1999);
- EPBC Act Environmental Offset Policy (DCCEEW, 2012); and
- *Biodiversity Conservation Act 2016* (BC Act).

The delegate of the Minister for the Environment and Water provided a determination of a Controlled Action on 1 May 2023 to be assessed by Preliminary Documentation. The information request provided by DCCEEW, dated 25 May 2023, requested the provision of an POS. This offset proposal has been prepared to address the principles of the EPBC Act Environmental Offsets Policy (DCCEEW, 2012) and Nature Positive Plan (DCCEEW, 2022).

1.4 Objective

MLG proposes to enter a partnership arrangement with the Great Victoria Desert Biodiversity Trust (GVDBT) to deliver their offset strategy for residual significant impacts to Malleefowl from the Proposed Action and to take actions to compensate for unavoidable impacts on Malleefowl or their habitat. This partnership aligns with the Nature Positive Plan released by DCCEEW in 2022 which describes a net positive outcome for MNES that can be achieved through conservation payments to Trusts for strategic environmental outcomes (DCCEEW, 2022).

The GVDBT represents a unique model for an environmental offset in the arid region of Western Australia as it was established to deliver state and federal environmental offset projects for Tropicana Gold Mine (Tropicana). AngloGold Ashanti established GDVBT in 2013 to establish a strategic approach

for on-ground research and conservation projects identified during the biodiversity offset strategy development. The projects are limited to MNES impacted by Tropicana being Malleefowl and Sandhill Dunnart and are to be carried out in the Great Victoria Desert bioregion.

2. Project Description

MLG Oz Limited (MLG) is proposing to develop the Comet Vale Sand Project (Comet Vale, or the Proposed Action), located approximately 96 km north of Kalgoorlie in the Goldfields region of Western Australia (WA) (Figure 2-1). Comet Vale is a greenfields small-scale sand and gravel project that includes the excavation of sand dunes above the water table, development of access tracks, and the operation of a mobile screening plant within the disturbed excavation areas.

The Proposed Action is to be implemented in a phased approach that includes:

- Construction Phase:
    - Conducting pre-clearance surveys to identify Malleefowl mounds.
    - Demarcation of approved area prior to commencing clearing activities.
    - Pre-stripping and stockpiling of topsoil and vegetation for future use in rehabilitation efforts.
- Operation Phase:
    - Excavation of sand and gravel dune systems to an average depth of 1.5 m.
    - Screening sand and gravel into different product sizes within already disturbed areas.
    - Loading the product into road trains for offsite transport.
- Progressive Rehabilitation and Closure Phases:
    - Stabilising excavated walls by battering them to a gradient of 12 to 15 degrees.
    - Respreading stockpiled topsoil on the shallow pit floor to a typical depth of 300 mm.
    - Ripping of surfaces to reduce compaction, with seeding applied, if required.
    - Final closure activities, including rehabilitating all remaining excavations and access tracks.

The Proposed Action site layout is provided in Figure 2-2.

Scale: 1:500,000
Projection: GDA2020 MGA Zone 51
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Aerial: Esri, DigitalGlobe, GeoEye, i-cubed, USDA FSA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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Comet Vale - Offset Management Plan

Location Plan

Figure 2-1 | ADV-AU-00382 | October 2024

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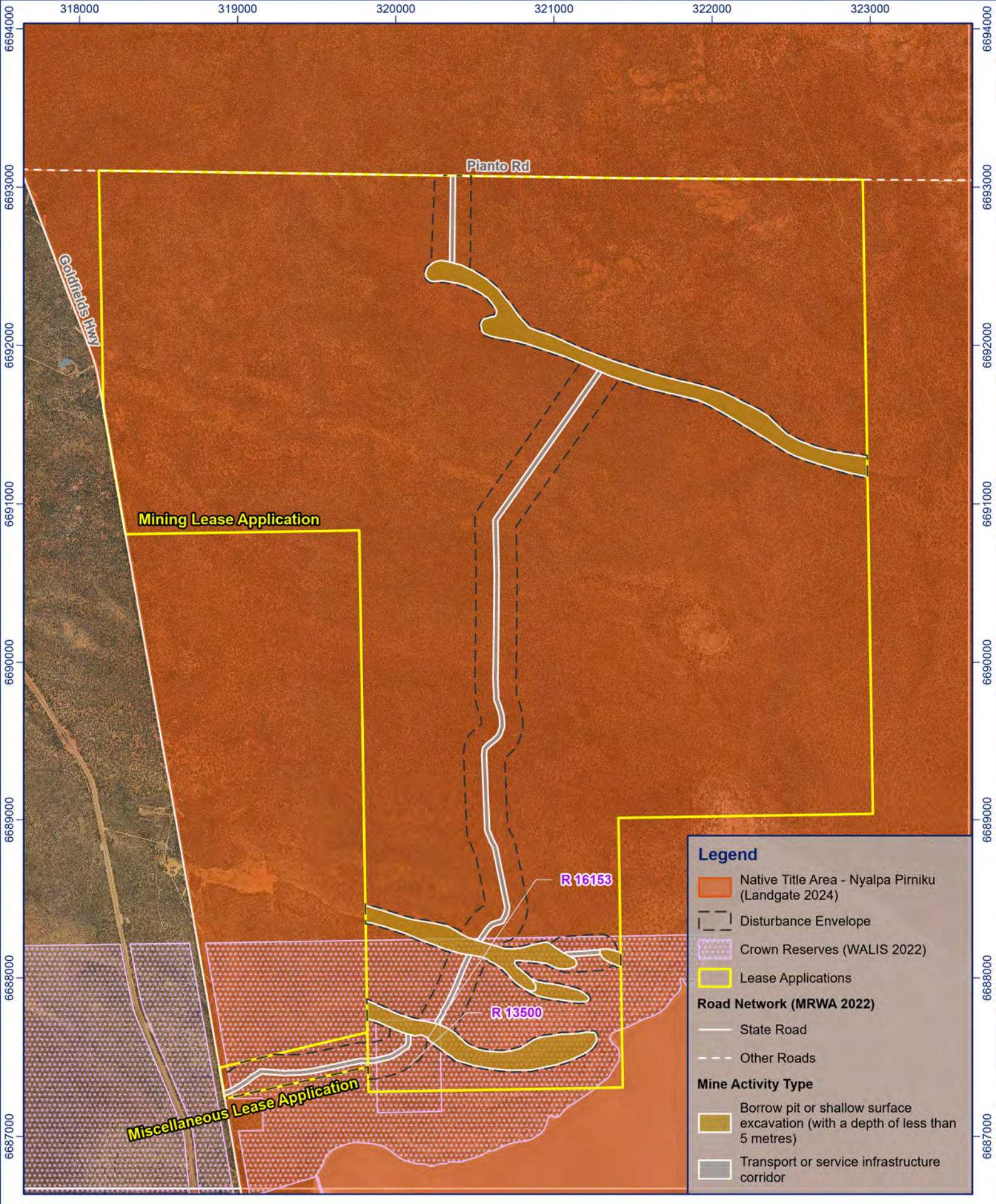

