Application for a Mining Right and Associated Environmental Authorisation and Waste Management Licence (WML) for the proposed mining of granite on a Portion of Zwart Modder Mountain No. 446 (445) in the Kai! Garib Local Municipality, Northern Cape Province

Draft Scoping Report

DMR Reference Number: NC 30/5/1/2/2/10193 MR

Report Prepared for

Golden Tropic Mining (Pty) Ltd

Report Prepared by

GEOLOGICAL CONSULTING SERVICES PTY (LTD)

June 2021

Title:	*Draft Scoping Report for Application for a Mining Right and Associated Environmental Authorisation and Waste Management Licence (WML) for the proposed mining of granite on a Portion of Zwart Modder Mountain No. 446 (445) in the Kai! Garib Local Municipality, Northern Cape Province*
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Applicant	*Golden Tropic Mining (Pty) Ltd* *304 Manhattan Quarter* *Esplande Rd* *Century City* *WC* *7441*

Executive Summary

Introduction

Golden Tropic (Pty) Ltd (Golden Tropic) applied for a Mining Right (MR) (Department of Mineral Resources (DMR) Ref: NC 30/5/1/2/2/10193 MR) for the proposed mining of granite on a Portion of Zwart Modder Mountain No. 446 (445), Northern Cape Province.

The proposed mining project will cover an area of 2 627.28 hectares on a Portion of Zwart Modder Mountain No. 446 (445), which is located approximately ±45km North East of Pofadder in the Northern Cape Province.

Exploration work conducted on the proposed mining area included bulk sampling and some small-scale mining. These activities have led to the identification of granite deposits that are deemed feasible to mine. Golden Tropic is therefore applying for a MR right in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 22 of 2002) (MPRDA) from the Department of Mineral Resources Northern Cape Province (DMR) Regional Office for granite mining on a Portion of Zwart Modder Mountain No. 446 (445). Before the MR will be granted, Golden Tropic must also undertake an Environmental Authorisation (EA) and Waste Management Licence (WML) processes in terms of the National Environmental Management Act (Act No. 107 of 1998) (NEMA) and the National Environmental Management: Waste Act (Act No. 59 of 2008) (NEM: WA).

The project triggers activities listed in terms of Listing Notice 1, 2 and 3 of the NEMA (as amended) and will require an EA from the DMR. The proposed waste rock dump, residue stockpiles/deposits and waste management facilities will trigger activities listed in GNR 921 (Category A and B) of the NEM: WA and will therefore require a WML from the DMR. An integrated application for an EA and WML will be conducted where a full Environmental Impact Assessment (EIA) including Scoping and Impact Assessment will be followed as stipulated in GNR 326 of the NEMA and GNR921 of the NEM: WA.

Who is conducting the EIA?

Ndi Geological Consulting Services (Pty) Ltd has been appointed by Golden Tropic the independent Environmental Assessment Practitioner (EAP) to conduct the MRA/EA/WML application process for the project.

The reports and documentation for the integrated EA/WML application process will be compiled and finalised for submission to the DMR for the EA/WML in terms of the NEMA for consideration and decision making. The DMR will consult with other government authorities as required in terms of Section 24(K) of the NEMA.

Who will evaluate the EIA?

Before the proposed development can proceed, approval must be obtained from the regulatory authorities. The Scoping Report will be submitted to the DMR for review. The competent authorities will then advise the project team as to how the project should proceed for the impact assessment phase of the project. The impact assessment phase will entail detailed specialist investigations, reporting and further stakeholder involvement. Only once a Final Environmental Impact Assessment and Environmental Management Programme (EIA/EMPr Report) have been submitted to DMR can a decision be taken by the Department as to whether the project may proceed or not.

Description of the Proposed Development

The choice of mining method in a dimension stone quarry is largely affected by the geology of the deposit. Boulder formations will largely be quarried by means of splitting methods, especially by means of the use of blasting gunpowder, while solid formations will require the at least some application of one or more cutting methods in order to loosen large benches from the solid formation. In general, in marbles, slates, sandstones and quartzites mining will be by non-explosive splitting and cutting techniques, while in granites blasting

techniques may be applied. The physical properties of the stone are likely to determine what type of explosives will be applied.

Processing will involve cutting and dressing of the granite. There will be no processing taking place on site.

It must be noted that most of the required infrastructure exists already in the area which will require upgrading or expansion only. The infrastructure includes:

- *Access roads: The mining right area is accessed via the N14 road from Kakamas to Springbok which intersects with a secondary road to Onseepkans Settlement. Access and haul roads in the mining area and to the plant have been created.*
- *Electricity: The mine currently makes use of power generators and Eskom electricity to supply power to the workshops, offices and sorting and dressing areas as well as other mining areas.*
- *Water: Mine process and potable water will be abstracted through boreholes and stored on site in 5 000 litre bottles, balancing dams, reservoir and storage dams at the quarries.*

Other existing infrastructure in the mine area include:

- *Quarries*
- *Living quarters*
- *Offices*
- *Workshops*

The MR will be required for ten (10) years.

Motivation for the Proposed Project

The mining industry is of great importance to the South African economy. According to the DMR, in 2004, the total export earnings from granite was approximately R 342 million, with Italy being the greatest single importer of South African granite. International markets for the granite products have already been identified, where the cut granite will be exported from the Cape Town harbour where they will be further cut. Locally the product is being sold at the mine.

The mineral extraction of granite is considered by Golden Tropic to be in the best interest of the public at large by generating earning power both locally and internationally, and as well as creating significant alternative employment opportunities in the area.

Alternatives Considered

The alternatives considered were as follows:

- *Location: The location of the open cast mine and underground mining area is constrained to the location of the mineral resource, and proven reserve. The granites in this area are considered to have potential as sources of dimension stone. They are also part of the Swartmodder Granite. The colours of the granite vary from terra-cotta red through pinkish to dark grey. Exploration work conducted on the proposed mining area included bulk sampling and some small-scale mining. These activities have led to the identification of granite deposits that are deemed feasible to mine. As such, the site is therefore regarded as the preferred site and alternatives are not considered.*
- *Type of Activity: An alternative to the type of activity would be agriculture and mining. The land use alternatives will be investigated in more detail in the impact assessment phase of the process.*
- *Design or Layout of the Activity: The design or layout of a mining project is determined by the shape, position and orientation of the mineral resource. Best practice dictates that it is better to mine and*

rehabilitate the area sequentially in mining blocks, as this minimises the disturbance to the mining blocks once they have been rehabilitated. The significance of the environmental impacts associated with different possible design or layout alternatives would be very similar. However, the significance of the impacts will be investigated in depth during the impact assessment phase of the project.

- *The Technology to be used in the Activity: The technology used in a mining project is determined by the shape, position and orientation of the mineral resource. This mining operation can be classified as quarrying the open or surface excavation of granite. Quarrying starts from the earth's surface and maintains exposure to the surface throughout the extraction period. For both access and safety, the excavation usually has stepped or benched side slopes. Quarrying methods depend mainly on the desired size and shape of the stone and its physical characteristics and the main equipment used are diamond saws (Rotary saws). An alternative would be wire saws.*
- *The Operation Aspects of the Activity: The operational plan for the mine is based on the international demand per granite colour. The road access routes proposed will need to be negotiated with the landowners affected by the MRA and the conclusions from the negotiations will be included in the Draft EIA Report.*
- *No-go Option: The no-go alternative would entail not mining the granite and leaving the landuse in the area as agriculture and mining. Should the proposed mining development not take place, it entails that the land will continuously be used for agriculture and mining, depending on the landowners needs and desirability for the future. Agriculture is undoubtedly one of the most important sectors in South Africa, with agriculture contributing to Kai !Garib's, as is noted in the LM's IDP, Northern Cape Province and South Africa's Gross Domestic Product (GDP), but not nearly as much as the mining sector.*

  By not implementing this project the local economic and employment opportunities and revenue as well as the mined granite which could potentially have benefitted the economy would be lost.

