




ECC-113-309-REP-66-A

EXPLORATION ACTIVITIES ON EPL 7528

FOR BASE AND RARE METALS, PRECIOUS METALS

OMAHEKE REGION

PREPARED FOR

KUISEB COPPER COMPANY (PTY) LTD

NOVEMBER 2020

TITLE AND APPROVAL PAGE

Project Name:	Proposed exploration activities on EPL 7528 for base and rare metals, precious metals within the Omaheke Region
Client Name:	Kuiseb Copper Company (PTY) LTD
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EXCUTIVE SUMMARY

Kuiseb Copper Company (Pty) Ltd (herein referred to as the proponent), intend to undertake exploration activities on Exclusive Prospecting Licence (EPL) 7528 for base and rare metals, precious metals in the Omaheke region, in an area north of Gobabis.

The proposed project triggers listed activities in terms of the Environmental Management Act, No. 7 of 2007, therefore an environmental clearance certificate is required. As part of the environmental clearance certificate application, an Environmental Impact Assessment (EIA) has been undertaken to satisfy the requirements of the Environmental Management Act, No. 7 of 2007. This environmental scoping report and Environmental Management Plan (EMP) shall be submitted to the competent authority as part of the application for the environmental clearance certificate.

The proposed exploration activities on EPL 7528 includes soil sampling, ground geophysical surveys and airborne electromagnetic surveys (at a coarse line spacing), geological mapping, and exploration drilling in selected target areas. Some limited bush-clearing with exclusions of specially protected plant species will be carried out, for the creation of working areas and access tracks where necessary. All sites of activity will be managed according to stringent environmental requirements that the proponent upholds in its exploration projects. Access agreements will be entered into with all farmers / holders of private ground which may be accessed.

The explorations activities will commence as soon as an environmental clearance certificate has been granted by the Environmental Commissioner and activities are expected to be conducted over a 3-years period, which is the duration of the exploration licence. However, the period of each phase of the exploration programme may vary and will be refined as geological information becomes available. In the event that exploration is successful, and a commercially viable mineral resource is defined, exploration operations can potentially transcend into mining operations. This phase will involve application for a Mining Licence and will be assessed in a separate and detailed environmental impact assessment at the appropriate stage.

EPL 7528 is covered with the central Kalahari vegetation type of the Acacia three-and-shrub savanna sub-biome. Where the soils are shallower and the landscape hillier, plant growth tends to be shrubby. Eastwards, where the soils become deeper and the landscape flattens, vegetation is characterized by large, open expanses of grass dotted by trees and bushes (Mendelsohn et al., 2002). Most of the woody vegetation vary between 1 and 5m in height.

Bush encroachment is noticeable, mainly on farmland exposed to continuous periods of selective grazing by livestock. Moreover, the densification of bush has led to a decreased carrying capacity on some farms in the area where EPL 7528 is located.

The impacts of exploration activities with respect to airborne dust are expected to be limited to vehicular traffic. There will be some release of exhaust fumes from machinery that will impact the immediate vicinity but will be of short duration. Additionally, there will be associated drilling and machinery noise, which could be a disturbance to immediate neighbours, but this will be of short duration as well.

Through further investigation, it was determined that the effects from noise are considered to be of minor significance, however with additional mitigation, the significance is reduced to low. The additional mitigation measures include:

- Residents shall be provided at least two weeks' notice of drilling operations within 1km of their property;
- Activities will be minimized to allocated daylight working hours;

- Continual engagement with residents shall be undertaken by the proponent to identify any concerns or issues, and appropriate mitigation and management measures shall be further agreed; and
- Noise suppression measures shall be applied if drilling occurs in locations that may affect residents.

Water is a scarce and vital resource in Namibia and, as such, must always be treated with caution. EPL 7528 is located on the drainage basin of the Black Nossob River. The river originates on the eastern parts of the Khomas Hochland in central Namibia and is ephemeral. The Black Nossob confluences with the White Nossob to its west to form the Nossob River, which eventually forms the border between Botswana and South Africa after it leaves Namibian territory.

The largest part of EPL 7528 is located in the South-eastern Kalahari Groundwater Basin and only the furthest eastern part is located within the Omaheke Groundwater Basin. The general direction of the groundwater flow is southwest over the western half and east over the northeast. This basin shows a generally moderate potential of groundwater with an increased potential to the north (Christelis and Struckmeier, 2001).

This study concluded that a potential environmental risk, which may require further investigation, is related to the cumulative impacts as a result of visual disturbance, nuisance of noise and the loss of sense of place. Receptors are farm owners and their neighbours. Through further investigation, it was determined that the visual disturbance and temporary qualitative reduction in the sense of place is considered to be of moderate significance, however with additional mitigation, the significance can be reduced to minor. These additional mitigation measures include:

- Positioning of drill equipment in such a way that it is out of sight from human receptors;
- Barriers or fences shall be used if drilling occurs in locations that may affect residents or livestock;
- Residents need to be informed at least two weeks in advance that drilling operations are within 1km of their property; and
- Continuous engagement with residents to identify any concerns or issues, and appropriate mitigation and management measures agreed upon.

The overall potential impact of this proposed project is not considered significant as it does not widely exceed recognised levels of acceptable change, does not threaten the integrity of the receptors, and it is not material to the decision-making process. The assessment is considered to be comprehensive and sufficient to identify impacts, and it is concluded that no further assessment is required.

On this basis, it is of the opinion of ECC that an environmental clearance certificate could be issued, on conditions that the management and mitigation measures specified in the EMP are implemented and adhered to.

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LIST OF ACCRONYMS AND ABBREVIATIONS

ABBREVIATIONS	DESCRIPTION
AEM	Airborne electromagnetic
AIDS	Acquired Immune deficiency Syndrome
AMT	Audio Magneto telluric
COVID19	Corona Virus Disease 2019
DEA	Directorate of Environmental Affairs
ECC	Environmental Compliance Consultancy
EMA	Environmental Management Act
EMP	Environmental Management Plan
EPL	Exclusive Prospecting License
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
GSN	Geological Survey of Namibia
HIV	Human Immunodeficiency Virus
I&AP	Interested & Affected Parties
IFC	International Finance Corporation
IHME	Institute for Health Metrics and Evaluation
JV	Joint Venture
MAWLR	Ministry of Agriculture and Land Reform
MEFT	Ministry of Environment, Forestry and Tourism
MME	Ministry of Mines and Energy
MPMRC	Minerals (Prospecting and Mining Rights) Committee
NDP5	National Development Plan five
NSA	National Statistics Agency
RAB	Rotary Air Blast
SOP	Standard Operating Procedure
TB	Tuberculosis

1 INTRODUCTION

1.1 PROJECT OVERVIEW

EPL 7528 is located north of Gobabis in the Omaheke region. The necessary exploration work on the EPL will be operated by the Kuiseb Copper Company (Pty) Ltd under a Joint Venture (JV) agreement with Rio Tinto Mining and Exploration(Pty) Ltd (Rio Tinto).

The proposed project aims to undertake mineral exploration activities on said EPL for base and rare metals, precious metals, which are described in detail throughout the report. Please see the locality map below (Figure 1).

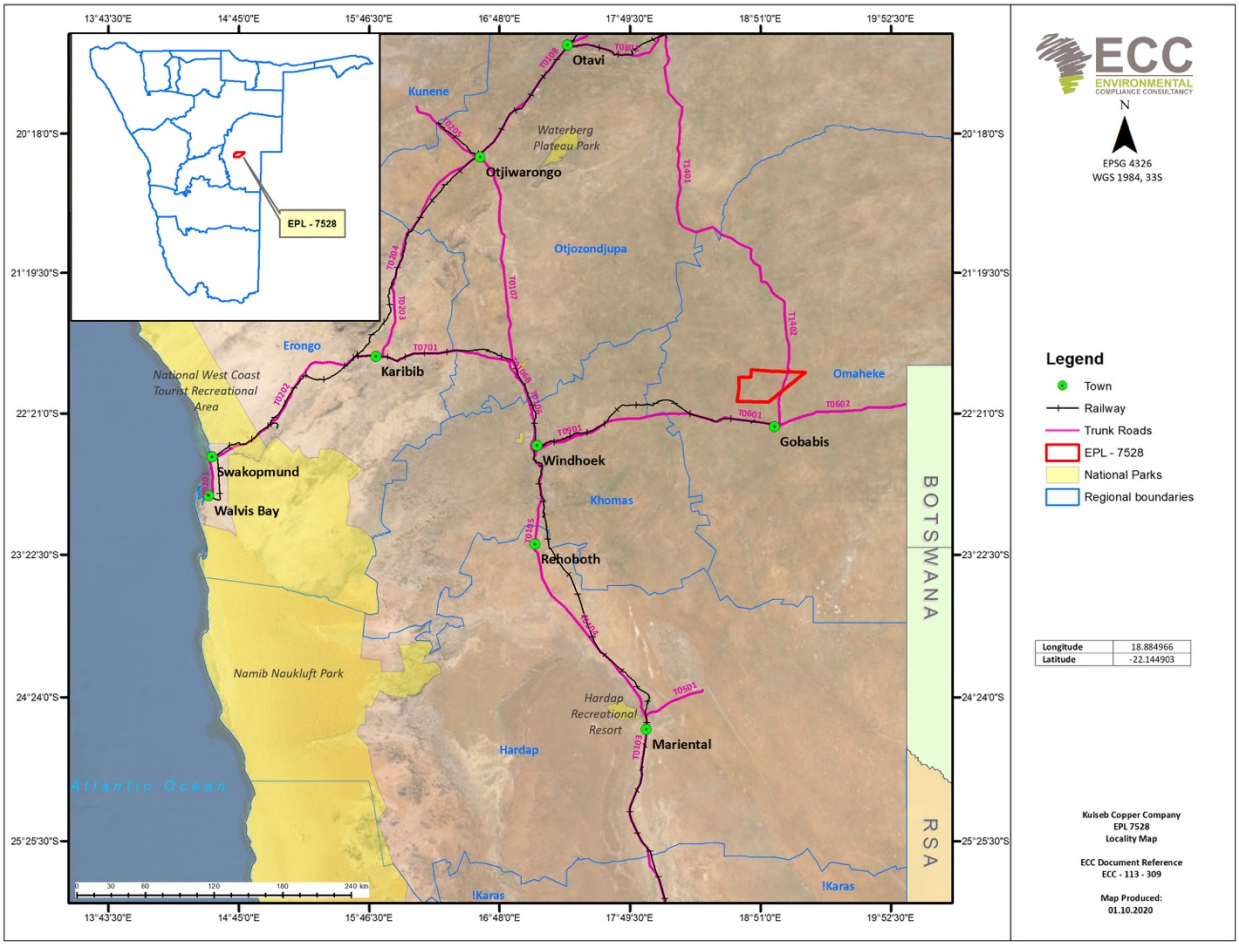

FIGURE 1 - EPL 7528 LOCALITY MAP

The following figure provides more detail about surrounding towns and access routes to EPL 7528.

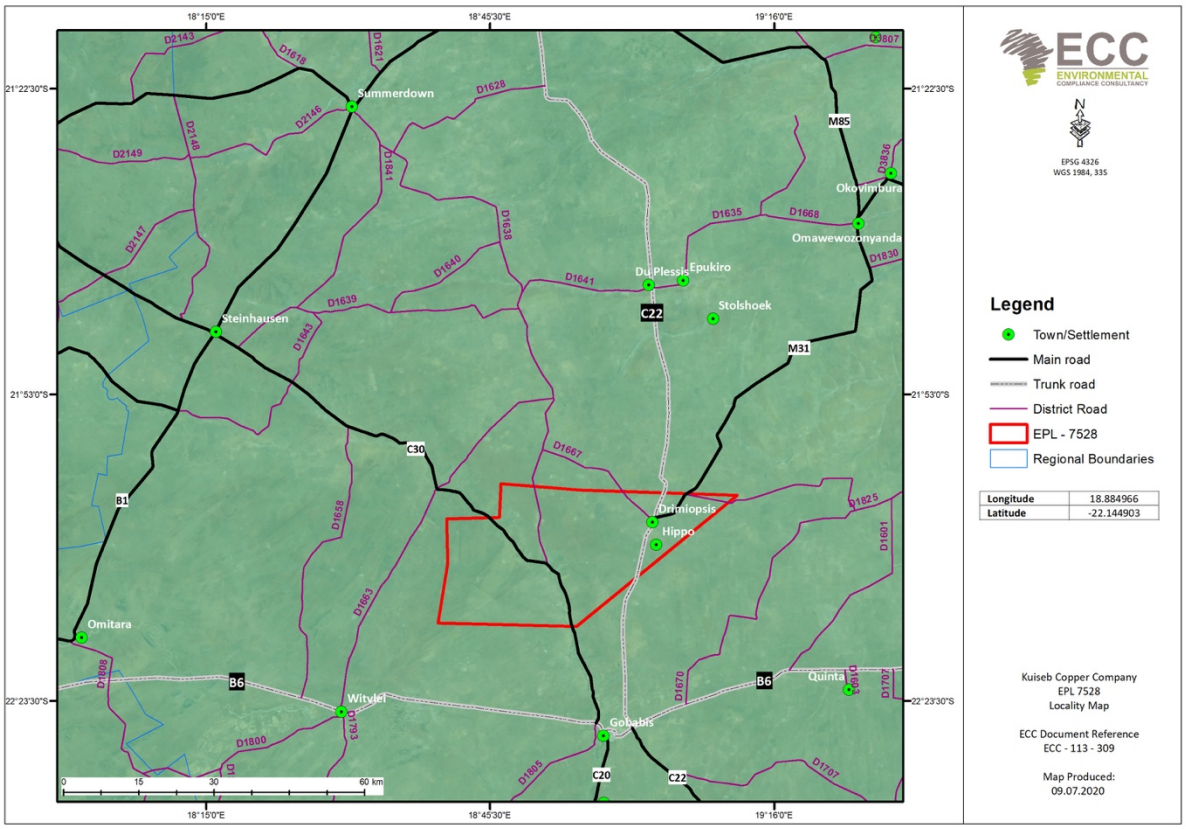

FIGURE 2 - ZOOMED-IN LOCALITY MAP OF EPL 7528

1.2 SCOPE OF WORK

Environmental Compliance Consultancy (ECC) has been engaged by the proponent, to undertake the ESIA and an Environmental Management Plan (EMP) in terms of the Environmental Management Act, 2007 and its regulations.

The purpose of this report is to present the findings of the scoping study for the proposed project. This scoping report has been outlined in terms of the requirements of the Environmental Management Act, No. 7 of 2007 and its regulations, promulgated in 2012 (referred to herein as the EIA Regulations).

An environmental clearance application will be submitted to the relevant competent authorities; the Ministry of Mines and Energy (MME) and Ministry of Environment, Forestry and Tourism (MEFT).

ECC has prepared this report. ECC's terms of reference for the assessment is strictly to address potential effects, whether positive or negative and their relative significance, explore alternatives for technical recommendations and identify appropriate mitigation measures.

This report provides information to the public and stakeholders to aid in the decision-making process for the proposed project. The objectives are to:

- Provide a description of the proposed activity and the site on which the activity is to be undertaken, and the location of the activity on the site;
- Provide a description of the environment that may be affected by the activity;

- Identify the laws and guidelines that have been considered in the assessment and preparation of this report;
- Provide details of the public consultation process;
- Describe the need and desirability of the activity;
- Provide a high level of environmental and social impact assessment on feasible alternatives that were considered; and
- Report the assessment findings, identifying the significance of effects, including cumulative effects.

In addition to the environmental assessment, an EMP (Appendix A) is also required in terms of the Environmental Management Act, No. 7 of 2007. An EMP has been developed to provide a management framework for the planning and implementation of exploration activities. The EMP provides exploration standards and arrangements to ensure that the potential environmental and social impacts are mitigated, prevented and/or minimised as far as reasonably practicable, and that statutory requirements and other legal obligations are fulfilled.

