

Mining Management Exploration Activities

Northern Territory of Australia – *Mining Management Act 2001*

Section 1 – Project Details

Project Name	Ammaroo Phosphate Project
Authorisation Number	0609-4
Operator Name	Verdant Minerals Pty Ltd
Operator ABN and ACN numbers	ABN 33 122 131 622 ACN 122 131 622
Location and Access Details	360 km northeast of Alice Springs via the Sandover Highway and Murray Downs Rd. The camp and project is approximately 20km northwest of the Ampilatwatja community.
Target Commodity Details	Construction materials (hard rock, gravel) for earthworks including road base, rail ballast, building pad and levee construction. Geotechnical soil and rock strength testing for plant footings and basement for other infrastructure (rail, airstrip, mining village). Phosphate rock for large-scale (off-site) metallurgical testing.
Mining Activities Summarise the mining activities (exploration) to be the subject of the proposed Authorisation or Variation. Drilling programs over a maximum of four years are supported and encouraged and can be staged. Please refer to the guidelines for further information.	Drilling: <ul style="list-style-type: none">• 6 x 20m deep PQ core geotechnical holes;• 86 x 4m deep open holes (gravel resource A);• 104 x 4m deep open holes (gravel resource B);• 40 geotechnical strength testing sites.• 15 open (chip) optimisation holes, average depth 25m. Bulk Sample Pits: Up to three (3) bulk sample pits comprising Stages 1 and 2 of the overall large bulk sample extraction program. This follows the small costean pit (MMP approved July 2023) as an initial trial. Refer to Proposed Schedule below for a summary of Stages 1 and 2. Approximately 30km of new access track will need to be cleared with the rest being existing access.

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Proposed Schedule	<p>1Q CY2024 – 4Q CY2025, depending on equipment and personnel availability.</p> <p><u>Stage 1:</u></p> <p>Excavate up to three (3) medium scale slots (larger costeans) for the extraction of up to 1,000 tonnes of near surface, variable grade material with select sub-samples shipped off site for further tests. Any remaining material to be stored on site on adjacent pads.</p> <p>Diamond drilling (DD) of six (6) sites to a depth of 20m to provide core samples of rock types to be sent off site for testing for rail ballast and/or other construction material.</p> <p>Shallow (4m deep) Air Core (AC) or Rotary Air Blast (RAB) drilling of 86 holes across two sites to determine the amount of general-purpose surface gravel (ferricrete) resource is available.</p> <p><u>Stage 2:</u></p> <p><i>If required</i>, expand up to 3 of the stage 2 slots to a larger boxcut pit to provide bulk (1,000t to 10,000t) as-mined sample for large scale testing. Selected parcels shipped off-site for test runs. Any remaining material to be stored on site on adjacent pads.</p> <p>Shallow (4m deep) AC or RAB drilling to determine the extent of identified sand-clay-gravel unit already identified as being geotechnically suitable for road base. There are three (3) separate sites and approximately 104 holes in total.</p> <p>Trial pit optimization Reverse Circulation (RC) drilling 15 holes with an average depth of 25m will be drilled and samples shipped off-site for analysis.</p> <p><i>In-situ</i> ground density/strength testing (dynamic cone penetration testing). 40 test sites are planned in infrastructure areas that do not currently have geotechnical information. These are the proposed airstrip, mining village, rail loop, some parts of the plant. The testing is minimally invasive, resulting in a hole of approximately 20mm diameter with a depth of up to 1.2m.</p>
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Mining Interest and Land Ownership

List the mining interests (titles), the title holder name/s, the title expiry date and the Property name/Land holder (e.g. pastoralist or Aboriginal land trust) for each title.

Title Number	Title Holder	Expiry Date	Underlying Property Name or Land Holder
EL 31789	Territory Phosphate	14/08/2024	Ooratipra and Derry Downs
EL 31790	Territory Phosphate	14/08/2024	Elkedra Station
EL 31791	Territory Phosphate	14/07/2025	Ammaroo and Derry Downs
EL 24726	Territory Phosphate	31/03/2024 (Renew Retained)	Ammaroo Station
EL 25184	Territory Phosphate	18/04/2025	Ammaroo Station (renewal in process)

Please note a Land Access Agreement (LAA) is required for disturbance proposed on Pastoral Properties on Exploration Licence (EL).