  The socio-economic impacts of no implementing the project include local, regional and more than likely national impacts:

  - *Local and regional: planned socio-economic initiatives within the surrounding communities would not be able to go ahead; and*
  - *National: Loss opportunities in foreign exchange for South Africa will be incurred as the potential to sell the granite internationally will be lost.*

  Although not fully assessed at this time, the additional potential negative impacts on the environment associated with granite mining would not exist should the project not be implemented. The environmental, social and economic impacts will be assessed in detail during the impact assessment phase to identify and address all negative impacts, where possible.

All the identified alternatives will be assessed in detail in the specialist studies and impact assessment phase.

Environmental Impact Assessment Process

An EIA seeks to identify the environmental consequences of a proposed project from the beginning, and helps to ensure that the project, over its life cycle, will be environmentally acceptable, and integrated into the surrounding environment in a sustainable way. The project triggers activities listed in Listing Notice1, 2 and 3 of the NEMA and Category A and B of GNR921 of the NEM: WA and requires that a full EIA (scoping and impact assessment phases) be conducted.

Two parallel processes are followed during the scoping phase being the Environmental technical process and Stakeholder engagement process. This report is the draft Scoping Report and forms one of the first steps in the scoping process after which the EIA phase will be initiated. A summary of this process is shown in Figure ES-1.

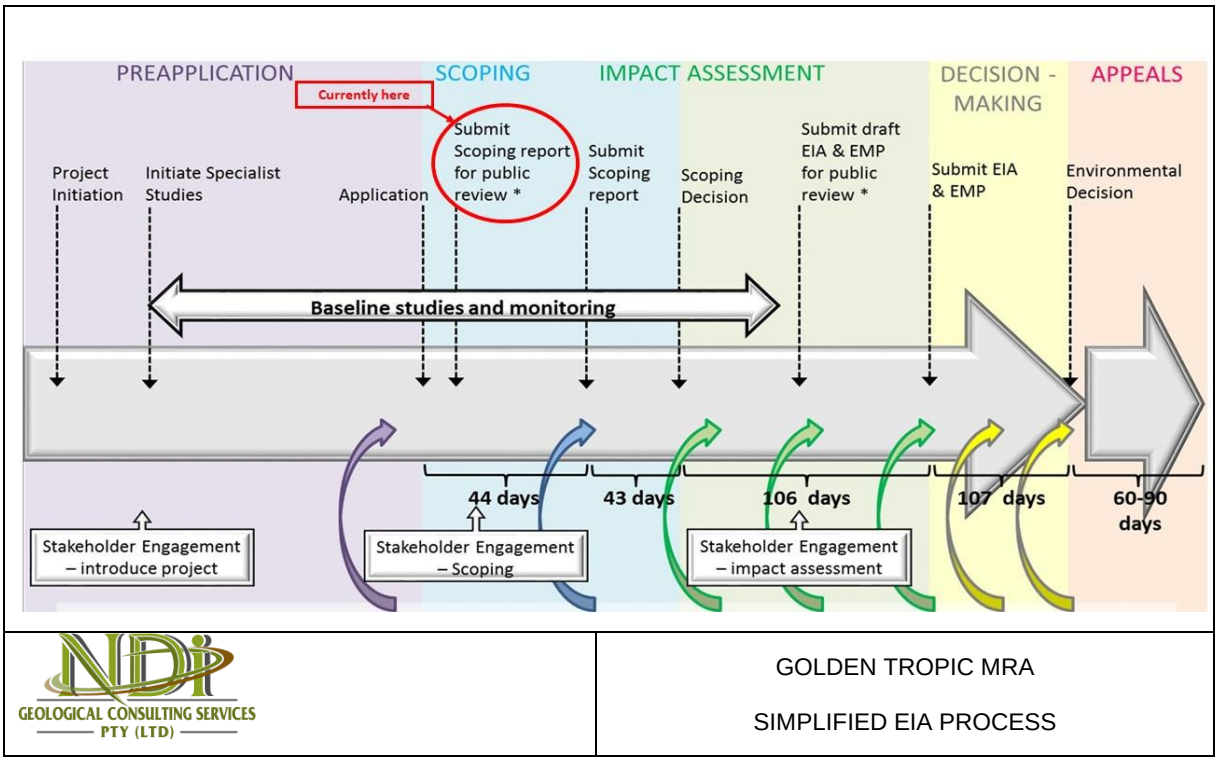

Figure ES-1: Illustration of the EIA process to be followed

Stakeholder Engagement Process

Activities that have been undertaken for the public involvement process during the scoping phase are:

- *Identification of Interested and Affected Parties (I&APs) and development of a stakeholder database: I&APs were identified using GIS and cadastral information to identify affected and adjacent properties. The affected and adjacent property owners were identified using the surveyor general website, www.deedsweb.gov.za. In addition, registered I&AP's were also sourced from responses to the advertisements, site notices and written notification to I&AP's associated with the project. The I&APs register will be maintained for the duration of the study where the details of stakeholders are captured and automatically updated upon communication to the EAP. The identification, registration, and comments from I&APs will be an on-going activity.*

The opportunity to participate in the EIA and to register as an Interested and Affected Party (I&AP) was announced through the following means:

- *Letter of invitations to register and background information documents;*
- *Newspaper advertisements;*
- *Site notices erected at several places in and around the proposed prospecting area;*
- *Collation of comments received into a Comments and Responses Register (CRR); and*
- *Obtaining and documenting registration and comment sheets.*

The Draft Scoping Report will be made available for a 30-day commenting period. All issues, comments and suggestions received from stakeholders will be reviewed and collated into a CRR. Where necessary, comments from stakeholders will also be incorporated into the Final Scoping Report that will be submitted to the DMR for decision-making. Should it be required, a public meeting will be held during the Scoping Phase of the project.

Once the DMR has accepted the Final Scoping Report, the EAP will compile the EIA/ EMPr Report, which will also be made available to the stakeholders for a 30-day review and comment period. Where required, a public meeting to discuss the findings from the specialist studies and impact assessment phase will be held. Comments received will be incorporated into the Final EIA/EMPr Report which will be submitted to the DMR for decision making. The comments will also be collated into the CRR, which will form an Appendix to the EIA/EMPr Report.

The stakeholders will be notified of DMR's final decision on the project once it has been communicated to the EAP and applicant (Golden Tropic).