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Comet Vale - Offset Management Plan

Proposed Site Layout

Figure 2-2 | ADV-AU-00382 | October 2024

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3. Environmental Roles and Responsibilities

Table 3-1 identifies the roles and responsibilities relating to the implementation of this POS.

The implementation of this POS will be assisted through MLG's Environmental Management System (EMS) which provides systems, processes, procedures and work instructions relating to the management, monitoring and reporting components for the environmental management of the Proposed Action.

Table 3-1 Environmental Roles and Responsibilities

Role	Responsibility
Site General Manager	• The overall responsibility for implementation of POS.
Site Environmental Superintendent	• Overall accountability for auditing and compliance assessment with this plan during operation to ensure it is maintained and meets objectives and targets. • Implement and maintain POS, review its effectiveness and review the implementation as required. • Review and close-out any contingency actions. • Report as required to Government authorities.
Site Environmental Advisors	• Provide technical support to all personnel to ensure POS is implemented correctly and complied with. • Maintain records of surveys and any other relevant environmental data. • Coordinate the management activities outlined in this plan. • Implement monitoring programs that provide a review of the effectiveness of the plan and progress to completion criteria. • Complete compliance reporting. • Ensure all personnel are inducted and will adhere to POS requirements.
All Personnel	• Complete site induction prior to commencement of work on site. • Comply with all legal requirements. • Attend environmental inductions and any other training required during the operation.

4. Impacts of Controlled Action

4.1 Matters of National Environmental Significance

The EPA's objective for protection of terrestrial fauna is to maintain representation, diversity, viability and ecological function at the species, population and assemblage level.

Fauna surveys of the Project area have shown the Malleefowl (*Leipoa ocellata*) to be present. The Malleefowl is a species of conservation significance, listed as Vulnerable under the EPBC Act and Schedule 3 Vulnerable (fauna that is rare or is likely to become extinct) under the Wildlife Conservation Act 1950. Malleefowl is listed as Vulnerable under the EPBC Act occurring in all mainland states except Queensland. The Malleefowl is found in semi-arid to arid shrublands and low woodlands, especially those dominated by mallee and *Acacias*. Malleefowl are ground dwelling species and mostly move about their home-range by foot, rarely flying except when disturbed or roosting in the canopy.

The following aspects of the Project have been identified as having a potential impact on Malleefowl:

- Loss of active or potentially active mounds
- Habitat loss
- Disturbance to breeding or foraging birds
- Direct mortalities due to vehicle strike
- Entrapment
- Habitat fragmentation
- Change fire regimes

Several studies were conducted to determine the population of Malleefowl and their habitats in the proposed Development Envelope and the surrounding areas, using both Light Detection and Ranging (LiDAR) technology and traditional on-ground survey methods. These studies included:

- Basic vertebrate fauna survey and targeted Malleefowl survey (Western Wildlife, 2022).
- Light Detection and Ranging (LiDAR) Survey of a regional of 49km2 (Anditi, 2022).
- Targeted survey and ground truthing of LiDAR mounds (Western Wildlife, 2024).
- Desktop assessment for potential short-range endemic species (Invertebrate Solutions, 2022).

The surveys across the site were completed in accordance with the following guidelines:

- EPA Technical Guideline – Terrestrial Fauna Surveys (EPA, 2020).
- EPA Technical Guidance – Sampling Methods for Terrestrial Vertebrate Fauna (EPA, 2016).

Vegetation in the survey area is dominated by Mulga woodlands with ephemerals, hummock grasslands, saltbush shrublands and *Halosarcia* shrublands. All of the fauna habitats, excluding the salt lake has been classified as either critical or foraging habitat for Malleefowl across the survey area.

These classifications and the proposed disturbance from the Proposed Action are described in Table 4-1 and shown in Figure 4-1.

Table 4-1 Classification of Fauna Habitats

Fauna Habitat	Classification	Total Mapped Area (ha)	Area in Development Envelope (ha)	Proposed Action Activity	Area in Indicative Disturbance Footprint (ha)
Mulga Woodland	Critical	42.4	0	N/A	0.0
Acacia Shrubland	Critical	568.7	126.3	Access Track	14.8
Sand Dune	Foraging	77.8	73.5	Excavation	73.4
Eucalypt Spinifex Sandplain	Critical	289.5	43.9	Access Track	4.8
Salt Lake	None	2.3	0	N/A	0.0
Cleared	None	1.0	0.3	N/A	0.0
Total	-	981.7	244	-	93.0

The results of the LiDAR survey completed by Anditi (2022) identified 29 potential Malleefowl mounds which have been summarised in Table 4-2.

Table 4-2 LiDAR Malleefowl Mound Detection

Rating	Tenement	Regional	Total
Rating 1 – Highly Likely	4	7*	11
Rating 2 – Likely	1	6	7
Rating 3 - Possible	3	8	11

* Initial report of Survey area classified this mound as a Rating 2. It was subsequently upgraded in the Regional survey analysis

These findings were ground-truthed by Western Wildlife during the breeding season of 2023 (Western Wildlife, 2024). No Malleefowl were directly observed during the surveys but their tracks were recorded in the study area. The 2023 survey recorded one active mound, eight inactive mounds, and two historic mounds, with a further 15 inactive mounds found in the surrounding area, as shown in Figure 4-1.