1.3 THE PROPONENT OF THE PROPOSED PROJECT

The details of the proponent are set out in Table 1 below.

TABLE 1 - PROPONENTS DETAILS

CONTACT	POSTAL ADDRESS	EMAIL ADDRESS	TELEPHONE
Kuiseb Copper Company (Pty) Ltd The Director	P O Box 2055 Swakopmund Namibia	branko@iafrica.com.na	+264 81 124 6757

1.4 ENVIRONMENTAL COMPLIANCE CONSULTANCY

ECC, a Namibian consultancy (registration number Close Corporation 2013/11401), has prepared this scoping report and impact assessment 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 EIA report should be forwarded by email or posted to the following address:

Environmental Compliance Consultancy
PO BOX 91193 Klein Windhoek, Namibia
Tel: +264 81 669 7608
Email: info@eccenvironmental.com

1.5 ENVIRONMENTAL LEGAL REQUIREMENTS

The Environmental Management Act, No.7 of 2007 stipulates that an environmental clearance certificate is required to undertake listed activities in terms of the Act and its regulations. Listed activities triggered by the proposed project in terms of the Environmental Management Act, No. 7 of 2007 and its regulations are as follows:

MINING AND QUARRYING ACTIVITIES (with relevance here only to Exploration)

- The construction of facilities for any process or activities which requires a license, right or other forms of authorisation, and the renewal of a license, right or other forms of authorisation, in terms of the Minerals (Prospecting and Mining Act), No. 33 of 1992.
    - The proposed project operates under a licence that permits for the construction of temporal exploration campsites, drill sites and access roads.
    - Furthermore, this listed activity, infers the provisions of the Minerals Act (Prospecting and Mining) Act 33 of 1992, under different licenses as basis upon which certain activities qualify for an EIA. Part X of the Minerals Act (1992) defines prospecting/exploration activities under the lawful ownership of an exploration license (EPL). An exploration license excludes any mining activities, but includes activities strictly relating to exploration work. Hence the current project strictly focuses on exploration and not mining.
- Other forms of mining or extraction of any natural resources whether regulated by law or not
    - Soil and rocks will be sampled and explored for within the EPL 7528.
- Resource extraction, manipulation, conservation, and related activities
    - The proposed project will explore for base and rare metals, as well as precious metals.

WATER RESOURCE DEVELOPMENT

- The abstraction of ground or surface water for industrial or commercial purposes
    - Due to the drilling of exploration boreholes, the abstraction of groundwater is possible, although it is intended that water will be obtained from existing boreholes in the proposed project area. Any additional borehole drilled for the intension of abstracting water for use on site should be permitted by the authorities in the form of an abstraction permit.

1.6 TERMINOLOGIES APPLIED IN THIS REPORT

This section provides definitions of key terms to enable the reader to form a technical understanding of the type of work associated with exploration programmes.

- **REMOTE SENSING** techniques in mineral exploration enable explorers to evaluate large areas of the earth remotely without having to undertake ground-based exploration operations. Remote sensing may be used to map the geology and structure that potentially localise the ore deposits, or may be used to identify rocks, which have been hydrothermally altered. Remote sensing involves the use of aircraft and satellite-based equipment to obtain the data to record spectral data from the surface of the earth. Remote sensing includes a number of tools and techniques including geographical information systems, radar and sonar. Typically, satellites or a high-flying aircraft are used in the data collection process. It is a useful tool when searching for minerals and can give an indication of where deposits could be located. Remote sensing aids in narrowing down the field survey area and helps to identify target areas that may be considered for more.
- **AIRBORNE GEOPHYSICAL SURVEYS**, using magnetic, radiometric and electromagnetic techniques, are a key aspect in mineral exploration, enabling explorers to probe under cover, mapping geology and structure, including potentially direct identification of mineral deposits. Modern surveys are flown at a low level in a grid pattern, adhering fully to the safety margins prescribed by the Civil Aviation Authority (CAA) of Namibia.
- **GEOLOGICAL MAPPING** of outcrops is used to describe the primary lithology and morphology of rock bodies as well as age relationships between rock units. Mapping is a crucial part of refining subsurface targets, as it provides structural information and can be used to predict the subsurface geology. This will be conducted concurrently with the geochemical sampling.

- **GEOCHEMICAL SAMPLING** (soil and rock sampling) is a non-invasive technique to determine the existence and extent of mineralization and a potential resource. Geochemical data are used to focus on areas of higher mineral potential as the project advances and help to define drill targets. They assist the company to drill more selectively and thereby increase the chances of intersecting mineralised zones during exploration and reduce the overall footprint of exploration and environmental impact in the area. Geochemical surveys will be the first ground exploration method to be undertaken by the proponent in the licence area.
    - **SAMPLING** - Selecting a fractional but representative part of the soil or rock for analysis.
- **GEOPHYSICAL GROUND SURVEYS** including Magnetic Induced Polarization (IP) and Electromagnetic (EM) techniques, will be undertaken, as appropriate, to collect data that give an indication of essential rock properties, particularly at depth. They are also used to map the geological structures. IP surveys involve sending electrical currents into the ground, measured via electrodes along linear cut-lines up to 3 km long to provide access to electrical cables. Small holes in the ground (0.2m x 0.2m x 0.3m) will be required for IP electrodes every 25 or 50m along a survey line. Copper sulphate solution will be used to improve the conduction of electrodes during the IP survey. The majority of EM techniques are completely non-invasive, and operate by sending electromagnetically induced currents into the ground. EM surveys are conducted along the same linear traverse lines. A variation is the Audio-Magneto Telluric (AMT) technique, in which surveys utilize the same lines and small holes in the ground, but without the application of high voltage electrical currents.
- **RAB DRILLING** (Rotary Air Blast drilling) is an open-hole technique that injects compressed air down the drill pipe and recovers the drill chip fragments, on the outside of the drill stem.
- **DIAMOND DRILLING** entails the use of a diamond-studded drill in order to obtain core samples of two cm or more in diameter. Bio-degradable drill additives will be used during diamond core drilling. Soil, rock and drill core samples will be temporarily stored at the site office. Exploration activities are usually undertaken in phases, with periods of no field activity between them, whilst awaiting analytical results, and the integration and interpretation of data to decide on the next phase of exploration.

2 METHODOLOGY AND APPROACH

2.1 PURPOSE AND SCOPE OF THE ASSESSMENT

The aim of this assessment is to determine which impacts are likely to be significant (the main focus of the assessment); scope the available data and any gaps which need to be filled; determine the spatial and temporal scope; and identify the assessment methodology.

Scoping of the ESIA was undertaken by the ESIA team. The scope of the assessment was determined through undertaking a preliminary assessment of the proposed project against the receiving environment obtained through a desk-top review, available site-specific literature, monitoring data and site reports.

ECC's terms of reference for the assessment is strictly to address potential effects, whether positive or negative and their relative significance, explore alternatives for technical recommendations and identify appropriate mitigation measures.

2.2 THE ASSESSMENT PROCESS AND METHODOLOGY

The EIA methodology applied here has been developed using the International Finance Corporation (IFC) standards and models, in particular Performance Standard 1, 'Assessment and management of environmental and social risks and impacts' (International Finance Corporation, 2017) (International Finance Corporation, 2012), which establishes the importance of:

- Integrated assessment to identify the environmental and social impacts, risks, and opportunities of projects;
- Effective community engagement through disclosure of project-related information and consultation with local communities on matters that directly affect them; and
- The client's management of environmental and social performance throughout the life of the project

Furthermore, the Namibian Draft Procedures and Guidance for ESIA and EMP (Republic of Namibia, 2008) as well as the international and national best practice; and over 25 years of combined EIA experience, were also drawn upon in the assessment process.

This impact assessment is a formal process in which the potential effects of the project on the biophysical, social and economic environments are identified, assessed and reported, so that the significance of potential impacts can be taken into account when considering whether to grant approval, consent or support for the proposed project.

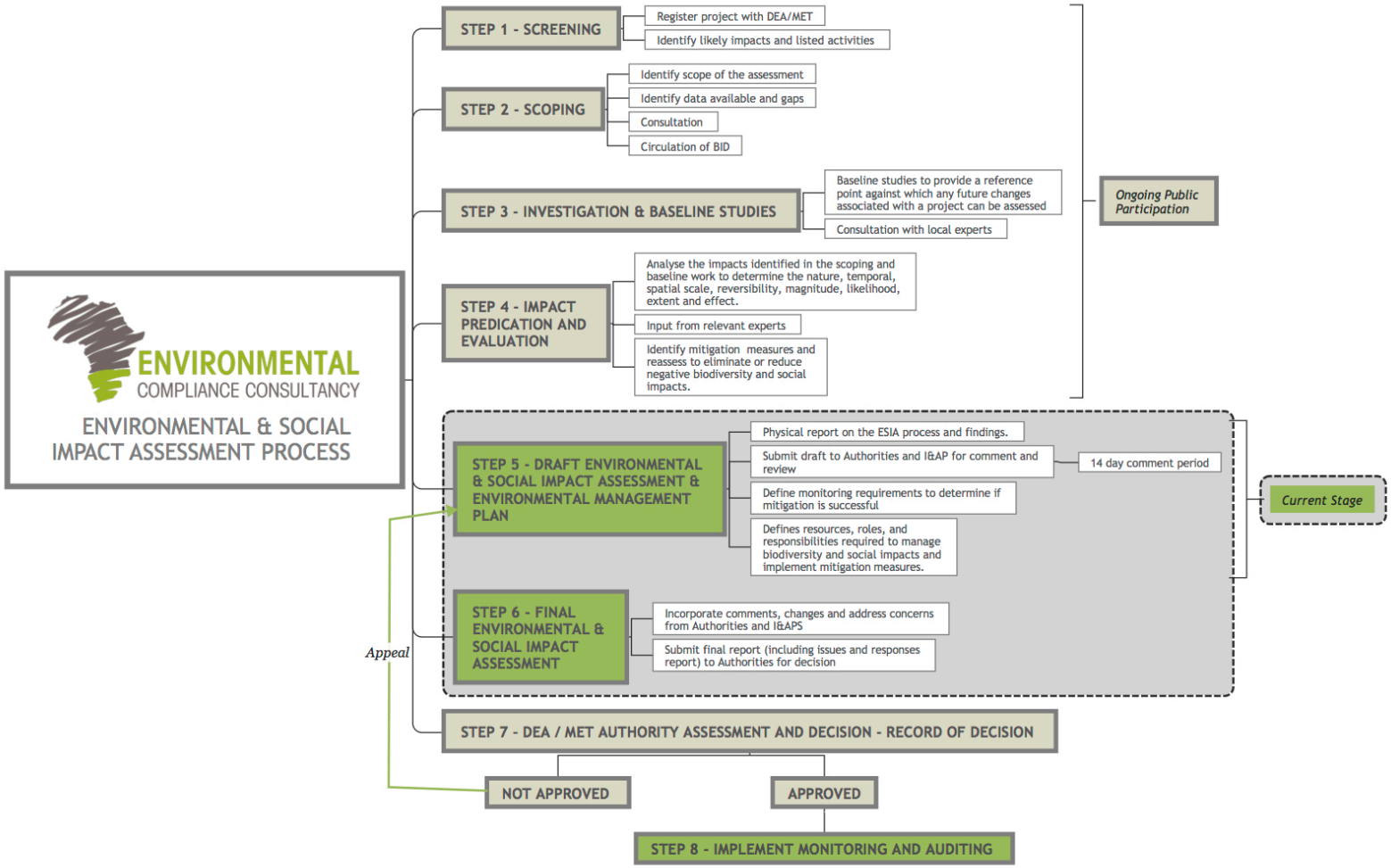

FIGURE 3 - ECC ESIA METHOD

2.3 SCREENING OF THE PROJECT

The first stages in the EIA process is to register the project with the DEA / MEFT and undertake a screening exercise to determine whether it is considered as a listed activity under the Environmental Management Act, No. 7 of 2007 and associated regulations and if significant impacts may arise from the project. The location, scale and duration of project activities will be considered against the receiving environment.

It was concluded that an ESIA (e.g. scoping report and EMP) is required, as the proposed project is considered as a listed activity and there may be potential for significant impacts to occur.

2.4 SCOPING OF THE ENVIRONMENTAL ASSESSMENT

Where an ESIA is required, the second stage is to scope the assessment. The main aims of this stage are to determine which impacts are likely to be significant (the main focus of the assessment); scope the available data and any gaps which need to be filled; determine the spatial and temporal scope; and identify the assessment methodology.

The screening phase of the project is a preliminary analysis to determine ways in which the project may interact with the biophysical, social and economic environment. Impacts that are identified as potentially significant during the screening and scoping phases are taken forward for further assessment in the ESIA process. The details and outcome of the screening process are discussed further in sections 6 and 7.

Subsequently, scoping of the ESIA was undertaken by the EIA team. The scope of the assessment was determined through undertaking a preliminary assessment of the proposed project against the receiving environment obtained through a high-level desktop review. Feedback from consultation with the client and stakeholders also informed this process.

The following environmental and social topics and subtopics were scoped into the assessment, as there was potential for significant impacts to occur:

SOCIO-ECONOMIC ENVIRONMENT

- Limited goods and services procurement within the local economy.

BIOPHYSICAL ENVIRONMENT

- Dust emissions
- Soil and geology
- Terrestrial ecology
- Terrestrial biodiversity (including fauna and flora)
- Groundwater (potential cumulative impact). Water management suggestions are contained in the EMP.

The following topic was scoped out of the EIA, as no likely significant impacts are predicted as the proposed project poses little to no change from the current baseline, therefore are not discussed further in this report.

- Heritage: A desktop review of the general EPL area has not revealed any site of interest with a heritage connotation to it. The EMP does however contain a Standard Operating Procedure (SOP) called a “chance-find” procedure to be utilised in the unlikely event of a possible archaeological find.

2.5 BASELINE STUDIES

Baseline studies are undertaken as part of the scoping stage, which involves collecting all pertinent information from the current status of the receiving environment. This provides a baseline against which changes that occur as a result of the proposed project can be measured.

For the proposed project, baseline information was obtained through a desktop study, focussing on environmental receptors that could be affected by the proposed project, verified through site-specific information. The baseline information is covered in Section 5.

A robust baseline is required in order to provide a reference point against which any future changes associated with a project can be assessed, and it allows for suitable mitigation and monitoring actions to be identified.

The existing environment and social baseline for the proposed project were collected through various methods:

- Desktop studies;
- Consultation with stakeholders; and
- Engagement with Interested and Affected Parties (I&APs). See Appendix C.

2.6 IMPACT PREDICATION AND EVALUATION

Impact prediction and evaluation involves predicting the possible changes to the environment as a result of the development/project. The recognized methodology was applied to determine the magnitude of impact and whether or not the impact was considered significant and thus warrant further investigation. The impact prediction and evaluation methodology used is presented in Section 6 of this report. The findings of the assessment are presented in Section 7.

2.7 EIA CONSULTATION

Public participation and consultation are requirements stipulated in Section 21 of the Environmental Management Act, No. 7 of 2007 and associated regulations for a project that needs an environmental clearance certificate. Consultation is a compulsory and critical component in the ESIA process in achieving transparent decision-making and can provide many benefits.

The objectives of the stakeholder engagement process are to:

- Provide information on the project to I&APs: introduce the overall concept and plan;
- Clarify responsibility and regulating authorities;
- Listen to and understand community issues, concerns and questions;
- Explain the process of the ESIA and timeframes involved; and
- Establish a platform for ongoing consultation.