Profile of the receiving environment

The scoping report provides a general description of the status quo of the receiving environment in the project area. It serves to set the scene and provide context to the area within which the scoping exercise was conducted. This section also includes the main issues/impacts associated with each aspect and how the proposed project will affect the biophysical and social environment. A summary of the main baseline aspects is included in Table ES-1, with more detail included in Section 11 of the report

Table ES-1: Summary of the Profile of the Receiving Environment

Aspect	***Description***
Geographical	*The proposed project area is situated in the Kai !Garib Local Municipality's area of jurisdiction, within the ZF Mgcawu District Municipality, Northern Cape Province. The project is located approximately 45km North East of Pofadder.*
Topography	*The 20 m contours show that the north-eastern section of the project site has a flatter gradient compared to the north-western, south western and south-eastern sections*
Climate	*The climate is continental and is little affected by the ameliorating influences of the oceans.* • *The highest maximum temperature is experienced during December, January, February and March where the average maximum goes beyond 32 °C.* • *The coldest months of the year are June and July, where the average temperature drops well below 10 °C.* • *The highest rainfall months are January to February with an average of ±20mm; and* • *The dry months are June and September with an average of below 5mm.*
Geology	*The proposed mining area is geologically located within the Bushmanland Group of the Namaqualand Metamorphic Complex which comprises of granitic gneiss as the majority lithology. The granites in this area are considered to have potential as sources of dimension stone. They are also part of the Swartmodder Granite. The colors of the granite vary from terra-cotta red through pinkish to dark grey.*
Land use and land capability	*The current landuse on the affected properties is farming and mining.*
Biodiversity	*The proposed mining area is located in the Nama Karoo Biome. The Nama Karoo Biome is a vast, open, arid region dominated by low-shrub vegetation and abundance of rock. Although not remarkably rich in species or endemism, the flora and fauna of the region are surprisingly adapted to its climatic boundaries. The major pressure to*

Aspect	***Description***
	biodiversity is posed by overgrazing farm animals, introduction of alien species of plants, mining and conversion of native habitat to agriculture. In this biome the temperatures can vary dramatically between day and night times. This biome is dominated by low growing shrubs. Reptiles and small invertebrates are common. *The proposed mining area is located in the Bushmanland Bioregion. The Bushmanland Bioregion occurs from the north-eastern part of the Namaqualand area in the west to around Prieska in the east and from around Upington in the north to the Brandvlei/Sak River vicinity in the south.* *According to the SANBI remaining vegetation types database, there is no remaining natural vegetation on the affected area.* *The proposed site is associated with ecosystems that are considered to be threatened. The threatened ecosystems associated with the site are the Bushmanland Arid Grassland, Blouputs Karroid Grassland and Lower Gariep Broken Veld.*
Heritage Resources	*Heritage resources may be tangible, such as buildings and archaeological artefacts or intangible such as landscapes and living heritage. Their significance is based upon their aesthetic, architectural, historical scientific, social, spiritual, linguistic economic or technological values; their representation of a particular period; their rarity and their sphere of influence. There are a number of heritage and cultural resources in the Northern Cape Province.* *A site specific Heritage Impact Assessment (HIA) will be conducted where potential impacts on heritage resources will be assessed in the impact assessment phase of the project and mitigation measures to be implemented in the event that heritage and cultural resources are encountered will be included in the EMPr*
Noise	*The MRA area is located in a rural area and the typical noise rating in the area is expected to be that for rural districts / suburban districts with little road traffic. According to SANS 10103:2008, the continuous noise rating level is thus likely between 35 dB(A) at night to 45 /50 dB(A) during the day.*
Wetlands	*The SANBI data shows that there are no wetlands occurring on the study area.*
Conservation Plan	*According to the Northern Cape Provincial Biodiversity Conservation Plan (C Plan), a portion of the affected property is classified as a Critical Biodiversity Area (CBA (areas required to meet biodiversity targets for ecosystems, species and ecological processes, as identified in a systematic biodiversity plan).* *The Namakwa District CPlan shows that a portion of the affected area is classified as an Ecological Support Area (ESA). Ecological Support Areas are not essential for meeting biodiversity targets but play an important role in supporting the ecological functioning of Critical Biodiversity Areas (CBAs) and/or in delivering ecosystem services.*
Protected Areas	*There are no protected areas or important bird areas affected by the proposed prospecting activities.*
Surface water	*The project is located within quaternary catchments, which include C81E (located within the Lower Orange Water Management Area (WMA). The Samoep River and several tributaries and drainage lines traverse the project area. The Samoep River is not considered a Freshwater Ecosystem Priority Area (FEPA).*

Aspect	*Description*
Groundwater	*According to the DWS National Groundwater Archives the groundwater in the area is classified as follows:* • *Groundwater Recharge is considered low, between 0 and 1 000mm/yr. This is expected due to the dry and hot climate in the area.* • *Groundwater Quality area is generally of poor quality, with Electrical Conductivity (EC) levels between 300 and 1 000 mS/m.* • *Groundwater Yield in the project area is low and is between 0.1 and 0.5l/s and that the aquifer is intergranular and fractured /s*

Anticipated Impacts

*Table ES-2*Table 13-2 *provides a high-level assessment of the potential impacts and associated mitigation measures which could result from the proposed prospecting during construction, operation and decommissioning/closure. These impacts will be further refined and assessed according to the impact assessment methodology in Section 14 .*

Table ES – 2: Anticipated Impacts

Element of Environment	*Potential Impact Descriptions*
Socio-Economic	*Possible job opportunities during the construction and operation.*
Hydrogeology	*Possible groundwater contamination.*
Surface water	*Possible surface water contamination.*
Aquatic ecosystems and riparian areas	*Possible impacts on aquatic ecosystems and riparian areas*
Air Quality	*Possible impact on Air Quality in the area.*
Climate Change	*Possible contribution to climate change through emission of Green House Gases*
Vibrations	*Possible impacts on private properties and fauna due to vibrations*
Noise	*Possible generation of noise during construction and operation.*
Soils/Land Use/Land Capability	*Loss of soil resource and change in land capability and land use.*
Biodiversity	*Disturbance and loss of biodiversity, especially SCC.*
Aquatic ecology	*Possible loss, sedimentation and contamination of aquatic resources*
Heritage	*Possible impact on heritage and cultural resources (including graves) in the area.*
Traffic	*Potential safety issues due to the increased traffic.*
Cumulative Impacts	*Cumulative Impacts*

Specialist Studies

A number of specialist studies have been conducted in the proposed project area. Findings from these studies will be incorporated into the impact assessment phase. A heritage assessment conducted for the previous application will be used.

Based on the outcomes of the DEFF screening tool and associated protocols for specialist assessment, specialist themes for which the site is rated as being of Low or Medium sensitivity generally require a "Compliance Statement" by the EAP or specialist. Those rated as High or Very High sensitivity will require detailed Specialist Impact Assessment to describe aspects of the baseline and assess potential impacts of the project. Based on the findings of the screening tool, the following specialist studies will be conducted:

- *Terrestrial Biodiversity (flora and fauna);*
- *Heritage Resources and Palaeontology*; and
- *Aquatic Biodiversity studies.*

In addition, the following will continue during the EIA phase:

- *Public participation and consultation;*
- *Environmental Management Programme;*
- *Comparative alternatives assessment; and*
- *Amend site layout designs and Mining Works Programme, if required.*

Certain impacts that are anticipated to be of limited or lower significance, either by virtue of the scale of the impacts, their short duration (e.g. construction phase only), disturbed nature of the receiving environment and/or distance to communities, will be assessed by EAP Team and have been reported directly into the EIA Report.

The EAP will make use of the impact assessment methodology described in Section 14 and will ensure that the specialist studies reports comply with the requirements of Appendix 6 of the NEMA.

Quantification of Impacts

The anticipated impacts associated with the proposed project will be assessed according to a standardised impact assessment methodology which is presented Section 14. This methodology has been utilised for the assessment of environmental impacts where the consequence (severity of impact, spatial scope of impact and duration of impact) and likelihood (frequency of activity and frequency of impact) have been considered in parallel to provide an impact rating and hence an interpretation in terms of the level of environmental management required for each impact.

