

**GUIDELINES FOR THE CONTENT OF A DRAFT
PUBLIC ENVIRONMENT REPORT**

Vulcan South Coal Mine

***Environment Protection and Biodiversity Conservation Act
1999***

(Reference: 2023/09708)

GUIDELINES FOR A DRAFT PUBLIC ENVIRONMENT REPORT/ENVIRONMENT IMPACT STATEMENT FOR

Vulcan South Coal Mine and Queensland Coking Coal Pty Ltd

PREAMBLE

Queensland Coking Coal Pty Ltd proposes to construct and operate an open-cut coal mine with an approximate depth of 60 m and an approximate operational life of 7 years. The proposed action also includes a highwall mining trial area, rail loop, processing and rail loading facility and additional infrastructure, approximately 35 km south of Moranbah, near Dysart, Queensland.

The proposal was referred under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) to the Minister for the Environment on 5 February 2024. The Minister determined on 4 March 2024 that approval is required as the action has the potential to have a significant impact on the following matters of national environmental significance (MNES) that are protected under Part 3 of the EPBC Act:

- Listed threatened species and ecological communities (section 18 & section 18A); and
- A water resource, in relation to unconventional gas development and large coal mining development (section 24D & section 24E).

Following the provision of preliminary information, the delegate of the Minister determined, on 4 March 2024, that the proposed activity be assessed by a Public Environment Report (PER).

Information about the action and its relevant impacts, as outlined below, is to be provided in the PER. This information should be sufficient to allow the Minister to make an informed decision on whether or not to approve, under Part 9 of the EPBC Act, the taking of the action for the purposes of each controlling provision.

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GENERAL ADVICE ON GUIDELINES

1 GENERAL CONTENT

The PER should be a stand-alone document that primarily focuses on the MNES listed above. It should contain sufficient information to avoid the need to search out previous or supplementary reports. The PER should take into consideration the EPBC Act Significant Impact Guidelines that can be downloaded from the following web site:

<http://www.environment.gov.au/epbc/guidelines-policies.html>.

The PER should enable interested stakeholders and the Minister to understand the environmental consequences of the proposed development. Information provided in the PER should be objective, clear, and succinct and, where appropriate, be supported by maps, plans, diagrams or other descriptive detail. The body of the PER is to be written in a clear and concise style that is easily understood by the general reader. Technical jargon should be avoided wherever possible. Cross-referencing should be used to avoid unnecessary duplication of text.

Detailed technical information, studies or investigations necessary to support the main text should be included as appendices to the PER. It is recommended that any additional supporting documentation and studies, reports or literature not normally available to the public from which information has been extracted be made available at appropriate locations during the period of public display of the PER.

After receiving the Ministers approval to publish the report, the Proponent is required to make the draft PER available for a period of public comment. Specific instructions regarding publication requirements will be provided as part of the Minister's direction to publish.

If it is necessary to make use of material that is considered to be of a confidential nature, the Proponent should consult with the Department on the preferred presentation of that material, before submitting it to the Minister for approval for publication.

The level of analysis and detail in the PER should reflect the level of significance of the expected impacts on the environment. Any and all unknown variables or assumptions made in the assessment must be clearly stated and discussed. The extent to which the limitations, if any, of available information may influence the conclusions of the environmental assessment should be discussed.

The Proponent should ensure that the PER assesses compliance of the action with principles of Ecological Sustainable Development as set out in the EPBC

Act, and the objects of the Act at Appendix A. A copy of Schedule 4 of the EPBC Regulations, *Matters to be addressed by draft public environment report and environmental impact statement* is at Appendix B.

2 FORMAT AND STYLE

The PER should comprise three elements, namely:

- a) the executive summary
- b) the main text of the document
- c) appendices containing detailed technical information and other information that can be made publicly available.

The guidelines have been set out in a manner that may be adopted as the format for the PER. This format need not be followed where the required information can be more effectively presented in an alternative way. However, each of the elements must be addressed to meet the requirements of the EPBC Act and Regulations.

The PER should be written so that any conclusions reached can be independently assessed. To this end all sources must be appropriately referenced using the Harvard standard. The reference list should include the address of any Internet “web” pages used as data sources.

The main text of the PER should include a list of abbreviations, a glossary of terms and appendices containing:

- a) a copy of these guidelines
- b) a list of persons and agencies consulted during the PER
- c) contact details for the Proponent
- d) the names of the persons involved in preparing the PER and work done by each of these persons.

Maps, diagrams and other illustrative material should be included in the PER. All maps and associated spatial data provided must be developed consistently with the [Guide to providing maps and boundary data for EPBC Act projects](#) (EPBC Maps Guide). The PER should be produced on A4 size paper capable of being photocopied, with maps and diagrams on A4 or A3 size and in colour where possible.

The Proponent should consider the format and style of the document appropriate for publication on the Internet. The capacity of the website to store data and display the material may have some bearing on how the document is constructed.

The PER must include a table which clearly identifies where the requirements of the PER Guidelines have been addressed in the PER and its appendices.

SPECIFIC CONTENT

1 BACKGROUND INFORMATION

This should provide the background and context of the action including:

- a) the title of the action
- b) the full name and postal address of the designated Proponent
- c) a clear outline of the objective of the action
- d) the location of the action
- e) the background to the development of the action
- f) how the action relates to any other actions (of which the Proponent should reasonably be aware) that have been, or are being, taken or that have been approved in the region affected by the action
- g) the current status of the action
- h) the consequences of not proceeding with the action
- i) identification of affected parties, including a statement mentioning any communities that may be affected and describing their views.

2 DESCRIPTION OF THE ACTION

This section must describe the proposal in sufficient detail to allow an understanding of all components of the proposal (including interdependencies between stages) and to determine potential environmental impacts associated with the proposal.

Provide project details, to provide the background and context of the action including the following:

- a) All construction, operation, decommissioning, remediation, and rehabilitation components of the action should be described in detail. This should include the precise location (including coordinates) of all works to be undertaken, structures to be built or elements of the action that may have impacts on MNES/relevant controlling provisions, and the provision of dimensions for project components (e.g., width of roads, height and number of structures, etc.).

- b) The description of the action must also include details on how the works are to be undertaken (including stages of development and their timing) and design parameters for those aspects of the structures or elements of the action that may have relevant impacts. At minimum, this description must also include details of:
- i. all infrastructure proposed to be constructed, and construction methods
 - ii. all new and existing roads, as well as details on which roads are sealed and unsealed, and traffic volume
 - iii. realignment or replacement of services, structures, access etc. required as a result of the action
 - iv. treatment of contaminated land, including:
 - 1. method of treatment,
 - 2. disposal of waste and contaminated material,
 - 3. standards and minimum thresholds required for removal/disposal of waste and contaminated material
 - v. maximum life of the action, including construction, operation, decommissioning, remediation, and rehabilitation (as applicable)
 - vi. associated works and supporting infrastructure deemed necessary as part of the action or safety works, including temporary roads
 - vii. other activities including but not limited to:
 - 1. changes to hydrological flow and groundwater,
 - 2. material storage,
 - 3. construction camp and facilities,
 - 4. workers accommodation and facilities,
 - 5. dust control management,
 - 6. general waste management
 - viii. management of spills/contaminants/pollutants (e.g. prevention from entering waterways, including groundwater).
- c) An indicative layout plan for the proposed action area, including the location and type of land use, key infrastructures, and the location of other relevant buildings and features. Include mapping and coordinates for each of the above, ensuring that maps and associated spatial data are developed consistently with the [EPBC Maps Guide](#).

- d) Provide the total size (in hectares) of the project area and the total size (in hectares) of the disturbance footprint. The disturbance footprint must include areas where permanent AND temporary clearance will be required. If the disturbance footprint is the same as the project site, this should be clearly stated.
- e) The various elements of the project must be described in the text and illustrated with maps, diagrams, plans (at a suitable scale) and other information as required to provide sufficient context and basis for the identification and assessment of impacts.
- f) Details about the proposed mining cycle and timeframes including, but not limited to, extraction plan and times, storage conditions, backfilling plan and maintenance works.
- g) Include updated information if any changes have been made to the project since the referral documentation was submitted.

3 FEASIBLE ALTERNATIVES

Any feasible alternatives to the action to the extent reasonably practicable, including:

- a) if relevant, the alternative of taking no action
- b) a comparative description of the impacts of each alternative on the MNES matters protected by controlling provisions of Part 3 of the EPBC Act for the action
- c) sufficient detail to make clear why any alternative is preferred to another
- d) discussion of any consultation with relevant First Nations Peoples used to inform the design and placement of project components to avoid any temporary or permanent impacts on cultural heritage values.

Short, medium and long-term advantages and disadvantages of the alternative options should be discussed.

If there are no feasible alternatives, provide sufficient information as to why this is the case and why there are not alternatives for constructing this project elsewhere which would result in reduced impacts on MNES.

4 DESCRIPTION OF THE ENVIRONMENT

A description of the environment of the proposal site and the surrounding areas (e.g. adjacent, upstream, downstream) that may be affected by the action, including through indirect impacts. It is recommended that this includes the following information:

- a) Listed threatened and migratory species and ecological communities that are likely to be present in the vicinity of the site, including the following details:
 - i. Details of the scope, timing (survey season/s) and methodology for studies or surveys used to provide information on the listed species/community/habitat at the site (and in areas that may be impacted by the project).
- b) A description of the water resources relevant to the action.