2.8 INTERESTED AND AFFECTED PARTIES

EPL 7528 overlaps with several farms and two District roads, the C20 and the C22, which run from north to south through the EPL (See figure 4). The two roads provide access to the farms that overlap with and border the EPL.

All owners of the farms that overlap or border EPL 7528 were identified as I&APs, as well as the relevant authoritative bodies. Other I&APs will be identified through invitations such as the newspaper advertisements and site notices.

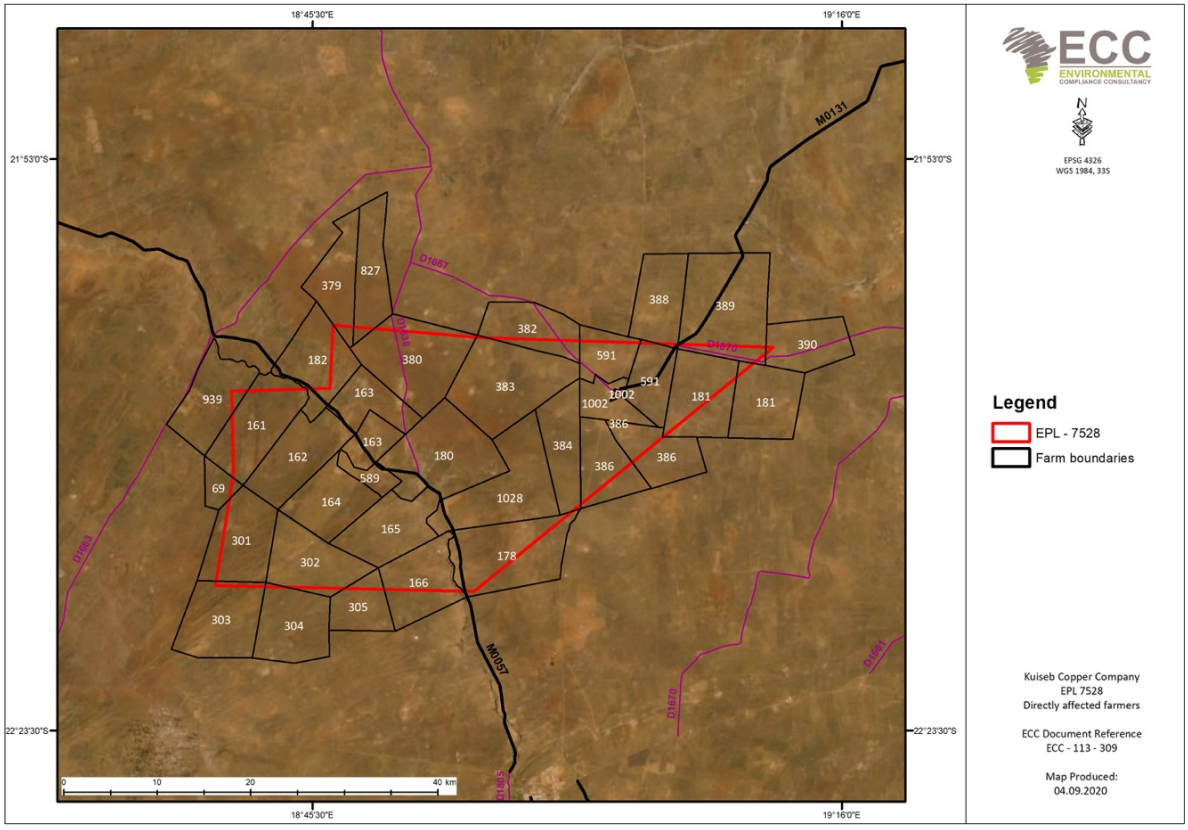

FIGURE 4 - EPL 7528 OVERLAPPING SEVERAL FARMS

2.9 SITE NOTICES

A site notice ensures neighbouring properties and stakeholders are made aware of a proposed project. A site notice was set up at the B6 and C22 intersection as well as at the entrance to the Agra retail store in Gobabis. Copies of the site notices is illustrated in Appendix C.

2.10 NEWSPAPER ADVERTISEMENTS

Notices regarding the proposed project and associated activities were circulated in three newspapers namely the 'Republikein', Allgemeine Zeitung' and the 'Sun" on the 21st September and 28th of September. The purpose of this was to commence the consultation process and enable I&APs to register an interest with the project. The adverts can be found in Appendix C.1.

2.11 NON-TECHNICAL SUMMARY

The Non-Technical Summary (NTS) presents a high-level description of the proposed project; sets out the ESIA process and when and how consultation is undertaken; and provides contact details for further project-specific inquiries to all registered I&APs. The NTS was distributed to all registered I&APs and the NTS can be found in Appendix B.

2.12 SUMMARY OF ISSUED RAISED

The initial public participation phase involving the notifications of the project through media such as the newspaper adverts, direct mail sent to identified I&APs and the display of site notices delivered very few interactive communications from the public. The comments received from this phase will be contained in the final assessment documentation.

All comments received from I&APs during the review period of the draft report will be contained in this section in the final assessment documentation.

2.13 DRAFT EIA AND EMP

This report and EMP for the project's environmental clearance includes an assessment of the biophysical and social environment, which satisfies the requirements of Step 5 (Figure 3).

The ESIA report documents the findings of the assessment process, provides stakeholders with the opportunity to comment and continued consultation and forms part of the environmental clearance application. The EMP provides measures to manage the environmental and social impacts of the proposed project and outlines specific roles and responsibilities to fulfil the plan.

This ESIA report focuses on the significant impacts that may arise from the proposed project as described in Step 4 (Figure 3). These impacts are discussed in Chapter 6.

This ESIA draft report is open to stakeholders and I&APs for consultation for a period of 7 days (11/11/2020 – 18/11/2020), meeting the mandatory requirement of 7 days as set out in the Environmental Management Act, No. & of 2007 and its regulations, including the Environmental Impact Assessment Regulations, No. 30 of 2012. The aim of this stage is to ensure all stakeholders and I&APs have the opportunity to provide final comments on the assessment process and findings and register their concerns.

2.14 FINAL EIA AND EMP

The final ESIA report and associated appendices will be available to all stakeholders on the ECC website www.eccenvironmental.com. All I&APs will be informed via email. The ESIA report and appendices will be formally submitted to the Office of the Environmental Commissioner, DEAF as part of the application to for an environmental clearance certificate.

The final EIA report and associated appendices will be available to all stakeholders on the ECC website www.eccenvironmental.com. All I&APs will be informed via email.

The EIA report and appendices will be formally submitted to the Office of the Environmental Commissioner, DEA as part of the application to for an environmental clearance certificate.

2.15 AUTHORITY ASSESSMENT AND DECISION MAKING

The Environmental Commissioner in consultation with other relevant authorities will assess if the findings of the EIA presented in the EIA report is acceptable. If deemed acceptable, the Environmental Commissioner will revert to the proponent with a record of decision and any recommendations.

2.16 MONITORING AND AUDITING

In addition to the EMP being implemented by the proponent, a monitoring strategy and audit procedure will be determined by the proponent and competent authority. This will ensure key environmental receptors are monitored over time to establish any significant changes from the baseline environmental conditions caused by project activities.

3 REGULATORY FRAMEWORK

This chapter outlines the regulatory framework applicable to the proposed project. Table 2 provides a list of applicable legislation and the relevance to the project. An environmental clearance is required for any activity listed as per Government Notice No 29 of 2012 of the EMA.

3.1 NATIONAL LEGISLATION

TABLE 2 - LEGAL FRAMEWORK

NATIONAL REGULATORY REGIME	SUMMARY	APPLICABILITY TO THE PROJECT
Constitution of the Republic of Namibia of 1990	The Constitution of the Republic of Namibia, 1990 clearly defines the country's position in relation to sustainable development and environmental management. The constitution refers that the state shall actively promote and maintain the welfare of the people by adopting policies aimed at the following: *"Maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present, and future; in particular, the government shall provide measures against the dumping or recycling of foreign nuclear and toxic waste on Namibian territory."*	The proponent is committed to engage the local community for the proposed project by providing local jobs as well as, exploring ways of finding rich recourses to that could contribute to the mining sector in Namibia.
Minerals (Prospecting and Mining) Act, No. 33 of 1992	Provides for the reconnaissance, prospecting and mining for, and disposal of, and the exercise of control, minerals in Namibia. Section 50 (i) requires *"an environmental impact assessment indicating the extent of any pollution of the environment before any prospecting operations or mining operations are being carried out and an estimate of any pollution, if any, likely to be caused by such prospecting operations or mining operations"* Section 50 sets out that in addition to any term and condition contained in a mineral agreement and any term and condition contained in any mineral licence, it shall be a term and condition of any mineral licence that the holder of such mineral licence shall: Exercise any right granted to him or her in terms of the provisions of this Act reasonably and in such manner that the rights and interests of the owner of any land to which such licence relates are not adversely affected, except to the extent to which such owner is compensated. Section 52 sets out that the holder of a mineral licence	The proposed activity is prospecting for minerals; hence it requires an EIA to be carried out as it triggers listed activities in the Environmental Management Act and its regulations. This report presents the findings of the EIA. Works shall not commence until all conditions in the Act are met, which includes an agreement with the landowners and conditions of compensation have been agreed. The project shall be compliant with Section 76. With regards to records, maps, plans and financial statements, information, reports, and returns submitted. As the proponent will need to access privately owned land the proponent will ensure Sections 50 and 52 are

NATIONAL REGULATORY REGIME	SUMMARY	APPLICABILITY TO THE PROJECT
	shall not exercise any rights conferred upon such holder by this Act or under any terms and conditions of such mineral licence (a) In, on or under any private land until such time as such holder. (i) Has entered into an agreement in writing with the owner of such land containing terms and conditions relating to the payment of compensation, or the owner of such land has in writing waived any right to such compensation and has submitted a copy of such agreement or waiver to the Commissioner.	complied with.
Environmental Management Act, (No. 7 of 2007) and its regulations, including the Environmental Impact Assessment Regulation, 2007 (No. 30 of 2012)	The Act aims to promote sustainable management of the environment and the use of natural resources by establishing principles for decision-making on matters affecting the environment. It sets the principles of environmental management as well as the functions and powers of the minister. The Act requires certain activities to obtain an environmental clearance certificate prior to project development. The Act states an EIA may be undertaken and submitted as part of the environmental clearance certificate application. The MEFT is responsible for the protection and management of Namibia's natural environment. The Department of Environmental Affairs under the MEFT is responsible for the administration of the EIA process.	This environmental scoping report (and EMP) documents the findings of the environmental assessment undertaken for the proposed project, which will form part of the environmental clearance application. The assessment and report have been undertaken in line with the requirements under the Act and associated regulations.
Water Act, No. 54 of 1956	Although the Water Resources Management Act, No 11 of 2013 has been billed, but not promulgated, it cannot be enacted as the regulations have not been passed – so the Water Act 54 of 1956 is still in effect. This act provides for *"the control, conservation and use of water for domestic, agricultural, urban and industrial purposes; to make provision for the control, in certain respect and for the control of certain activities on or in water in certain areas".* The Department of Water Affairs within the Ministry of Agriculture Water and Land Reform (MAWLR) is responsible for the administration of the act. The Minister may issue a permit in terms of the regulations 5 and 9 of the government notice R1278 of 23 July 1971 as promulgated under section 30 (2) of the Water Act no. 54 of 1956, as amended.	The Act stipulates obligations to prevent pollution of water. Should wastewater be discharged, a permit is required. The EMP sets out measures to avoid polluting the water environment. Measures to minimise potential groundwater and surface water pollution are contained in the EMP. Abstraction of water from boreholes requires an abstraction permit. Abstraction rates need to be measured and reported to the authorities in accordance with the requirements of this legislation. In addition, annual reporting on the environmental impacts of water

NATIONAL REGULATORY REGIME	SUMMARY	APPLICABILITY TO THE PROJECT
		abstraction is recommendable. Should the project require drilling and abstraction of water from underground sources, an application should be submitted to the authorities.
Soil Conservation Act, No. 76 of 1969) and the Soil Conservation Amendment Act, No. 38 of 1971)	Makes provision for the prevention and control of soil erosion and the protection, improvement and the conservation, improvement and manner of use of the soil and vegetation.	This will be taken into consideration during the intention of the works to be undertaken within EPL 7528 site. Measures in the EMP set out methods to avoid soil erosion.
The Forestry Act, No. 12 of 2001 as amended by the Forest Amendment Act, No. 13 of 2005	Section 22 requires a permit for the cutting, destruction or removal of vegetation that are classified under rare and or protected species; clearing the vegetation on more than 15 hectares on any piece of land or several pieces of land situated in the same locality which has predominantly woody vegetation; or cut or remove more than 500 cubic metres of forest produce from any piece of land in a period of one year.	The planned project activities will include minimal vegetation clearing to support exploration activities. The necessary permit should be obtained from the MEFT, where the application should satisfy that the cutting and removal of vegetation will not interfere with the conservation of soil, water or forest resources.
National Heritage Act, No. 27 of 2004.	The Act provides provision of the protection and conservation of places and objects with heritage significance. Section 55 stipulates that exploration companies must report any archaeological findings to the National Heritage Council after which a heritage permit needs to be issued	There might be potential for heritage objects to be found on site, therefore the stipulations in the Act have been taken into consideration and are incorporated into the EMP. Section 55 compels exploration companies to report any archaeological findings to the National Heritage Council after which a permit needs to be issued before the find can be disturbed. In cases where heritage sites are discovered the 'chance find procedure' will be used

3.2 NATIONAL REGULATORY REGIME

TABLE 3 - NATIONAL POLICIES

NATIONAL REGULATORY REGIME	SUMMARY	APPLICABILITY TO THE PROJECT
Vision 2030	Vision 2030 sets out the nation's development programmes and strategies to achieve its national objectives. It sets out eight themes to realise the country's long-term vision. Vision 2030 states that the overall goal is to improve the quality of life of the Namibian people to a level in line with the developed world.	The planned project shall meet the objectives of Vision 2030 and shall contribute to the overall development of the country through continued employment opportunities.
The Fifth National Development Plan (NDP5)	NDP5 is the fifth in the series of seven five-year national development plans that outline the objectives and aspiration of Namibia's long-term vision as expressed in Vision 2030. NDP5 is structured on the pillars of economic progression, social transformation, environmental sustainability and good governance. Under the social transformation pillar is the goal of improved education.	The planned project supports meeting the objectives of NDP5 by creating opportunities for employment to the nearby community and the Namibian nation.
Minerals Policy	The Minerals Policy was adopted in 2002 and sets guiding principles and direction for the development of the Namibian mining sector while communicating the values of the Namibian people. It sets out to achieve several objectives in line with the sustainable development of Namibia's natural resources. The policy strives to create an enabling environment for local and foreign investments in the mining sector and seeks to maximise the benefits for the Namibian people from the mining sector while encouraging local participation, amongst others. The objectives of the Minerals Policy are in line with the objectives of the Fifth National Development Plan that include reduction of poverty, employment creation and economic empowerment in Namibia.	The objectives of the Minerals Policy are in line with the objectives of the NDP5, i.e. reduction of poverty, employment creation, and economic empowerment in Namibia. The proposed project conforms to the policy, which has been considered through the EIA process and the production of this report.
Labour Act, No. 11 of 2007	The Labour Act, No. 11 of 2007 (Regulations relating to the Occupational Health & Safety provisions of Employees at Work promulgated in terms of Section 101 of the Labour Act, No. 6 of 1992 - GN156, GG 1617 of 1 August 1997)	The proposed project will comply with stringent health and safety policies, including the compulsory use of specific PPE in designated areas to ensure adequate protection against health and safety risks. Proper storage and labelling of hazardous substances are required. The project will ensure employees in charge of and working with

NATIONAL REGULATORY REGIME	SUMMARY	APPLICABILITY TO THE PROJECT
		hazardous substances need to be aware of the specific hazardous substances in order not to compromise worker and environmental safety.