Plan of Study for the EIA

The Scoping Report is concluded with a Plan of Study (PoS) for the EIA which explains how the EIA will be conducted for the project in accordance with the following:

- *Key environmental issues identified during the scoping phase to be investigated further in the EIA phase;*
- *Specialist studies to be undertaken;*
- *Where applicable, feasible alternatives to be assessed further in the EIA phase;*
- *Development of a Waste Management Plan as part of the EMPr;*
- *The public participation process to be followed;*
- *Contents of the EIA/EMPr Report; and*
- *Consultation with the authorities.*

Conclusion and Recommendation

The aim of this Scoping Report is to provide an indication of the identified, positive and negative environmental and socio-economic impacts associated with the proposed project activities. The stakeholder engagement in the Scoping Phase will play an important role in determining possible impacts and allowing the concerns by the public to be adequately addressed in the Impact Assessment Phase of the EIA process. The Draft Scoping Report has presented:

- *The environmental process undertaken so far;*
- *A brief description of the proposed project;*
- *A baseline description of the current environment;*
- *The potential environmental and social impacts identified to date; and*
- *The recommended environmental process to be followed to develop the EIA/EMPr Report (Plan of Study).*

A comprehensive public involvement process will be implemented during scoping. The EIA process is; however, iterative and therefore additional potential issues/impacts and alternatives may be identified during the impact assessment phase that may require further investigation/consideration. Once the Scoping Report comment period is concluded, the report will be updated with the additional issues, and submitted to DMR. An EIA/ EMPr Report will be compiled and subjected to a round of public comment. The EIA will then be presented to the authorities for decision-making. On submission of the EIA/ EMPr Report to the DMR, notification will be sent to registered I&AP's to inform them of the submission of the documents; and the opportunity to request copies of the Final reports.

Extensive consideration has been given to the proposed design of the project. No fatal flaws have been identified during the scoping phase of this project. A comprehensive impact assessment will be undertaken and incorporated into the EIA/EMPr Report during the impact assessment phase. The proposed comprehensive stakeholder engagement process in the PoS will ensure that the stakeholders are involved in the process, from the conception of the EA/WML application process to the end. It is anticipated that implementation of the PoS presented in this report will result in an adequate EIA process which will result in the formulation of a sound EMPr to be implemented at the proposed mine.

It is anticipated that implementation of the PoS presented in this report will result in an adequate EIA process which will result in the formulation of a sound EMPr to be implemented throughout the mining activities by Golden Tropic.

The process followed during the detailed impact assessment phase will meet the requirements of the legislation to ensure that the DMR receives enough information to enable informed decision-making.

YOUR COMMENT ON THE SCOPING REPORT

This Draft Scoping Report will be available for comment for a period of 30 days from 14 June 2021 to 16 July 2021. Copies of the Scoping Report have been made available at the following public places for review

Public Place	Locality	Telephone
Ndi Geological website	http://www.ndigeoservices.co.za/	053 842 0687

An electronic copy will also be available on CD on request from the stakeholder engagement officers. I&AP's are requested to provide comments and information on the following aspects of the proposed project:

1. Information on how I&AP's consider that the proposed activities will impact on them or their socio-economic conditions;
2. Written responses stating their suggestions to mitigate the anticipated impacts of each activity;
3. Information on current land uses and their location within the area under consideration;
4. Information on the location of environmental features on site to make proposals as to how and to what standard the impacts on site can be remedied; and
5. How to mitigate the potential impacts on their socio-economic conditions and to make proposals as to how the potential impacts on their infrastructure can be managed avoided or remedied.

DUE DATE FOR COMMENT

16 July 2021

Please submit comments to the EAP:

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Disclaimer

The opinions expressed in this Report have been based on the information supplied to Ndi Geological Consulting Services (Pty) Ltd by Golden Tropic (Pty) Ltd (Golden Tropic). The opinions in this Report are provided in response to a specific request from Golden Tropic to do so. Ndi Geological Consulting Services (Pty) Ltd has exercised all due care in reviewing the supplied information. Whilst Ndi Geological Consulting Services (Pty) Ltd has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. Ndi Geological Consulting Services (Pty) Ltd does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features as they existed at the time of Ndi Geological Consulting Services (Pty) Ltd.'s investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report, about which Ndi Geological Consulting Services (Pty) Ltd had no prior knowledge nor had the opportunity to evaluate.

List of abbreviations

CA:	Competent Authority
CRR:	Comments and Responses Register
DEFF:	Department of Environment, Forestry and Fisheries
DMR:	Department of Mineral Resources
DMS:	Dense Media Separation
DWS:	Department of Water and Sanitation
EA:	Environmental Authorisation
EAP:	Environmental Assessment Practitioner
EIA:	Environmental Impact Assessment
EIAR:	Environmental Impact Assessment Report
EMPr:	Environmental Management Programme
EMPr:	Environmental Management Programme
GDP:	Gross Domestic Product
I&APs:	Interested and Affected Parties
IDP:	Integrated Development Plan
IWUL:	Integrated Water Use Licence
LM:	Local Municipality
Mamsl:	meters above mean sea level
MPRDA:	Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002)
NEM: WA:	National Environmental Management: Waste Act, 2008 (Act 59 of 2008)
NEMA:	National Environmental Management Act, 1998 (Act 107 of 1998)
NFEPA:	National Freshwater Ecosystems Priority Areas
PAIA:	Promotion of Access to Information Act (Act No. 2 of 2000)
PHRA:	Provincial Heritage Resources Agency
PoS:	Plan of Study
PPE:	Personal Protective Equipment

PVC:	Polyvinyl chloride
SAHRA:	South African Heritage Resources Agency
SCC:	Species of Conservation Concern
SDF:	Spatial Development Framework
WMA:	Water Management Area
WML:	Waste Management Licence

mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

SCOPING REPORT

FOR LISTED ACTIVITIES ASSOCIATED WITH THE PROPOSED MINING OF GRANITE ON THE PORTION OF ZWART MODDER MOUNTAIN NO. 446 (445) IN THE KAI !GARIB LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT, 2008 IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMENDED).

NAME OF APPLICANT	Golden Tropic (Pty) Ltd
TEL NO	082 572 4274
FAX NO:	053 832 5018
POSTAL ADDRESS	48 Aviva Road, Hillcrest, Kimberley, 8301
PHYSICAL ADDRESS	48 Aviva Road, Hillcrest, Kimberley, 8301
FILE REFERENCE NUMBER SAMRAD	NC 30/5/1/2/2/10193 MR

IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 as amended), the Minister must grant a prospecting or Mining Right if among others the mining "will not result in unacceptable pollution, ecological degradation or damage to the environment".

Unless an Environmental Authorisation can be granted following the evaluation of an Environmental Impact Assessment and an Environmental Management Programme report in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA), it cannot be concluded that the said activities will not result in unacceptable pollution, ecological degradation or damage to the environment.

In terms of section 16(3)(b) of the EIA Regulations, 2014, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and in terms of section 17 (1) (c) the competent Authority must check whether the application has taken into account any minimum requirements applicable or instructions or guidance provided by the competent authority to the submission of applications.

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or permit are submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore, please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused.

It is furthermore an instruction that the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the applicant.

OBJECTIVE OF THE SCOPING PROCESS

1) The objective of the scoping process is to, through a consultative process—

(a) identify the relevant policies and legislation relevant to the activity;

(b) motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;

(c) identify and confirm the preferred activity and technology alternative through an impact and risk assessment and ranking process;

(d) identify and confirm the preferred site, through a detailed site selection process, which includes an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified alternatives focusing on the geographical, physical, biological, social, economic, and cultural aspects of the environment;

(e) identify the key issues to be addressed in the assessment phase;

(f) agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site; and

(g) identify suitable measures to avoid, manage, or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

_____

1 Project background

Golden Tropic (Pty) Ltd (Golden Tropic) applied for a Mining Right (MR) (Department of Mineral Resources (DMR) Ref: NC 30/5/1/2/2/10193 MR) for the proposed mining of granite on a Portion of Zwart Modder Mountain No. 446 (445), Northern Cape Province.

The proposed mining project will cover an area of 2 627.28 hectares and is located approximately ±45km North East of Pofadder.