5 MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE (MNES)

The description and assessment of protected matters should focus on the following controlling provisions:

- Listed threatened species and ecological communities (s18 & s18A); and
- A water resource, in relation to unconventional gas development and large coal mining development (s24D & s24E).

A recent report from the Protected Matters Search Tool (PMST) must also be considered and included as an appendix. This can be accessed at the following website: <https://www.dcceew.gov.au/environment/epbc/protected-matters-search-tool>.

The PER assessment of protected matters may include the following chapters, as practicable:

- a) description
- b) desktop analysis
- c) survey effort
- d) survey outcomes
- e) habitat assessment
- f) impact assessment¹
- g) avoidance, mitigation and management measures²

¹ The impact assessment must meet the requirements outlined in the 'Impact Assessment' chapter 6 below.

² The avoidance, mitigation and management measures must meet the requirements outlined in the 'Proposed Avoidance, Minimisation, Mitigation and Management Measures' chapter 7 below.

- h) rehabilitation requirements³
- i) significant impact assessment⁴.

5.1 General MNES information

The PER must address, at a minimum, the following MNES and any others listed under the EPBC Act at the time of the controlled action decision that may be impacted by the proposed action:

- a) Listed threatened species and ecological communities
 - i. Brigalow (*Acacia harpophylla* dominant and co-dominant) – Endangered
 - ii. Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) (*Phascolarctos cinereus*) – Endangered
 - iii. Greater Glider (southern and central) (*Petauroides volans*) – Endangered
 - iv. Northern Quoll (*Dasyurus hallucatus*) – Endangered
 - v. King Blue-grass (*Dichanthium queenslandicum*) – Endangered
 - vi. Squatter Pigeon (southern) (*Geophaps scripta scripta*) – Vulnerable
 - vii. Ornamental snake (*Denisonia maculata*) – Vulnerable
 - viii. Ghost Bat (*Macroderma gigas*) – Vulnerable
- b) A water resource, in relation to coal seam gas development and large coal mining development

Note: this may not be a complete list and it is the proponent's responsibility to ensure that any MNES listed at the time of the controlled action decision, which may be present or potentially significantly impacted, are assessed as part of the PER.

³ The rehabilitation requirements must meet the requirements outlined in the 'Rehabilitation Requirements' chapter 8 below.

⁴ The significant impact assessment must meet the requirements outlined in the 'Offsets' chapter 9 below.

Table 5.1 MNES – General MNES information required

5.1.1	Describe each listed threatened species and ecological community (including EPBC Act listing status, distribution, habitat, life history, key threatening processes, etc.) and water resource; these descriptions are to align with the information in the SPRAT Database and relevant DCCEEW documents.
5.1.2	<p>Identify and describe known historical records of protected matters in the broader region.</p> <p>All known records must be supported by an appropriate source (i.e., Commonwealth and State databases, Queensland Government’s WildNet, Atlas of Living Australia, published research, publicly available survey reports, etc.), and, where possible, include the year of the record and a description of the habitat in which the record was identified.</p>
5.1.3	Provide distinct, specific definitions (including any thresholds or exclusions used) for each category of habitat relevant to the MNES (breeding, foraging, dispersal, etc).
5.1.4	<p>Provide a habitat assessment for the relevant protected matters in the project area, including protected matters outside the project area where they have the potential to be impacted (including downstream). DCCEEW considers it is not unreasonable that a species may use a project area at some point in time if the vegetation and/or habitat feature/s to support its requirements are present. As such, even if a listed threatened species and/or ecological community is not recorded during field surveys, the potential for occurrence is to be considered and assessed in the MNES section.</p> <p>Habitat assessments must be informed by desktop searches and field surveys, with reference to relevant departmental documents (e.g. approved conservation advices, survey guidelines, referral guidelines and listing advices, and the SPRAT Database) and relevant literature.</p> <p>Please note, the department does not accept the consideration of only Queensland Regional Ecosystem (RE) mapping to determine habitat for protected matters. Further, habitat assessments must not only consider remnant vegetation, but also non-remnant and regrowth vegetation.</p> <p>Where habitat assessments depart from departmental information, adequate justification must be provided to substantiate their suitability to the assessment.</p>

5.1.5	<p>Provide detailed mapping of habitat (within, adjacent to and downstream of the project area, where relevant) for all listed threatened species and ecological communities, and listed migratory species, that may be impacted by the proposed action, which:</p> <ul style="list-style-type: none"> • is developed consistently with the EPBC Maps Guide. • is specific to the habitat requirements for each listed species and community (i.e. does not only illustrate relevant Queensland Regional Ecosystems) • includes an overlay of the project disturbance footprint • identifies any specific habitat requirements (e.g. breeding, foraging, dispersal, known important habitat, suitable habitats, roosting etc.) • includes, where relevant, the regional context, and illustrates connectivity of habitat in the broader landscape • includes known records of individuals derived from desktop analysis and field surveys • is provided separately as attachments in JPEG format.
5.1.6	<p>Include details of the scope, methodology, timing and effort of field surveys to identify protected matters in the project area and surrounds, including:</p> <ul style="list-style-type: none"> • a description of the desktop assessment methodology used to inform the field surveys within, adjacent to, upstream, and downstream of the project area • how surveys were undertaken in accordance with relevant Commonwealth, State and/or best practice survey guidelines, including departmental survey guidelines: https://www.dcceew.gov.au/environment/epbc/advice/surveys-and-data • evidence that surveys were undertaken over a sufficient scale and period to adequately determine the likely presence or absence of the targeted species or value, or confirmation that a precautionary approach was taken where this was not possible (i.e. assumed presence) • if relevant, the justification for divergence from relevant Commonwealth, State and/or best practice survey guidelines. <p>Attach all referenced ecological surveys as supporting documents to the PER.</p>

5.1.7	<p>Provide detailed maps of survey effort showing, at a minimum, the distribution of surveys relative to different habitats within the project area, at a suitable scale.</p> <p>It should be clear from these maps which habitat types have been surveyed, the extent that the proposed impact area has been surveyed, and in which areas each survey type was undertaken. Identification of a fauna survey site must, for example, clearly indicate which fauna surveys (e.g., bird surveys, spotlight search, camera trap) was deployed at that location. There must be no ambiguity regarding which areas a specific survey type was undertaken in.</p> <p>When mapping records of a specific species, it is recommended to also map the survey methods relevant to that species to provide clear evidence of the survey effort deployed across the species' potential range.</p>
5.1.8	<p>Include the total area of habitat (in hectares) for each relevant protected matter, including:</p> <ul style="list-style-type: none"> • total habitat within the project area • where relevant, total habitat in the project area and surrounds.
5.1.9	<p>Where potential habitat for protected matters is identified in the project area, an assessment must be undertaken regardless of whether the species was recorded. As such, the potential for occurrence of these species must also be considered and assessed.</p>
5.1.10	<p>Include an appendix of occurrence records (both sightings and evidence of presence) for all listed threatened species and migratory species identified during field surveys for the proposed action. This data may be used by the department to update the relevant species distribution models that underpin the publicly available PMST.</p> <p>Species occurrence records must be provided in accordance with the department's Guidelines for biological survey and mapped data (2018) and using the department's Species observation data template. Sensitive ecological data must be identified and treated in accordance with the department's Sensitive Ecological Data – Access and Management Policy V1.0 (2016).</p>
5.1.11	<p>Describe historical anthropogenic uses of the project area (if relevant) and existing condition of the overall environment within, adjacent to, downstream and upstream of the project area.</p>

5.2 Specific Listed threatened species and ecological communities information requirements

The PER must include, in addition to the general MNES information listed in section 5.1, the following information listed in Table 5.2 for specific listed threatened species and ecological communities.

Table 5.2 Specific listed threatened species and ecological information required

Brigalow (<i>Acacia harpophylla</i> dominant and co-dominant) threatened ecological community (TEC) – Endangered	
5.2.1	An assessment (in a cross-reference table) of vegetation composition against the key diagnostic characteristics and condition thresholds for Brigalow TEC, including consideration of remnant and regrowth Brigalow TEC within the proposed action area. The descriptions should align with those provided in the SPRAT database and relevant DCCEEW documents, including the Conservation Advice for the Brigalow (<i>Acacia harpophylla</i> dominant and co-dominant) ecological community (2013) and the Brigalow (<i>Acacia harpophylla</i> dominant and co-dominant) information sheet (2001) .
5.2.2	The total area (in hectares) of identified remnant and regrowth Brigalow TEC within the proposed action area
5.2.3	Demonstrate that surveys were adequate to detect the presence and condition of the Brigalow TEC, that survey effort and methodology are consistent with documents described above in 5.2.1 and clearly identify any limitations associated with the surveys undertaken.
Koala (<i>Phascolarctos cinereus</i>) (combined populations of Qld, NSW, and the ACT) – Endangered	
5.2.4	Habitat descriptions should align with those provided in the SPRAT database and relevant DCCEEW documents, including Identifying habitat for the endangered Koala 2022 , the Conservation Advice for <i>Phascolarctos cinereus</i> (Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory (2022) , A review of koala habitat assessment criteria and methods (dceew.gov.au) , and the National Recovery Plan for the Koala <i>Phascolarctos cinereus</i> (combined populations of Queensland, New South Wales and the Australian Capital Territory) (2022) . Please note, the department considers Koala habitat to comprise the total set of resources required by koalas to meet the needs of individuals' survival

	<p>and reproduction, and habitat that maintains viable metapopulation processes. This can include any forest or woodland (including remnant, regrowth, and modified vegetation communities) containing species that are Koala food trees or any shrubland with emergent Koala food trees.</p> <p>The department considers that this definition includes mixed Eucalypt regrowth.</p> <p>In addition, the Conservation Advice for the Koala considers habitat to include paddock trees (and the safe intervening matrix for traveling between trees) and any trees that are not food trees but are commonly used by the species for shelter or predator avoidance.</p> <p>Habitat critical includes areas of climate refugia such as drainage lines, riparian zones and patches that are resilient to drying conditions and includes both habitat occupied and habitat currently unoccupied.</p>
5.2.5	<p>Demonstrate that surveys were adequate to detect the full extent of the species presence and abundance throughout the site, that survey effort and methodology are consistent with recommendations in DCCEEW's A review of koala habitat assessment criteria and methods 2021, and clearly identify any limitations associated with the surveys undertaken.</p>
<p>Greater Glider (southern and central) (<i>Petauroides volans</i>) – Endangered</p>	
5.2.6	<p>Habitat descriptions should align with those provided in the SPRAT database and relevant DCCEEW documents, including the Conservation Advice for Petauroides volans (greater glider (southern and central)), as well as the Guide to greater glider habitat in Queensland (2022).</p> <p>Ensure that it is clear from the description of the habitat which areas are being classified as breeding, foraging, and denning habitat and which habitat areas are classified as critical to the survival of the species. State in hectares the extent of each habitat type, along with the total habitat for the species.</p> <p>Please note, the department considers Greater Glider habitat to be all areas of Eucalypt forests or woodlands (including remnant and regrowth vegetation) that:</p> <ul style="list-style-type: none"> • contain trees with hollows (see Note) • contain habitat critical to the survival of the Greater Glider (as defined in current conservation advice). <p>Note that the department does not consider ground-based hollow surveys to be reliable, per the Guide to greater glider habitat in Queensland 2022. Ensure habitat descriptions include all suitable tree species > 30 cm diameter-at-breast-height (DBH) included as den trees.</p>

5.2.7	Identify key denning and foraging resources, including the presence and density of tree hollows across the site. Trees with a diameter at breast height > 30 cm may be used as a proxy measure for tree hollows used by Greater Gliders in Queensland (see Conservation Advice).
5.2.8	Include a map of potential and future denning and foraging habitat across the project area.
5.2.9	In areas that may potentially be fragmented by the proposed action, provide average tree height to inform an understanding of Greater Glider gliding distance.
5.2.10	Demonstrate that surveys were adequate to detect the full extent of the species presence and abundance throughout the site, that survey effort and methodology are consistent with the Survey guidelines for Australia's threatened mammals 2011 , the Guide to greater glider habitat in Queensland 2022 and any other relevant DCCEEW documentation, and clearly identify any limitations associated with the surveys undertaken. Ensure that consideration of the level of certainty of species presence/absence across the site relative to the survey effort is evident.
Ornamental snake (<i>Denisonia maculata</i>) – Vulnerable	
5.2.11	Habitat descriptions should align with those provided in the SPRAT database and relevant DCCEEW documents, including the Approved Conservation Advice for <i>Denisonia maculata</i> (Ornamental Snake) , as well as Survey guidelines for Australia's threatened reptiles and EPBC Act - Draft Referral guidelines for the nationally listed Brigalow Belt reptiles . State the total area (in hectares) of habitat. The department considers Ornamental Snake habitat to be gilgai mounds and depressions with cracking-clay soils and moist areas (particularly within, or close to, habitat that is known to be favoured by its prey [frogs]) with suitable microhabitat features (i.e. logs, woody debris and leaf litter), and the Brigalow threatened ecological community.
5.2.12	Details and locations (including a map) of known food sources (i.e. frog species).
5.2.13	Demonstrate that surveys were adequate to detect the full extent of the species presence and abundance throughout the site, that survey effort and methodology are consistent with the Survey guidelines for Australia's threatened reptiles , the EPBC Act - Draft Referral guidelines for the nationally listed Brigalow Belt reptiles and any other relevant DCCEEW documentation and clearly identify any limitations associated with the surveys undertaken. Ensure that consideration of the level of certainty of

	<p>species presence/absence across the site relative to the survey effort is evident.</p> <p>The department notes that in addition to areas included in referral documentation, RE:11.4.8 should be included within sampling areas.</p>
<p>Squatter Pigeon (southern) (<i>Geophaps scripta scripta</i>) – Vulnerable</p>	
5.2.14	<p>Habitat descriptions should align with those provided in the SPRAT database and relevant DCCEEW documents, including the Conservation Advice <i>Geophaps scripta scripta squatter pigeon (southern)</i> (2015). State the total area (in hectares) of each breeding, foraging and dispersal habitat type, including consideration of disturbed (non-remnant vegetation) areas.</p> <p>Breeding habitat is defined as: Any remnant or regrowth open-forest to sparse, open-woodland or scrub dominated by Eucalyptus, Corymbia, Acacia or Callitris species, on sandy or gravelly soils (including but not limited to areas mapped as Queensland land zones 3, 5 or 7) and within 1 kilometre of a suitable, permanent or seasonal waterbody.</p> <p>Foraging habitat is defined as: Any remnant or regrowth open-forest to sparse, open-woodland or scrub dominated by Eucalyptus, Corymbia, Acacia or Callitris species, on sandy or gravelly soils (including but not limited to areas mapped as Queensland land zones 3, 5 or 7) and within 3 kilometres of a suitable, permanent or seasonal waterbody.</p> <p>Dispersal habitat is defined as: Any forest or woodland occurring between patches of foraging or breeding habitat that facilitates movement between patches of foraging habitat, breeding habitat and/or waterbodies, and areas of cleared land less than 100 metres wide linking areas of suitable breeding and/or foraging habitat.</p>
5.2.15	<p>Include a map of all water bodies (including farm dams/troughs) within and surround the proposed project area with an overlay of the different habitat features (e.g. breeding, foraging, dispersal).</p>
5.2.16	<p>Demonstrate that surveys were adequate to detect the full extent of the species presence and abundance throughout the site, that survey effort and methodology are consistent with recommendations in DCCEEW's Survey guidelines for Australia's threatened birds, and clearly identify any limitations associated with the surveys undertaken. Ensure that consideration of the level of certainty of species presence/absence across the site relative to the survey effort is evident.</p>

Ghost Bat (<i>Macroderma gigas</i>)	
5.2.17	Habitat descriptions should align with those provided in the SPRAT database and relevant DCCEEW documents, including the Conservation Advice Macroderma gigas Ghost bat (2016) and Survey guidelines for Australia's threatened bats . State the total area (in hectares) of each roosting and foraging habitat.
5.2.18	Include a map of all rock overhangs and caves in the project area and surrounding region which might be suitable for use by this species and indicate where known roosts occur.
5.2.19	Demonstrate that surveys were adequate to detect the full extent of the species presence and abundance throughout the site, that survey effort and methodology are consistent with recommendations in DCCEEW's A review of ghost bat ecology, threats and survey requirements 2021 and the Survey guidelines for Australia's threatened bats 2010 , and clearly identify any limitations associated with the surveys undertaken. Clarify whether targeted acoustic detection at any suspected roost or foraging sites was carried out for this species. For example, the department notes that targeted acoustic detection is the required standard because Ghost Bats do not often echolocate while away from caves.

5.3 Water resource information

The PER must include relevant matters listed in the following table in relation to surface water and ground water resources onsite and that may be impacted by the action.

The project will require submission to Independent Expert Scientific Committee (IESC), which is a statutory body under the EPBC Act. The IESC provides advice to the Commonwealth Environment Minister on coal seam gas and large coal mining development proposals that are likely to have a significant impact on water resources.

The information guidelines for IESC advice on coal seam gas and large coal mining development proposals (IESC guidelines) outlining the requirements for submission to the IESC can be found at the following website:

<http://www.iesc.environment.gov.au/publications/information-guidelines-independent-expert-scientific-committee-advice-coal-seam-gas>.

The information requested in these guidelines has been tailored to reflect existing advice provided by the IESC. The information provided in the draft PER will form part of the upcoming IESC submission. You must complete the

checklist in the IESC guidelines to ensure that the information requirements for the IESC review have been clearly and adequately addressed in the PER. The IESC will provide advice to the department and the department will forward the advice to you.

The IESC provides a number of publications and resources, including the IESC explanatory notes, which can be used as guidance material in drafting the PER. These publications can be found at the following website:

<http://iesc.environment.gov.au/publications>.

Table 5.3 Water resources – information required

5.3.1	Provide a description of any third-party bores that may be impacted by the proposed action.
5.3.2	Provide a habitat assessment for known or likely terrestrial, aquatic and subterranean Groundwater Dependent Ecosystems (GDEs) on site.
5.3.3	<p>Identify and describe known historical records of known or likely terrestrial, aquatic and subterranean GDEs in the broader region. All known records must include:</p> <ul style="list-style-type: none"> • an appropriate source (i.e. Commonwealth and State databases, published research, publicly available survey reports, etc.) • the year of the record and description of the habitat in which the record was identified.
5.3.4	Identify and discuss the uncertainties in your predictions surrounding groundwater according to Information Guidelines Explanatory Note - Uncertainty analysis for groundwater modelling (2023) .
5.3.5	<p>Provide the Geochemistry Assessment reports including, but not limited to:</p> <ul style="list-style-type: none"> • geochemical characterisation of the: <ul style="list-style-type: none"> ○ ore ○ waste rock ○ chitter ○ tailing materials • water quality figures for: <ul style="list-style-type: none"> ○ metals and metalloids ○ polycyclic aromatic hydrocarbons ○ nutrients

5.3.6	Investigate the possibility that the normal fault systems extend into the project area.
5.3.7	Provide additional information about the geotechnical properties and final landform condition of the backfilled waste rock dump.
5.3.8	Provide additional information about the design of the proposed diversions for the three headwater streams around the pits.
5.3.9	Provide acid mining drainage studies.
5.3.10	Provide additional information about proposed highwall mining areas to confirm depth to groundwater and groundwater elevations in the immediate vicinity of the highwall mining areas.
5.3.11	The PER should refer to water quality objectives approved in the State environmental authority that includes the extension where they are relevant to the assessment, and management and mitigation of impacts on EPBC protected matters.

6 IMPACT ASSESSMENT

6.1 General impact information

The PER must include an assessment of all relevant impacts to MNES from all phases of the proposed action (including construction, operation, decommissioning, remediation, and rehabilitation). Relevant impacts are impacts that the action will have or is likely to have on a matter protected by a controlling provision (as listed in the preamble of this document). Should any other aspects of the environment be identified by the proponent that may or are likely to be significantly impacted, these need to be described and assessed in an appropriate manner and the department should be informed at the earliest opportunity.

Impacts must be assessed in accordance with relevant departmental policies and guidelines, including the SPRAT Database and the Significant Impact Guidelines 1.1.

The PER must include the following information:

- a detailed assessment of the nature and extent of the likely short-term and long-term impacts, both direct and indirect, on protected matters within, adjacent to, upstream and downstream of the project area
- a statement on whether any impacts are likely to be unknown, unpredictable or irreversible
- which component/s and stage/s of the action are of relevance to impacts on each MNES

- analysis of the significance of impacts to MNES
- any technical data and other information used or needed to make a detailed assessment of the relevant impacts.

The PER should identify and address cumulative impacts, where potential project impacts are in addition to existing impacts of other activities (including known potential future expansions or developments by the proponent and other proponents in the region and vicinity).

The PER should also address the potential cumulative impact of the proposal on ecosystem resilience. The cumulative effects of climate change impacts on the environment must also be considered in the assessment of ecosystem resilience. Where relevant to the potential impact, a risk assessment should be conducted and documented.

The PER must include a summary table containing the following information:

- species or ecological community
- habitat description
- likelihood of occurrence
- direct and indirect impacts
- significance conclusion.

The PER should also provide a detailed assessment of any likely impact that this proposed action may facilitate on the following (at the local, regional, state, national and international scale):

- Listed threatened species and ecological communities
- Water resources.

The species listed in section 5.1 may not be a complete list and it is your responsibility, as the proponent, to ensure that any protected matters listed under the EPBC Act at the time of the controlled action decision, which will or are likely to be significantly impacted by the proposed action, are assessed for the Minister's consideration. Any listing events (i.e. new listing or up-listing of a species or ecological community) that occur after the controlled action decision will be managed in accordance with s158A of the EPBC Act.

It is the responsibility of the proponent to maintain awareness of any changes to species distributions. Please ensure that a recent Protected Matters Search Tool (PMST) report has been generated and used during the assessment stage before finalising the draft PER.

In order to undertake a robust assessment of the nature and scale of the likely impacts of the proposed action, the PER must include a detailed assessment of the presence of individuals and suitable habitat for each of the above listed threatened species within and adjacent to the project site. Additional assessments may be in the form of additional targeted threatened species survey, done in accordance with current survey guidelines, or from the provision of an expert report, or by assuming the presence of species in areas of suitable habitat.

The PER must also include a detailed assessment of presence and habitat for any other listed threatened ecological community which will or is likely to be impacted by the proposed action. In some circumstances, in lieu of detailed assessments for threatened species, the presence of individuals and/or habitat can be assumed. The proponent should consult the department prior to submission of the PER to determine if this approach would be suitable.

This information should be presented as outlined below and include the identified information.

6.2 Impacts to listed threatened species and ecological communities

For listed threatened species and ecological communities, the PER must include relevant information listed in section 6.1 in addition to the following information listed in Table 6.2.

Table 6.2 Listed threatened species and ecological communities – information required

6.2.1	An assessment of the likely impacts associated with the proposed action, including construction, operation, decommissioning, remediation and rehabilitation phases.
6.2.2	<p>Include the total direct and indirect loss and/or disturbance of MNES individuals and habitat as a result of the proposed action. This must include the type (foraging and breeding) and quality of the habitat impacted and quantification of the individuals and habitat area (in hectares) to be impacted. All relevant impacts to MNES should be assessed, including but not limited to:</p> <ul style="list-style-type: none"> a) habitat clearance, fragmentation, and degradation b) injury or death (such as from vehicle/aerial strike, entrapment, etc) c) disturbance from dust, light, vibration, and noise d) behavioural changes including site alienation resulting in fauna avoiding the proposed action area e) introduction and/or increase in numbers of pests and weeds

	<p>f) changes to hydrological regimes, including flow changes</p> <p>g) impacts to groundwater or surface water quality (including indirect and facilitated impacts)</p> <p>h) erosion and sedimentation</p> <p>i) waste and pollutants</p> <p>j) greenhouse gas emissions.</p>
6.2.3	<p>Provide the total amount (in hectares) of each type of habitat (e.g. breeding, foraging, dispersal, known important habitat, suitable habitats, roosting, critical habitat etc.) in the disturbance footprint for each listed threatened species and ecological community and groundwater resource. This assessment should be supported by maps which clearly identify both impacted and retained habitat, with tables of coordinates appended.</p> <p>The disturbance footprint must include the impact area from direct impacts (e.g. vegetation clearance) and indirect impacts (e.g. noise pollution).</p>
6.2.4	<p>An assessment of the impacts of habitat loss and fragmentation in the proposed action area and adjacent areas, including consideration of species' movement patterns and habitat use.</p> <p>This assessment should identify any existing and proposed barriers to the movement to fauna such as fencing, roads, tracks, and voids.</p> <p>This should also include an assessment of the cumulative impact of the proposed action and other nearby projects (including, but not limited to Vulcan Complex Project (EPBC 2020/8676), Vulcan Coal Mine – Matilda Pit and Ancillary Infrastructure (EPBC 2022/09361), Eagle Downs Coal Mine Central Queensland (EPBC 2008/3945), Olive Downs Project Mine Site and Access Road (EPBC 2017/7867)) on:</p> <ul style="list-style-type: none"> • habitat loss • habitat fragmentation • population fragmentation.
6.2.5	<p>An assessment of the likely duration of impacts to MNES as a result of the proposed action.</p>
6.2.6	<p>A discussion of whether the impacts are likely to be repeated, for example as part of ongoing maintenance.</p>
6.2.7	<p>A discussion of whether any impacts are likely to be unknown, unpredictable or irreversible.</p>

6.2.8	Provide assessment of the impacts identified against the significant impact criteria and justification for the likelihood of occurrence.
6.2.9	An assessment of the likely and possible impacts resulting from highwall mining.
6.2.10	Where relevant, consider predicted future climatic conditions at the project site in the assessment of impacts, and how changes in climate and the frequency and severity of weather events may interact with, exacerbate or reduce the impacts of the action over time. This should include: <ul style="list-style-type: none"> • loss, fragmentation, or drying of potential climate refugia for MNES as a result of the proposed action – consider the potential impacts of removing or otherwise impacting climate refugia for the long-term survival of the MNES in the region • increased risk of fire as a result of the proposed action under drier conditions and periods of extreme heat.
6.2.11	Justification, with supporting evidence, as to how the proposed action will not be inconsistent with: <ul style="list-style-type: none"> • Australia’s obligations under the Biodiversity Convention, the Convention on Conservation of Nature in the South Pacific (Apia Convention), and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) • a recovery plan or threat abatement plan.
6.2.12	Justification, with supporting evidence, as to how the proposed action has taken into account any relevant approved conservation advice.

6.3 Impacts to water resources

The PER must identify and describe the occurrence of and potential impacts to groundwater, GDEs and surface water within the project area and its vicinity.

Table 6.3 Water resources – information required

General hydrology	
6.3.1	An assessment of the likely impacts to water resources associated with the proposed action, including from vegetation clearance, operational, maintenance and decommissioning components of the project. Include information on the:

	<ul style="list-style-type: none"> • flow regimes (volume, timing, duration and frequency of surface water flows) • recharge rates to groundwater • aquifer pressure or pressure relationships between aquifers • groundwater table and potentiometric surface levels • groundwater-surface water interactions • river-floodplain connectivity • inter-aquifer connectivity • area of impact (in hectares) • duration of impact • whether any impacts are likely to be unknown, unpredictable or irreversible • climate change using the Representative Concentration Pathway 8.5 emissions scenario to model worst case scenario (noting that carbon emissions are currently tackling those modelled in this projection).
6.3.2	<p>A description of any potential third-party users of water in areas potentially affected by the proposed project, including municipal, agricultural, industrial, recreational and environmental uses of water including:</p> <ul style="list-style-type: none"> • downstream water users accessing surface water via water access licences and basic landholder rights • third-party landholder bores located upstream and downstream of the proposed action, typically installed in the alluvium • ecosystems that potentially rely on surface water and/or groundwater.
6.3.3	<p>In addition, include a description and assessment of likely and possible impacts to water resources resulting from highwall mining specifically.</p>
6.3.4	<p>Include a description and assessment of the impacts to water resources giving consideration to relevant departmental policies and guidelines, including the Significant Impact Guidelines 1.3: Coal seam gas and large coal mining developments – impacts on water resources (2022). In addition, specific impact assessment requirements are outlined in the surface water, groundwater and GDE sections below.</p>
6.3.5	<p>Identify and address potential and likely cumulative impacts on surface water and groundwater from the proposed action and other nearby projects. Discussion should include cumulative impact considerations of impacts to water quality and quantity, and potential impacts to GDEs in the region.</p>

6.3.6	Provide robust scientific information and supporting evidence for every assertion, assumption and/or conclusion made in the assessment of potential impacts, or lack of impacts, on water resources.
Surface Water	
6.3.7	<p>An up to date, quantitative site-specific water balance for the proposed action area, that accounts for the various sources of uncertainty (e.g. using the Water Accounting Framework for the Australian Minerals Industry, Minerals Council of Australia 2014) and includes:</p> <ul style="list-style-type: none"> • the total water supply and demand under a range of rainfall, climatic and water demand scenarios to support the uncertainty analysis • the required water infrastructure, including infrastructure capacity and transfers • the volumes of water requiring discharge under a range of rainfall scenarios • the potential water quality impacts caused by one or more of the above water management actions • details on any assumptions relating to the water balance estimates.
6.3.8	Discussion on any predicted reduction and change in water quality in catchment areas.
6.3.9	<p>An assessment of potential impacts from stream diversions taking into account the length, location and design of likely diversions. This assessment should include:</p> <ul style="list-style-type: none"> • impacts to streams from increased erosion due to unstable stream banks and changes to in-stream characteristics • potential ecological impacts (e.g. loss of stream habitat, ecological function in the original drainage lines, when removing the operational diversions to reinstate the original, structural and water quality issues with reinstating drainage lines through backfilled spoil) • impacts to groundwater flow patterns and recharge.
6.3.10	An assessment of potential flood impacts upstream of the mine on the floodplain of Hughes Creek. Account for discharge from sediment dams when rainfall exceeds the design standards, including the release of contaminants if mine affected water storages overflow.
6.3.11	Discuss the build-up of salts and contaminants in the environment or runoff to downstream receptors.

Groundwater	
6.3.12	Demonstrate whether the proposed action is likely to have a significant impact on groundwater resources through drawdown, depressurisation and water quality.
6.3.13	Discuss how post-mining ground water levels will seasonally fluctuate in and around the pit areas, including how this will potentially impact the selection and sustainability of the ecosystems used for rehabilitation.
6.3.14	Discuss the likelihood of persistent pondage and a description of infiltration through the re-established soil profiles.
6.3.15	Suitable information to allow an independent reviewer to consider the appropriateness of the underlying assumptions and conceptual models on which numerical models are based. Conceptual and numerical models should be constructed at a suitable spatial and temporal scale to be able to assess both site-specific and regional cumulative impacts. Any assumptions should be clearly described and justified. Any model must be constructed in accordance with the conceptual model and calibrated and verified with appropriate baseline data which captures the natural variation within the system. Modelling should clearly distinguish between impacts from the proposed action and existing operations. For example, the PER must clearly identify the absolute amount of drawdown due to the proposed mining and the total predicted cumulative drawdown values. This must include details on how the estimated contributions to cumulative drawdown have been derived.
6.3.16	A sensitivity analysis must be undertaken. Tested parameters should be varied by the plausible range of values or justification provided if less variation is examined.
6.3.17	Groundwater models must consider the Australian Groundwater Modelling Guidelines (Barnett et al. 2012) and the IESC explanatory notes.
6.3.18	Investigations of surface water-groundwater interactions and any changes to infiltration patterns should be considered in groundwater modelling over the extended mine life, inclusive of altered groundwater flow pathways which may intersect nearby pits.
Groundwater dependent ecosystems (GDEs)	
6.3.19	An assessment of direct, indirect and consequential impacts to GDEs, including a discussion of any potential GDEs in the vicinity. You must consider both surface water and groundwater impacts to GDEs within the proposed action area and within the zone of potential drawdown (e.g.

	impacts due to groundwater drawdown, reduction in surface water flow, etc.).
6.3.20	<p>A desktop assessment (e.g. searches of QLD WildNet, the Bureau of Meteorology’s GDEs Atlas and Geoscience Australia’s Water observations from space, etc.) used to identify potential GDEs for field assessment including:</p> <ul style="list-style-type: none"> • https://www.qld.gov.au/environment/plants-animals/species-information/wildnet • http://www.bom.gov.au/water/groundwater/gde/ • https://www.ga.gov.au/scientific-topics/community-safety/flood/wofs • https://wetlandinfo.des.qld.gov.au/wetlands/ <p>The desktop and field assessments must consider the Australian GDE toolbox (2011) and the IESC GDE explanatory note (Information Guidelines Explanatory Note — Assessing groundwater-dependent ecosystems (iesc.gov.au)). If GDE field verification surveys are not undertaken, the department is likely to apply a precautionary approach to the presence of GDEs and the assessment of potential impacts.</p>
6.3.21	Field assessment data to confirm the outcomes of desktop assessments.
6.3.22	The GDE assessment must provide the details and results of the above database searches and field studies, including observations of the vegetation present in the area and descriptions of the soil/geology encountered. A time series of satellite imagery of the potential GDEs in the vicinity may be able to be provided. Observing the state of the vegetation over time, given the existing mining operations and corresponding groundwater drawdown, may help to demonstrate whether or not the vegetation is groundwater dependent and whether impacts to the vegetation have occurred as a result of previous mining operations.
6.3.23	Analysis and investigation of any GDEs should follow methods outlined in Doody et al (2019). Information Guidelines Explanatory Note: Assessing groundwater-dependent ecosystems.
6.3.24	An assessment of the potential impacts to stygofauna and other GDEs resulting from any potential decrease in electrical conductivity within the alluvium.
6.3.25	Sufficient evidence to support any conclusion that particular ecosystems are not groundwater dependent.

7 PROPOSED AVOIDANCE, MINIMISATION, MITIGATION AND MANAGEMENT MEASURES

Avoidance, minimisation, and mitigation measures are the primary methods of eliminating and reducing impacts on MNES. Where possible and practicable, it is best to avoid impacts. Even if it is not possible to completely avoid a protected matter there may be ways to reduce the impact. If impacts cannot be avoided, then they should be minimised or mitigated as much as possible. Residual impacts should then be managed. Avoidance, minimisation and mitigation measures must be investigated thoroughly as a part of the assessment and be supported by evidence to demonstrate likely success.

The PER must demonstrate how the mitigation hierarchy has been applied and all options exhausted to avoid and mitigate harm to protected matters, before resorting to environmental offsets.

The department encourages the proponent to establish, test, and monitor novel methods for avoiding, minimising and mitigating impacts of the proposed action on MNES. The department also encourages the development of scientifically rigorous monitoring programs to measure impacts and assess the effectiveness of mitigation.

7.1 Avoidance, mitigation and management measures

Specific details on avoidance, minimisation, mitigation and management measures, along with relevant monitoring, must be provided for all stages of the project.

Table 7.1 Avoidance, mitigation and management – information required

7.1.1	A detailed summary of measures proposed to be undertaken by the proponent to avoid, minimise, mitigate and manage relevant impacts of the proposed action on MNES, for all stages of the proposed action. Include details of any relevant measures to avoid, mitigate and manage impacts required through other Commonwealth, State and local government approvals.
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7.1.2	<p>All proposed measures for MNES must be drafted to meet the ‘S.M.A.R.T’ principle:</p> <ul style="list-style-type: none"> • S – Specific (what and how) • M – Measurable (baseline information, number/value, auditable) • A – Achievable (timeframe, money, personnel) • R – Relevant (conservation advice, recovery plans, threat abatement plans) • T – Time-bound (specific timeframe to complete).
7.1.3	<p>The proposed measures must be based on best available practices, appropriate standards, evidence of success for other similar actions and supported by published scientific evidence.</p>
7.1.4	<p>Provide discussion on the measures employed to avoid, minimise and mitigate impacts to MNES from habitat loss and fragmentation, including but not limited to:</p> <ul style="list-style-type: none"> • identify vegetation that is potential nesting or breeding habitat for relevant listed threatened species within the proposed action area • identify the likely breeding season for relevant listed threatened species within the proposed action area • consider measures to minimise and mitigate fragmentation, including measures to narrow road widths and salvaging hollow-bearing trees in clearance areas • pre-clearance survey methods, which include, but are not limited to the following requirements: <ul style="list-style-type: none"> ○ if clearing of habitat of a species occurs during the breeding season of that species, a qualified ecologist must undertake a pre-clearance survey within 72 hours prior to the removal of the habitat, or removal of vegetation within 50 m of nesting or breeding habitat ○ if a breeding activity of a listed threatened species is identified during pre-clearance surveys, vegetation clearing within 100 m of the breeding activity must be delayed up until the breeding activity has ceased • describe any statutory or policy basis for the proposed procedures (e.g. any state or local government requirements).

	<p>If an existing condition(s) from any relevant state approvals for this project requires you to prepare and implement vegetation clearing protocols, please provide an outline of the relevant condition and justification for how the state condition addresses each of the vegetation clearing requirements listed above.</p>
7.1.5	<p>Provide discussion on the measures employed to avoid, minimise and mitigate impacts to MNES from short- and long-term erosion and sedimentation, including but not limited to:</p> <ul style="list-style-type: none"> • identification of potentially affected wetlands, waterways, tributaries and drainage lines • scheduling of activity (e.g. avoiding construction during wet periods) • implementation of best-practice erosion and sediment control measures, including the details of the type and location of erosion and sediment control devices to be installed, based on the anticipated soil, weather and construction conditions • minimising the extent and duration of soil disturbance • prompt stabilisation of disturbed areas • controlling water movement through the project area, including the diversion of clean flows around disturbed areas • the development of performance criteria • regular monitoring during construction, operation and decommissioning to ensure performance criteria are being maintained, including a full inspection of erosion and sediment controls following a heavy rainfall event (>25 mm in 24 hours) to identify and undertake any necessary rectification works.
7.1.6	<p>Provide management and mitigation measures related to impacts of groundwater drawdown, groundwater contamination and surface water contamination on water resources.</p> <p>Specifically, the department requests the proponent include mitigation and/or management measures regarding the impacts:</p> <ul style="list-style-type: none"> • of constructing a drainage diversion around the pits • to the receiving environment • to potential GDEs • of potential contaminants (including potential contamination and acid mining drainage formation in both the implied out-of-pit waste rock dumps).

7.1.7	<p>The Fitzroy River flows into the Great Barrier Reef Marine Park and in accordance with <i>the Reef 2050 Water Quality Improvement Plan (WQIP)</i> is currently listed under high management priority (orange) for fine sediment loads in Table 2 of the WQIP.</p> <p>The PER must outline how the <i>Reef 2050 Water Quality Improvement Plan</i> has been taken into consideration, including how the proposed action will be consistent with the plan. This is available at: https://www.dcceew.gov.au/parks-heritage/great-barrier-reef/protecting/reef-2050-plan.</p>
7.1.8	<p>Include details of specific and measurable environmental outcomes to be achieved for relevant MNES. All commitments must be drafted using committal language (e.g. 'will' and 'must') when describing the proposed measures.</p> <p>Any commitments by the person proposing to take the action must be clearly distinguished from recommendations or statements of best practice made by the document author or other technical expert.</p>
7.1.9	<p>Include an assessment of the expected or predicted effectiveness of the proposed measures.</p>
7.1.10	<p>Discuss how cumulative impacts are considered in the avoidance and mitigation measures.</p>
7.1.11	<p>Discuss the likelihood of trees that are currently in smaller size classes transitioning into hollow-bearing trees throughout the lifetime of the proposed action, and describe measures taken to minimise impacts to these trees. Clearly consider impacts to these future hollow-bearing trees in the impact assessment for all relevant species.</p>
7.1.12	<p>Provide bushfire mitigation and management measures, including information on preventing the spread of bushfires that may start as a result of the proposed action to areas outside of the project area.</p>
7.1.13	<p>Provide details of ongoing management, including monitoring programs to support an adaptive management approach, that validate the effectiveness of the proposed measures and overall demonstrate that environmental outcomes will be achieved. Include a scientifically robust monitoring program for the detection/quantification of impacts on protected matters. The monitoring program must be able to accurately and in a timely manner detect when impact triggers are reached.</p> <p>Impact triggers, at suitable increments, should be informed by scientific literature and relevant departmental guidelines.</p>

7.1.14	Details of tangible, on-ground corrective actions that will be implemented in the event the monitoring programs indicate that the environmental outcomes have not or will not be achieved, and when these corrective actions would be triggered.
7.1.15	The proposed measures must identify which actions are relevant to which MNES (including species that are found to be, or could potentially be) within the impact area.

7.2 Management plans

Management plans describe how an action might impact on the natural environment in which it occurs and set out clear commitments from the person taking the action on how those impacts will be avoided, minimised and managed so that they are environmentally acceptable. Management plans should be designed to achieve the best possible environmental outcome for the relevant MNES.

Any management plans relevant to the mitigation and management of impacts to MNES should be provided either as separate documents attached to the PER or provided as subsections in the PER. Relevant plans should be included prior to publication of the draft PER. A final version of each plan is likely to require approval prior to commencement of the action, should the proposed action be approved.

The department's guidance on the preparation of management plans can be found at:

<https://www.dcceew.gov.au/environment/epbc/publications/environmental-management-plan-guidelines>.

Note that a decommissioning plan or similar relevant to the mitigation and management of impacts to MNES may also be required.

The table below includes likely requirements for management plans but may not be exhaustive. Consideration should be given to outcomes-based commitments that can be proposed as an alternative to specific management commitments and management plans. Combining management plans and/or including relevant state plans to simplify management arrangements and remove duplication should be considered where appropriate.

Table 7.2 Management plans – information required

<p>7.2.1</p>	<p>A detailed outline of an Environmental Management Plan (EMP), or equivalent, that sets out the framework for management, mitigation and monitoring of relevant impacts of the action, including any provisions for independent environmental auditing.</p> <p>The EMP needs to address the project phases (construction, operation, decommission) separately. It must state the environmental objectives, performance criteria, monitoring, reporting, corrective action, responsibility and timing for each environmental issue.</p> <p>The EMP should also describe contingencies for events such as heavy or prolonged rainfall.</p> <p>In the construction phase of the EMP, include management measures such as dust suppression and enforcement of reduced construction zone vehicle speeds.</p> <p>The EMP should incorporate weed and pest management actions, including monitoring.</p> <p>The Environmental Management Plan Guidelines provides general guidance to stakeholders preparing environmental management plans for environmental impact assessments and approvals under Chapter 4 of the EPBC Act. This is available at: https://www.dcceew.gov.au/sites/default/files/documents/environmental-management-plan-guidelines.pdf.</p>
<p>7.2.2</p>	<p>A Sediment and Erosion Management Plan, or equivalent, outlining avoidance, mitigation and monitoring of sediment loads (see section 7.1.5) and developed in accordance with the <i>International Erosion Control Association (IECA) Best Practice Erosion and Sediment Control Manual</i> (2008).</p>
<p>7.2.3</p>	<p>A Dewatering Groundwater Management Plan, or equivalent, should be provided in the PER that includes use of extracted groundwater and plans for groundwater disposal. Details from a numerical groundwater model, including hydrology and hydrogeology of the site, third-party users, surface water-groundwater interactions, and any potential impacts expected (particularly sedimentation impacts) should be provided.</p> <p>If it is considered that a Dewatering Groundwater Management Plan or equivalent is not required, this should be adequately demonstrated through the impact assessment (6.3) and summarised here.</p>

7.2.4	A Flood Management and Mitigation Plan, or equivalent, in relation to risk of floods.
7.2.5	A Receiving Environment Monitoring Plan (REMP) or equivalent.
7.2.6	Trigger Action Response Plans (TARP) should be included in relevant management plans as required.
7.2.7	To allow for comprehensive assessment of impacts and mitigation measures, an ecohydrological conceptual model should be provided as outlined in the IESC guidelines.
7.2.8	A Rehabilitation Management Plan or equivalent. Requirements are set out in section 8.
7.2.9	An Offset Management Strategy (OMS) or an Offset Management Plan (OMP). Requirements are set out in section 9 and in Appendix C .

8 REHABILITATION REQUIREMENTS

Where rehabilitation is proposed and relevant to MNES, the information in Table 8.1 must be included in a Rehabilitation Management Plan, or equivalent, or a subsection of the PER.