3.3 PERMITS AND LICENSES

3.3.1 EXCLUSIVE PROSPECTING LICENSES

The EPL 7528 was granted on the 25th of October 2019 and expires on the 24th of October 2022. In terms of the Minerals (Prospecting and Mining) Act, No. 33 of 1992, an EPL may be renewed, however, it may only be extended twice for two-year periods if demonstrable progress is shown. Renewals beyond seven years require special approvals from the Minister (MME, 2018).

Such renewals are subject to a reduction in the size of the EPL. When a company applies for renewal of an EPL, the application must be lodged 90 days prior to the expiry date of the EPL or, with good reason, no later than the expiry date (MET & MME, 2018).

If renewal is applied for, the MME must review the renewal application and make any comments and/or recommendations for consideration by the Minerals (Prospecting and Mining Rights) Committee (MPMRC). Amendments and revisions may be required for the EIA and EMP. Due consideration must be given when renewing the licence to ascertain whether there is justification to renew the licence. Once an EPL expires and a new EPL is issued, even if it is to the previous holder, the full screening process must be followed with a full EIA process, before operations may commence (MET & MME, 2018).

The permits and license that may be relevant to the proposed projects are outlined in Table 4.

TABLE 4 - NATIONAL POLICIES

PERMIT AND LICENCES	RELEVANT AUTHORITY	VALIDITY/DURATION
WATER ABSTRACTION PERMITS	Ministry of Agriculture, Water and Land Reform	Permit dependent
EXCLUSIVE PROSPECTING LICENCE	Ministry of Mines and Energy - Windhoek	3 years
NOTICE OF INTENTION TO DRILL	Ministry of Mines and Energy - Windhoek	To be submitted prior to drilling

3.4 WORLD BANK STANDARDS

The International Finance Corporation (IFC) is a member of the World Bank Group and is the largest global development institution focusing on the private sector in developing countries. Its standards have become a global benchmark for environmental and social performance. They form the basis for the Equator Principles (IFC, 2013), a voluntary environmental and social risk-management framework used by 77 financial institutions worldwide. The Equator Principles are a framework and set of guidelines for evaluating social and environmental risks in project finance activities and apply to all new projects with a total capital cost of US$10 million or more, no matter what industry sectors, without geographic requirement. The Equator Principles are not applicable to this specific project

4 PROJECT DESCRIPTION

4.1 NEED FOR THE PROJECT

Namibia is relatively rich in a variety of minerals, and mining has always been a critical sector of the Namibian economy. The sector contributes significantly to the country's Gross Domestic Product (GDP), through taxation, royalties, fees and equities as well as export revenues. For this reason, exploration activities are encouraged in Namibia and the vision of the Minerals Policy being to "further attract investment and enable the private sector to take the lead in exploration, mining, mineral beneficiation and marketing" supports the development.

The proposed project is in line with this vision and has the potential to create short term and limited employment and to contribute to the national income. In the event that exploration activities are successful, and a resource with commercially viable mineral concentrations can be defined, the exploration operations can potentially transcend into mining operations which can result in multiple socio-economic benefits to the region and the country at large.

4.2 EXPLORATION

It is the process of sampling/collecting fragments of the earth's layers for testing of each sample's mineral composition, grade, and spatial dispersion to acquire an informed perspective of the target area's ore potential. Deeper probing is achieved through geophysical surveys.

4.3 EXPLORATION METHODOLOGY

Exploration work will be entirely conducted by contracted geological, geophysical consultants and in phase three and four onwards drilling consultants and companies. The below schedule of activities (Table 5) is presented for the project.

TABLE 5 - LIST OF ACTIVITIES PLANNED PER PHASE

PHASE	DATE	ACTIVITY DESCRIPTION
Phase 1: 2020	Field inspection commencement date unknown, desktop work commenced 2019:	Exploration activities involve desktop interpretation of available airborne magnetic and radiometric data, mapping, analysis satellite imagery and archival data from the GSN. Additionally, preliminary field inspection of onsite geology and possibly initial stream sediment sampling may take place.
Phase 2: 2020	Actual commencement date unknown:	Airborne electromagnetic (AEM) survey, as above, and interpretation of this data, coupled with the commencement of soil sampling and geological mapping in specific target localities, to be determined by the above desktop interpretation.
Phase 3: 2021	Actual commencement date unknown	RAB and/or Aircore drilling in select areas only (locations unknown), depending on results from the first two phases.
Phase 4: 2022	Actual commencement date unknown	Desktop reviews of all data and subsequent planning activities, which may lead to diamond core drilling, the timing of which will be dependent on progress of the previous phases. Trenching and bulk-sampling could be part of this phase.

4.4 ALTERNATIVES CONSIDERED

The proposed project has been subject to a process of design evolution, informed by both consultation and an iterative environmental assessment. In terms of the Environmental Management Act, No. 7 of 2007 and its regulations, alternatives considered should be analysed and presented in the scoping assessment and EIA report. This requirement ensures that during the design evolution and decision-making process, potential environmental impacts, costs, and technical feasibility have been considered, which leads to the best option(s) being identified.

Exploration activities range from extremely low impact exploration such as coarse line sampling and geophysical surveying to more invasive activities such as trenching or extensive close spaced drilling. The initial exploration results will define the need, if at all, of the more invasive activities.

At this stage of the project greenfield exploration activities for Copper/Silver in the 'Kalahari Copper Belt' will be undertaken, being sufficient for delineating potential re bodies. The following activities are proposed:

- Desktop analysis of all Open File historical reports and data housed at the MME
- Interpretation of Govt aeromagnetic and radiometric data;
- Satellite image interpretation;
- Acquisition of low-level airborne electromagnetic data (coarse line spacing yet to be determined);
- Initial field visits to exposed geology both in isolated outcrop and in streams;
- Stream sediment and rock-chip sampling for geochemistry; and
- Detailed geochemical sampling and ground geophysical follow-up of specific interpreted target localities.

Once the exploration programme is further defined with new information generated from the initial geophysical surveying and data analysis activities, the following more invasive techniques will be employed at strategic locations informed by new data.

- RAB and/or Aircore drilling in advanced stages of the programme, followed by
- Diamond core drilling.

The most suitable options and methods shall be identified to ensure the impacts on the environment and society from these activities are minimised.

4.5 NO-GO ALTERNATIVE

Should exploration activities within EPL 7528 not take place, the anticipated environmental impacts from exploration activities would not occur, however, the social and economic benefits associated with project would also not be materialized.
There would not be an opportunity to define resources within the project area, this would be a missed opportunity for geological mapping and data collection that would add to regional knowledge of Namibia's mineral wealth and, if found to be viable for mining, could benefit the Namibian economy.

4.6 EQUIPMENT REQUIREMENTS

In the early exploration phase (1st and 2nd year) contractor vehicles and equipment will comprise:

- 4x4 vehicles for personnel and field equipment;

- Field equipment including tents, mobile toilets and ablution facilities, spades, axes, soil sampling equipment such as sieves, sample bags, surveying apparatus;
- Portable or semi-portable geophysical equipment such as magnetometers, electromagnetic or Induced Polarization apparatus (all passive and non-invasive).
- In the ensuing phases (2nd and 3rd year) drilling is envisioned. The equipment requirements would therefore be an RAB/ Aircore Drill rig initially then followed by diamond core drilling. This is anticipated to be a specific provision within tender documentation.

4.7 POWER SUPPLY

The individual contractors will be responsible to supply their own energy needs throughout the duration of their stay within the field camps. The proponent prefers the use of solar panels and small-scale generators.

4.8 WATER SUPPLY

Water demand per day for the exploration project is broken down into two usage categories. These are:

- Water for domestic use within field camps: 5m³ per day; and
- Water for exploration activities (drilling): 20m³.

Water can be sourced from two sources. These are:

SOURCE 1: Supplied by local authorities in the area i.e. Witvlei or Gobabis.
Requirement: Completed water supply form submitted to the local authority.

SOURCE 2: Supplied directly from farmer's boreholes with their permission. Alternatively, if a demand for water arises and where many holes are to be drilled in an area, then a borehole may be drilled. In this case the required water borehole permits, and abstraction permit shall be obtained from the Ministry of Agriculture Water and Forestry.

4.9 WORKERS ACCOMMODATION

Three to ten possible job opportunities are foreseen during the exploration phase and workers will be sourced from the local town (Gobabis) and surrounding villages. The workers will be deployed at various stages of exploration including soil sampling, geological mapping, geophysical surveys and drilling operations.

It is envisaged that for most of the exploration programme workers will reside in Gobabis and be transported to and from the site. The proponent will provide transport. However, during the latter part of the prospecting (drilling) workers may be required to stay in field camps away from any farmhouses. It is anticipated that the contractor will be completely self-sufficient with regard to power supply and waste management.

The proponent shall provide suitable living facilities during this period. Furthermore, the camping equipment shall include tents and a portable kitchen.

4.10 WASTE MANAGEMENT

Solid and effluent waste will be generated by the project, whilst exploration works throughout the phases are ongoing. Waste produced on site will include sewerage and solid waste such as packaging. Wastewater (e.g. water with drill additives) used during drilling will be recycled where possible, and effluent contained and allowed to evaporate after use. The drill-sludge will be disposed of at the Gobabis municipal waste disposal site. In case of the provision of mobile toilets to be used on site, sewerage generated shall be managed by the

toilet contractor. The proponent shall ensure waste transport certificates are provided by the toilet contractor for sewerage waste removed from site. No toxic waste will be discharged into the environment.

4.11 WASTEWATER EFFLUENT

Wastewater will be diverted into a lined sump to evaporate. The remaining solid residue will be buried in the soil if not toxic. Hazardous waste (hydrocarbon contaminated soil, etc.) will be disposed of at a municipal landfill site.

4.12 REHABILITATION

Once exploration activities are completed the areas shall be rehabilitated to a condition as close to the original state as far as possible. Rehabilitation shall be determined during the exploration programme and shall be agreed with the landowners and authorities as implied by legislation (discussed in Section 3). Before and after photographs will be used to monitor rehabilitation success.

5 BASELINE / CURRENT BIOPHYSICAL ENVIRONMENT

This section provides an overview of the existing biophysical environment through the analysis of the baseline data regarding the existing natural and socio-economic environment. Desktop studies on the national database are undertaken to get information of the current status of the receiving environment. This provides a baseline where changes that occur as a result of the proposed project can be measured.

5.1 CLIMATE

EPL 7528 is located in a part of Namibia which receives between 350 and 400 mm of rain per year, with a variation coefficient of 30 - 40%. Rainfall events are limited to the summer months, mainly between December and March, in the form of thunderstorms often associated with heavy downpours. Potential evaporation is between 1,820 and 1,960 mm per year, meaning an average water deficit of between 1,700 and 1,900 mm per year. Relative humidity is low, rarely more than 20% in winter but may reach 85% in summer before or after thunderstorm build-up. Maximum temperatures average around 32 - 34°C, mainly recorded during the afternoons between November and January, while minimum temperatures are around 2 - 4°C and are normally recorded during nights in June and July. Deviations from these averages are common, with the highest temperatures reaching 38 - 40°C and the lowest temperatures below 0°C. Frost during the winter months is common (Mendelsohn et al., 2002).

Over the interior the Kalahari High dominates during winter and the subsiding air causes cloudless days with stable sinking air. During summer the positions of the high-pressure cells fluctuate more, allowing low pressure cells to develop over the heated interior, which in turn pull moist air from the inter-tropical convergence zone. As the moist air from the north and the east moves south and west, the northeast parts of Namibia receive the most rain – diminishing in a direction to the south and west.

Due to the rhythm of the air pressure systems, the wind patterns over the interior remain fairly predictable. Prevailing wind over EPL 7528 is expected to be from the east and northeast, with occasional airflow from the southeast and southwest. Wind speed is expected to be low with more than two-thirds of the time lower than 2 m/s. The stronger air movements during the afternoons and evenings are the result of the ground being heated more in some places than others. During the winter months wind speed is slightly higher (Mendelsohn, et al., 2002).

5.2 GEOLOGY

Namibia can be divided into two broad geological provinces, one covering the western parts and the other in the east. The western parts consist of a variety of geological formations of different ages and composition and formed under very diverse environmental conditions – some were formed in the depths of primeval oceans, others as a result of the movement of the earth's crust or because of collisions or volcanic eruptions. Most of these formations are exposed in the west as rugged landscapes of mountains, hills, valleys and plains with sparse vegetation, providing an interesting insight into Namibia's geological past. In eastern Namibia, the formations are covered with deposits of a much more recent past (Mendelsohn et al., 2002). The deposits are loose, aeolian of origin, sandy and unconsolidated. On the surface the east of Namibia appears monotonous and uniform, covered with dense vegetation in the north and decreasing to the south. Most of the knowledge about these sediments has been derived from water abstraction boreholes, and rare outcrops and underlying formations exposed along drainage lines and around isolated pans.

Formations of the Damara Supergroup, between 850 and 600 million years old, cover a large part of the central and western parts of Namibia north of the Tropic of Capricorn. South of the Damara Supergroup is the Namaqua Metamorphic Complex (between 1,400 and 1,050 million years old), the Nama Group (538 – 547

million years old) and the Karoo Supergroup (300 – 180 million years old). To the east the much younger Kalahari deposits (<70 million years old) dominate, overlaying most of the older formations (Mendelsohn et al., 2002). The predominance of flat-lying Kalahari sediments on the surface means that there is almost no geological variation over this vast area (that also covers the largest part of the central interior of southern Africa) and not many exposures of rocks occur.

EPL 7528 is located on a transition between the Damara Supergroup and the Kalahari Group. The Witvlei Group (limestones and sandstones) of the Damara Supergroup is furthermore interrupted by the Kuibis sub-Group (sandstones and conglomerates) of the Nama Group. In the west the Witvlei-units are bordered by the Sinclair Group of the Namaqua Metamorphic Complex (Figure 5). To the east and the north-east the vastness of the Kalahari sediments covered all other formations.