Exploration work conducted on the proposed mining area included bulk sampling and some small-scale mining. These activities have led to the identification of granite deposits that are deemed feasible to mine. Golden Tropic is therefore applying for a MR right in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 22 of 2002) (MPRDA) from the Department of Mineral Resources Northern Cape Province (DMR) Regional Office for granite mining on a Portion of Zwart Modder Mountain No. 446 (445). Before the MR will be granted, Golden Tropic must also undertake an Environmental Authorisation (EA) and Waste Management Licence (WML) processes in terms of the National Environmental Management Act (Act No. 107 of 1998) (NEMA) and the National Environmental Management: Waste Act (Act No. 59 of 2008) (NEM: WA).

The Department of Forestry and Fisheries and the Environment (DFFE) has identified the need for the alignment of environmental authorisations and has promulgated a single environmental management system under NEMA whereby the DMR has become the competent authority for the authorisation of mining-related projects under the NEMA Environmental Impact Assessment (EIA) Regulations. This will result in simultaneous decisions in terms of NEMA and other environmental management Acts. The competent authority for the EA/WML process is the DMR.

Golden Tropic appointed Ndi Geological Consulting Services (Pty) Ltd (Ndi Geological) as the independent Environmental Assessment Practitioner (EAP) to facilitate the EA/WML process for the proposed granite mining project (Please refer to **Error! Reference source not found.** for a copy of the EAP's Declaration of Interest).

Before an EAP submits a final report, they must have given registered I&APs access to, and an opportunity to comment on the report prior to the submission of the final report to the competent authority for approval. The registered I&APs will be provided with an opportunity to review and comment on this draft Scoping Report and the draft Impact Assessment Report once the Scoping Report has been finalised and approved by the DMR.

The reports and documentation for the integrated EA/WML application process will be compiled and finalised for submission to the DMR for the EA/WML in terms of the NEMA for consideration and decision making. The DMR will consult with other government authorities as required in terms of Section 24(K) of the NEMA.

2 Purpose and context of this document

The project triggers activities listed in terms of Listing Notice 1, 2 and 3 of the NEMA (as amended) and will require an EA from the DMR. The proposed waste rock dump, residue stockpiles/deposits and waste management facilities will trigger activities listed in GNR 921 (Category A and B) of the NEM: WA and will therefore require a WML from the DMR. An integrated application for an EA and WML will be conducted where a full Environmental Impact Assessment (EIA) including Scoping and Impact Assessment will be followed as stipulated in GNR 326 of the NEMA and GNR921 of the NEM: WA.

This document serves as the draft Scoping Report for the first phase of the overall EIA process and includes the following objectives as a minimum:

- To establish the legal framework relevant to the proposed project;
- To identify and engage with Interested and Affected Parties (I&APs) and allow for adequate participation in the process;
- To assess the receiving environment in terms of current state and determine potential positive or negative impacts which may result due to the proposed development;
- To consider alternatives for achieving the project's objectives;
- To identify significant issues to be investigated further during the execution of the EIA phase; and
- To determine the scope of the EIA phase, specialist studies, public participation, assessment of impacts and alternatives; and allow for informed decision-making regarding the EIA process.

2.1 Integrated Environmental Authorisation and Waste Management Licence Application Process

The first Phase of the EA/WML application process is the scoping phase, which will inform the Impact Assessment Phase. This Phase provides Interested and Affected Parties (I&AP's) an opportunity to provide the EAP with issues and concerns with respect to the proposed project in order to inform the technical studies so that they can evaluate these concerns during the EIA Phase of the project.

This Scoping Report provides a description of the proposed project and sets out the proposed scope of the EIA and EMPr that will be undertaken for the proposed project. This includes alternatives that will be evaluated for various aspects of the project, the anticipated potential environmental impacts, issues raised by stakeholders, the specialist studies that will be undertaken including the terms of reference of the specialist studies, and the qualifications and experience of the study team.

Stakeholder engagement is a key element of the environmental decision-making process, and stakeholder engagement forms part of the scoping phase as well as the impact assessment phase.

The Draft Scoping Report will be made available for public review prior to submission to DMR for decision making. All the comments received will be captured and addressed where feasible in the final Scoping Report as well as the EIAR/EMPr Report.

Figure 2-1 provides an illustration of the proposed EIA process that will be followed.

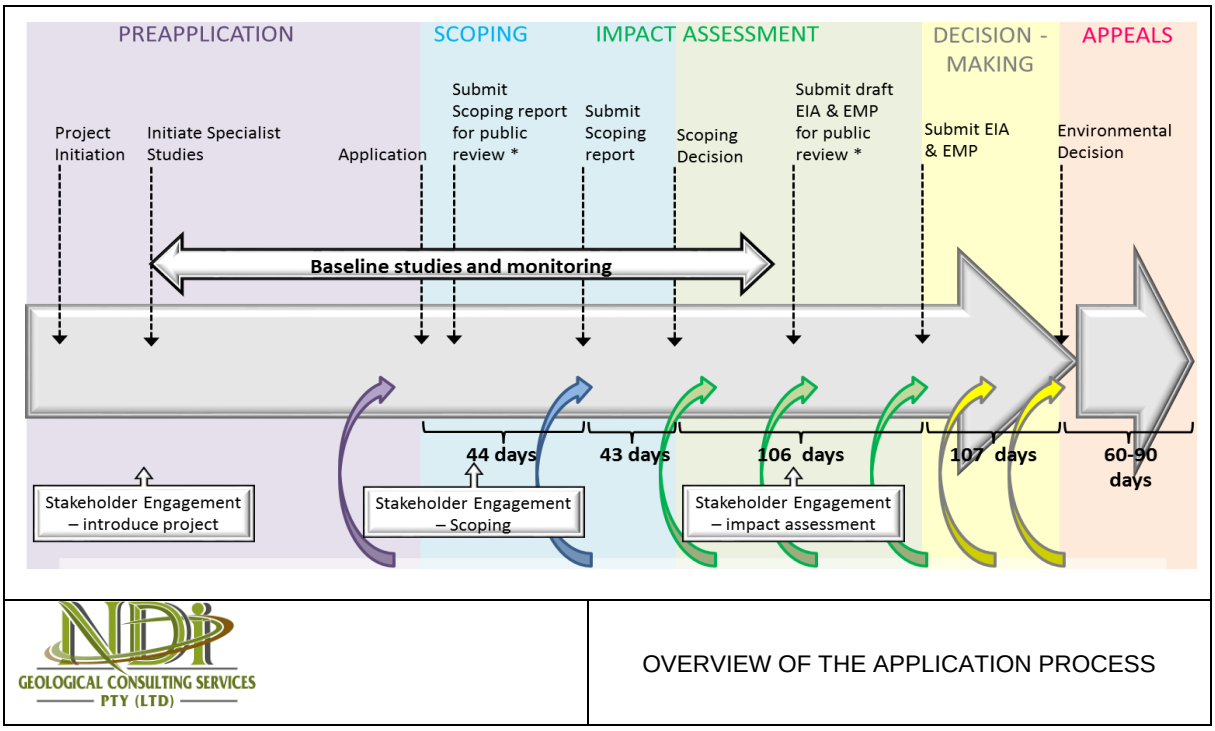


Figure 2-1: Overview the Environmental Impact Assessment Process

2.2 Report Index in Relation to the NEMA Regulations

Regulation 2, Appendix 2 of GNR 982 published in terms of NEMA stipulates the minimal requirements and issues that need to be addressed in the Scoping Report. This report strives to address all these requirements as per regulations. Table 2-1 indicates the regulations that have been addressed and the section of the Scoping Report where these requirements can be found.