Table 8.1 Rehabilitation – information required

8.1	Provide details of any rehabilitation activities proposed to be undertaken as required by Commonwealth, State or Territory, and local government legislation. Attach relevant Commonwealth, State or Territory, and local government approvals and permits as supporting documents to the PER.
8.2	Provide details of rehabilitation methods and how they meet best practice standards, including for the restoration of habitat for relevant MNES and avoidance of sedimentation/erosion.
8.3	A summary of the vegetation community/habitat that is being rehabilitated and the dominant species that will be included in the rehabilitation site.
8.4	Maps showing the areas that will be rehabilitated within the project area and the size in hectares of these areas.
8.5	Information on management of the rehabilitation site, including, but not limited to, weed and pest management.
8.6	Rehabilitation acceptance criteria relevant to MNES and the procedures, including contingency measures, that will be undertaken to achieve them.

8.7	Details of a monitoring program to determine the success of rehabilitation activities implemented by the proponent, including any contingency measures and when they would be triggered.
8.8	Include information on whether any post-construction rehabilitation sites will be subsequently cleared during the decommissioning stage.

9 OFFSETS

Environmental offsets are measures that compensate for the residual significant impacts of an action on protected matters. Offsets provide environmental benefits to counterbalance the impacts that remain after consideration of avoidance and mitigation measures. Please note, offsets do not reduce the impacts of an action, and are not intended to make proposals with unacceptable impacts acceptable.

It is important to consider environmental offsets early in the assessment process. Correspondence with the department regarding offsetting is highly encouraged. The department's EPBC Act Environmental Offsets Policy (2012) (Offsets Policy) is available at:

<https://www.dceew.gov.au/environment/epbc/publications/epbc-act-environmental-offsets-policy>.

Any proposed offsets must meet the key principles of the Offsets Policy.

The department expects offset proposals for functionally equivalent habitat to take account of the ecological requirements of the species. For Greater Gliders, management measures such as weeding and fencing will not generally be accepted as suitable compensation for the loss of hollows suitable for denning, which is a limiting habitat requirement for the species. Where denning resources are proposed to be impacted, offset proposals should demonstrate an increase in the quality and / availability of denning resources at an offset site, relative to the quantum of impact. Offsets proposals based on creation of hollows (or artificial denning resources) must realistically address whether they will be used by Greater Gliders, whether they will attract predator or competitor species and their durability, accompanied by suitable monitoring and performance measures. Deviations from these principles will need to be explained and justified.

The PER must include an assessment of the likelihood of residual significant impacts occurring on MNES for each controlling provision after avoidance, mitigation and management measures have been applied. If a residual significant impact is likely, then environmental offsets will be required.

Include a draft Offset Management Strategy (OMS) or a draft Offset Management Plan (OMP) as an appendix to the PER for assessment and

approval. If an offset area has been nominated, then provide an OMP. An OMP should be included prior to publication of the draft PER. The department is likely to recommend to the Minister (or delegate) that the conditions of approval require the environmental offset and associated OMP be approved and implemented prior to the commencement of the proposed action.

Table 9 Offsets – information required

9.1	An assessment of the likelihood of residual significant impacts occurring on relevant MNES, after avoidance, mitigation and management measures have been applied.
9.2	A summary of the proposed environmental offset and key commitments to achieve a conservation gain for each protected matter.
9.3	If an offset area has not been nominated, include a draft OMS as an appendix to the PER. The draft OMS must meet the information requirements set out in Appendix C.1 .
9.4	Where offset area/s have been nominated, include a draft OMP as an appendix to the PER. The draft OMP must meet the information requirements set out in Appendix C.2 , and must be prepared by a suitably qualified ecologist and in accordance with the department’s <i>Environmental Management Plan Guidelines (2024)</i> , available at: Environmental Management Plan Guidelines 2024 (dcceew.gov.au) .
9.5	The environmental offset/s proposed for the project must meet the core principles of the Offset Policy.

10 OTHER REQUIREMENTS

10.1 Other approvals and conditions

The PER must include information on any other requirements for approval or conditions that apply, or that the proponent reasonably believes are likely to apply, to the proposed action. This must include:

- a) details of any local or State Government planning scheme, or plan or policy under any local or State Government planning system that deals with the proposed action, including:
 - i. what environmental assessment of the proposed action has been, or is being, carried out under the scheme, plan, or policy; and
 - ii. how the scheme provides for the prevention, minimisation, and management of any relevant impacts
- b) a description of any approval that has been obtained from a State, Territory or Commonwealth agency or authority (other than an approval under the Act), including any conditions that apply to the action
- c) a statement identifying any additional approval that is required
- d) a description of the monitoring, enforcement and review procedures that apply, or are proposed to apply, to the action.

10.2 Consultation

Any consultation about the action, including:

- a) any consultation that has already taken place
- b) proposed consultation about relevant impacts of the action
- c) if there has been consultation about the proposed action, any documented response to, or result of, the consultation
- d) identification of affected parties, including a statement mentioning any communities that may be affected and describing their views.

10.3 Environmental record of person(s) proposing to take the action

The information provided must include details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against:

- a) the person proposing to take the action

- b) for an action for which a person has applied for a permit, the person making the application.

If the person proposing to take the action is a corporation, details of the corporation's environmental policy and planning framework must also be included.

It is noted that there was an Environment Protection Order (EPO) issued by the Queensland Government for mine affected water discharges from Vulcan mines adjacent to the proposed action. This should be clearly addressed in the PER both here and as relevant to impact assessment, and proposed avoidance, minimisation and mitigation of impacts, to water resources and the receiving environment.

10.4 Economic and social matters

The economic and social impacts of the action, both positive and negative, must be analysed. Matters of interest may include:

- a) details of any public consultation activities undertaken, and their outcomes
- b) projected economic costs and benefits of the project, including the basis for their estimation through cost/benefit analysis or similar studies
- c) employment opportunities expected to be generated by the project (including construction and operational phases).

Economic and social impacts should be considered at the local, regional and national levels. Details of the relevant cost and benefits of alternative options to the proposed action, as identified in section 3 above, should also be included.

10.4 Information sources provided in the PER

For information given in a draft Public Environment Report, the draft must state:

- a) the source of the information
- b) how recent the information is
- c) how the reliability of the information was tested
- d) what uncertainties (if any) are in the information.

11 CONCLUSION

An overall conclusion as to the environmental acceptability of the proposal should be provided, including discussion on compliance with principles of ESD

and the objects and requirements of the EPBC Act. Reasons justifying undertaking the proposal in the manner proposed should also be outlined.

Measures proposed or required by way of offset for any unavoidable impacts on NES matters, and the relative degree of compensation, should be restated here.

APPENDIX A

THE OBJECTS AND PRINCIPLES OF THE ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

SECTIONS 3 AND 3A

3 Objects of the Act

- a) to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance;
- b) to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources;
- c) to promote the conservation of biodiversity;
- d) to promote a co-operative approach to the protection and management of the environment involving governments, the community, land-holders and indigenous peoples;
- e) to assist in the co-operative implementation of Australia's international environmental responsibilities;
- f) to recognise the role of indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity; and
- g) to promote the use of indigenous peoples' knowledge of biodiversity with the involvement of, and in co-operation with, the owners of the knowledge.

3A Principles of Ecologically Sustainable Development

- a) The following principles are principles of ecologically sustainable development.
- b) Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations.
- c) If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
- d) The principle of inter-generational equity – that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

- e) The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.
- f) Improved valuation, pricing and incentive mechanisms should be promoted.

APPENDIX B

MATTERS THAT MUST BE ADDRESSED IN A PER AND EIS (SCHEDULE 4 OF THE EPBC REGULATIONS 2000)

1 General information

1.01 The background of the action including:

- a) the title of the action;
- a) the full name and postal address of the designated Proponent;
- b) a clear outline of the objective of the action;
- c) the location of the action;
- d) the background to the development of the action;
- e) how the action relates to any other actions (of which the Proponent should reasonably be aware) that have been, or are being, taken or that have been approved in the region affected by the action;
- f) the current status of the action; and
- g) the consequences of not proceeding with the action.

2 Description

2.01 A description of the action, including:

- a) all the components of the action;
- b) the precise location of any works to be undertaken, structures to be built or elements of the action that may have relevant impacts;
- c) how the works are to be undertaken and design parameters for those aspects of the structures or elements of the action that may have relevant impacts;
- d) relevant impacts of the action;
- e) proposed safeguards and mitigation measures to deal with relevant impacts of the action;
- f) any other requirements for approval or conditions that apply, or that the Proponent reasonably believes are likely to apply, to the proposed action;
- g) to the extent reasonably practicable, any feasible alternatives to the action, including:

- i. if relevant, the alternative of taking no action;
 - ii. a comparative description of the impacts of each alternative on the matters protected by the controlling provisions for the action; and
 - iii. sufficient detail to make clear why any alternative is preferred to another;
- h) any consultation about the action, including:
 - i. any consultation that has already taken place;
 - ii. proposed consultation about relevant impacts of the action; and
 - iii. if there has been consultation about the proposed action — any documented response to, or result of, the consultation; and
- i) identification of affected parties, including a statement mentioning any communities that may be affected and describing their views.

3 Relevant impacts

3.01 Information given under paragraph 2.01(d) must include

- a) a description of the relevant impacts of the action;
- b) a detailed assessment of the nature and extent of the likely short term and long term relevant impacts;
- c) a statement whether any relevant impacts are likely to be unknown, unpredictable or irreversible;
- d) analysis of the significance of the relevant impacts; and
- e) any technical data and other information used or needed to make a detailed assessment of the relevant impacts.

4 Proposed safeguards and mitigation measures

4.01 Information given under paragraph 2.01(e) must include:

- a) a description, and an assessment of the expected or predicted effectiveness of, the mitigation measures;
- b) any statutory or policy basis for the mitigation measures;
- c) the cost of the mitigation measures;
- d) an outline of an environmental management plan that sets out the framework for continuing management, mitigation and monitoring programs for the relevant impacts of the action, including any provisions for independent environmental auditing;

- e) the name of the agency responsible for endorsing or approving each mitigation measure or monitoring program; and
- f) a consolidated list of mitigation measures proposed to be undertaken to prevent, minimise or compensate for the relevant impacts of the action, including mitigation measures proposed to be taken by State governments, local governments or the Proponent.

5 Other Approvals and Conditions

5.01 Information given under paragraph 2.01(f) must include:

- a) details of any local or State government planning scheme, or plan or policy under any local or State government planning system that deals with the proposed action, including:
 - i. what environmental assessment of the proposed action has been, or is being carried out under the scheme, plan or policy; and
 - ii. how the scheme provides for the prevention, minimisation and management of any relevant impacts;
- b) a description of any approval that has been obtained from a State, Territory or Commonwealth agency or authority (other than an approval under the Act), including any conditions that apply to the action;
- c) a statement identifying any additional approval that is required; and
- d) a description of the monitoring, enforcement and review procedures that apply, or are proposed to apply, to the action.

6 Environmental record of person proposing to take the action

6.01 Details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against:

- a) the person proposing to take the action; and
- b) for an action for which a person has applied for a permit, the person making the application.

6.02 If the person proposing to take the action is a corporation — details of the corporation's environmental policy and planning framework.

7 Information sources

7.01 For information given the PER/EIS must state:

- a) the source of the information;

- b) how recent the information is;
- c) how the reliability of the information was tested; and
- d) what uncertainties (if any) are in the information.

APPENDIX C

INFORMATION REQUIREMENTS FOR EPBC ACT OFFSET PROPOSALS

Please note, should the proposed action be approved, conditions of an approval are likely to require that environmental offset/s (and the OMP) be approved and implemented prior to the commencement of the proposed action in accordance with the Offsets Policy.

C1. Minimum Requirements for a draft Offset Management Strategy	
An Offset Strategy (OS) is like a proof-of-concept for an offset proposal. It demonstrates suitability and feasibility, and commits to a timeframe. When impacts and offsets are well understood and suitability of the proposed offset is high, an OS may not be required.	
C1.1	Details of the residual impacts to MNES that the environmental offset/s is proposed to compensate for.
C1.2	Details of the potential offset area/s (including a map) to compensate for the residual significant impacts of the proposed action on relevant MNES.
C1.3	Specific details of the nature of the conservation gain to be achieved for relevant MNES, including the creation, restoration and revegetation of habitat in the proposed offset area/s.
C1.4	The methodology, with justification and supporting evidence, used to inform the inputs of the Offsets Assessment Guide in relation to the project area for each relevant MNES, including: <ul style="list-style-type: none"> • total area of habitat (in hectares) • habitat quality (see C2.5 below).
C1.5	Details, with supporting evidence, of how the environmental offset/s meets the requirements of the department's EPBC Act Environmental Offsets Policy (2012) (Offsets Policy).
C1.6	The methodology, with justification and supporting evidence, used to inform the inputs of the Offsets Assessment Guide in relation to each potential offset area/s for each relevant MNES, including: <ul style="list-style-type: none"> • time over which loss is averted (max. 20 years) • time until ecological benefit • risk of loss (%) without offset • risk of loss (%) with offset • confidence in result (%). <p>When calculating offsets, please refer to the department's published guidance: How to use the Offsets Assessment Guide.</p>

C1.7	Evidence that the relevant MNES, and/or their habitat, can be present in the offset area/s.
C1.8	Information about how the offset area/s provides connectivity with other relevant habitats and biodiversity corridors.
C1.9	Details and execution timing of the mechanism to legally secure the environmental offset/s (under Queensland legislation or equivalent) to provide enduring protection for the potential offset area/s against development incompatible with conservation.

C2. Minimum Requirements for a draft Offset Management Plan

The Offset Management Plan (OMP) outlines what needs to be done to manage an offset site once it is in place, such as setting milestones, monitoring, and reporting. It should also include a risk assessment and identify triggers for adaptive management. All direct offsets require an OMP.

C2.1	Specific, committal and measurable environmental outcomes which detail the nature of the conservation gain to be achieved for relevant MNES, including the creation, restoration and revegetation of habitat in the proposed offset area/s.
C2.2	<p>Details, with supporting evidence, to demonstrate how the environmental offset/s compensate for residual significant impacts of the proposed action on relevant MNES, and/or their habitat, in accordance with the principles of the Offsets Policy and all requirements of the Offsets Assessment Guide including:</p> <ul style="list-style-type: none"> • time over which loss is averted (max. 20 years) • time until ecological benefit • risk of loss (%) without offset • risk of loss (%) with offset • confidence in result (%). <p>When calculating offsets, please refer to the department's published guidance: How to use the Offsets Assessment Guide.</p>
C2.3	A description of the offset area/s, including location, size, condition, environmental values present and surrounding land uses.
C2.4	Baseline data and other supporting evidence that documents the presence of the relevant MNES, and the quality of their habitat within the offset area/s.

C2.5	<p>An assessment of the site habitat quality for the offset area/s.</p> <p>Please note, the department currently uses an adaptation of the Queensland <u>Guide to determining terrestrial habitat quality v1.2 (2017)</u> – the Modified Habitat Quality Assessment (MHQA). MHQA was developed to better reflect the requirements of the EPBC Act Environmental Offsets Policy for determining habitat quality. A copy of the MHQA scoring spreadsheet template and guidance material is attached.</p> <p>The Queensland Guide (v1.2) should also be subject to the following modifications:</p> <ul style="list-style-type: none"> • The species richness scores in Table 2 of the DEHP Guide are printed as having three scoring ranges: 2.5 points, 3 points, and 5 points. Instead, those scores should be 0 points, 2.5 points, and 5 points. • Though the Queensland Guide refers to the possibility of alternative scoring methods and weightings, the department is not able to accept alternative weightings or scorings, as that would necessarily introduce unacceptable subjectivity and variation between scoring on different projects and by different site surveyors.
C2.6	<p>Details of how the offset area/s will provide connectivity with other habitats and biodiversity corridors and/or will contribute to a larger strategic offset for the relevant MNES.</p>
C2.7	<p>Maps and shapefiles to clearly define the location and boundaries of the offset area/s, accompanied by the offset attributes (e.g. physical address of the offset area/s, coordinates of the boundary points in decimal degrees, the relevant MNES that the environmental offset/s compensates for, and the size of the environmental offset/s in hectares).</p>
C2.8	<p>Specific offset completion criteria derived from the site habitat quality to demonstrate the improvement in the quality of habitat in the offset area/s over a 20-year period.</p>
C2.9	<p>Details of the management actions, and timeframes for implementation, to be carried out to meet the offset completion criteria.</p>
C2.10	<p>Interim milestones that set targets at 5-yearly intervals for progress towards achieving the offset completion criteria.</p>
C2.11	<p>Details of the nature, timing and frequency of monitoring to inform progress against achieving the 5-yearly interim milestones (the frequency of monitoring must be sufficient to track progress towards each set of milestones, and sufficient to determine whether the offset area/s are likely to achieve those milestones in adequate time to implement all necessary corrective actions).</p>

C2.12	Proposed timing for the submission of monitoring reports which provide evidence demonstrating whether the interim milestones have been achieved.
C2.13	Timing for the implementation of tangible, on-ground corrective actions to be implemented if monitoring activities indicate the interim milestones have not been achieved.
C2.14	Evidence of how the management actions and corrective actions take into account relevant approved conservation advices and are consistent with relevant recovery plans and threat abatement plans.
C2.15	Details and execution timing of the mechanism to legally secure the proposed offset area/s, such that legal security remains in force over the offset area/s for at least 20 years to provide enduring protection for the offset area/s against development incompatible with conservation.
C2.16	All measures must be written using committed language (e.g. 'will' and 'must') and in accordance with the 'S.M.A.R.T' principle: <ul style="list-style-type: none"> • S – Specific (what and how) • M – Measurable (supported by baseline information, number/value, quantifiable, auditable) • A – Achievable (with consideration of e.g., timeframe, money, personnel) • R – Relevant (consistent with conservation advices, recovery plans, threat abatement plans, scientific literature) • T – Time-bound (specific timeframe to complete, include timeframe and frequency).
C2.17	Risk analysis and a risk management and mitigation strategy for all risks to the successful implementation of the OMP and timely achievement of the offset completion criteria, including a rating of all initial and post-mitigation residual risks in accordance with a risk assessment matrix.