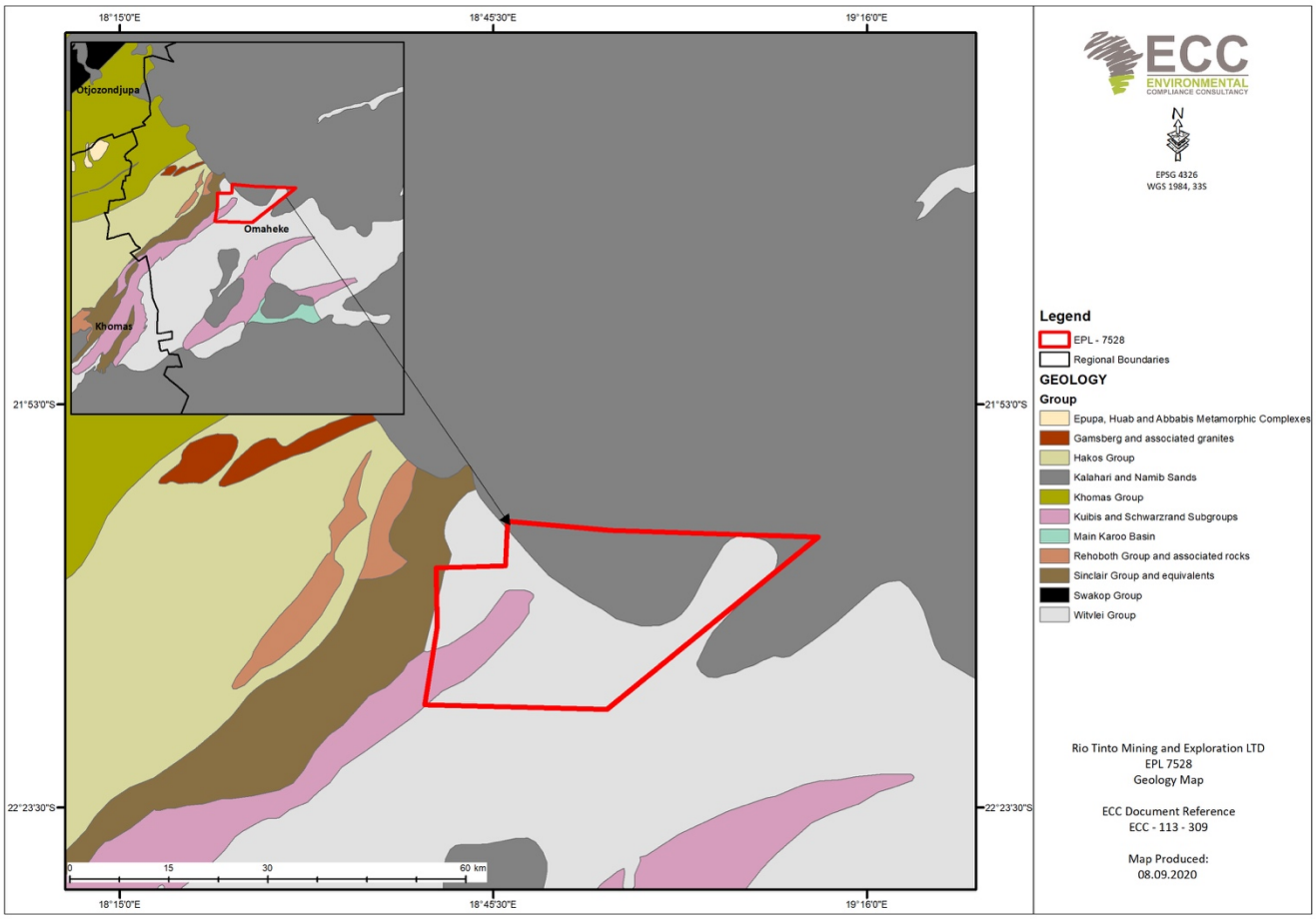

FIGURE 5 - REGIONAL GEOLOGICAL SETTING OF EPL 7528

5.3 TOPOGRAPHY AND SOILS

The topography of the EPL is flat, varying between 1,644 and 1,389 m above mean sea level. Except for the outcrops constituted by the Witvlei- and Kuibis-formations within EPL 7528, the surface geology appears to be uniform, and the entire landscape has a gentle gradient dipping towards the south and east (Figure 6). The general landscape to the south and east of the EPL is flatter, as the Kalahari landscape dominates. Linear dunes become also more prominent towards the south, generally oriented in a NW-SE direction. These dunes are permanent features and do not migrate like dunes of the Namib Desert. The dunes are also stabilized by permanent vegetation.

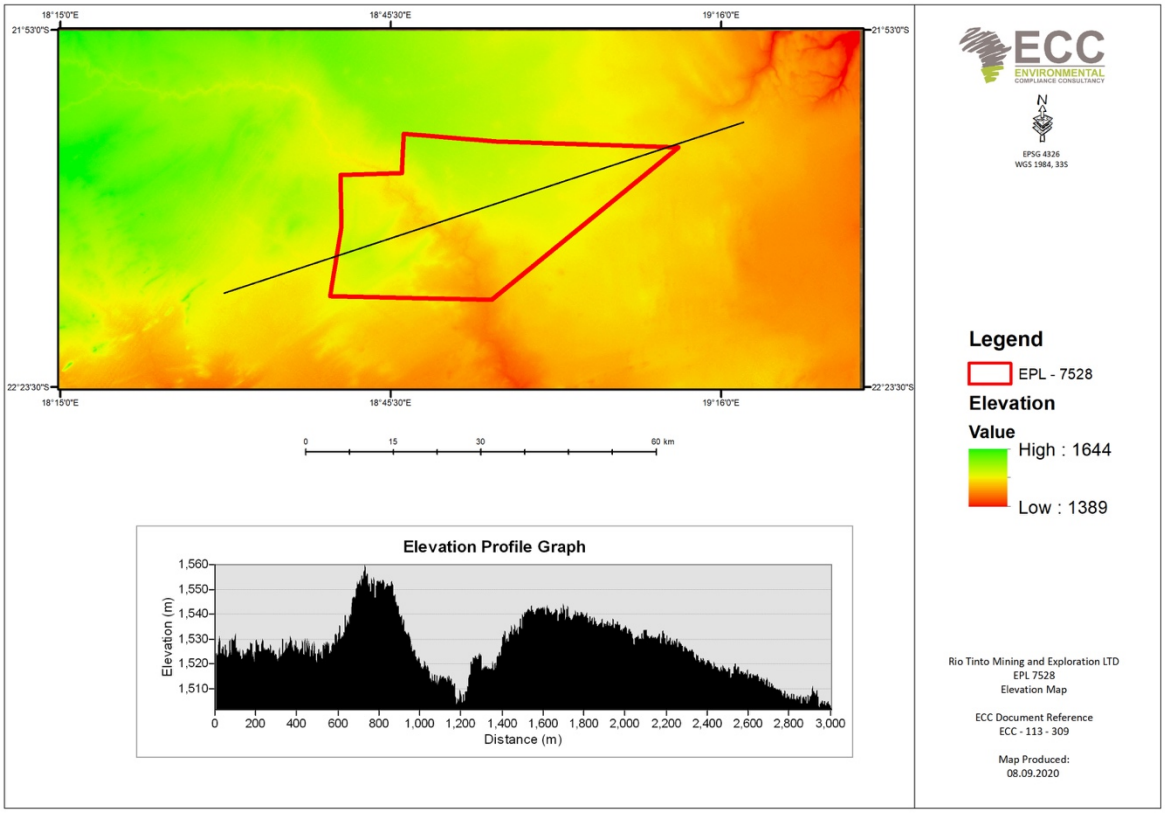

FIGURE 6 - ELEVATION PROFILE FOR EPL 7528

Towards the west of EPL 7528 eutric regosols are common (Figure 7). These soils are medium to fine-textured, typically associated with weathered landscapes. Although reasonably fertile, these soils form thin layers (not exceeding 50 cm) lying directly above the rock surfaces from which they originated. Regosols are susceptible to water erosion, especially where there is any degree of slope (Mendelsohn, et al., 2002).

Ferralic arenosols dominate the Kalahari landscape and covers the eastern and southern parts of the EPL (Figure 7). These soils derived from wind-blown (aeolian) processes and usually extend to depths of several meters. Arenosols drain rapidly, due to a sand component of more than 70%. The high contents of combined oxides of iron aluminium (sesquioxides) give arenosols its typical reddish colour, and a fertility based on these minerals. However, due to its high porosity, the lack of organic matter and its inability to retain nutrients the cultivation potential of arenosols are limited. Where the Kalahari dunes are more pronounced, arenosols are sorted as finer material on the dunes and coarser material on the areas between the dunes.

Eutric fluvisols are associated with the ephemeral drainage lines of the Kalahari. These soils were intensely reworked during its formation, as a result of flooding. As the Kalahari landscape became more desiccated, the

fluvisols became more stagnant and lost much of the original organic material and nutrients, meaning that it has lost a substantial degree of its original fertility. Fluvisols occur in proximity of the ephemeral Black Nossob River which transects the EPL from northwest to southeast.

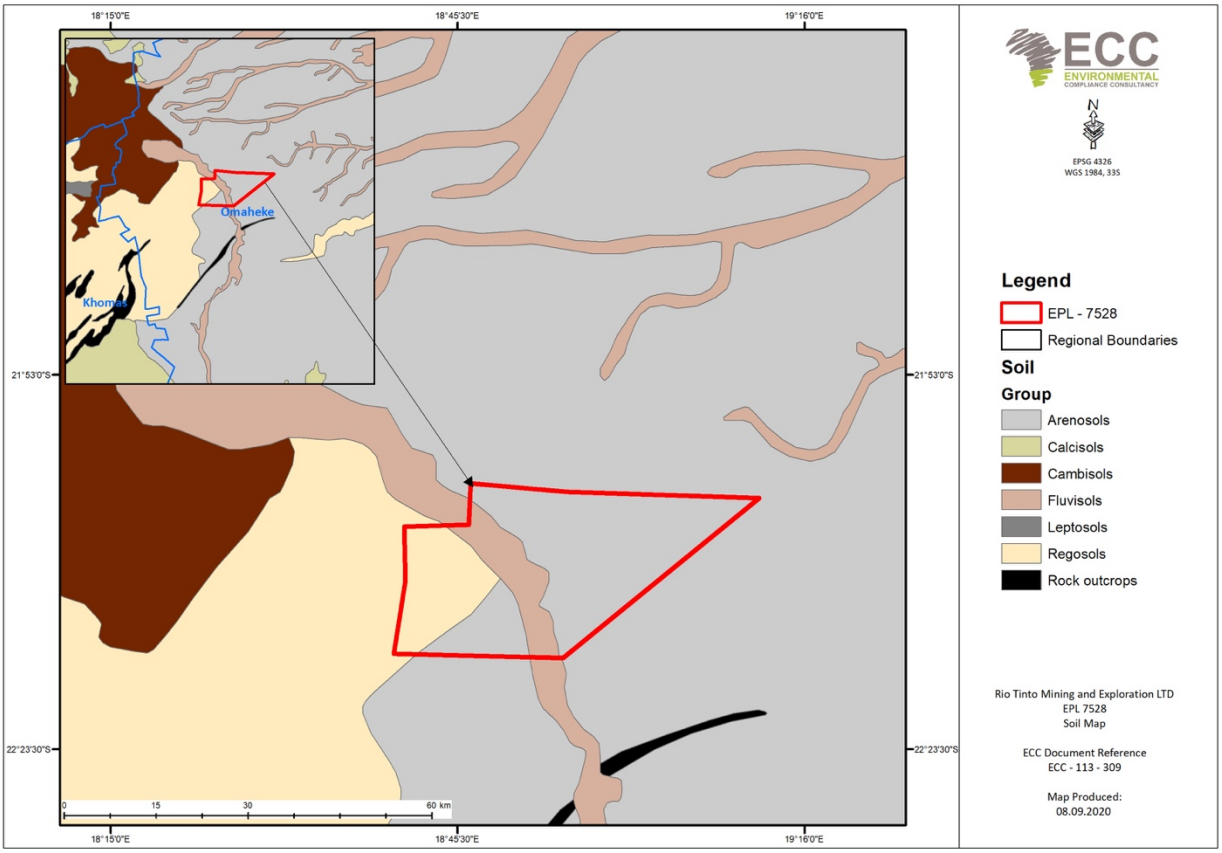

FIGURE 7 - REGIONAL SOIL MAP OF EPL 7528

5.4 HYDROLOGY

The EPL is located within the drainage basin of the Black Nossob River. The river originates on the eastern parts of the Khomas Hochland in central Namibia, and is ephemeral, i.e. it only contains surficial water for brief periods shortly after sufficient run-off is received in the headwaters as a result of downpours. The Black Nossob confluences with the White Nossob to its west to form the Nossob River, which eventually forms the border between Botswana and South Africa after it leaves Namibian territory. Surface water flow is confined to the harder surfaces and the few dry drainage lines, which are tributaries of the Black Nossob River. No runoff occurs on the sandy surface of the Kalahari.

The largest part of EPL 7528 is located in the South-eastern Kalahari Groundwater Basin and only the furthest eastern part is located within the Omaheke Groundwater Basin (Figure 8). The general direction of the groundwater flow is southwest over the western half and east over the northeast. This basin shows a generally moderate potential of groundwater with an increased potential to the north (Christelis and Struckmeier, 2001).
Farms located within and nearby EPL 7528 obtain water from borehole abstraction. Recorded boreholes of relevance to EPL 7528 are indicated in Figure 8. Should the project require the drilling and abstraction of water from an additional borehole, an application must be submitted to the authorities.

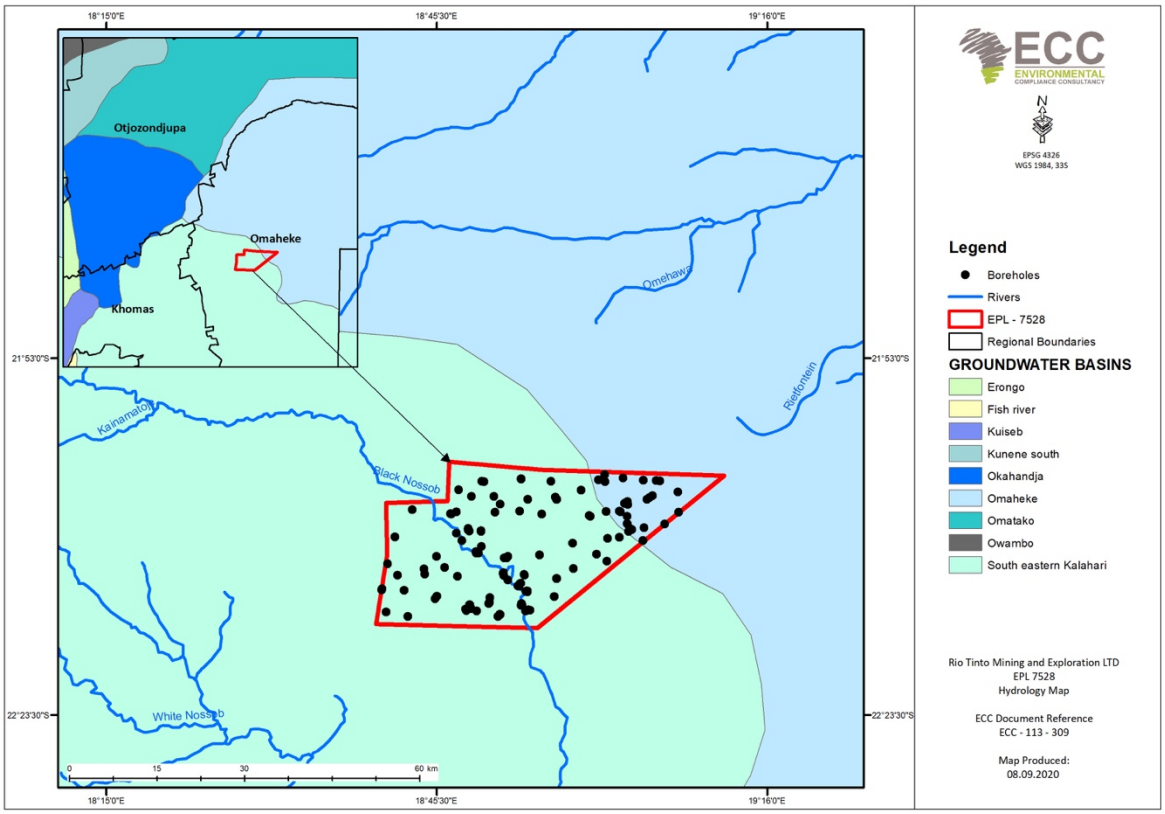

FIGURE 8 - REGIONAL HYDROLOGY MAP OF EPL 7528

5.5 VEGETATION

EPL 7528 is covered with the central Kalahari vegetation type of the Acacia three-and-shrub savanna sub-biome (Figure 9). Where the soils are shallower and the landscape hillier, plant growth tends to be shrubby. Eastwards, where the soils become deeper and the landscape flattens, vegetation is characterized by large, open expanses of grass dotted by trees and bushes (Mendelsohn et al., 2002). Most of the woody vegetation vary between 1 and 5m in height.

The most important environmental variable affecting the vegetation in this part of the country is rain and to a lesser extent frost, but micro-habitat conditions and rangeland management practices determine bush density and grass composition. Grazing resources are made up of a wide variety of grass species, which vary widely in palatability and abundance. Bush encroachment is noticeable, mainly on farmland exposed to continuous periods of selective grazing by livestock. Moreover, the densification of bush has led to a decreased carrying capacity on some farms in the area where EPL 7528 is located.

Plant diversity is estimated between 100 and 149 species and plant endemism is low, not exceeding five species (Mendelsohn et al., 2002). Local differentiation as a result of topographical variance and availability of water is possible though. Vegetation on the Kalahari dunes and on the sandy plains between dunes differ markedly, while diversity around pans and along drainage channels increases and plants become denser and higher. On rocky, elevated areas such as the hills and ridges, diversity increases too.

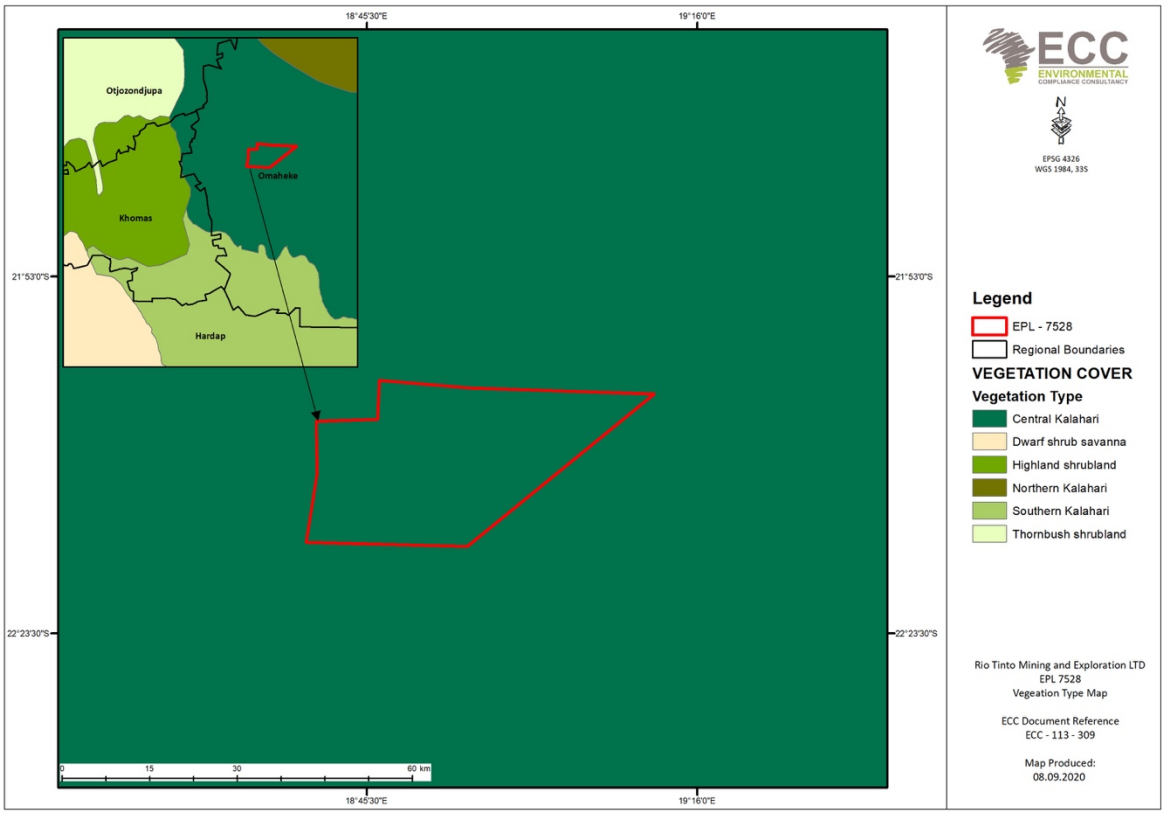

FIGURE 9 - REGIONAL VEGETATION MAP OF EPL 7528

5.6 FAUNA SPECIES

Overall terrestrial biodiversity where EPL 7528 is located, ranges from medium to low. As endemism trends in Namibia show a clear decline to the east, the number of endemic fauna species possible in EPL 7528 is expected to be low. The number of mammal species ranges between 61 and 75, the number of bird species is between 111 and 140, with 61 – 70 reptile species, 8 – 11 frog species and 10 – 11 scorpion species that could be expected (Mendelsohn et al., 2002). On a local scale it is expected that diversity increases with the increase in habitats, which is closely coupled to shelter, food and water availability and migration routes. Elevation and water availability play a prominent role in this regard and is directly related to the increase in terrestrial diversity towards the west.

5.7 SOCIO-ECONOMIC ENVIRONMENT

EPL 7528 is located within the Omaheke region. The region is bordered by the Hardap Region in the south, by the Khomas Region in the west and the Otjozondjupa Region in the north. The eastern boundary of the region forms the international boundary with Botswana. The region is named after the Herero word for Sandveld. Gobabis is the regional capital.

Although the Omaheke Region covers more than 10% of the land area of Namibia, it accommodated the smallest portion (3.4%) of the national population total in 2016 (NSA, 2017) and is the third least populated region of Namibia with a density of 0.9 persons per km^2.

5.7.1 DEMOGRAPHY

Namibia is one of the least densely populated countries in the world (2.8 person per km^2). Vast areas of Namibia are without people, in contrast to some fairly dense concentrations, such as the central-north and

along the Kavango River. Large parts of the Omaheke region are also without people, mainly because of the absence of surface water.

The population density of the Omaheke Region is three times lower than the national average, and the total population of the region was estimated at 74,629 in 2016 (NSA, 2017). Otjiherero is the most spoken language in the region (48% of all households) and the average household size in the Omaheke region comprises 3.5 persons. The literacy rate is 75% for people older than 15. 96% of all households have access to safe water, only 56% have no toilet facility, 45% have electricity for lighting and only 63% of the population depend on open fires to prepare food (NSA, 2017).

In 2011 the population of Gobabis was 19,101 and with a generalized urbanization growth rate of 4.0% the current estimated population is estimated to be 27,187 residents.

5.7.2 GOVERNANCE

Namibia is divided in 14 regions, subdivided by 121 constituencies. Omaheke Region is divided into seven constituencies. Each region has a regional council, elected during regional elections per constituency. Towns are governed through local authorities, in the form of municipalities.

Not only is Gobabis the capital, but also the largest town of the Omaheke Region. It is the only town in the region with a municipality. Many of the region's head offices are located in the town. Other populated centres of the region are Drimiopsis, Epukiro, Tallismanis, Otjinene, Summerdown, Steinhausen, Omitara, Witvlei, Leonardville and Aminuis. These areas are managed as village councils mandated by the central authority, the Ministry of Urban and Rural Development, or as settlements managed directly by the central authority. Buitepos, on the border with Botswana, is a cross-border control point.

5.7.3 EMPLOYMENT

The rate of unemployment is estimated at 33.4% for Namibia, using the broad definition of unemployment. More than 60% of the population is over 15 years of age and about one-third of the total population can be regarded as part of the labour force. The unemployment rate in rural and urban areas is almost the same – 33.4% in urban areas and 33.5% in rural areas. The highest unemployment rates are found amongst persons with education levels lower that junior secondary. The unemployment rate of persons with no formal education is 28.6%, with primary education 34.6% and with junior secondary education 32.7% (NSA, 2019).

5.7.4 ECONOMY

The economy of the Omaheke Region is predominantly agriculture-based. Extensive livestock farming forms the livelihood of many people and is one of the reasons for the low intensity land use over much of the 84,742 km2 the region covers, the low total population (74,629 in 2016) as well as the low population density (about 0.8 persons per km2 in 2011). Large parts of the region are covered by commercial and communal farms, mainly for cattle ranching. Although not as many as in other regions, several former livestock farms became guest farms and hunting farms. Income and employment from tourism has grown subsequently. On both commercial and communal land, bush encroachment decreased the carrying capacity of some farms markedly over the last four decades. The invader bush is managed in several ways, one of which is the production of charcoal for export. Of lately the charcoal industry became a significant source of income and employment in the rural parts of Namibia, including the Omaheke Region, with the operational NamChar factory as an example of this.

Several new government offices have been established in Gobabis as part of an effort to accentuate the town as regional capital. The town plays an important role as a centre of functional services – administrative as well

as commercial – for the region, and Gobabis is an important node on the Trans-Kalahari Highway that connects landlocked Botswana with Walvis Bay.

Since 2016, Namibia recorded slow economic growth, registering an estimated growth of only 1.1% in 2016. The primary and secondary industries contracted by 2.0 and 7.8% respectively. During 2017 the economy contracted by 1.7, 0.7 and 1.9% in the first, second and third quarters respectively (NSA, 2019). Despite the more positive expectations, the economy retracted to an average growth of not more than 1% annually since 2017.

5.7.5 HEALTH

Since independence in 1990, the health status of Namibia has increased steadily with a remarkable improvement in access to primary health facilities and medical infrastructure. In 2015 the World Health Organization (WHO) recommended strategic priorities of the health system in Namibia which entail improved governance, an improved health information system, emergency preparedness, risk reduction and response, preventative health care and the combating of HIV/AIDS and TB (WHO, 2016).

According to the MoHSS health facility census (MoHSS, 2009) the Omaheke region only has a recorded 16 health care facilities. In 2016 it was estimated that one out of every five persons in the Omaheke Region is younger than four years of age, the highest figure in Namibia. In contrast, the percentage of young children that attend programs of early childhood development in the Omaheke Region is the second lowest in Namibia – only 11.7% (NSA, 2017), implying that access to these facilities and access to infant health care facilities is limited.

Like elsewhere in Namibia, the largest percentage of people in the Omaheke Region utilize clinics for medical care (37.5%). Less than 10% of the total population of the Omaheke Region receive their medical treatment from a doctor (NSA, 2017). The death rate of 19.5 deaths per 1000 people for Omaheke Region was the highest in Namibia in 2016 (NSA, 2017).

As of the beginning of 2020 the coronavirus disease (COVID-19), caused illness in humans at a pandemic scale and has resulted in an increasing number of deaths worldwide. The viral outbreak is adversely affecting various socio-economic activities globally, and with reports of the increasing number of people testing positive, it is anticipated that this may have significant impacts on the operations of various economic sectors in Namibia too. The disease caused many countries to enter a state of emergency and lockdown mode, with dire economic consequences. In addition, these measures have a detrimental effect on tourism – and Namibia is in both cases no exception.

5.7.6 HERITAGE

In Namibia several mountains are closely coupled to heritage values, and it is possible that this applies to some of the higher elevations in EPL 7528 as well. Drainage lines were also important routes for early inhabitants and it could be expected that some heritage assets along the Black Nossob could be found. In cases where heritage sites are discovered the chance-find procedure will be used.

6 IDENTIFICATION AND EVALUATION OF IMPACTS

The key stage of the EIA process is the impact prediction and evaluation stage. This stage is the process of bringing together project characteristics with the baseline environmental characteristics and ensuring all potentially significant environmental and social impacts are identified and assessed. Impact prediction and evaluation involve envisaging the possible changes to the environment as a result of the proposed project. The recognized methodology was applied to determine the magnitude of impact and whether or not the impact was considered significant and thus warrant further investigation. The assessment considers all stages of the project's life cycle that is scoped into the assessment and is presented in this report. It is an iterative process that commences at project inception and runs through to the final design and project implementation (construction and operations). The impact prediction and evaluation stages were undertaken in September 2020 and the findings of the assessment are presented in this document.

6.1 INTRODUCTION

Chapter 2 provides an overview of the approach used in this EIA process and details each of the steps undertaken to date. Predication and evaluation of impacts is a key step in the EIA process. This chapter outlines the methods followed to identify and evaluate the impacts arising from the proposed project. The findings of the assessment are presented in this chapter.

This chapter provides the following:

- Details on the assessment guidance used to assess impacts;
- Lists the limitations, uncertainties and assumptions with regards to the assessment methodology;
- Details how impacts were identified and evaluated, and how the level of significance was derived; and
- Details how mitigation was applied in the assessment and how additional mitigation was identified.

6.2 ASSESSMENT GUIDANCE

The principal documents used to inform the assessment method are:

- International Finance Corporation standards and models, in particular Performance Standard 1, 'Assessment and management of environmental and social risks and impacts' (International Finance Corporation, 2017) (International Finance Corporation, 2012);
- International Finance Corporation CIA and Management Good Practice Handbook (International Finance Corporation, 2013); and
- Namibian Draft Procedures and Guidance for EIA and EMP (Republic of Namibia, 2008).

6.3 LIMITATIONS, UNCERTAINTIES AND ASSUMPTIONS

The following limitations and uncertainties associated with the assessment methodology were observed:

- Topic specific assessment guidance has not been developed in Namibia. A generic assessment methodology was applied to all topics using IFC guidance and professional judgement;
- Guidance for CIA has not been developed in Namibia, and a single accepted state of global practice has been established. The IFC's guidance document (International Finance Corporation, 2013) has been used for the CIA.

A number of limitations and uncertainties were acknowledged during the EIA process. In line with EIA best practice, assumptions have been made based on realistic worst-case scenarios, thereby ensuring that the

worst-case potential environmental impacts are identified and assessed. Table 6 contains the assumptions and uncertainties identified during the assessment process.

Where uncertainties exist, a cautious approach has been applied, allowing the worst-case scenario for potential impacts to be identified. Where limitation and uncertainties exist, assumptions have been made and applied during the assessment process. These have been clearly described in the baseline section.

TABLE 6 – SUMMARY OF LIMITATION, UNCERTAINTIES AND ASSUMPTION OF THE EIA PROCESS

LIMITATION / UNCERTAINTY	ASSUMPTION
Program of activities	As per the EPL award, work will take place over an initial three-year period to establish potential resources of interest. A detailed timeline of the activities is not available at this point in time. If commercially viable concentrations can be defined by preliminary drilling, a next phase of advanced resource drilling operations is possible.
	Phase 1 – 25 October 2019, on EPL award: Exploration activities involved desktop interpretation of, and mapping from, available airborne magnetic and radiometric data, analysis of satellite imagery and archival data from the GSN. Phase 2 – January 2021: Airborne electromagnetic (AEM) survey, and interpretation of these data, coupled with the commencement of soil sampling and geological mapping in specific target localities, to be determined by the above desktop interpretation. Phase 3 –Mid 2021: RAB and/or Aircore drilling in select areas only (locations unknown), depending on results from the first two phases. Phase 4 – Late 2021 and 2022: Desktop reviews of all data and subsequent planning activities, which may lead to diamond core drilling, the timing of which will be dependent on progress of the previous phases. Trenching could be part of this phase. It is assumed that exploration activities are limited to these stipulated undertakings.
Number of workers and area they will come from	It is planned that a full-time team will comprise up to 10 staff members and contract workers. The numbers of contractors , are expected to include the following teams: field sampling and mapping; ground geophysics; possible trenching; and preliminary drilling. Moreover, staff will be sourced from the local authority areas such as Gobabis, Leonardville and Witvlei.

LIMITATION / UNCERTAINTY	ASSUMPTION
Water supply	Water will only be required for field camps once the drilling programme commences. It is estimated that the water demand for domestic use would be 5,000 litres or less per day and for initial drilling purposes approximately 20,000 litres or less per day is needed. Agreements with farm owners to abstract water from privately owned boreholes will have to be reached between the proponent and the farm owners. The exact volume of water needed for advanced drilling campaigns are uncertain at this point in time. Water is anticipated to be obtained from and transported to site, using a mobile water-bowser, from either a local farm or from a local authority. This is subject to permission granted by relevant farm owners or a permit from the local authority. If new boreholes are to be created for water supply purposes for the advanced exploration phase, the exact placement would need to be confirmed in relation to a drill grid.
Access route and creation of new tracks	The making of new tracks or access roads will be avoided, and existing tracks and routes will be used as far as possible. While every effort will be made to minimize environmental damage, in some cases it will be necessary to clear some areas to create small roads to conduct exploration activities.
Structures	No permanent infrastructure development will take place in the greenfield phase of operations which will span the 3-year award period. Depending on results, the proponent will set up temporary field camps required to house field staff for the purpose of sample collection, ground surveys and drilling. The camps will be such that their locations can be fully rehabilitated post completion of the field work.

6.4 DETERMINATION OF SIGNIFICANCE

The evaluation and identification of the environmental and social impacts require the assessment of the project characteristics against the baseline characteristics, ensuring all potentially significant impacts are identified and assessed. The significance of an impact is determined by taking into consideration the combination of the sensitivity and importance/value of environmental and social receptors that may be affected by the proposed project, the nature and characteristics of the impact, and the magnitude of potential change. The magnitude of change (the impact) is the identifiable changes to the existing environment which may be negligible, low, minor, moderate, high, or very high; temporary/short term, long-term or permanent; and either beneficial or adverse.

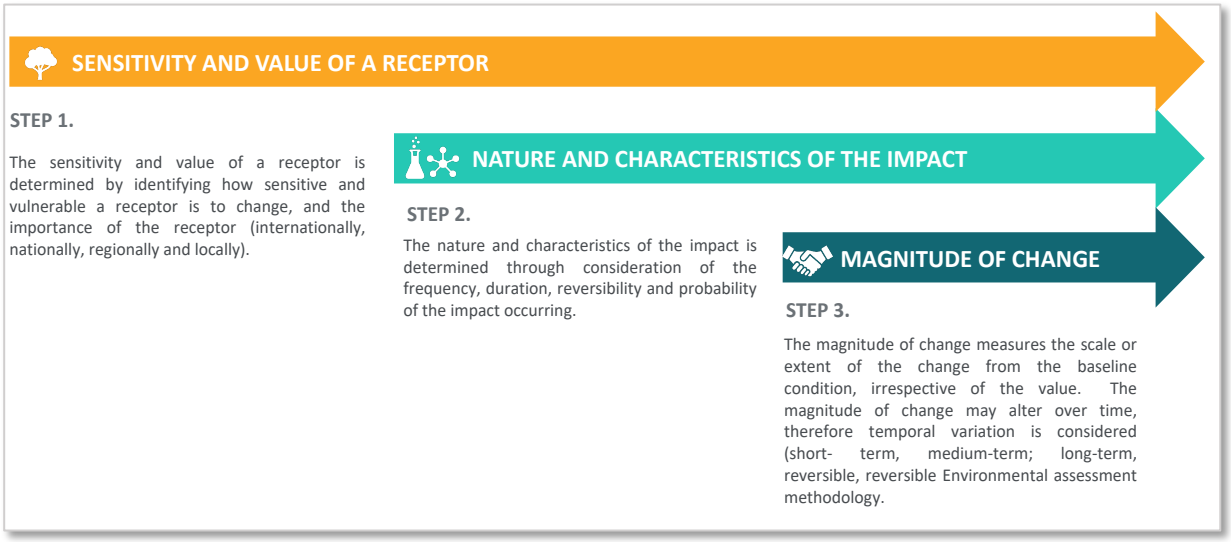

FIGURE 10 - DETERMINATION OF SIGNIFICANCE

The tables below set the description and thresholds used in determining impact significance.

TABLE 7 - NATURE OF IMPACT

NATURE	
Term	Description
Beneficial (Positive)	An impact that is considered to represent an improvement on the baseline or introduces a positive change.
Adverse (Negative)	An impact that is considered to represent an adverse change from the baseline or introduces a new undesirable factor.

TABLE 8 - TYPE OF IMPACT

TYPE	
Term	Description
Direct	Impacts causing an impact through direct interaction between a planned project activity and the receiving environment/receptors.
Indirect	Impacts that result from other activities that are encouraged to happen as a result / consequence of the Project. Associated with the project and may occur at a later time or wider area
Cumulative	Impacts that arise as a result of an impact and effect from the project interacting with those from another activity to create an additional impact and effect

TABLE 9 - REVERSIBILITY OF IMPACT

REVERSIBILITY	
Term	Description
Reversible	Impacts are reversible and recoverable in the future
Partly Reversible	Some parts of the impact can be reversed while others remain
Irreversible	Impacts which are not reversible and are permanent

TABLE 10 - MAGNITUDE OF CHANGE

MAGNITUDE OF CHANGE	
Term	Description
None / negligible	Very minor loss or detrimental alteration to one (or maybe more) characteristic, feature or element; or Very minor benefit to, or positive addition of, one (or maybe more) characteristic, feature or element.
Low / Minor	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (or maybe more) key characteristic, feature or element; or Minor benefit to, or addition of, one (or maybe more) key characteristic, feature or element; some beneficial effect on attribute quality or a reduced risk of a negative effect occurring.
Moderate	Loss of resource, but not adversely affecting its integrity; partial loss of/damage to key characteristics, features or elements; or Benefit to, or addition of, key characteristics, features or elements; improvements of attribute quality.
High / Major	Loss of resource, and quality and integrity of resource; severe damage to key characteristics, features or elements; or Large scale or major improvement of resources quality; extensive restoration or enhancement; major improvement of attribute quality.
Very high / unknown	Loss of resource, significantly affecting the long term quality and integrity of a resource; irreparable damage or loss of key characteristics, features or elements; or the magnitude is too great to quantify as it is unknown.

TABLE 11 - DURATION OF IMPACT

DURATION	
Term	Description
Temporary	Transient; a period of less than 1 year
Short term	Impacts that are likely to last for the duration of the activity causing the impact and are recoverable (1-5 years)
Medium term	Impacts that are likely to continue after the activity causing the impact and are recoverable (5-15 years)
Long term	Impacts that are likely to last far beyond the end of the activity causing the damage (greater than 15 years with impact ceasing after decommissioning of the project)
Permanent	Permanent

TABLE 12 - SCALE OF CHANGE

SCALE OF CHANGE - EXTENT / GEOGRAPHIC SCALE	
Term	Description
On-site	Impacts that are limited to the boundaries of the proposed project site
Local	Impacts that occur in the local area of influence, including around the proposed site and within the wider community
Regional	Impacts that affect a receptor that is regionally important by virtue of scale, designation, quality or rarity.
National	Impacts that affect a receptor that is nationally important by virtue of scale, designation, quality or rarity.
International	Impacts that affect a receptor that is internationally important by virtue of scale, designation, quality or rarity.

TABLE 13 - PROBABILITY OF CHANGE

PROBABILITY	
Term	Description
Improbably (Rare)	The event may occur in exceptional circumstances yet, rarely occurs in the industry. The event could occur once every 100 years
Low probability (Unlikely)	The event has happened elsewhere yet, is unlikely to occur. The event could occur once every 10 years
Medium Probability (Possible)	The event could occur under some circumstances. The event could occur once every 5 years.
High Probability (Likely)	The event is expected to occur. The event could occur twice per year
Definite (Almost certain)	The event will occur. The event could occur once per month

TABLE 14 - SIGNIFICANCE DESCRIPTION

SIGNIFICANCE OF IMPACT	DESCRIPTION
Low – Major (Beneficial) All scores	Impacts are considered to be beneficial to the environment and society:
Low (negative) 0 - 25	Impacts are considered to be local factors that are unlikely to be critical to decision-making.
Minor (negative) 25 - 50	Impacts are considered to be important factors but are unlikely to be key decision-making factors. The impact will be experienced, but the impact magnitude is sufficiently small (with and without mitigation) and well within accepted standards, and/or the receptor is of low sensitivity/value. Impacts are considered to be short-

SIGNIFICANCE OF IMPACT	DESCRIPTION
	term, reversible and/or localized in extent.
Moderate (negative) 50 - 75	Impacts are considered within acceptable limits and standards. Impacts are long-term, but reversible and/or have regional significance. These are generally (but not exclusively) associated with sites and features of national importance and resources/features that are unique and which, if lost, cannot be replaced or relocated.
Major (negative) 75 - 100	Impacts are considered to be key factors in the decision-making process that may have an impact of major significance, or large magnitude impacts occur to highly valued/sensitive resource/receptors. Impacts are expected to be permanent and non- reversible on a national scale and/or have international significance or result in a legislative non- compliance.

TABLE 15 - SENSITIVITY AND VALUE OF RECEPTOR

SENSITIVITY AND VALUE	DESCRIPTION
Low	Of value, importance or rarity on a local scale; and/or not particularly sensitive to change or has considerable capacity to accommodate a change.
Medium	Of value, importance or rarity on a regional scale, and with limited potential for substitution; and/or moderate sensitivity to change, or moderate capacity to accommodate a change.
High	Of value, importance or rarity on an international and national scale, and with very limited potential for substitution; and/or very sensitive to change or has little capacity to accommodate a change.

TABLE 16 – SIGNIFICANCE OF IMAPCT

				Significance of Impact			
				Impacts are considered to be local factors that are unlikely to be critical to decision-making.	Impacts are considered to be important factors but are unlikely to be key decision-making factors. The impact will be experienced, but the impact magnitude is sufficiently small (with and without mitigation) and well within accepted standards, and/or the receptor is of low sensitivity/value. Impacts are considered to be short-term, reversible and/or localized in extent.	Impacts are considered within acceptable limits and standards. Impacts are long-term, but reversible and/or have regional significance. These are generally (but not exclusively) associated with sites and features of national importance and resources/features that are unique and which, if lost, cannot be replaced or relocated.	Impacts are considered to be key factors in the decision-making process that may have an impact of major significance, or large magnitude impacts occur to highly valued/sensitive resource/receptors. Impacts are expected to be permanent and non- reversible on a national scale and/or have international significance or result in a legislative non-compliance.
	Biophysical	**Social**		**Low**	**Minor (2)**	**Moderate (3)**	**Major (4)**
Sensitivity	A biophysical receptor that is protected under legislation or international conventions (CITES) listed as rare, threatened or endangered IUCN species. Highly valued/sensitive resource/receptors	Those affected people/communities will not be able to adapt to changes or continue to maintain-pre impact livelihoods.	**High (3)**	**Minor (3)**	**Moderate (6)**	**Major (9)**	**Major (12)**
	Of value, importance or rarity on a regional scale, and with limited potential for substitution; and/or Not protected or listed (globally) but may be a rare or threatened species in country; with little resilience to ecosystem changes, important to ecosystem functions, or one under threat or population decline.	Able to adapt with some difficulty and maintain preimpact status but only with a degree of support	**Medium (2)**	**Low (2)**	**Minor (4)**	**Moderate (6)**	**Major (8)**
	Not protected or listed as common / abundant; or not critical to other ecosystems functions	Those affected are able to adapt with relative ease and maintain preimpact status. There is no perceptible change to people's livelihood.	**Low (1)**	**Low (1)**	**Low (2)**	**Minor (3)**	**Moderate (4)**

To ensure the beneficial impacts are brought out in the assessment, green has been applied to ensure the different type of impact is clear. The description for each level of significance presented in Table 16 was also followed when determining the level of significance of a beneficial impact.

The significance of impacts has been derived by applying the identified thresholds for receptor sensitivity and magnitude of change, as well as the definition of significance. Moderate and major adverse impacts are considered as significant. The following thresholds were therefore used to double check the assessment of significance had been applied appropriately; a significant impact would meet at least one of the following criteria:

- It exceeds widely recognized levels of acceptable change;
- It threatens or enhances the viability or integrity of a receptor or receptor group of concern; and
- It is likely to be material to the ultimate decision about whether or not the environmental clearance certificate is granted.

6.5 MITIGATION

Mitigation comprises a hierarchy of measures ranging from preventative environmental impacts by avoidance, to measures that provide opportunities for environmental enhancement. The mitigation hierarchy is avoidance; reduction at source; reduction at receptor level; repairing and correcting; compensation; remediation; and enhancement.

Mitigation measures can be split into three distinct categories, broadly defined as:

- Actions undertaken by the EIA process that influence the design process, through implementing design measures that would entirely avoid or eliminate an impact or modifying the design through the inclusion of environmental features to reduce the magnitude of change. These are considered as embedded mitigation.

- Standard practices and other best practice measures for avoiding and minimizing environmental impacts. These are considered as good practice measures.
- Specified additional measures or follow-up action to be implemented to further reduce adverse impacts that remain after the incorporation of embedded mitigation. These are considered as additional mitigation.

The EIA is an iterative process whereby the outcomes of the environmental assessments inform the project. Considerable mitigation has been built into the proposed project as potentially significant adverse environmental impacts have been identified and design changes have been identified to overcome or reduce them. The EMP (Appendix A) provides the good practice measures and specified additional measures or follow-up action.

Embedded mitigation and good practice mitigation have been taken into account in the assessment. Additional mitigation measures have been identified when the significance of impact requires it and causes the impact to be further reduced. Where additional mitigation has been identified, a final assessment of the significance of impacts (residual impacts) was carried out taking into consideration the additional mitigation.

7 IMPACT ASSESSMENT FINDINGS AND PROPOSED MITIGATION MANAGEMENT MEASURES

This chapter presents the findings of the EIA for the proposed project as per the EIA process, scope and methodology set out in Chapter 2 and Chapter 6. A range of potential impacts have been identified that may arise as a result of the proposed project. The aim of this EIA report is to focus on the significant impacts that may arise as a result of the proposed project. This chapter therefore only considers the significant impacts and or those that may have specific interest to the community and stakeholders. A summary of impacts that are considered significant is discussed in this section.

When undertaking the assessment exercise, the design of the proposed project and best practice measures were considered to ensure the likely significant effects and any required additional mitigation measures were identified. A summary of the potential impacts and mitigation and / or control measures are discussed below.

The following topics were considered during the scoping phase:

- Surface water and groundwater;
- Soils and topography;
- Landscape (visual impacts, sense of place);
- Socioeconomics (employment, demographics, and land-use);
- Noise;
- Ecology (fauna and flora);
- Air quality (emissions, pollutants and dust); and
- Cultural heritage.

Table 17 sets out the findings of the scoping assessment phase. Activities that could be the source of an impact have been listed, followed by receptors that could be affected. The pathway between the source and the receptor has been identified where both are present. Where an activity and/or receptor has not been identified, an impact is unlikely, thus no further assessment or justification is provided. Where the activity, receptor and pathway have been identified, a justification has been provided documenting if further assessment is required or not required.

Due to the nature and localised scale of the exploration activities, and the environmental context of the EPL, the potential environmental and social effects are limited and unlikely to be significant. The only area where uncertainty remained during the scoping phase was the potential cumulative effects on human receptors from the increase in noise levels and visual impacts. The receptors are mainly the farmers, neighbours and visitors, although noise may have an effect on some organisms as well.