Western Wildlife calculated the density of active mounds to estimate the number of breeding pairs. The single active mound within the regional LiDAR survey area equates to a density of 0.02 active mounds per km^2 in the buffer area which is considered low compared to other sources.

It is difficult to determine whether the inactive mounds were constructed earlier in 2023 or in previous years, as the materials are durable and can appear similar for several years. The abandonment of a mound could occur for several reasons, including the site may have been deemed unsuitable, a pair of birds might have prepared multiple mounds and selected only one for laying eggs, or dry conditions may have led to a decision not to attempt breeding at all.

The reduced number and lower density of active mounds in the study area are likely influenced by below-average annual rainfall in both 2022 (185.0 mm) and 2023 (164.0 mm) (Western Wildlife, 2024) compared to the 85-year average of 263.9 mm reported at Kalgoorlie-Boulder Airport (BOM, 2024).

4.2 Malleefowl Biology and Behaviour

The Malleefowl is listed as vulnerable under the EPBC Act. The Malleefowl occurs in all mainland states except Queensland and is recognised as "Threatened" wherever it occurs. The Malleefowl is found in semi-arid to arid shrublands and low woodlands, especially those dominated by mallee and *Acacias*. Malleefowl are ground dwelling species and mostly move about their home-range by foot, rarely flying except when disturbed or roosting in the canopy.

Adults reach up to 60 cm in length and weigh up to 2.5 kg. The Malleefowl is the only species in the genus Leipoa, belonging to the family Megapodidae known as the megapodes or mound builders. Malleefowl require leaf litter on sandy substrates to create mounds. The mounds are constructed intermittently by a pair of birds between autumn and spring, with chicks hatching between November and January. Chicks receive no parental care from parents and are vulnerable to predation by feral predators.

The degree of fragmentation of the remaining Malleefowl habitat is of particular concern and presents a major limiting factor to halting and reversing the decline of the species. Malleefowl have significantly declined over the past century, and several detailed studies have examined their conservation ecology in south-eastern Australia.

In central Australia, the Malleefowl is a feature in Aboriginal mythology associated with specific 'Dreaming' sites and trails and protection of the species is important for conservation and cultural purposes.

Malleefowls are primarily found in the semi-arid to arid zone of Australia in shrublands and low woodlands dominated by mallee and associated habitats. In Western Australia, the Malleefowl is also located in shrublands dominated by Acacia and occasionally in woodlands dominated by eucalypts such as Wandoo (*Eucalyptus wandoo*), Marri (*Corymbia calophylla*) and Mallet (*Eucalyptus astringens*).

The habitat requirements are poorly understood, however a sandy substrate and abundance of leaf litter are necessary for construction of mounds. Habitat critical to survival of the Malleefowl is only known in broad terms. Any occupied habitat used for breeding, or breeding habitat that is temporarily unoccupied (e.g. due to fire) that may be used in the future, may be considered habitat critical to the survival of the species.

4.3 Avoidance and Mitigation Measures

In developing the Proposed Action, MLG is committed to the following avoidance and mitigation measures to reduce the impact on Malleefowl:

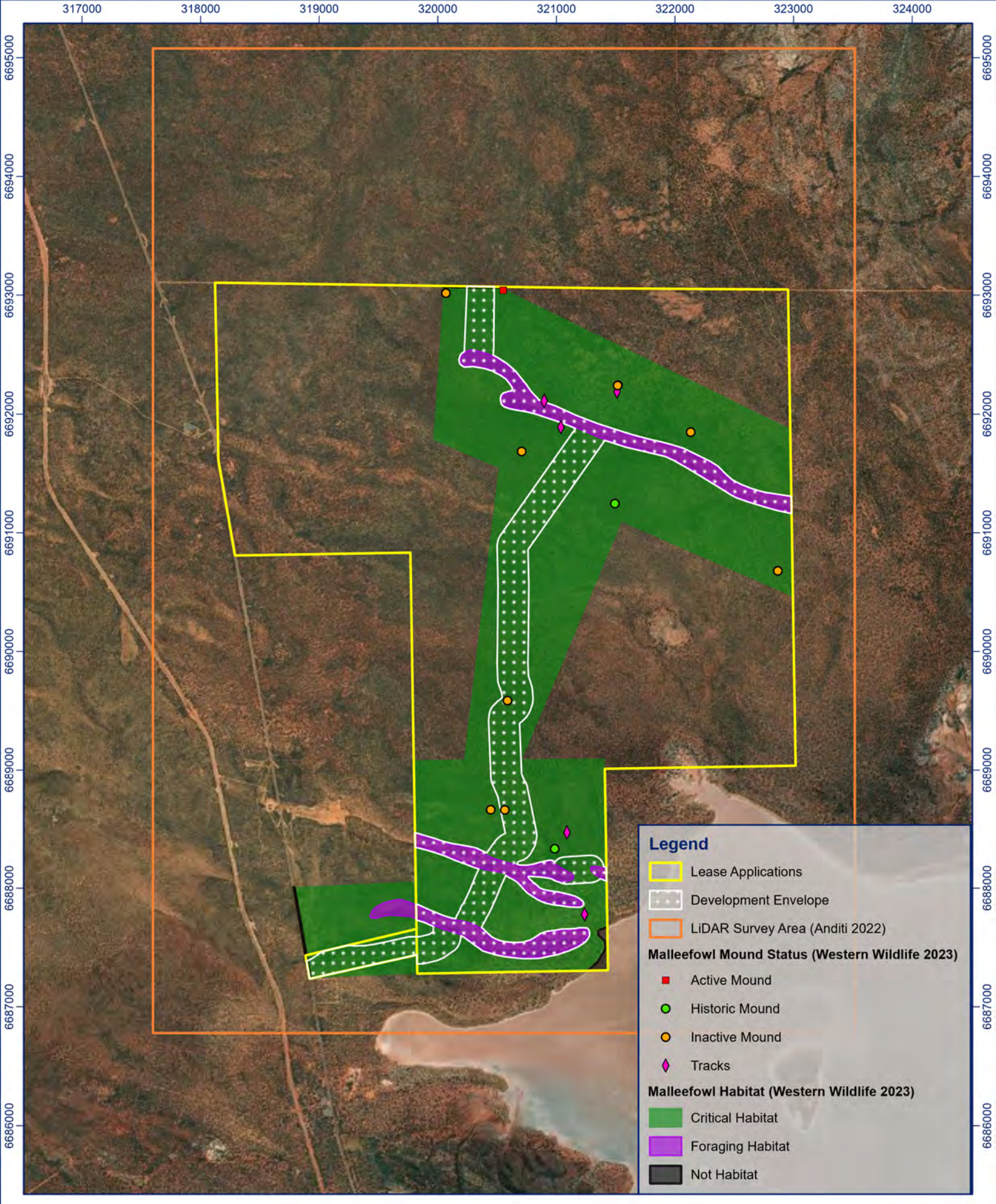
- Limiting disturbance to the least extent possible.
- Conducting a pre-clearing survey for mounds in breeding habitat.
- Avoiding clearing Malleefowl mounds, by redirecting tracks around existing mounds and ensuring appropriate buffer. If a mound is to be clear, ensure the mound is inactive or only clear during the non-breeding season.
- Implementing and following appropriate vehicle hygiene practices to avoid the introduction or spread of weeds.

- Low vehicle speed limits within the site and minimise noise, dust and light spill in adjacent habitat areas.
- Ensuring personnel do not visit mounds.
- Ensuring no putrescible waste is left on site that may attract feral predator species.
- Implementing a fire management plan to prevent accidental fires and the spread of fire on site and ensuring fires are not part of the Proposed Action.

4.4 Residual Significant Impact

MLG will implement avoidance and mitigation strategies when carrying out the Proposed Action to counterbalance the significant residual impact of by limiting the clearing to:

- Up to 20 ha of critical breeding habitat.
- Up to 75 ha of foraging habitat.



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Comet Vale - Offset Management Plan

Fauna Habitat

Figure 7 | ADV-AU-00382 | October 2024

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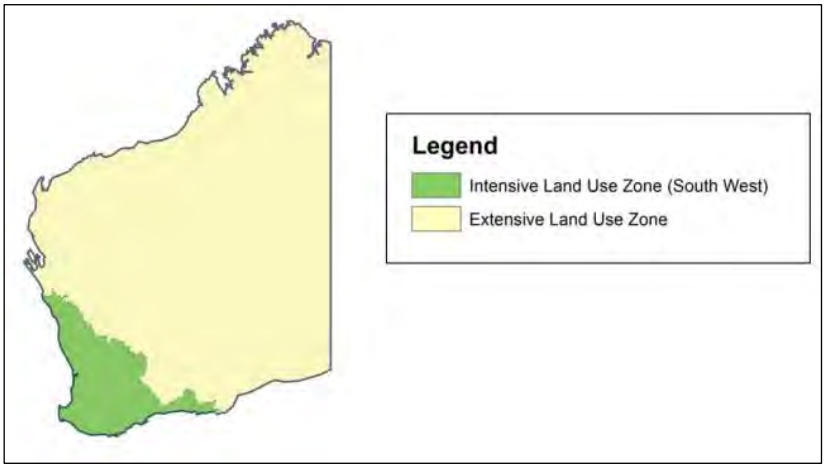
5. Environmental Offset Proposal Strategy

5.1 Offset Outcomes and Context

The primary objective of the proposed offset strategy is to achieve a net positive conservation benefit for the Malleefowl species. The Proposed Action is located within the 'Extensive Land Use Zone' (ELZ) of Western Australia (Figure 5-1) which predominantly consists of Crown-owned land covered by reserves, pastoral and mining leases. Projects in the Western Australian southwest (or 'Intensive Land Use Zone') typically utilise traditional offsets such as land acquisition and management as adequate freehold land is available with appropriate environmental values.

Figure 5-1 Land Use Zones of WA



The underlying land tenure and extreme lack of freehold land available in the ELZ constrains MLG's ability to directly purchase land and place under a conservation covenant. MLG have considered alternative solutions to developing an offset project and propose to partner with an established entity being the Great Victoria Desert Biodiversity Trust (GVDBT).

The GVDBT is an environmental initiative that aims to enhance biodiversity in the Great Victoria Desert bioregion through a combination of on-ground management and increased ecological knowledge. The GVDBT was established to deliver state and federal environmental offset projects for the Tropicana Gold Mine (Tropicana) biodiversity offset strategy. AngloGold Ashanti established GDVBT in 2013 to establish a strategic approach for on-ground research and conservation projects identified during the biodiversity offset strategy development.

The projects are limited to:

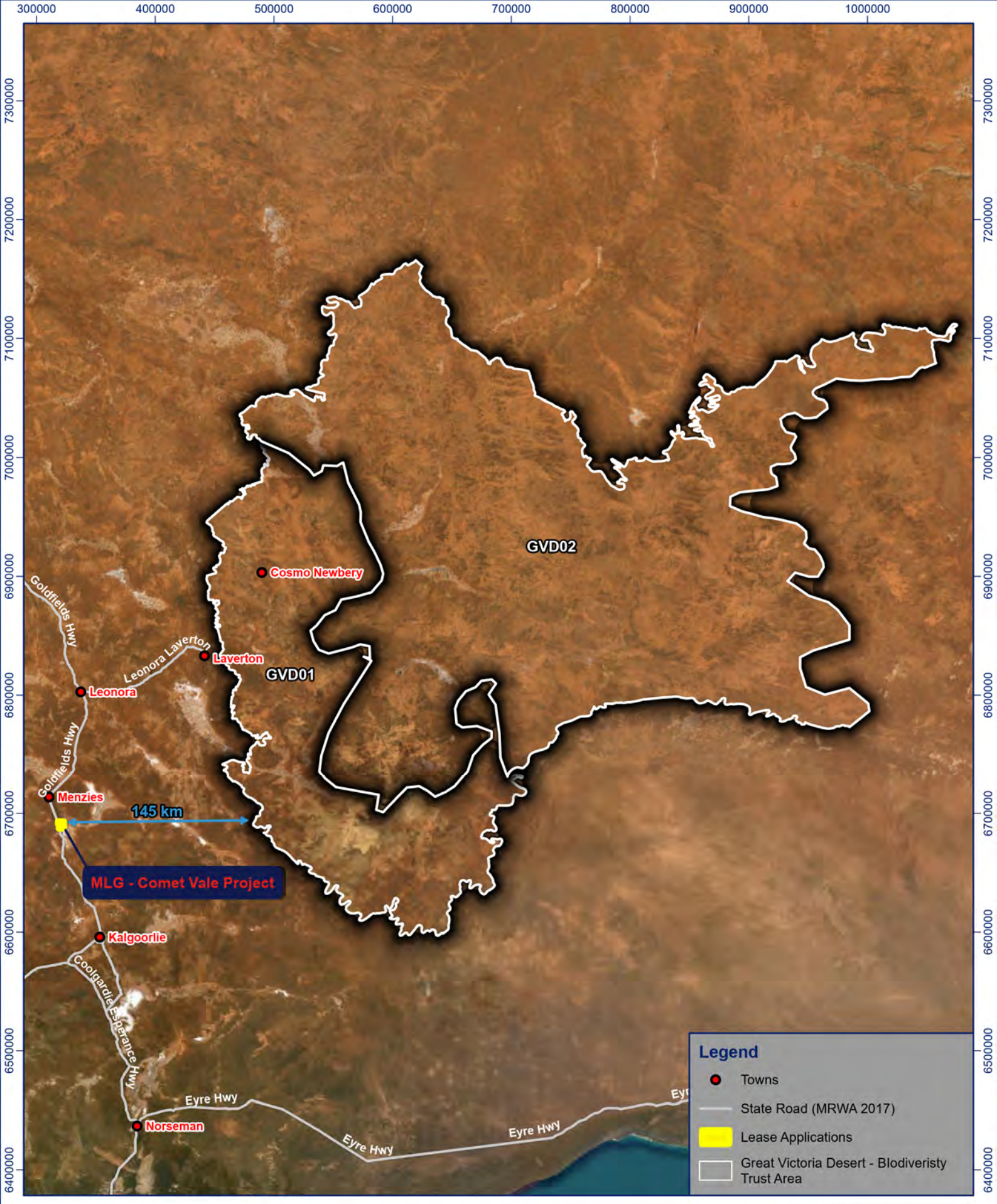
- Being located within the GVDBT bioregion, approximately 145 km from the Proposed Action as shown in Figure 5-2; and
- MNES impacted by Tropicana being Malleefowl and Sandhill Dunnart.

A designated project will be developed with the GVDBT Board and Technical Advisory Committee (TAC) to offset the critical breeding and foraging habitat impacted by the Proposed Action, separate to projects delivered for offsetting disturbance by other Actions. The offset project will be consistent with the National Recovery Plan for Malleefowl and are likely to include predator feral-free

conservation areas and/or engaging Traditional Owners in conservation activities such as fire controls. These programs aim to benefit the Malleefowl species by creating suitable environments for their survival and reproduction.

The Predator Control Program involves extensive monitoring using 100 camera traps annually to track predator movements across the desert. Additionally, specific management areas are closely monitored to assess breeding success and understand population dynamics.

In collaboration with the Indigenous Desert Alliance (IDA), the GVDBT's involvement in the Great Victoria Desert Indigenous Fire Project aims to restore habitats of threatened species through landscape-scale fire management. This project emphasises the co-designing of fire regimes with Indigenous rangers, ecologists, and fire experts. By implementing slow, controlled burns instead of hot, destructive fires, the project minimises environmental impact and enhances the adaptability of the ecosystem.



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Comet Vale - Offset Management Plan

GVDBT Location

Figure 4-2 | ADV-AU-00382 | October 2024

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5.2 Offset Strategy Alignment

The proposed offset strategy has been considered with regard to the National Recovery Plan for Malleefowl (*Leipoa ocellata*) and the EPBC Offset Policy as described in Table 5-1.

Table 5-1 Offset Strategy Considerations

Objective/ Priorities/ Criteria	How and Where Addressed
National Recovery Plan for Malleefowl (*Leipoa ocellata*)	
Managing Populations	
Reduce permanent habitat loss	**Addressed**. Purchase of a land-based offset is not proposed by this Offset Strategy; however, the Great Victoria Desert contains many protected areas that would reduce the permanent loss of habitat.
Reduce the threat of grazing pressure on Malleefowl populations	**Addressed**. Management actions include control of herbivores within a Management Area (which includes the Proposed Offset Area) which will reduce grazing pressure on Malleefowl.
Reduce fire threats	**Addressed**. Large hot bushfires have become more frequent since European settlement that are believed to have resulted in the widespread loss of habitat for fauna species including Malleefowl. The GVDBT partners with the Traditional Owners to undertake traditional fire practices of cool slow burns that create diversified landscape with mosaics of vegetation of different burn ages.
Reduce predation	**Addressed**. Management actions will include the control of predators to reduce predation on Malleefowl within the offset site.
Reduce isolation of fragmented populations	**Addressed**. Reduction in hot uncontrolled fires creates loss of habitat over large areas that could have the potential to isolate or fragment a population. Slow, cool burns create a diversified landscape with mosaics of vegetation of different burn ages.
Promote Malleefowl-friendly agricultural practices	**Not addressed**. The Great Victoria Desert has very limited use for agriculture.
Reduce mortality on roads	**Not addressed**.
Planning, Research and Monitoring	
Provide information for regional planning	**Addressed.** All projects undertaken by GVDBT provide the basis for research and aim to enhance important information regarding Malleefowl and their associated habitat. This research is likely to contribute to regional planning information.
Monitor Malleefowl and develop an adaptive management framework	**Addressed.** Monitoring of breeding habitats of Malleefowl will occur within the Project site and compared to reference sites where no management has been undertaken. The monitoring results are likely to aid in the development of adaptive management frameworks for use in other areas where Malleefowl exist.
Determine the current distribution of Malleefowl	**Addressed.** The offset site will be located within the current known distribution of Malleefowl and aim to increase the abundance and extend the presence of individuals where numbers may be low due to high levels of predation and or unsuitable fire regimes.
Examine population dynamics: longevity, recruitment and parentage	**Addressed.** Long-term Malleefowl population dynamics will be assessed in the offset site by observing mound activity changes over time. To determine if the abundance of Malleefowl is changing as well as the breeding status.

Objective/ Priorities/ Criteria	How and Where Addressed
Describe habitat requirements that determine Malleefowl abundance	**Addressed.** A LiDAR survey will be carried out to identify any currently unknown nests and assist in identification of high priority habitat.
Define appropriate genetic units for management of Malleefowl	**Not addressed.**
Assess captive breeding and re-introduction of Malleefowl	**Not addressed.**
Investigate infertility and agrochemicals	**Not addressed.**
Community involvement and Project Coordination	
Facilitate communication between groups	**Not addressed**. The GVDBT will communicate the needs of the Project between MLG and Traditional Owners if required.
Raise public awareness through education and publicity	**Addressed**. The GVDBT provide information on the projects undertaken through published research and studies promoted through their website.
Manage the recovery process	**Addressed**. Projects within the designated area for the offset will be developed to aid in the recovery of the species.
EPBC Act Environmental Offset Policy	
Deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environment law and affected by the proposed action	The active management of herbivores and feral animals within the offset site will assist in improving habitat quality for Malleefowl and achieving a conservation outcome. Confirmation of the improvement in habitat quality will be made through the monitoring, review and reporting processes.
Be built around direct offsets but may include other compensatory measures	Purchase of a land-based offset is not proposed by this Offset Strategy due to land tenure constraints in the Goldfields region of WA. It is proposed that the offsite will actively reduce threats to Malleefowl and improve the habitat quality within the managed area.
Be in proportion to the level of statutory protection that applies to the protected matter	Malleefowl are classified as Vulnerable under the EPBC Act and was considered when developing the partnership arrangement with the GVDBT. The Trust Deed states that all work undertaken by GVDBT must be done for the benefit of the Malleefowl. The offset will be appropriate and proportionate to the disturbance activity. The size of the offset area will be determined through communication with DCCEEW.
Be of a size and scale proportionate to the residual impacts on the protected matter	Malleefowl are classified as Vulnerable under the EPBC Act and was considered when developing the partnership arrangement with the GVDBT. The offset will be appropriate and proportionate to the disturbance activity. The size of the offset area will be determined through communication with DCCEEW.
Effectively account for and manage the risks of the offset not succeeding	The risk that the proposed offset will not deliver the improvement in habitat quality through the activities proposed is considered low. Risks have been assessed and are included in Table 6-4.
Be additional to what is already required, determined by law or planning regulations or agreed to under other schemes or programs (this does not preclude the recognition of state or territory offsets that may be suitable as offsets under the EPBC Act for the same action	The site of the offset within the Great Victoria Desert will be at a location that has not been managed as part of any other offset by the GVDBT. This requirement will be reported to DCCEEW through the Annual Compliance Report.

Objective/ Priorities/ Criteria	How and Where Addressed
Be efficient, effective, timely, transparent, scientifically robust and reasonable	The proposed offset is: • Efficient – the combined fire and predator management is considered an efficient way of reducing pressure on the Malleefowl. • Effective – the methods proposed have shown to be effective within other conservation projects under the GVDBT. • Timely – The activities will commence following the implementation of the project and will continue throughout the approval period. • Transparent – The offset strategy will be made available to the public. • Scientifically robust – The GVDBT has evidence-based projects with successful Malleefowl management. • Reasonable – the proposed activities are considered reasonable in achieving the stated outcome and are located within the Malleefowl habitat region.
Have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced	The proposed offset will be managed in collaboration with the GVDBT.

6. Risk Assessment

A risk assessment for the key risks for potential impacts on Malleefowl habitat and Malleefowl species at the offset site has been completed in accordance with the Environmental Management Plan Guideline (DCCEEW, 2024). This process allows identified risks to be evaluated and outlines mitigation measures and effectiveness of these measures. The risk assessment was completed based on the Likelihood and Consequence descriptions shown in Table 6-1 and Table 6-2 to determine the risk rating described in Table 6-3. The potential impacts to Malleefowl are presented in the Project's risk assessment (Table 6-4) with inherent risks, mitigation measures and residual risks.

Table 6-1 Likelihood Criteria

Likelihood	Description
Almost Certain	Common or Frequent occurrence (e.g., once per day)
Likely	Is known to occur or "it's happened" (e.g., >once per month, but <once per day)
Possible	Could occur or "I've heard of it happening "(e.g., >once per year, but< once per month)
Unlikely	Not Likely to occur (e.g., <once per year)
Rare	Rare / practically impossible (e.g., very unlikely to ever occur)

Table 6-2 Consequence Criteria

Consequence	Description
Insignificant	None or insignificant impact of MNES (Malleefowl) with no effect on ecosystem function
Minor	Moderate to minor impact to MNES (Malleefowl) resulting in a minor, recoverable impact.
Moderate	Minor and short-term impact to MNES expected, resulting in a moderate, recoverable impact.
Major	Long-term impact to MNES expected, resulting in a major, recoverable impact.
Catastrophic	Irreversible impact to MNES expected.

Table 6-3 Risk Rating Matrix

	Consequence				
Likelihood	**Insignificant**	**Minor**	**Moderate**	**Major**	**Catastrophic**
Almost Certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	High
Unlikely	Low	Low	Medium	Medium	High
Rare	Low	Low	Low	Medium	Medium

Table 6-4 Risk Assessment

Objective	Potential Impact	Likelihood	Consequence	Rating	Mitigation Measures	Likelihood	Consequence	Rating
Protect Malleefowl habitat at the offset site	Loss of habitat from future land use e.g. exploration, mining, pastoralism.	Likely	Major	High	• Protection of offset site by the arrangement with GVDBT. • Protection of sites in alignment with similar offset project established by GVDBT with other proponents.	Rare	Insignificant	Low
Improve Malleefowl habitat quality	Unplanned fire causes a reduction in habitat quality in the Offset Area	Possible	Moderate	Medium	• Maintain fire breaks and inspect annually. • Develop a fire regime where slow cool burns prevent hot uncontrolled fires that remove suitable landscape.	Unlikely	Minor	Low
	Frequency of predator control is not effective in reducing numbers of predators	Possible	Moderate	Medium	• Increase frequency of monitoring and control efforts, change or add additional control techniques such as relevant predator control. • Detection of predators using remote cameras trigger an increase of control efforts if required.	Unlikely	Minor	Low
	Unauthorised access by vehicles or stock causing reduction in habitat quality	Possible	Minor	Low	• No unauthorised access signage in place. • Area for offset excludes grazing herbivores.	Unlikely	Minor	Low

Objective	Potential Impact	Likelihood	Consequence	Rating	Mitigation Measures	Likelihood	Consequence	Rating
	Presence of Malleefowl is not recorded	Possible	Major	High	• Chosen offset site to confirm suitability of habitat for Malleefowl. • Monitoring to be undertaken for a minimum five-year period to determine if individuals in habit the area (periods of dry weather may influence Malleefowl to leave a particular area until favourable weather conditions occur). • Consideration given to reintroduction of Malleefowl individuals to offset area.	Unlikely	High	Medium
	Encroachment of weeds into site reducing habitat quality	Likely	Insignificant	Low	• Implementation of weed control program	Unlikely	Insignificant	Low
	Degradation from external factors such as climate change	Unlikely	Moderate	Medium	• Firebreaks installed and maintained. • In the event of a fire event, weed and predator activity will be monitored, and adaptive management implemented post the event.	Rare	Moderate	Low
	Failure to achieve competition criteria	Possible	Moderate	Medium	• Monitoring programs implemented to assess environmental performance against performance targets and completion criteria. • Offset management costs incorporated into mine operation and closure budget. • Corrective actions implemented when triggered. • Consultation with relevant departments, conservation specialists and key stakeholders to ensure success of offset.	Rare	Moderate	Low

7. Management Measures

This POS will be implemented upon approval by the Minister and will be regularly reviewed to ensure the effectiveness of the implemented management measures. MLG will coordinate the ongoing and adaptive management of the offset for the life of the approval.

Preliminary management measures, completion criteria and associated monitoring have been outlined in the implementation schedule below (Table 7-1). This schedule details the management measure to be implemented, along with the completion criteria for monitoring management performance. Thresholds and corrective actions for management are included in the risk assessment and management table.

This management plan incorporates multiple measures to mitigate key threats identified in the National Malleefowl Recovery Plan (Benshemesh, 2007), aiming to improve habitat quality through improving fire management and reducing predator pressure. This POS aims to benefit Malleefowl by protecting the habitat quality at the offset site. To demonstrate that completion criteria are achieved, habitat quality will be monitored.

Management measures implemented will include:

- Predator management (Objective 4).
- Bushfire prevention and management to reduce fire threats (Objective 3).

Actions to be undertaken that are yet to be finalised but may align with the following strategies from the Malleefowl Recovery Plan (Benshemesh, 2007):

- **Objective 1:** Reduce permanent habitat loss
    - Action 1.1: Retain areas that support Malleefowl and protect them from incremental clearing, and report annually on clearing.
- **Objective 2:** Reduce the threat of grazing pressure on Malleefowl populations
    - Action 2.1: Remove goats and sheep from reserves or keep them at low numbers.
    - Action 2.3: Erect adequate fencing to protect Malleefowl habitat.
    - Action 2.4: Reduce rabbit numbers where they are abundance in or near Malleefowl habitat.
- **Objective 3:** Reduce fire threats
    - Action 3.1: Reduce the occurrence of large fires, and promote patchiness of fires, where Malleefowl conservation is a priority in large reserves.
    - Action 3.3: Encourage traditional patch-burning practices by Aboriginal people in Central Australia.
    - Action 3.5: Map fires in Malleefowl habitat and monitor the effect of fire at Malleefowl monitoring sites.

- **Objective 4:** Reduce predation
    - Action 4.1: Record and centralise details of fox control in or near areas where there are estimates of Malleefowl abundance.
    - Action 4.2: Reduce fox numbers in small and isolated habitat remnants where Malleefowl densities have declined, and fox predation is a likely explanation for such declines.
    - Action 4.3: Reduce fox numbers in large areas of native habitat where Malleefowl densities have declined, and predation is a likely explanation for such declines.
- **Objective 9:** Monitor Malleefowl and develop an adaptive management framework at monitoring sites
    - Action 9.1: Analyse and review monitoring data. Recommend improvements and develop site-specific management plans consistent with a national adaptive management design.
- **Objective 10:** Determine the current distribution of Malleefowl
    - Action 10.1: Detail the distribution of Malleefowl in remote areas of South Australia and Western Australia by field surveys and describe the habitats in which Malleefowl are found.
- **Objective 12:** Describe habitat requirements that determine Malleefowl abundance
    - Action 12.1: Describe the habitat requirements and preferences of Malleefowl, with a view to identifying important habitat components that may underlie variations in breeding densities.

Table 7-1 Proposed Schedule, Completion Criteria and Monitoring

Objective	Completion Criteria	Management Measure	Performance Indicator	Timing	Monitoring Activity and Purpose	Methods	Parameters	Frequency	Threshold triggers and remedial actions	Evidence to demonstrate compliance
Predator Control	Improve Malleefowl breeding density.	Implementation of annual predator control program.	Increase in density of active mounds.	Within 12 months of the approval of this POS.	LiDAR survey to detect number of mounds and establishment of new mounds.	LiDAR survey	Number of newly established mounds.	Annually	Number of mounds do not increase.	LiDAR survey results. Ground truthing results of mounds.
			Reduced evidence of predator activity from motion cameras.	Within 12 months of the approval of this POS.	Motion sensor cameras to identify presence of predator species.	Motion sensor cameras	Predator activity and species	Annually	Predator activity unchanged or increased from baseline	Camera trap records
Fire Management	Improve Malleefowl habitat quality	Firebreaks are installed	Firebreaks are in good condition and easily accessible in accordance with *Bushfires Act 1954.*	Installation within 12 months of approval of this POS.	Inspect condition of firebreaks to confirm firebreak is in suitable condition to manage fire risk and inform maintenance program.	Visual inspections of firebreaks.	Firebreak condition	Biannually	Where firebreaks have been reported to contain vegetation, removal of vegetation through mechanical or chemical means.	Inspection and compliance checklist completed
		Scheduled controlled fires	All fire events are scheduled controlled burns that do not adversely impact habitat quality	Annually for proposal duration	Annual vegetation monitoring to identify unplanned fire impacts	Controlled fires to be implemented as deemed appropriate.	Fire frequency	Annually	Unplanned fire	Annual inspections and audit of fire management

8. Adaptive Management, Reporting and Data Management

8.1 Environmental Auditing and Monitoring

Annual audits will be conducted to assess compliance with this plan. Audit results will be included in the annual compliance reports will be submitted to DCCEEW for EPBC 2023/09460 following the commencement of the action and will track the progress of the implementation of this POS.

The environmental monitoring results will be compared against the Completion Criteria and Performance Criteria detailed in this POS, to determine if the criteria have been met and/or are likely to be met.

8.2 Proposed Offset Strategy Review

At a minimum, this POS will be reviewed every three years by a suitably qualified environmental expert, for a period of the life of the approval.

This plan will also require review if:

- The results of the audits show that the completion criteria are not met or are not tracking to be met.
- Research findings suggest there are better ways to improve outcomes for Malleefowl or their habitat that could be implemented at the offset site.
- EPBC Act policies or guidance material related to Malleefowl is updated.

Where a review of this plan indicates significant changes are required, the updated POS will be submitted to DCCEEW for review and approval.

8.3 Adaptive Management

Adaptive management is important to ensure performance targets and completion criteria are met. It allows for changes in management to be made if audit and review identify performance criteria are not being met or are not on track to be met. Table 6-4 identifies triggers and corrective actions should this be considered.

Adaptive management measures that are derived from new research may also be implemented, where opportunities are identified to improve the performance of offset management. These adaptive management strategies will be implemented in consultation with DCCEEW. This may require the plan to be revised and re-submitted to DCCEEW for assessment and approval.

As adaptive management measures are implemented, subsequent audits are expected to determine whether actions are effective or whether further actions are necessary. The management of the offset site will therefore be a continuous process of monitoring, review, and action. Adaptive management measures implemented will be outlined in the annual compliance report. This may include, for example, where trapping, in addition to baiting, is implemented or if monitoring frequency is increased. MLG will provide an alternative and/or additional offset if the completion criteria are not met after implementing adaptive management measures.

8.4 Reporting

8.4.1 Annual Compliance Reporting

The annual compliance report for EPBC 2023/09460 will include a compliance audit that assesses the performance against the POS. This audit will outline:

- Management measures implemented within the reporting period, including any adaptive management measures implemented.
- Monitoring conducted during the reporting period and any changes to monitoring frequency.
- Management triggers actioned in the reporting period and corrective actions implemented or planned.
- Examine progress towards completion criteria in accordance with the implementation schedule and identify potential non-compliances.
- Implementation and outcomes of corrective actions (if required).

8.4.2 Completion Criteria

The Completion Criteria and Performance Criteria will be developed to follow the 'SMART Criteria' approach, in that they have been drafted to be:

- Specific;
- Measurable;
- Achievable;
- Relevant; and
- Time-bound.

In addition, the Completion Criteria and Performance Criteria will be linked to the recovery actions outlined within the National Malleefowl Recovery Plan (Benshemesh, 2007), in order to ensure consistency with the established objectives and management actions applying Malleefowl.

8.4.3 Reporting Non-Compliance

MLG will inform DCCEEW of any incident and/or potential or actual non-compliance in the timeframe outlined in the Project's approval, with the conditions or commitments made in this POS.

9. Environmental Training

Environmental training will be provided to all on-site staff, including temporary contractors, before land management activities commence within the offset site. The goal is to ensure that everyone understands the plan's requirements and can minimise impacts on the species during land management. Records of staff and contractors completing training will be maintained as per site training protocols.

This plan aims to ensure all people involved with the Project will receive relevant environmental training to understand their responsibilities when implementing the POS. People to be trained include those at the GVDBT managed site/s of all project activities and operations, including contractors, subcontractors and visitors.

10. Emergency Contacts and Procedures

During land management activities, MLG must be notified in emergency events including, but not limited to:

- Fire at the site or nearby, where authorities have indicated that the site is at risk.
- Where there is a direct impact or potential direct impact to Malleefowl or mounds during land management activities.

MLG can be contacted on:

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11. References

Anditi. (2022). *Comet Vale Malleefowl Mound Analysis*.

Benshemesh, J. (2007). *National Recovery Plan for Malleefowl Leipoa ocellata*.

BOM (Bureau of Meteorology). (2021). *Climate statistics for Australian locations*. http://www.bom.gov.au/climate/averages/tables/cw_012052.shtml

DCCEEW. (2022). *Nature Positive Plan: better for the environment, better for business*.

DCCEEW. (2024). *Environmental Management Plan Guidelines*. Department of Climate Change, Energy, the Environment and Water.

Department of Climate Change Energy the Environment and Water (DCCEEW). (2012). *Environment Protection and Biodiversity Conservation Act 1999: Environmental Offsets Policy*.

Department of Climate Change Energy the Environment and Water (DCCEEW). (2022). *Nature Positive Plan: better for the environment, better for business*.

Environmental Protection Authority (EPA). (2016). *Technical Guidance: Sampling of short range endemic invertebrate fauna*. Environmental Protection Authority, Government of Western Australia.

EPA. (2020). *Technical Guidance Terrestrial vertebrate fauna surveys for environmental impact assessment*. www.epa.wa.gov.au

Invertebrate Solutions (Invertebrate Solutions Pty Ltd). (2022). *Desktop Assessment for Short Range Endemic Fauna for Sand and Gravel Pits - Comet Vale, Mt Keith, Thunderbox and Jonah Bore, Northern Goldfields, Western Australia*.

Western Wildlife. (2022). *Comet Vale Project: Basic Vertebrate Fauna Survey and Targeted Malleefowl Survey 2021*.

Western Wildlife. (2024). *Comet Vale Sand Project: Targeted Malleefowl Survey 2023*.