Organisational Structure

Position Title	Name
Managing Director	Chris Tziolis
Chief Geologist	Susan Dippel
Environmental Manager	TBA

Section 2 – Operator Self-Assessment of the Environmental Risk

Environmental considerations

ASSESSMENT ASPECT	YES or NO	ACTIONS REQUIRED (if answered YES)	APPENDED INFORMATION (e.g. evidence of consultation with DEPWS and/or management plan where required).
<p>Step 1: Are there any threatened flora and fauna species or habitats of significance that may occur in the proposed work area?</p>	YES	<p><i>The Operator must assess the likelihood of threatened species or their habitats occurring at or near the site. If the likelihood is high, then a “Significant Impact Assessment” must be undertaken and appended to this document.</i></p> <p>Please refer to the appended results from the NR Maps Biodiversity layers. Although there are threatened and significant flora or fauna recorded in the greater region, there are none shown within ten kilometres the proposed work area.</p> <p>A comprehensive flora and fauna assessment was undertaken as part of the 2018 EIS. It concluded that, within the area, there are few occurrences of threatened flora or fauna and that there is unlikely to be significant impacts on biodiversity. We are also bound by the attached EPA Assessment Report 87 (attached) and our own Flora & Fauna protection policy (HSEC-POL_010, also attached).</p>	<p>Consulted EPBC Protected Matters Search Tool and appended it to this document.</p> <p>Consulted NR Maps Biodiversity layers – results appended to this document.</p> <p>Refer to NT EPA Assessment Report 87</p> <p>Refer to HSEC-POL-010 Flora & Fauna Policy.docx</p>
<p>Step 2: Are there any known declared weeds within the proposed work area?</p>	NO	<p><i>Seek advice from DENR – Weeds Management to ensure management measures are appropriate for the level of activity proposed and attach a Weed Management Plan (if required).</i></p> <p>The greater area is within Weed Management Zones for Athel pine, Bellyache bush, Brazilian pepper, Gamba grass and Mimosa, although no weeds are recorded within 20km of the proposed site (see attached).</p> <p>We are bound by both the EPA Assessment Report 87 and our Weed Management Policy (HSEC-POL-025), both of which are attached.</p>	<p>Within several Weed Management Zones. See attached NR Maps – Weeds.</p> <p>Refer to NT EPA Assessment Report 87 and HSEC-POL-025 Weed Management Policy</p>

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ASSESSMENT ASPECT	YES or NO	ACTIONS REQUIRED (if answered YES)	APPENDED INFORMATION (e.g. evidence of consultation with DEPWS and/or management plan where required).
<p>Step 3: Will you be using water from bores or other sources for the operation?</p>	YES	<p><i>Water related matters on mineral titles are no longer exempt from the Water Act 1992. Please consult with DEPWS Water Resources and/or familiarise yourself with the Water Act to ensure compliance under this Act when undertaking exploration activities.</i></p> <p>Verdant Minerals will consult with the Water Resources Division of the Department of Environment, Parks and Water Security (DEPWS) regarding water use.</p>	<p>Ammaroo have two bores in the project area which will be used to source water.</p> <p>Refer to NT EPA Assessment Report 87</p>

Environmental assessment and cultural considerations

ASSESSMENT ASPECT	YES or NO	MANAGEMENT REQUIREMENTS
<p>Step 4: Is your project likely to have a significant impact on the environment?</p>	YES	<p><i>Refer to the NTEPA Environmental Factors and Objectives Guideline.</i></p> <p>This MMP is for the disturbance of approximately 23.79 hectares (includes access tracks, temporary ROM Pads and bulk sample pits) for the extraction of ore bulk sample parcels of between approximately 500 tonnes to 10,000 tonnes of phosphate ore from up to three sites for further metallurgical testing; for the drilling of shallow (4m deep) construction gravel resource definition holes and 20m deep diamond core holes for geotechnical testing; and minimally invasive <i>in-situ</i> ground strength geotechnical tests. Existing tracks will be used wherever possible.</p> <p>For all mining operations we are bound by the recommendation of 2018 NT EPA Assessment Report 87 (attached) before mining can proceed and approval of a full MMP.</p>

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ASSESSMENT ASPECT	YES or NO	MANAGEMENT REQUIREMENTS
<p>Step 5: Are there Aboriginal sacred sites in the Project area?</p>	YES	<p><i>Sacred Sites are protected under the NT Aboriginal Sacred Sites Act 1989 and administered by the Aboriginal Areas Protection Authority (AAPA). It is recommended that advice be sought from AAPA in relation to sacred site protection.</i></p> <p>Verdant have an Exploration Agreement with the Central Land Council (CLC) which details Sacred Site Management. Multiple sacred site clearances and community consultation meetings have taken place since 2010 and an application for Sacred Site Clearance for this program has been lodged with the CLC. We have also completed AAPA register searches over the area. Copies of the appropriate AAPA results are attached.</p>
<p>Step 6: Are there archaeological and heritage sites in the Project area?</p>	NO	<p><i>Heritage and archaeology sites are protected in the NT. NT Department of Territory Families, Housing and Communities (DTFHC) administers the Heritage Act 2011. Seek advice in relation to protection of heritage and archaeological sites.</i></p> <p>Refer to Step 5 above and HSEC-POL-015 Heritage & Cultural Significant Sites Policy.</p>

Section 3 – Amendments

As per Section 41(3) of the *Mining Management Act*, an MMP reviewed and amended under Section 41(1)(a) is to have amendments made since the previous MMP submission clearly identified.

Section	Amendment
Stage 1	
EL 24726	<p>1 bulk sample slot approximately 41m long x 2.5m wide at surface and 4m deep with adjacent temporary storage pad (~75m x 100m). Up to 1,000t of ore to be mined with smaller (tens of tonnes) parcels shipped off-site for testing. Excess sample material to be kept on the existing, or an additional, temporary storage pad adjacent to the slot.</p> <p>2 x 20m deep core drill holes. Holes to be drilled on existing access tracks – separate pads not required.</p>
EL 25184	<p>1 or 2 bulk sample slots up to 47m long x 8m wide at surface and 8.5m deep with adjacent temporary temporary storage pads (~75m x 100m). Up to 1,000t of ore to be mined with smaller (tens of tonnes) parcels shipped off-site for testing. Approximately 60m of new access track may be required for temporary sample storage pads.</p> <p>2 x 20m deep core drill holes. Holes to be drilled on existing access tracks – separate pads not required.</p>
EL 31791	<p>2 x 20m deep core drill holes. Holes to be drilled on access tracks – separate pads not required. One short (~25m) new access track will be needed for the hole off Elkedra-Propacc Road, the other will utilize an existing access track.</p> <p>86 x 4m deep gravel resource (ferricrete) definition RAB or AC drill holes.</p> <p>All holes to be drilled on access tracks – separate pads not required. 14.3km of new access tracks will be needed, mostly for the gravel resource drilling.</p>

Stage 2	
EL 24726	<p>1 bulk sample boxcut pit at the same location as the Stage 1 slot. Up to 75m long and 14m wide at surface and 7m deep utilizing existing (Stage 1) adjacent temporary sample storage pad/s (~75 x 100m).</p> <p>Approximately 68 shallow (4m) road base resource definition RAB or AC drill holes. Holes to be drilled on access tracks – separate pads not required.</p> <p>29 DCP geotechnical testing sites. Tests to be carried out on access tracks, no pads required.</p> <p>11.9km of new access tracks</p>
EL 25184	<p>2 bulk sample boxcut pits at the same locations as the Stage 1 slots. Up to 80m long and 20m wide at surface and 11m deep using existing (Stage 1) adjacent temporary sample storage pad/s (~75 x 100m).</p> <p>Depending on the volume of rock extracted a further two (2) temporary sample storage pads may be required (each ~75 x 100m).</p> <p>Approximately 36 shallow (4m) road base resource definition RAB or AC drill holes.</p> <p>Approximately 15 trial pit optimization RC drill holes, average depth 25m.</p> <p>All holes to be drilled on access tracks – separate pads not required. 11 DCP geotechnical testing sites. Tests to be carried out on access tracks, no pads required.</p> <p>2.6km of new access tracks</p>

Section 4A – Activities Proposed for this MMP only. Stage 1.

Provide relevant EL numbers

Mining Interests (i.e. titles)	EL24726 - 2024	EL25184 - 2024	EL31791 - 2024
Number and type of proposed exploration drill holes	2 x PQ geotechnical core holes	2 x PQ geotechnical core holes	2 x PQ geotechnical core holes 86 general purpose construction gravel resource definition holes (aircore AC or rotary air blast RAB)
Maximum depth of proposed holes (m)	20	20	20 (core holes) 4 (AC/RAB holes)
Number and size of drill pads to be cleared	0 drill pads – holes will be drilled on access tracks.	0 – holes will be drilled on access tracks.	0 – holes will be drilled on access tracks
Total area of pads to be cleared (ha) <i>(Length:50m x Width:75 m)</i>	1 temporary sample storage pad 0.75	2 temporary sample storage pads 1.5	0
Number of proposed water bores	0	0	0
Is drilling likely to encounter groundwater in multiple or confined aquifers? (Y, N, unsure) If answering yes, please provide the number of exploration holes	N	N	N
Number of costeans	0	0	0
Volume to backfill costeans (Length: m x Width: m x Depth: m)	n/a	n/a	n/a
Number of bulk sample pits <i>(defined as Slots for this stage)</i>	1	2	0

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Mining Interests (i.e. titles)	EL24726 - 2024	EL25184 - 2024	EL31791 - 2024
**Volume to backfill bulk sample slots (each pit has different dimensions – see attached spreadsheet for details)	Slot D = 301m ³	Slot C = 1,649 m ³ Slot E = 1,054 m ³ Total: 2,703m³	0
Bulk sample pits approved under Mineral Titles Act? (Y or N). If Yes provide approval	Yes	Yes	n/a
Line/track clearing: (length m x width m)	n/a	60m x 6m	14,350m x 6m
Area of proposed line/track clearing (ha)	n/a	0.04ha	8.61ha
Camp area to be cleared (ha)	n/a	n/a	n/a
Camp Infrastructure (i.e. demountable, tents) Please provide a complete list with measurements as required in the security calculation	n/a – existing camp on EL25184 to be used	n/a – existing camp to be used	n/a - existing to be used
Other – Ground clearing for bulk sample slots and temporary sample storage pads (ha)	0.03	1.1	n/a
Total proposed area of disturbance (ha)	0.78	2.64	8.61

Staging approach based on disturbance can be proposed and will be considered by the Department.

** VOLUMES DETERMINED FROM 3D MODELS

Section 4B – Activities Proposed for this MMP only. Stage 2.

Provide relevant EL numbers

Mining Interests (i.e. titles)	EL24726 - 2025	EL25184 - 2025
Number and type of proposed exploration drill holes	68 x 100mm road base gravel resource holes 29 x geotechnical testing sites (20mm)	36 x 100mm road base gravel resource holes 11 x geotechnical testing sites (20mm) 15 x 100mm reverse-circulation (RC) pit optimisation holes
Maximum depth of proposed holes (m)	Gravel – 4 Testing sites – up to 1m	Gravel – 4 Optimisation – avg 25m Testing sites – up to 1m
Number and size of drill pads to be cleared (Length:50m x Width:75 m)	0 drill pads – holes will be drilled on access tracks. 1 temporary sample storage pad to be cleared.	0 – holes will be drilled on access tracks. 1 temporary sample storage pad to be cleared
Total area of (temporary sample storage) pads to be cleared (ha). Additional to those in Stage 1 and <i>only if required.</i>	0.75	0.75
Number of proposed water bores	0	0
Is drilling likely to encounter groundwater in multiple or confined aquifers? (Y, N, unsure) If answering yes, please provide the number of exploration holes where this is likely to occur	N	N
Number of costeans	0	0
Volume to backfill costeans (Length: m x Width: m x Depth: m)	na	na
Number of extensions to bulk sample pits	1	2

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Mining Interests (i.e. titles)	EL24726 - 2025	EL25184 - 2025
**Volume to backfill bulk sample pits (each pit has different dimensions – see attached spreadsheet for details), excluding slots (see Stage 1)	6,820m ³	Total: 25,806m ³
Bulk sample pits approved under <i>Mineral Titles Act?</i> (Y or N). If Yes provide approval	Yes	Yes
Line/track clearing: (length m x width m)	12,000m x 6m	2,570m x 6m
Area of proposed line/track clearing (ha)	7.20ha	1.54ha
Camp area to be cleared (ha)	n/a	n/a
Camp Infrastructure (i.e. demountable, tents) Please provide a complete list with measurements as required in the security calculation	n/a – existing camp on EL25184 to be used	n/a – existing camp to be used
Other – ground clearing for bulk sample boxcuts (additional to ground clearing for Stage 1).	0.28	0.76
Total proposed area of disturbance (ha)	8.23	3.05

Staging approach based on disturbance can be proposed and will be considered by the Department.

** VOLUMES DETERMINED FROM 3D MODELS

Section 5 – Previous Disturbance (for existing Authorisations only)

The 'Disturbance Tracking' spreadsheet must be completed and attached to the MMP submission to complete this section. The spreadsheet is available on the departmental web page where this template is located.

Section 6 – Environmental Management

By checking these shaded boxes, you are agreeing to implement the following minimum environmental management standards on the project area. Where boxes have been left unchecked, justification is required.

6.1	X	Blade-up approach for clearing will be used (i.e. no windrows, leave root stock and topsoil)
6.2	X	Significant vegetation will be avoided during clearing (i.e. large trees, specimens providing habitat or food sources, riparian vegetation, and threatened species)
6.3	X	Vegetation clearing during, and immediately after rainfall events, will be avoided
6.4	X	Vegetation clearing will be kept to the minimum required to safely traverse vehicles and drill rigs along tracks and drill pads
6.5	X	Where blade-up techniques cannot be employed, topsoil and vegetation will be stockpiled appropriately for rehabilitation purposes
6.6	X	All employees and contractors will be trained and inducted in relation to the management of environmental risks in the work area, including weeds, waterways, threatened species, soil erosion, sacred sites and heritage areas
6.7	X	Sumps will be lined or tanks of appropriate size to contain water, sediment and drilling fluids encountered during drilling, will be used
6.8	X	Sumps, drill holes, and fuel stores will be located away from environmentally significant areas and water courses
6.9	X	Excavations (sumps, costeans and pits) will be appropriately ramped to allow fauna egress
6.10	X	Drill holes will be securely capped immediately after drilling
6.11	X	Vehicle hygiene measures will be employed to prevent the introduction and spread of invasive species and pathogens when mobilising vehicles and equipment from one location to another
6.12	X	Hydrocarbon spills will be minimised using liners and drip trays under machinery, and appropriately sized spill-kits available in the event of a spill
6.13	X	Hazardous substances (including hydrocarbons) will be stored and handled in accordance with relevant Australian Standards
6.14	X	Hydrocarbons will be stored in lined and bunded areas
6.15	X	Waste will be stored securely while on-site to minimise windblown rubbish and access by feral animals
6.16	X	Waste will be removed off-site and disposed of at an appropriate waste management facility
6.17	X	All environmental incidents will be reported to the Department in accordance with Section 29 of the <i>Mining Management Act</i> .
6.18	X	Acid and Metalliferous Drainage (AMD) and Potentially Acid Forming (PAF) material derived from drilling cuts will be managed to avoid AMD and PAF related issues on site.

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6.19	X	Radioactive/NORM drill cuttings will be managed to avoid radiation related issues on site.
6.20	X	Dust management will be implemented on site.

Justification and alternative management measures:

Section 7 – Rehabilitation and Closure

By checking these shaded boxes, you are agreeing to implement the following minimum rehabilitation standards on the project area. Where boxes have been left unchecked, justification is required.

A refund of security related to completed rehabilitation on site requires the submission of a rehabilitation report including photographs, an updated security calculation and updated disturbance tracking spreadsheet to the Department.

7.1	<input checked="" type="checkbox"/>	Drill holes will be plugged below ground level at a minimum depth of 0.4 metres and soil mounded to prevent subsidence, within 6 months of completion of drilling.
7.2	<input checked="" type="checkbox"/>	Drill holes encountering multiple or confined aquifers will be grouted with concrete.
7.3	<input checked="" type="checkbox"/>	Drill samples/spoil will be returned down drill holes, buried in sumps, or removed from site.
7.4	<input checked="" type="checkbox"/>	All drill hole and access markers including flagging tape, wooden markers and star pickets will be removed from site.
7.5	<input checked="" type="checkbox"/>	Cut and fill drill pads will be re-contoured to be consistent with the surrounding terrain.
7.6	<input checked="" type="checkbox"/>	Drill pads and compacted areas along the contour (on sloping ground) will be ripped/scarified of and tracks will be cross-ripped (zig-zag).
7.7	<input checked="" type="checkbox"/>	Tracks will be rehabilitated, including pushing in all windrows, unless otherwise agreed in writing by the land holder or appropriate third party.
7.8	<input checked="" type="checkbox"/>	Appropriate erosion and sediment controls will be installed where erosion is evident or likely to occur.
7.10	<input checked="" type="checkbox"/>	Access through watercourses will be removed and banks restored.
7.11	<input checked="" type="checkbox"/>	All previously disturbed areas will be stable, with no evidence of active soil erosion.
7.12*	<input checked="" type="checkbox"/>	All excavations will be backfilled within 6 months of their completion*.
7.13	<input checked="" type="checkbox"/>	All water bores will be decommissioned unless otherwise agreed in writing by the land holder or appropriate third party.
7.14	<input checked="" type="checkbox"/>	All rubbish and infrastructure will be removed from site.
7.15	<input checked="" type="checkbox"/>	Topsoil will be replaced and vegetation re-established.
7.16	<input checked="" type="checkbox"/>	Contaminated soils (e.g. hydrocarbon or hazardous chemicals) will be rehabilitated or removed from site.
7.17	<input checked="" type="checkbox"/>	Monitoring will be undertaken following the wet season or a significant rainfall event.

Justification and alternative management measures:

*7.12 unless it is required for further sample extraction, in which case the excavation will be made safe with windrows and secure fencing around the crest. Once the excavation is no longer required it will be backfilled and rehabilitated (as per 7.15).

Section 8 – Required Attachments

8.1	X	Initial Application for Authorisation or variation of Authorisation (only if details on the form have subsequently changed).
8.2	N/A	Nomination of Operator Form, where required
8.3	X	Security Calculation Spreadsheet
8.4	X	Evidence of Land Access Agreement if operating on an Exploration Licence (EL) on Pastoral Lease (e.g. two-ways exchange of email)
8.5	X	Disturbance tracking spreadsheet (for existing Authorisations)
8.6	X	Spreadsheet with coordinates of proposed drill holes or polygons of target areas
8.7	X	KML/shape files/track logs of proposed tracks, camp sites and proposed drill holes or polygons of target areas
8.8	X	Map(s) of the work area(s) showing: <ol style="list-style-type: none"> 1. title boundaries and title numbers 2. current and proposed drill holes, or polygons of target areas 3. current and proposed tracks 4. rehabilitated areas 5. camp sites 6. heritage sites or significant environmental areas 7. environmental constraints
8.10	N/A	Radiation Management Plan (if applicable)
8.12	X	Document(s) being appended in relation to Section 2 (if any): <ul style="list-style-type: none"> - NT EPA Assessment Report 87 - HSEC-POL-010 Flora & Fauna Policy.docx - HSEC-POL-015 Heritage & Cultural Significant Sites Policy - HSEC-POL-025 Weed Management Policy.docx - NR Maps – Threatened Fauna - NR Maps – Significant Fauna and Significant Flora - Protected Matters – MNES layers – December 13th 2023