TABLE 17 - IDENTIFICATION AND EVALUATION OF IMPACTS AND MITIGATION MEASURES

RECEPTOR	DESCRIPTION OF ACTIVITY	DESCRIPTION OF IMPACT	EFFECT/DESCRIPTION OF MAGNITUDE	VALUE OF SENSITIVITY	MAGNITUDE OF CHANGE	SIGNIFICANCE OF IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES	RESIDUAL IMPACT AFTER MITIGATION
Groundwater quality	Site operations such as maintenance activities, loss of containment, accidental fuel / hydraulic fluid leaks and spills, or similar sources.	Hydrocarbon leaks and spills could enter the aquifer causing contamination.	Adverse Direct Partly Reversible Moderate Short term Regional Possible	Medium	Minor	**Minor (4)**	Good house keeping Training through toolbox talks and induction All stationary vehicles and machinery must have drip trays to collect leakages of lubricants and oil Spill kits and absorption material available during fuel delivery, storage or use Accidental spills and leaks (including absorption material) to be cleaned as soon as possible Major spills to be reported, also to the authorities Maintenance and service schedules on equipment is in place Store bulk fuel in adequate containment areas (non-porous surface, bunded,	**Low (2)**

RECEPTOR	DESCRIPTION OF ACTIVITY	DESCRIPTION OF IMPACT	EFFECT/DESCRIPTION OF MAGNITUDE	VALUE OF SENSITIVITY	MAGNITUDE OF CHANGE	SIGNIFICANCE OF IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES	RESIDUAL IMPACT AFTER MITIGATION
							within a fenced-in area) Ensure integrity of containment with regularly inspections) No damaged containers in use Preventative measures will be in place when service and maintenance activities are done (drip trays, non-porous surfaces, funnels, non-damaged containers) Refuelling is done in areas with adequate preventative measures in place	
Groundwater quality	Potential spillages of drill fluid, lubrication, etc. or exploration activities that penetrate the groundwater table.	Hydrocarbon leaks and spills could enter the aquifer causing contamination.	Adverse Indirect Partly Reversible Minor Short term Local Possible	Low	Minor	**Low (2)**	Ensure spill kits and preventative measures (e.g. drill pads) are in place at exploration sites Drill system should be dug to direct any accidental spills into sumps Extraction volumes of water shall be minimal during exploration and where	**Low (1)**

RECEPTOR	DESCRIPTION OF ACTIVITY	DESCRIPTION OF IMPACT	EFFECT/DESCRIPTION OF MAGNITUDE	VALUE OF SENSITIVITY	MAGNITUDE OF CHANGE	SIGNIFICANCE OF IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES	RESIDUAL IMPACT AFTER MITIGATION
							possible, water from existing water sources shall be used	
Water	Discharge and infiltration of non-contained wastewater	Wastewater can contaminate surface and groundwater	Adverse Direct Partly Reversible Minor Short term Regional Unlikely	Low	Minor	**Low (2)**	Wastewater discharges will be contained Workers will be made aware about the importance of wastewater management Good housekeeping Ensure prompt clean-up of spills	**Low (1)**
Water	Inadequate management of waste	Waste items and litter can pollute drainage channels	Adverse Cumulative Reversible Minor Temporary Onsite Unlikely	Low	Minor	**Low (2)**	Good housekeeping. Training and awareness through toolbox talks and induction. Implement a Standard Operational Procedure (SOP) on waste management, from cradle to grave for all kinds of waste possible onsite (e.g. domestic, mineral, hydrocarbons, etc.) Raise awareness about the importance of responsible	**Low (1)**
Soil	Inadequate management of hazardous and hydrocarbon waste	Pollution of soil	Adverse Direct Reversible Minor	Low	Low	**Low (1)**		**Low (1)**

RECEPTOR	DESCRIPTION OF ACTIVITY	DESCRIPTION OF IMPACT	EFFECT/DESCRIPTION OF MAGNITUDE	VALUE OF SENSITIVITY	MAGNITUDE OF CHANGE	SIGNIFICANCE OF IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES	RESIDUAL IMPACT AFTER MITIGATION
			Short term Onsite Possible				waste management. Implement a culture of correct waste collection, waste segregation and waste disposal. Avoid hazardous waste onsite. Wastewater discharges will be contained – no disposal of wastewater or processing or tailings effluent.	
Terrestrial ecology and biodiversity	Vegetation clearing for access routes and exploration activities	Loss / alteration of terrestrial habitats and loss of species	Adverse Direct Reversible Minor Short term Onsite Possible	Low	Minor	**Low (2)**	Use existing roads for access to avoid new tracks. Minimise clearance areas through proper planning of the exploration activities, especially at drill areas. Where necessary, rescue and relocate plants of significance. Promote revegetation of cleared areas upon completion of exploration activities.	**Low (1)**

RECEPTOR	DESCRIPTION OF ACTIVITY	DESCRIPTION OF IMPACT	EFFECT/DESCRIPTION OF MAGNITUDE	VALUE OF SENSITIVITY	MAGNITUDE OF CHANGE	SIGNIFICANCE OF IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES	RESIDUAL IMPACT AFTER MITIGATION
Terrestrial ecology and biodiversity	Ambient noise as a result of machinery use (i.e. drill rigs), the diesel generator, and vehicle movement (also through the use of airborne equipment)	Residing, nesting and slow moving organisms can be disturbed	Adverse Direct Reversible Minor Short term Onsite Likely	Low	Low	**Low (1)**	Restrict excessive noise to areas of activities only. Restrict excessive noise to daytime hours (7 am to 5 pm weekdays and 7 am until 1 pm on Saturday) No activities between dusk and dawn. Exploration equipment shall be suitably positioned to ensure that noisy equipment is away from receptors. All equipment to be shut down or throttled back between periods of use. Respect civic aviation regulations about the use of a drone.	**Low (1)**
Terrestrial ecology and biodiversity	Increased movement of vehicles and equipment	Residing, nesting and slow-moving organisms can be disturbed, injured or killed	Adverse Direct Partly Reversible Moderate Short term Onsite	Low	Moderate	**Minor (3)**	Restrict movements to areas of activities only. Use existing tracks and routes only. Identify rare, endangered, threatened and protected	**Low (1)**

RECEPTOR	DESCRIPTION OF ACTIVITY	DESCRIPTION OF IMPACT	EFFECT/DESCRIPTION OF MAGNITUDE	VALUE OF SENSITIVITY	MAGNITUDE OF CHANGE	SIGNIFICANCE OF IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES	RESIDUAL IMPACT AFTER MITIGATION
			Possible				species in advance. Route new tracks around protected species and sensitive areas. Restrict movements to daytime hours. Make workers aware and notify them on avoiding some areas. No driving off designated access routes / off-road driving. No animals or birds may be collected, caught, consumed or removed from site.	
Terrestrial ecology and biodiversity	Veld fires during high wind periods	Terrestrial biodiversity destruction due to uncontrolled fire outbreaks	Adverse Direct Partly Reversible Moderate Temporary Onsite	High	Moderate	**Moderate (6)**	- No open fires are allowed to be lit by personnel associated with the proponent anywhere on the EPL outside of dedicated campsites. - The proponent to ensure that exploration campsites have proper cooking facilities available to use. Gas stoves are the	**Minor (4)**

RECEPTOR	DESCRIPTION OF ACTIVITY	DESCRIPTION OF IMPACT	EFFECT/DESCRIPTION OF MAGNITUDE	VALUE OF SENSITIVITY	MAGNITUDE OF CHANGE	SIGNIFICANCE OF IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES	RESIDUAL IMPACT AFTER MITIGATION
							preferred option. - No cigarette butts are allowed to be discarded into the environment. These should be contained in appropriate domestic containment bins and disposed of at the local landfill site. - No unauthorised movement beyond the exploration areas and campsites is allowed. - Proper fire hazard identification signage to be placed in areas that store flammable material (i.e. hydrocarbons and gasbottels)	
Terrestrial ecology and biodiversity	Increased disturbance of areas with natural vegetation	Alien species and weeds can be introduced to the area	Adverse Direct Reversible Minor Short term Onsite Possible	Low	Low	**Low (1)**	Monitor areas of activity for weed and alien species Eradicate weeds and alien species as soon as they appear Make workers aware about alien species and weeds	**Low (1)**
Soil	Vegetation clearing	Increased exposure due	Adverse Direct	Low	Moderate	**Minor (3)**	Ensure erosion control and prevention measures are in	**Low (1)**

RECEPTOR	DESCRIPTION OF ACTIVITY	DESCRIPTION OF IMPACT	EFFECT/DESCRIPTION OF MAGNITUDE	VALUE OF SENSITIVITY	MAGNITUDE OF CHANGE	SIGNIFICANCE OF IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES	RESIDUAL IMPACT AFTER MITIGATION
		to vegetation clearance can cause soil erosion	Reversible Moderate Short Term Onsite Possible				place when vegetation clearance is required, especially in upslope areas Where possible, plan access routes, drill pads and other activities outside of existing drainage lines Where necessary, install diversions to curb possible erosion Restore drainage lines when disturbed	
Soil	Exploration activities, heavy equipment and vehicles	Loss of soil quality due to mixing of earth matter, trampling and compaction	Adverse Direct Reversible Moderate Short term Onsite Possible	Low	Moderate	**Minor (3)**	Limit the possibility of compaction and creating of a hard subsurface Limit the possibility of trampling Compacted soil areas should be loosed by ripping methods Where possible, topsoil should be stockpiled separately, and re-spread during rehabilitation During exploration activities with heavy equipment, oil	**Low (1)**

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							absorbent matting should be placed under and around the equipment Equipment must be in a good condition to ensure that accidental oil spills do not occur and contaminate soil In the event of spills and leaks, polluted soils must be collected and disposed of at an approved site. Limit the possibility to mix mineral waste with topsoil.	
Heritage	Exploration activities, movement of machinery and vehicles	Potential damage to cultural heritage sites	Adverse Direct Partly Reversible Negligible Permanent Onsite Possible	High	Major	Major (12)	Implement a Chance Find Procedure. Raise awareness about possible heritage finds. Report all finds that could be of heritage importance. In case archaeological remains to be uncovered, cease activities and the site manager has to assess and demarcate the area.	Minor (4)

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							Project manager to visit the site and determine whether work can proceed without damage to findings, mark exclusion boundaries and inform ECC with GPS position. If needed, further investigation has to be requested for a professional assessment and the necessary protocols of the Chance Find Procedure have to be followed. Archaeologist will evaluate the significance of the remains and identify appropriate action, (record and remove; relocate or leave premises, depending on the nature and value of the remains). Inform the police if the remains are human. Obtain appropriate clearance or approval from the competent authority, if required, and recover and	

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							remove the remains to the National Museum or National Forensic Laboratory as directed.	
Community	Exploration activities, including dust and emissions	Visual disturbance and temporary reduction in the sense of place	Adverse Direct Reversible Negligible Temporary Local Likely	High	Moderate	Major (5)	Limit trenching and bulk sampling as far as possible Position heavy equipment in such a way that it is out of sight from human receptors Apply dust suppression where possible (drilling, loading, hauling, tipping) Restrict speed of vehicles (<30km/h) Specific activities that may generate dust and impact on residents shall be avoided during high wind events All vehicles and machinery / equipment to be shut down or throttled back between periods of use Barriers or fences shall be used if exploration occurs in	**Minor (4)**

RECEPTOR	DESCRIPTION OF ACTIVITY	DESCRIPTION OF IMPACT	EFFECT/DESCRIPTION OF MAGNITUDE	VALUE OF SENSITIVITY	MAGNITUDE OF CHANGE	SIGNIFICANCE OF IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES	RESIDUAL IMPACT AFTER MITIGATION
							locations that may affect people, livestock or wildlife Residents need to be informed at least two weeks in advance that exploration operations are within 1km of their property Maintain good housekeeping Continuous engagement with residents to identify any concerns or issues, and appropriate mitigation and management measures agreed upon	
Community	Movement of vehicles, exploration activities	Create conflict with farm owners and neighbours about access, leaving gates open, suspicious movements, loss of farming area, etc.	Adverse Indirect Reversible Minor Short term Onsite Likely	Low	Minor	**Low (1)**	Ensure documented permission to enter farms Farmers should have access to all farm areas at all times Residents shall be provided at least two weeks' notice of exploration operations within 1 km of their property Existing water points and feeding areas need to be left	**Low (1)**

RECEPTOR	DESCRIPTION OF ACTIVITY	DESCRIPTION OF IMPACT	EFFECT/DESCRIPTION OF MAGNITUDE	VALUE OF SENSITIVITY	MAGNITUDE OF CHANGE	SIGNIFICANCE OF IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES	RESIDUAL IMPACT AFTER MITIGATION
							unaffected Use existing roads for access, avoid new tracks, clearances Compliance with all applicable laws and agreements Continuous engagement with residents to identify any concerns or issues, and mitigation and management measures agreed upon	
Community	Movement of vehicles, exploration activities	Presence of exploration team can be blamed for stock theft and poaching	Adverse Cumulative Reversible Minor Temporary Local Unlikely	Low	Minor	**Low (2)**	Develop and implement an operations manual of procedures to work on private farms and implement monitoring programmes thereafter. Maintain continuous engagement with residents to identify any concerns or issues, and appropriate mitigation and management measures agreed upon. Ensure appropriate supervision of all activities.	**Low (1)**

RECEPTOR	DESCRIPTION OF ACTIVITY	DESCRIPTION OF IMPACT	EFFECT/DESCRIPTION OF MAGNITUDE	VALUE OF SENSITIVITY	MAGNITUDE OF CHANGE	SIGNIFICANCE OF IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES	RESIDUAL IMPACT AFTER MITIGATION
							Raise awareness and sensitize employees about contentious issues such as stock theft and poaching. Accidents and incidents need to be reported to the project manager and recorded in an incident register.	
Community and livestock	Airborne EM survey over the EPL, possible low flying, coarse line spacing => 1km	Perceived impact from low-flying EM survey activities on livestock and humans	Adverse indirect Reversible Minor Temporary Local Unlikely	Low	Minor	**Low (2)**	Prior to conducting aerial surveys, both directly and indirectly affected parties should be informed in writing of exploration activities at least 2 weeks prior to conducting the aerial surveys. The following information is to be included in the written communication sent. This can be in the form of a Press Notice. – Company name, – Survey dates, time and duration, – Purpose of the survey, – Flight altitude, – Survey location, Map of	**Low (1)**

RECEPTOR	DESCRIPTION OF ACTIVITY	DESCRIPTION OF IMPACT	EFFECT/DESCRIPTION OF MAGNITUDE	VALUE OF SENSITIVITY	MAGNITUDE OF CHANGE	SIGNIFICANCE OF IMPACT	IMPACT MANAGEMENT/CONTROL MEASURES	RESIDUAL IMPACT AFTER MITIGATION
							survey area and flight lines, and – Contact details for enquiries.	
Community	Exploration activities	Triggers job creation, skills development and opportunities for the local economy	Beneficial Direct Reversible Minor Short term Local Possible	Low	Minor	**Low (2)**	Maximize local employment. As far as possible promote local procurement. Enhance development of local skills where possible.	**Low beneficial**

8 ENVIRONMENTAL MANAGEMENT PLAN

The EMP for the proposed project is presented in Appendix A. It provides management options to ensure the impacts of the proposed project are minimised. An EMP is a tool used to take pro-active action by addressing potential problems before they occur. This should limit the corrective measures needed, although additional mitigation measures might be included if necessary.

The management measures should be adhered to during all stages of the exploration activities. All persons involved and partaking in the proposed activities should be made aware of the measures outlined in the EMP to ensure activities are conducted in an environmentally responsible manner.

The objectives of the EMP are:

- To include all components of the development and operations of the project;
- To prescribe the best practicable control methods to lessen the environmental impacts associated with the project;
- To monitor and audit the performance of operational personnel in applying such controls; and
- To ensure that appropriate environmental training is provided to responsible operational personnel.

9 CONCLUSION

ECC's EIA methodology was used to undertake the environmental assessment for the proposed project to identify if there is potential for significant effects to occur as a result of the proposed project. Through the scoping process, the only risk to the environment was the potential for visual impacts and noise levels to increase thereby impacting human receptors in the area. All other social and environmental receptors were scoped out as significant effects were unlikely and therefore no further assessment was deemed necessary. Through further analysis and identification of mitigation and management methods, the assessment concludes that the likely significance of effects on humans from noise impacts is expected to be minor and prior awareness and communication about the project shall be encouraged. Various best practice and mitigation measures have been identified to avoid and reduce effects as far as reasonably practical, as well as ensure the environment is protected and unforeseen effect and environmental disturbances are avoided.

On this basis, it is of the opinion of ECC that an environmental clearance certificate could be issued, on conditions that the management and mitigation measures specified in the EMP are implemented and adhered to.

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