Table 2-1: Requirements of Regulation 2 of GNR 982

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Scoping Reports	Section
Appendix 2 (a)	Details of – the EAP who prepared the report; and the expertise of the EAP, including a curriculum vitae	Section 3
Appendix 2 (b)	The location of the activity, including – The 21-digit Surveyor General code of each cadastral land parcel; Where available, the physical address and farm name; Where the required information in items (i) and (ii) is not available, coordinates of the boundary of the property or properties.	Section 4 Figure 4-1
Appendix 2 (c)	A plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is – A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or On land where the property has not been defined, the coordinates within which the activity is to be undertaken; or.	Figure 5-5
Appendix 2 (d)	A description of the scope of the proposed activity, including – All listed and specified activities triggered; A description of the activities to be undertaken, including associated structures and infrastructure.	Section 5

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Scoping Reports	Section
Appendix 2 (e)	A description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process.	Section 6
Appendix 2 (f)	A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location.	Section 7
Appendix 2 (g)	A full description of the process followed to reach the proposed preferred activity, site and location within the site, including-	Section 9
	Details of all alternatives considered;	Section 10
	Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	Table 10-6
	A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	Section 11
	The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section 13
	The impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration, and probability of the impacts, including the degree to which the impacts-	
	(aa) can be reversed;	
	(bb) may cause irreplaceable loss of resources; and	
	(cc) can be avoided, managed, or mitigated.	
	The methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	Section 14
	Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographic, physical, biological, social, economic, heritage and cultural aspects;	Section 13
	The possible mitigation measures that could be applied and level of residual risk;	Section 13
	The outcome of the site selection matrix;	Section 17
	If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such and;	Section 18
	A concluding statement indicating the preferred alternatives, including preferred location of the activity.	Section 19

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Scoping Reports	Section
Appendix 2 (h)	A plan of study for undertaking the environmental impact assessment process to be undertaken including- A description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity; A description of the aspects to be assessed as part of the environmental impact assessment process; Aspects to be assessed by specialists; A description of the proposed method of assessing the environmental aspects, including a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists; A description of the proposed method of assessing duration and significance; An indication of the stages at which the competent authority will be consulted; Particulars of the public participation process that will be conducted during the environmental impact assessment process; A description of the tasks that will be undertaken as part of the environmental impact assessment process; Identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.	Section 20
Appendix 2 (i)	An undertaking under oath or affirmation by the EAP in relation to- The correctness of the information provided in the report; The inclusion of the comments and inputs from stakeholders and interested and affected parties; and Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties.	Section 21
Appendix 2 (j)	An undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment.	Section 22
Appendix 2 (k)	Where applicable, any specific information required by the competent authority.	Section 20.10
Appendix 2(l)	Any other matter in terms of Section 24(4)(a) and (b) of the NEMA	Section 20.10.3

3 Contact Person and Correspondence

Ndi Geological Consulting Services (Pty) Ltd has been appointed by Golden Tropic as the independent Environmental Assessment Practitioner (EAP) to undertake the necessary environmental authorisation process and associated stakeholder engagement process to meet the requirements of NEMA and NEM: WA.

3.1 Details of EAP who prepared the report

The EAP involved in the compilation of this Scoping Report and contact details are provided in Table 3-1.

Table 3-1: EAP Contact Details

EAP Name	Contact Number	Fax Number	Email Address
Ndivhudzannyi Mofokeng	082 760 8420/ 053 842 0687	086 538 1069	atshidzaho@gmail.com ndi@ndigeoservices.co.za

3.2 Expertise of the EAP

3.2.1 Qualifications of the EAP

The qualifications of the EAP are provided for in Table 3-2 below, and copies of the qualifications are provided in Appendix B.

Table 3-2: EAP Qualifications

EAP Name	Qualifications	Professional registration	Years' Experience
Ndivhudzannyi Mofokeng	BSc (Hons) Earth Sciences in Mining and Environmental Geology	EAPASA Reg Number 2020/1554 GSSA Prof Reg	11

3.2.2 Summary of EAPs past experience

The EAP, Mrs Ndivhudzannyi is a registered EAP (EAPASA Reg Number 2020/1554) and a GSSA registered geologist with a BSc (Hons) Earth Sciences in Mining and Environmental Geology. She has close to 11 years' experience in the exploration and open cast work in the mining industry. She has proven leadership skills from supervising exploration rigs (Reverse Circulation and percussion drilling). She has proven working experience in field exploration and mapping, borehole logging, borehole sampling, sample preparation for laboratory analysis, handling of GPS, supervisory duties within the field, geological report and progress report writing, including Prospecting Work Programmes and Environmental Management Plans, handling the DMR documents in general.

Please refer to Appendix 2 for a copy of the EAP's Curriculum Vitae and Professional Registration Certificate.

4 Project Location

4.1 Property Description

The description of the affected property is provided in Table 4-1 and map showing the affected property is provided in

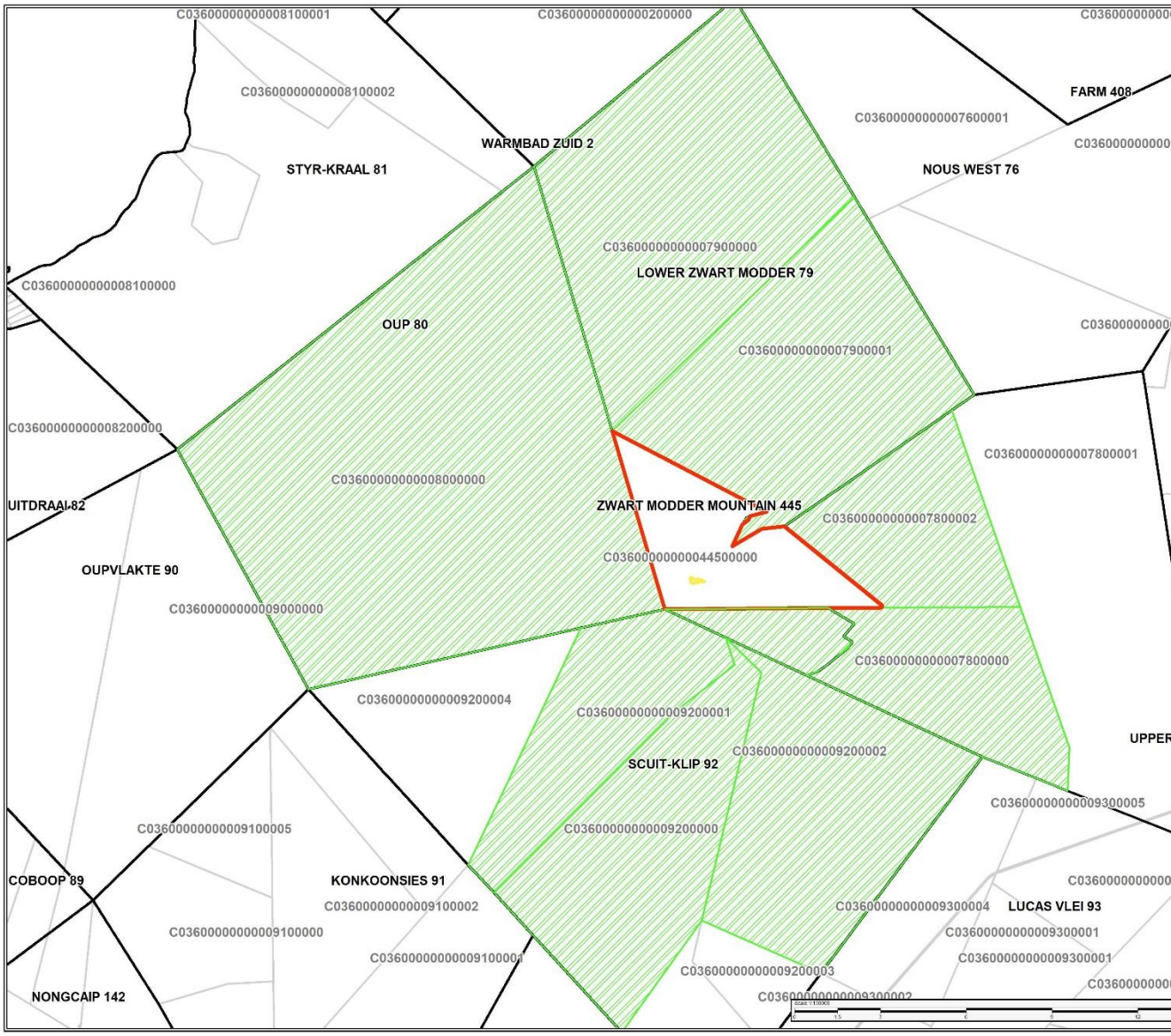


Figure 4-1.

Table 4-1: Description of Properties affected by the Project

Farm Name:	Portion of Zwart Modder Mountain No. 446 (445)
Application area (Ha)	2 627.28 ha
Magisterial district:	Kenhardt District Municipality

Distance and direction from nearest town	Approximately 45km North East of Pofadder.
21-digit Surveyor General Code for each farm portion	C0360000000044600000

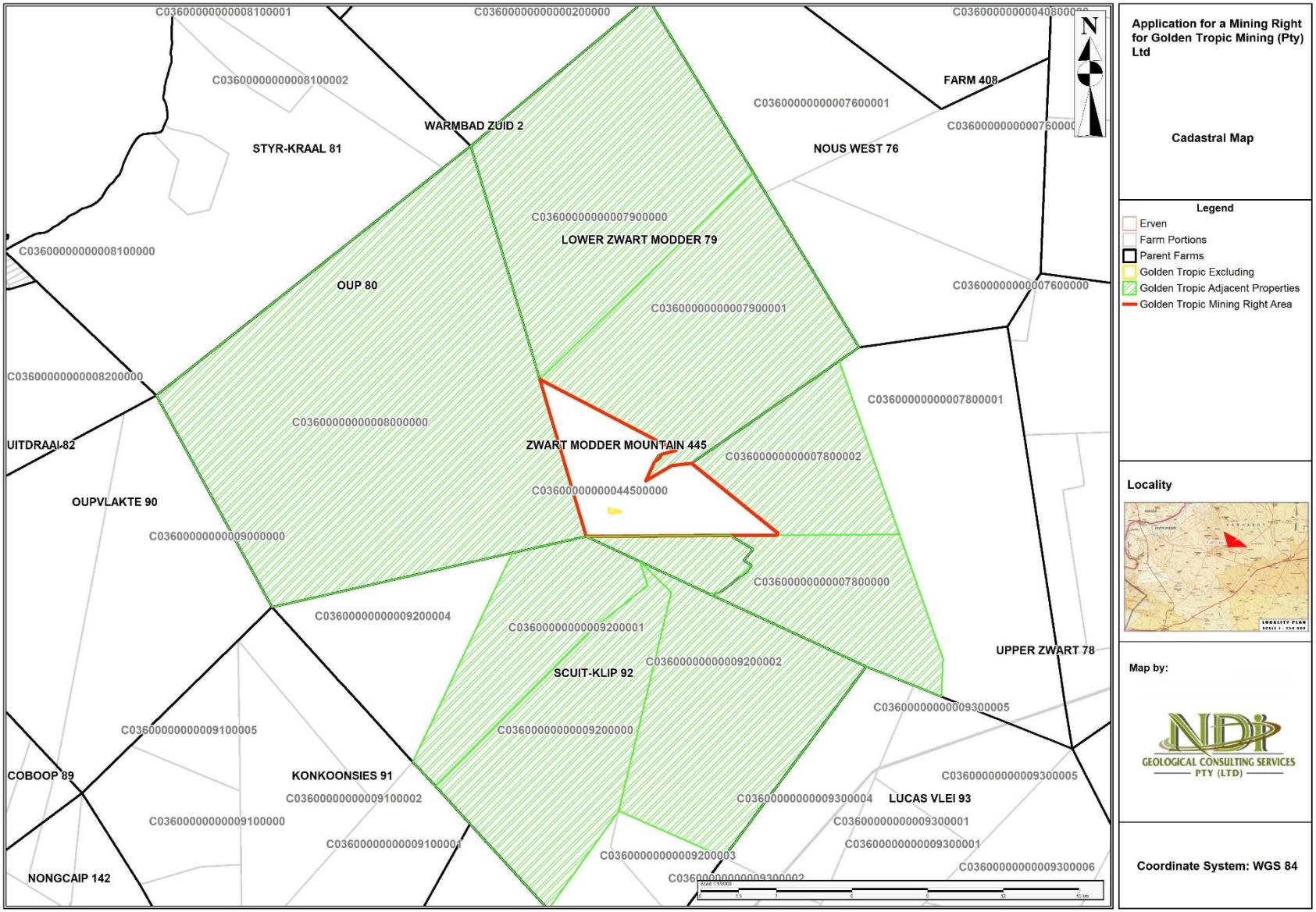


Figure 4-1: Cadastral Map

4.2 Locality map

The proposed granite mining project is located in the Northern Cape Province of South Africa, approximately 45 km North East of Pofadder.

A copy of the locality map is provided in Appendix 3.

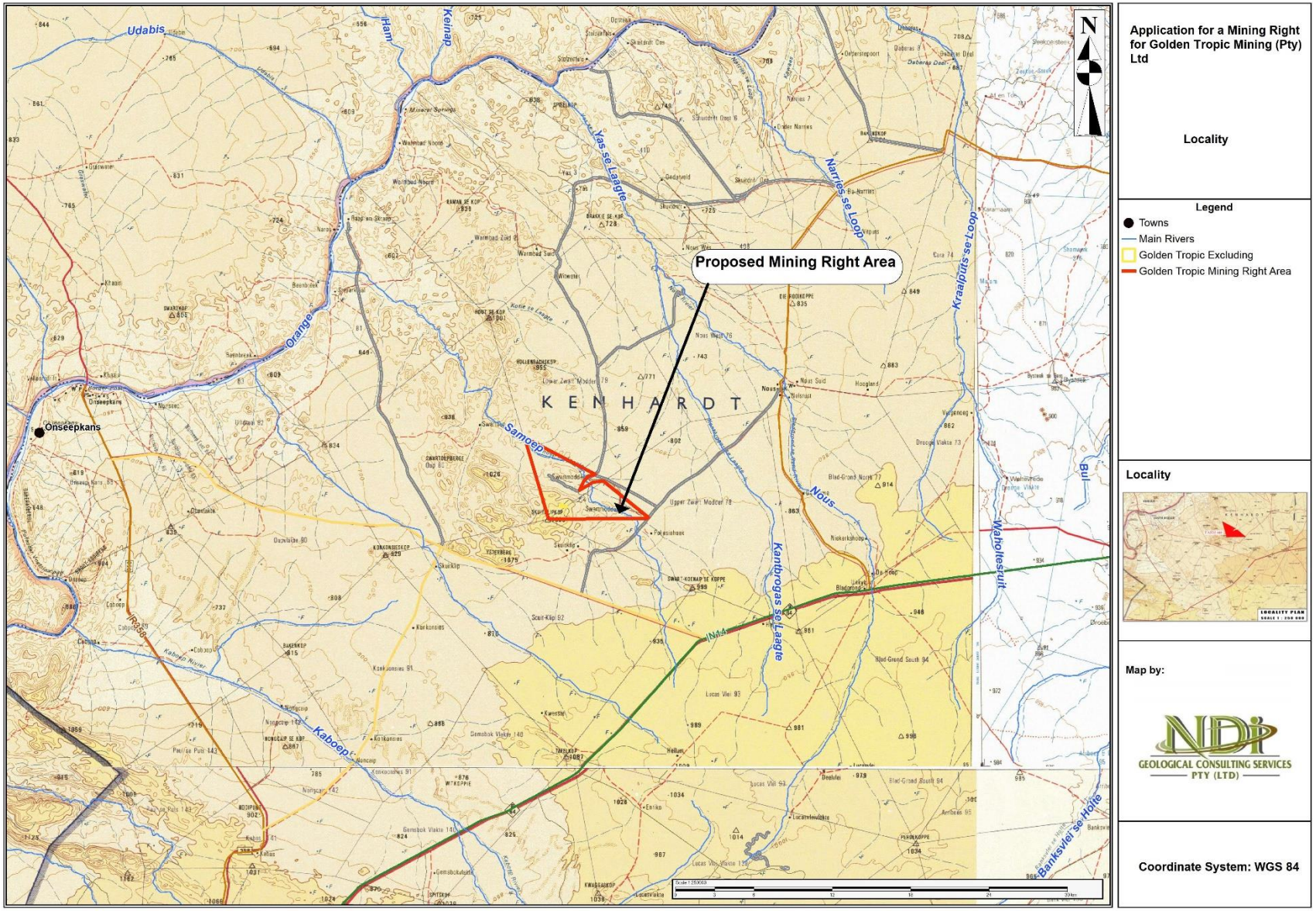
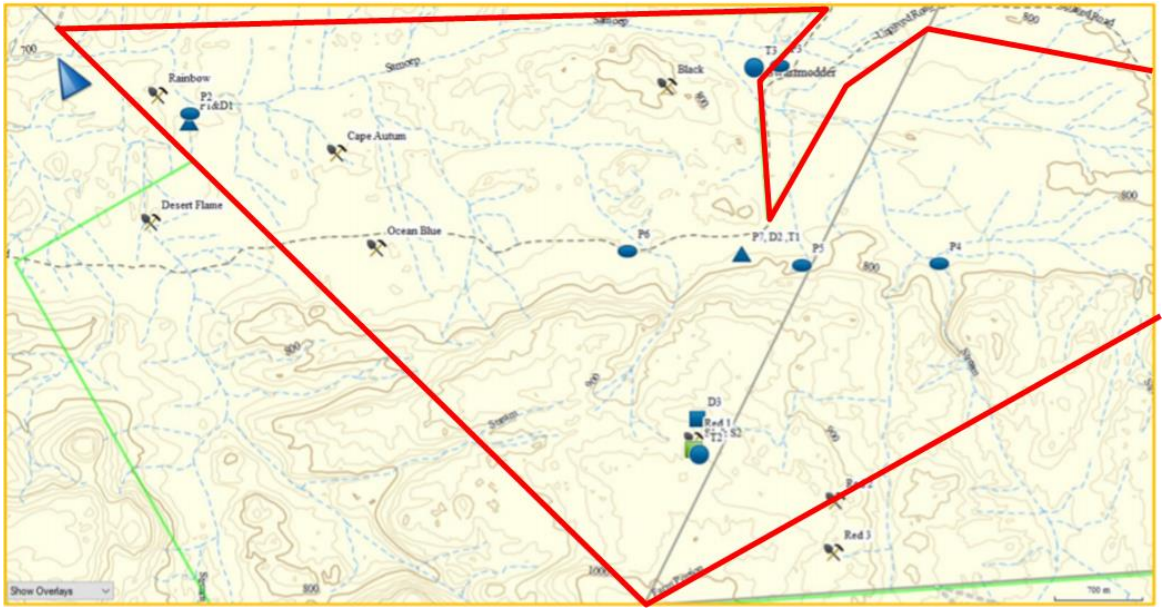


Figure 4-2: Locality Map

5 Project description

5.1 Overview

The choice of mining method in a dimension stone quarry is largely affected by the geology of the deposit. Boulder formations will largely be quarried by means of splitting methods, especially by means of the use of blasting gunpowder, while solid formations will require the at least some application of one or more cutting methods in order to loosen large benches from the solid formation. In general, in marbles, slates, sandstones and quartzites mining will be by non-explosive splitting and cutting techniques, while in granites blasting techniques may be applied. The physical properties of the stone are likely to determine what type of explosives will be applied. The mine design map is provided in Figure 5-1.



GEOLOGICAL CONSULTING SERVICES PTY (LTD)

MINE DESGN MAP

Figure 5-1: Mine design map

5.2 Mining Operations

The choice of mining method in a dimension stone quarry is largely affected by the geology of the deposit. Boulder formations will largely be quarried by means of splitting methods, especially by means of the use of blasting gunpowder, while solid formations will require the at least some application of one or more cutting methods in order to loosen large benches from the solid formation. In general, in marbles, slates, sandstones and quartzites mining will be by non-explosive splitting and cutting techniques, while in granites blasting techniques may be applied. The physical properties of the stone are likely to determine what type of explosives will be applied.

Quarrying method will be used to mine granite.

The quarrying operation cuts a block of stone free from the bedrock mass by first separating the block on all four vertical sides, and then undercutting or breaking the block away from the bedrock. If the block is large, it is called a “quarry block” and will be cut into smaller blocks at the quarry. If the block

is small enough to be moved from the quarry it is called a “mill block” and may be sold as it is or taken to a mill for further processing.

Rock commonly has two, and sometimes three, natural directions of cleavage, which influence both quarrying and rock dressing methods. The direction of easiest cleavage is called the “rift,” the second easiest is the “grain,” and the third and most difficult, if present, is the “head grain” or “run.” If there is no head grain, the third rectangular direction is called the “hardway.” Modern technology and quarrying methods are less dependent on cleavage than were earlier methods.

Two of the oldest methods for quarrying are channel cutting and drilling and broaching. A channelling machine cuts a channel in the rock using multiple chisel-edged cutting bars that cut with a chopping action. In drilling and broaching, a drilling tool first drills numerous holes in an aligned pattern. The broaching tool then chisels and chops the web between the drill holes, freeing the block. Both channel cutting and drilling and broaching are slow, and the cutting tool requires frequent sharpening. Both methods have generally been replaced with other more efficient methods.

Line drilling or slot drilling is a more modern technique for quarrying, which consists of drilling a series of overlapping holes. The drill is mounted on a quarry bar or frame that aligns the holes and holds the drill in position.

Flame cutting or jet channelling is a common method for cutting granite. Flame from a torch is passed over the rock and the intense heat creates a thermal shock, which causes the rock to spall. This technique does not work in quartz-free rocks, or carbonate rocks that fuse or calcine. Jet channelling creates a wide irregular kerf, which wastes rock; it is also very loud, which is a potential health hazard to workers. Channels can also be cut into rocks using a water jet. A high-pressure pulsating jet of water is directed at the rock, which causes it to disintegrate.

A variety of saws can be used to excavate dimension stone, including wire saws, belt saws, and chain saws. The introduction of synthetic diamond tools during the 1960s revolutionized stone working. Chain saws or belt saws with diamond-set teeth are used to cut softer stones such as marble, sandstone, and slate. Wire saws with diamond-impregnated beads mounted on a wire cable can cut harder stones like granite.

5.3 Basic Plant Design

5.4 Infrastructure Requirements

It must be noted that most of the required infrastructure exists already in the area which will require upgrading or expansion only. The infrastructure includes:

- Access roads: The mining right area is accessed via the N14 road from Kakamas to Springbok which intersects with a secondary road to Onseepkans Settlement. