



ECC-36-202-REP-08-D

## **ENVIRONMENTAL MANAGEMENT PLAN**

**EXPLORATION ACTIVITIES ON EPL 6949 FOR BASE AND RARE METALS,  
INDUSTRIAL MINERALS, AND PRECIOUS METALS IN THE KHOMAS &  
OTJOZONDJUPA REGIONS**

PREPARED FOR



JULY 2019

## TITLE AND APPROVAL PAGE

|                            |                                                 |
|----------------------------|-------------------------------------------------|
| <b>Project Name:</b>       | Environmental Management Plan for EPL 6949      |
| <b>Project Number</b>      | ECC-36-202-REP-08-D                             |
| <b>Client Name:</b>        | Khomas Exploration (Pty) Ltd                    |
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### Environmental Compliance Consultancy Contact Details:

We welcome any enquiries regarding this document and its content please contact:

**Stephan Bezuidenhout**

Environmental Consultant & Practitioner  
Tel: +264 81 699 7608  
Email: [stephan@eccenvironmental.com](mailto:stephan@eccenvironmental.com)  
[www.eccenvironmental.com](http://www.eccenvironmental.com)

**Jessica Mooney**

Environmental Consultant & Practitioner  
Tel: +264 81 699 7608  
Email: [jessica@eccenvironmental.com](mailto:jessica@eccenvironmental.com)  
[www.eccenvironmental.com](http://www.eccenvironmental.com)

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**DEFINITIONS AND ABBREVIATIONS**

|     |                                      |
|-----|--------------------------------------|
| ECC | Environmental Compliance Consultancy |
| EIA | Environmental Impact Assessment      |
| EMA | Environmental Management Act         |
| EMP | Environmental Management Plan        |
| EPL | Exclusive Prospecting Licence        |

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## 1. INTRODUCTION

### 1.1 PROJECT BACKGROUND

Khomas Exploration (Pty) Ltd owned by B2Gold Namibia is the operator of the EPL 6949. B2Gold was founded in 2012 and is also the operator of the Otjikoto Gold Mine near Otjiwarongo, which is one of the largest mines in Namibia with approximately 800 permanent employees. The Otjikoto Gold Mine has largely contributed to the socio-economic development of the region and primarily focusing on their corporate social responsibilities strategy - health, livelihood, education, and environment.

To extend operations in Namibia, Khomas Exploration (Pty) Ltd propose to undertake exploration activities on Exclusive Prospecting Licence (EPL) 6949 for Base and Rare metals, Industrial Minerals and Precious Metals in the Khomas and Otjozondjupa Regions (referred to as the proposed project from herein). EPL 6949 stretches across the two regions, approximately 90% of EPL 6949 is located in Otjozondjupa Region, the remaining 10% is located within the Khomas Region (see Figure 1).

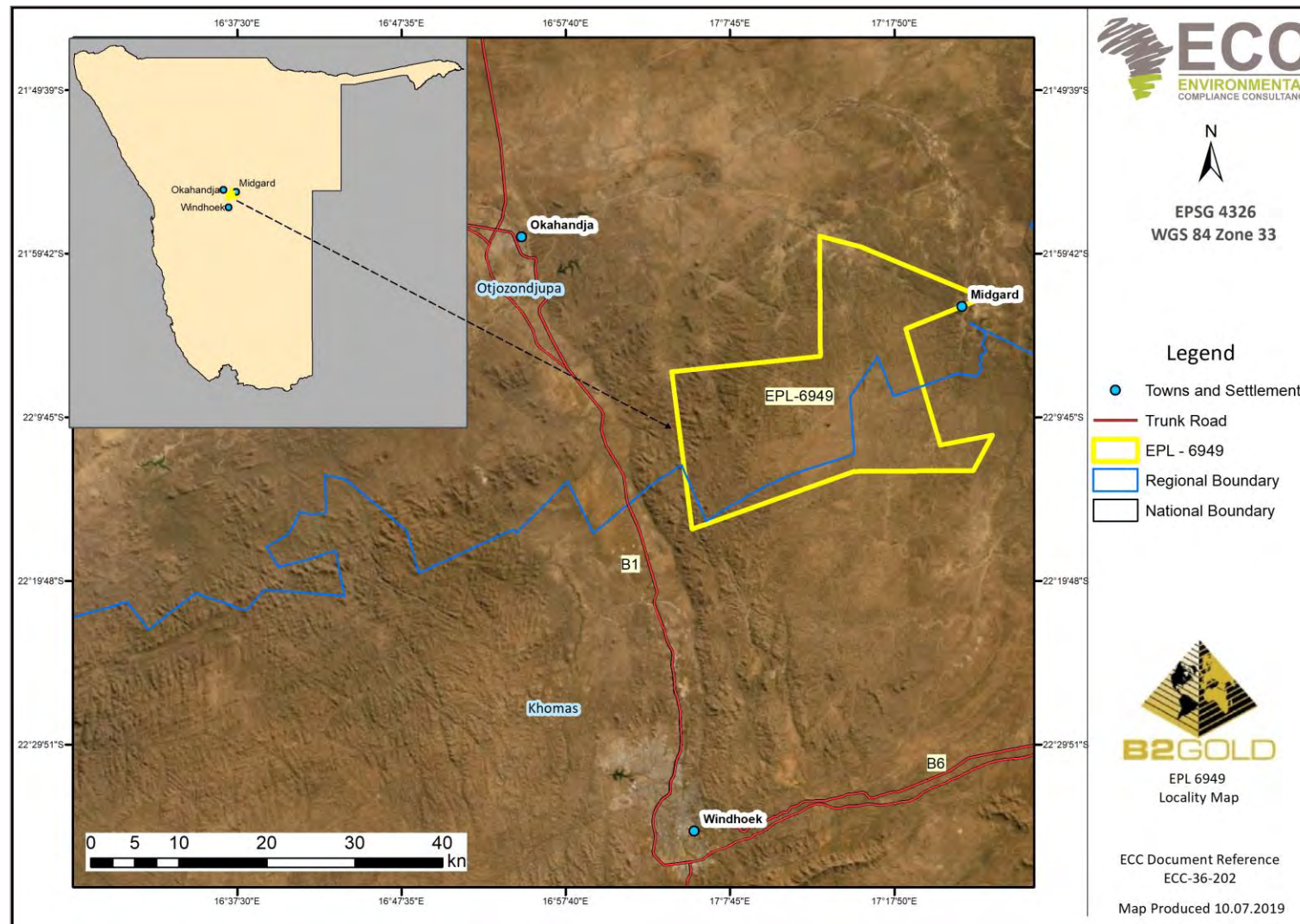


FIGURE 1: LOCALITY OF EPL 6949

## 1.2 ENVIRONMENTAL REGULATORY REQUIREMENTS

The proposed project is considered as a Listed Activity as set out in the Environmental Management Act, 2007 (Act No. 7 of 2007) and the Environmental Impact Assessment Regulation, 2007 (No. 30 of 2011) gazetted under the Environmental Management Act, (EMA), 2007 (Act No. 7 of 2007) (referred to herein as the EIA Regulations). As a Listed Activity an application for an Environmental Clearance Certificate is required. An Environmental Scoping Report and Environmental Management Plan (EMP) are required as part of the Environmental Clearance Certificate application, as well as to support the decision-making process. This report presents the EMP and has been undertaken in terms of the requirements of the Environmental Management Act, 2007 and its Regulations.

## 1.3 PURPOSE AND SCOPE OF THIS REPORT

This EMP provides a logical framework, mitigation measures and management strategies for the exploration activities associated with the proposed project, in this way ensuring that the potential environmental and social impacts are mitigated and minimised as far as practically possible and that statutory and other legal obligations are adhered to and fulfilled. Outlined in the EMP are the protocols, procedures and roles and responsibilities to ensure the management arrangements are effectively and appropriately implemented.

This EMP forms an appendix to the Environmental Scoping Report and is based on the findings of the assessment; therefore, the Environmental Scoping Report should be referred to for further information on the proposed project, assessment methodology, applicable legislation and assessment findings.

This EMP is a live document and shall be reviewed at predetermined intervals, and/or updated when the scope of works alters, or when further data / information can be added. All personnel working on the project will be legally required to comply with the standards set out in this EMP.

The scope of this EMP includes all activities carried out during the exploration stage in search of Base, Rare and Industrial Minerals, and Precious Metals on EPL 6949.

## 1.4 MANAGEMENT OF THIS EMP

The proponent, Khomas Exploration (Pty) Ltd, will hold the Environmental Clearance Certificate for the proposed project and will be responsible for the implementation and management of this EMP. Prior to the exploration activities commencing, this EMP shall be reviewed, amended as required and approved ready for implementation. The implementation and management of this EMP, and thus the monitoring of compliance, shall be undertaken through daily duties and activities, and monthly inspections.

This EMP shall be circulated to all contractors and shall be made available on the Environmental Compliance Consultancy's (ECC) website.

## 1.5 LIMITATIONS, UNCERTAINTIES AND ASSUMPTIONS OF THIS EMP

This EMP does not include measures for compliance with statutory occupational health and safety requirements. This will be provided in the safety management plan to be developed by the proponent.

Where there is any conflict between the provisions of this EMP and any contractor's obligations under their respective contracts, including statutory requirements (such as licences, project approval conditions, permits, standards, guidelines and relevant laws), the contract and statutory requirements are to take precedence.

The information contained in this EMP has been based on the project description as provided in the Environmental Scoping Report. Where the design or exploration methods alter, this EMP may require updating and potential further assessment may be undertaken.

## 1.6 ENVIRONMENTAL CONSULTANCY

ECC, a Namibian consultancy (registration number Close Corporation 2013/11401), has prepared the Scoping Report, impact assessment and this EMP on behalf of the proponent. ECC operates exclusively in the environmental, social, health and safety fields for clients across Southern Africa, in both the public and private sectors. ECC is independent of the proponent and has no vested or financial interest in the proposed project, except for fair remuneration for professional services rendered.

All compliance and regulatory requirements regarding this EMP report should be forwarded by email or post to the following address:

**Environmental Compliance Consultancy**

PO BOX 91193

Klein Windhoek, Namibia

Tel: +264 81 6697608

Email: [info@eccenvironmetnal.com](mailto:info@eccenvironmetnal.com)

## 1.7 STRUCTURE OF THIS EMP

The report has the following structure:

- Chapter 1 – Introduction
- Chapter 2 – Project Management Personnel
- Chapter 3 – Communication and Training
- Chapter 4 – Compliance and Enforcement
- Chapter 5 – Environmental and Social Management
- Chapter 6 – Implementation of the EMP

## 2. PROJECT MANAGEMENT PERSONNEL

### 2.1 KHOMAS EXPLORATION (PTY) LTD

The proponent shall provide a Project Team to oversee and undertake the preparation and exploration activities, which will be composed of the proponent's personnel and contractors. A nominated role shall be identified to ensure the management and implementation of this EMP is throughout the duration of the project, which will be supported by the central environmental team on the Khomas Exploration site.

### 2.2 ORGANISATIONAL STRUCTURE, ROLES AND RESPONSIBILITIES

The proponent shall be responsible for:

- Ensuring all members of the Project Team, including contractors, comply with the procedures set out in this EMP;
- Ensuring that all personnel are provided with sufficient training, supervision and instruction to fulfil this requirement; and
- Ensuring that any persons allocated specific environmental responsibilities are notified of their appointment and confirm that their responsibilities are clearly understood.

Contractors shall be responsible for ensuring and demonstrating that all personnel employed by them are compliant with this EMP, and meet the responsibilities listed above.

The key personnel and environmental responsibilities of each role through the project life are presented in **Error! eference source not found..**

**TABLE 1 – ROLES AND RESPONSIBILITIES**

| ROLE                | RESPONSIBILITIES & DUTIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Proponent           | <ul style="list-style-type: none"> <li>– Responsible for the management and implementation of the EMP</li> <li>– Ensure environmental policies are communicated to all personnel throughout the proposed project and that employees understand the guidelines of the EMP</li> <li>– Responsible for providing the resources required to complete the project tasks</li> <li>– Appoint a Site manager and Exploration Manager, and</li> <li>– Ensure all workers are inducted on safety measures.</li> </ul>                                                                                                                          |
| Exploration Manager | <ul style="list-style-type: none"> <li>– Oversee exploration activities</li> <li>– Monitor daily operations and ensure adherence by personnel to the EMP</li> <li>– Maintain the community issues and concerns register and keep records of complaints, and</li> <li>– Maintain an up to date register of employees who have completed site induction.</li> </ul>                                                                                                                                                                                                                                                                    |
| Site Manager        | <ul style="list-style-type: none"> <li>– Ensure that all contract workers, sub-contractors and visitors to the site are conversant with the requirements of this EMP, relevant to their roles on site and adhere to this EMP at all times</li> <li>– Report any non-compliance or accidents to the Exploration Manager</li> <li>– Receive, recording and responding to complaints</li> <li>– Ensure adequate resources are available for the implementation of the EMP</li> <li>– Ensure safe and environmentally sound operations, and</li> <li>– Responsible for the management, maintenance and revisions of this EMP.</li> </ul> |
| Employees           | <ul style="list-style-type: none"> <li>– Adhere to measures set out in the EMP</li> <li>– Ensure they have undertaken a site induction, and</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

|  |                                                                                                                                                                                         |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <ul style="list-style-type: none"> <li>– Report any operations or conditions which deviate from the EMP as well as any non-compliant issues or accidents to the Site Manager</li> </ul> |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 2.3 CONTRACTORS

Any contractors hired during the exploration activities and accessory works for the project duration shall be compliant with this EMP, and shall be responsible for the following:

- Undertaking activities in accordance with this EMP as well as relevant policies, procedures, management plans, statutory requirements, and contract requirements;
- Implementing appropriate environmental and safety management measures;
- Reporting of environmental issues, including actual or potential environmental incidents and hazards, to the Site Manager and/or Exploration Manager; and
- Ensuring appropriate corrective or remedial action is taken to address all environmental hazards and incidents reported by employees and subcontractors.

## 2.4 EMPLOYMENT

The proponent and all contractors shall comply with the requirements of the Republic of Namibia Regulations for Labour, Health and Safety, and any amendments to these regulations. The following shall be complied with:

- In liaison with local government, community, stakeholders and relevant authorities the proponent shall ensure that local people have access to information about job opportunities and are considered first for exploration / maintenance contract employment positions;
- The number of job opportunities shall be made known together with the associated skills and qualifications. The maximum length of time the job is likely to last for shall be clearly indicated;
- Foreign workers with no proof of permanent legal residence shall not be hired; and
- Every effort shall be made to recruit from the pool of unemployed workers living in the surrounding area.

### 3. COMMUNICATION AND TRAINING

#### 3.1 COMMUNICATIONS

During exploration, the Exploration Manager and Site Manager shall communicate site wide environmental issues to the Project Team through the following means (as and when required):

- Site induction
- Audits and site inspections
- Toolbox talks, including instruction on incident response procedures, and
- Key project specific environmental issues briefings.

This EMP shall be distributed to the exploration team including any contractors and personnel working on the exploration site to ensure that the environmental requirements are adequately communicated. Key activities and environmentally sensitive operations shall be briefed to workers and contractors.

During the exploration activities, communications between the management team shall include discussing any complaints received and actions to resolve them; any inspections, audits or non-conformance with this EMP; and any objectives or target achievements.

#### 3.2 COMPLAINTS HANDLING AND RECORDING

Any complaints received verbally by any personnel on the project site shall be recorded by the receiver, including the name and contact details of the complainant, date and time of the complaint, and the nature of complaint. The information shall be given to the Exploration Manager who is overall responsible for the management of complaints and will provide a written response to the complainant. The Exploration Manager shall inform the Site Manager of issues, concerns or complaints. It is the duty of the Exploration Manager to maintain a complaint register that details the name of the complainant, date and time of complaint, action taken to resolve the issues and date of complaint handover.

The workforce shall be informed about the complaints register, its location and the person responsible, in order to refer local residents or the general public who wish to lodge a complaint. The complainant shall be informed in writing of the results of the investigation and action to be taken to rectify or address the matter(s). Where no action is taken, the reasons why are to be recorded in the register.

The complaints register shall be kept for the duration of the project and will be available for government or public review upon request.

#### 3.3 TRAINING AND AWARENESS

All personnel working on the project shall be competent to perform tasks that have the potential to cause an environmental impact. Competence is defined in terms of appropriate education, training and experience.

#### 3.4 SITE INDUCTION

All personnel involved in the project shall be inducted to the site with specific environment and social awareness training, and health and safety issues. The environment and social awareness training shall ensure that personnel are familiar with the principles of this EMP, the environment and social aspects and impacts associated with their activities, the procedures in place to control these impacts, and the consequences of departure from these procedures.

The Exploration Manager shall ensure a register of completed training is maintained.

The Site Induction should include, but not be limited to the following:

- A general site-specific induction that outlines:
  - o What is meant by “environment” and “social”
  - o Why the environment needs to be protected and conserved
  - o How exploration activities can impact on the environment
  - o What can be done to mitigate against such impacts
- The inductee’s role and responsibilities with respect to implementing the EMP
- The site’s environmental rules
- Details of how to deal with, and who to contact, should any environmental problems occur
- Basic vegetation clearing principals and species ID sheets
- The potential consequences of non-compliance with this EMP and relevant statutory requirements, and
- The role of responsible people for the project.

## 4. REPORTING, COMPLIANCE AND ENFORCEMENT

### 4.1 ENVIRONMENTAL PERFORMANCE MEASUREMENT

#### 4.1.1 SUMMARY OF ENVIRONMENTAL RISKS AND MITIGATION MEASURES

Chapter 5 provides a Register of Environmental Risks and Issues, which identifies mitigation and monitoring measures, as well as roles responsible. This register will be subject to regular review by the Project Manager (PM) and updated when necessary.

The Exploration Manager and Site Manager will use this register to undertake monthly inspections (see next section) to ensure the project is compliant with this EMP.

### 4.2 COMPLIANCE MONITORING

#### 4.2.1 DAILY COMPLIANCE MONITORING

A copy of this EMP shall be on site throughout the exploration works and shall be available upon request. It is the responsibility of the Exploration Manager and Site Manager to ensure this EMP is complied with through their daily roles. Daily inspections will be undertaken by the Site Manager (or nominated site supervisor). Any environmental problems or risks identified shall be reported to the Exploration Manager and actioned as soon as is reasonably practicable.

#### 4.2.2 MONTHLY COMPLIANCE MONITORING

Monthly inspections shall be undertaken by the Site Manager to check that the standards and procedures set out in this EMP are being complied with and pollution control measures are in place and working correctly. Any non-conformance shall be recorded, including the following details: brief description of non-conformance; the reason for the non-conformance; the responsible party; the result (consequence); and the corrective action taken and any necessary follow up measures required.

### 4.3 NON-COMPLIANCE

#### 4.3.1 NON-COMPLIANCE EVENT

Where it has been identified that works are not compliant with this EMP, the PM shall employ corrective actions so that the works return to being compliant as soon as possible. In instances where the requirements of the EMP are not upheld, a Non-Conformance and Corrective Action Notice shall be produced. The Notice shall be generated during the inspections and the PM shall be responsible for ensuring a corrective action plan is established and implemented to address the identified shortcoming.

A non-compliance event / situation is considered if, for example:

- There is evidence of contravention of this EMP and associated indicators or objectives
- The Site Manager and/or Contractor have failed to comply with corrective or other instructions issued by the Environmental Manager or qualified authority, or
- The Site Manager and/or Contractor fail to respond to complaints from the public.

Works shall be stopped in the event of a non-compliance, until corrective action(s) has been completed.

#### 4.3.2 DISCIPLINARY ACTION

This EMP is a legally binding document and non-compliance with it shall result in disciplinary action being taken against the perpetrator/s. Such action may take the form of (but is not limited to):

- 
- Fines / penalties
  - Legal action
  - Monetary penalties imposed by the proponent on the contractor
  - Withdrawal of license/s, and
  - Suspension of work.

The disciplinary action shall be determined according to the nature and extend of the transgression / non-compliance, and penalties are to be weighed against the severity of the incident.

#### 4.4 ENVIRONMENTAL PERMITS

Whilst the Water Resources Management Act, 2013 is not enforced, it is best practice to adhere to the stipulations while ensuring compliance with the Water Act of 1956 is also maintained. A licence to abstract and use water may be required if boreholes are to be created, however this is unlikely. If required, the proponent will apply for relevant permits and shall operate in accordance with any conditions of the licence.

Some vegetation will be cleared on the EPL sites to allow exploration activities to commence. It is unlikely that an area greater than 15ha will be cleared, therefore a permit under the Forest Act, 2001 is not required.

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## 5. ENVIRONMENTAL AND SOCIAL MANAGEMENT

### 5.1. OBJECTIVES AND TARGETS

Environmental objectives for the project are as follows:

- Zero pollution incidents
- Minimal vegetation clearing and earthworks
- Protect local flora and fauna, and
- Use natural resources effectively and efficiently.

### 5.2. REGISTER OF ENVIRONMENTAL RISKS AND ISSUES

An environmental review of the proposed project has been completed to identify all the commitments and agreements made within the Environmental Scoping Report. From this, a schedule of environmental commitments and risks has been produced (Tables 2), which details deliverables including measures identified for the prevention of pollution or damage to the environment during exploration.

**TABLE 2 – ENVIRONMENTAL RISKS AND ISSUES, AND MITIGATION AND MONITORING MEASURES**

| RECEPTORS           | POTENTIAL IMPACTS                                                                                                                                                                                                                                          | MANAGEMENT/MITIGATION MEASURES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | MONITORING REQUIREMENTS                                                                                                                                                                                            | RESPONSIBILITY                      |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| <b>Ground water</b> | <ul style="list-style-type: none"> <li>- Fuel and chemical spills could soak through soil and into groundwater</li> <li>- Drilling could penetrate the groundwater table, and</li> <li>- Drill fluid could enter the aquifer causing pollution.</li> </ul> | <ul style="list-style-type: none"> <li>- Refueling shall be undertaken in a designated area</li> <li>- All stationary vehicles and machinery must have drip trays to collect leakages of lubricants and oil</li> <li>- In the event of pollution, polluted soils must be collected and dumped at an approved site</li> <li>- Water used or encountered during drilling should be retained in a lined pond to prevent pollution</li> <li>- A 'good housekeeping' policy shall be adopted across the exploration area</li> <li>- Trenches should be dug to direct any accidental spills into sumps, and</li> <li>- Extraction volumes of water shall be minimal during exploration and where possible, water from existing water sources shall be used.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                    | Exploration Manager<br>Site Manager |
| <b>Soil</b>         | <ul style="list-style-type: none"> <li>- Fuel handling and storage can cause spillages leading to groundwater contamination and soil contamination.</li> </ul>                                                                                             | <p><b><u>Safe Delivery and handling:</u></b></p> <ul style="list-style-type: none"> <li>- Training employees and toolbox talks</li> <li>- Good housekeeping across site</li> <li>- Fuel is handled with care</li> <li>- Spill kits to be at designated areas across site or available for use during refueling, fuel delivery or use. Absorption material should be available and at hand. Where saw dust is used it should be cleaned up immediately and not left for long periods as this poses a fire hazard.</li> <li>- Any major spill is reported to the PM once containment has been achieved.</li> <li>- Plant and equipment to be well maintained and serviced regularly.</li> <li>- In the field, use of hydrocarbons under 200 liters can be used for mobile refueling or servicing.</li> </ul> <p><b><u>Storage:</u></b></p> <ul style="list-style-type: none"> <li>- All tanks to be stored on a non-porous floor and bunded area.</li> <li>- Bund to be capable of storing at least 110% of the volume of the tank</li> <li>- All containers to be suitable for use and not damaged</li> <li>- Tanks are locked at all times</li> <li>- Spill kits available at storage locations and around site in suitable locations</li> </ul> <p><b><u>Refueling</u></b></p> | <ul style="list-style-type: none"> <li>- Daily observations when fuels are delivered and handled</li> <li>- Supervision during refueling</li> <li>- Weekly observations monitor containment and storage</li> </ul> | Exploration Manager<br>Site Manager |

| RECEPTORS                      | POTENTIAL IMPACTS                                                                                                                                                                                                                 | MANAGEMENT/MITIGATION MEASURES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | MONITORING REQUIREMENTS                                                                                                       | RESPONSIBILITY                                                                                                       |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
|                                |                                                                                                                                                                                                                                   | <ul style="list-style-type: none"> <li>- Drip tray to be used during refueling of vehicles and on a permeable flat surface where possible.</li> <li>- Funnel should be available and used to avoid spillage during decanting</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                               |                                                                                                                      |
|                                | <ul style="list-style-type: none"> <li>- Drilling and the use of equipment can cause reduction in soil quality)</li> </ul>                                                                                                        | <ul style="list-style-type: none"> <li>- Topsoil should be separately stockpiled to be re-spread when backfilling</li> <li>- Equipment must be in good condition to ensure that the oil spills do not contaminate the site, and</li> <li>- During drilling oil absorbent matting should be placed under and around the rig</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                               |                                                                                                                      |
| <b>Community</b>               | <ul style="list-style-type: none"> <li>- Loss of farming area</li> </ul>                                                                                                                                                          | <ul style="list-style-type: none"> <li>- Farmers should have access to all farm areas and access shall be made available at all times, and</li> <li>- Where water holes and feeding areas exist, the area will remain unaffected, or</li> <li>- New water holes must be provided if needed.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>- Daily observations</li> </ul>                                                        | <ul style="list-style-type: none"> <li>- Exploration Manager</li> <li>- Site Manager</li> <li>- Employees</li> </ul> |
| <b>Socio-economic</b>          | <ul style="list-style-type: none"> <li>- Employment creation and skills development</li> <li>- Opportunities during the exploration phase (Approx. 10-20 jobs)</li> </ul>                                                         | <ul style="list-style-type: none"> <li>- Maximise local employment and local business opportunities to promote and improve the local economy</li> <li>- Enhance the use of local labour and local skills as far as reasonably possible. Where the required skills do not occur locally, and where appropriate and applicable, ensure that relevant local individuals are trained, and</li> <li>- Ensure that goods and services are sourced from the local and regional economy as far as reasonably possible</li> </ul>                                                                                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>- Daily observations</li> <li>- Weekly checks</li> </ul>                               | <ul style="list-style-type: none"> <li>- Exploration Manager</li> <li>- Employees</li> </ul>                         |
| <b>Terrestrial and ecology</b> | <ul style="list-style-type: none"> <li>- Possible injury or death of animals</li> <li>- Poaching</li> <li>- Habitat fragmentation from clearing, pitting and trenching</li> <li>- Habitat loss from excessive clearing</li> </ul> | <ul style="list-style-type: none"> <li>- Use existing tracks where possible</li> <li>- Route new tracks around established and protected trees, and clumps of vegetation</li> <li>- Identify rare, endangered, threatened and protected species, demarcate them and avoid cutting them down.</li> <li>- All workers on-site are to be notified to avoid any excluded areas or species</li> <li>- Progressive rehabilitation during the exploration phase should applied</li> <li>- Natural drainage patterns should be restored, and</li> <li>- Relocation of protected plant species if disturbance cannot be avoided.</li> <li>- No driving off designated access routes (into the bush) / off-road driving</li> <li>- No snares or catching of animals, no keeping pets or housing of animals for food</li> </ul> | <ul style="list-style-type: none"> <li>- Daily visual inspection during construction of new access tracks/widening</li> </ul> | <ul style="list-style-type: none"> <li>- Exploration Manager</li> <li>- Site Manager</li> <li>- Employees</li> </ul> |

| RECEPTORS            | POTENTIAL IMPACTS                                                                                                                                                                                                                                                   | MANAGEMENT/MITIGATION MEASURES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | MONITORING REQUIREMENTS                                              | RESPONSIBILITY                                                                              |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
|                      |                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>No animals or birds may be collected, caught, consumed or removed from site by the contractor or personnel on site</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                      |                                                                                             |
| <b>Air quality –</b> | <ul style="list-style-type: none"> <li>Dust generation can impact public health and visibility</li> <li>Impact on fauna and flora</li> </ul>                                                                                                                        | <ul style="list-style-type: none"> <li>Use existing access roads and tracks where possible and avoid off road driving</li> <li>Apply dust suppression method such as water spraying during drilling operations</li> <li>Restricted speeds (&lt;30km/h) off of main transit roads</li> <li>Provide protective masks and eye glasses to employees in dusty working environments</li> <li>Specific activities that may generate dust shall be avoided during high wind events, e.g. soil preparation activities</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>Daily observations</li> </ul> | <ul style="list-style-type: none"> <li>Exploration Manager</li> <li>Site Manager</li> </ul> |
| <b>Noise</b>         | <ul style="list-style-type: none"> <li>The use of airborne equipment (remote sensing – drone, helicopter) Disruption to neighbour and nearby settlements</li> <li>-Disturbance of local wildlife</li> <li>-Increased noise levels to sensitive receptors</li> </ul> | <ul style="list-style-type: none"> <li>Noise shall be minimised as much as possible during exploration works</li> <li>Only use remote sensing equipment between 07h00 and 17h00</li> <li>No flying is to be conducted (aerial surveys) between dusk and dawn, on Sundays and on public holidays</li> <li>When operating a drone, a minimum distance of 50m must be maintained from uninvolved persons and other objects such as vehicles, buildings etc.</li> <li>Correspond with wildlife authorities to determine the best time to conduct aerial surveys, and</li> <li>When possible avoid flying directly over human settlements.</li> <li>Limit normal operating hours to 07h00 to 18h00 on weekdays and 07h00 until 13h00 on Saturday</li> <li>Inform local communities and residents of scheduling and duration of noisy activities through notices or face-to-face communications</li> <li>Regular maintenance and servicing of vehicles, plant and equipment</li> <li>All plant to be shut down or throttled back between periods of use, and</li> <li>Provide ear muffs to employees working in close proximity to excessive noise</li> </ul> | <ul style="list-style-type: none"> <li>Daily observations</li> </ul> | <ul style="list-style-type: none"> <li>Exploration Manager</li> <li>Site Manager</li> </ul> |
| <b>Heritage</b>      | <ul style="list-style-type: none"> <li>Impact on views/landscape surrounding heritage features</li> </ul>                                                                                                                                                           | <ul style="list-style-type: none"> <li>If archaeological remains are discovered or uncovered, the following measures (chance find procedure) shall be applied:</li> <li>Works to cease, area to be demarcated with appropriate tape by the site supervisor, and the Site Manager to be informed</li> <li>Site Manager to visit the site and determine whether work can proceed without damage to findings, mark exclusions boundary</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>Daily observations</li> </ul> | <ul style="list-style-type: none"> <li>Exploration Manager</li> <li>Site Manager</li> </ul> |

| RECEPTORS                    | POTENTIAL IMPACTS                                                                                                                       | MANAGEMENT/MITIGATION MEASURES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | MONITORING REQUIREMENTS                                                                         | RESPONSIBILITY                                                                                                       |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
|                              |                                                                                                                                         | <ul style="list-style-type: none"> <li>– If work cannot proceed without damage to findings, Site Manager is to inform the Environmental Manager who will get in touch with an archaeologist for advice</li> <li>– Archaeological specialist is to evaluate the significance of the remains and identify appropriate action, for example, record and remove; relocate or leave in situ (depending on the nature and value of the remains)</li> <li>– Inform the police if the remains are human, and</li> <li>– Obtain appropriate clearance or approval from the competent authority, if required, and recover and remove the remains to the National Museum or National Forensic Laboratory as appropriate.</li> </ul>                                              |                                                                                                 |                                                                                                                      |
| <b>Community Environment</b> | <ul style="list-style-type: none"> <li>– Nuisances (odours and visual), and</li> <li>– Litter (nuisance and ecological risk)</li> </ul> | <ul style="list-style-type: none"> <li>– Training and toolbox talk to workers shall be provided</li> <li>– Ensure good housekeeping across site</li> <li>– Implement the waste management hierarchy across the site: avoid, reuse, and recycle</li> <li>– Waste shall be collected and shall be removed on a regular basis to avoid bad odours</li> <li>– It is unlikely that hazardous material and wastes will be produced, however in the event that they are, they shall be managed in a safe and responsible manner so as to prevent contamination of soils, pollution of water and/or harm to people or animals as a result of the use of these materials, and</li> <li>– Hazardous and non-hazardous waste shall be stored separately at all times</li> </ul> | <ul style="list-style-type: none"> <li>– Daily observations</li> <li>– Weekly checks</li> </ul> | <ul style="list-style-type: none"> <li>– Exploration Manager</li> <li>– Site Manager</li> <li>– Employees</li> </ul> |
| <b>Resource use</b>          | Inefficient use of water                                                                                                                | <ul style="list-style-type: none"> <li>– Use water effectively and efficiently</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <ul style="list-style-type: none"> <li>– Daily observations</li> </ul>                          | <ul style="list-style-type: none"> <li>– Exploration Manager</li> <li>– Site Manager</li> <li>– Employees</li> </ul> |

## 6. IMPLEMENTATION OF THE EMP

This EMP:

- A. Has been prepared pursuant to a contract with the proponent
- B. Has been prepared on the basis of information provided to ECC up to June 2019
- C. Is for the sole use of the proponent, for the sole purpose of an EMP
- D. Must not be used (1) by any person other than the proponent or (2) for a purpose other than an EMP, and
- E. Must not be copied without the prior written permission of ECC.

ECC has prepared the EMP on the basis of information provided by the proponent, specialist reports and the Environmental Scoping Report.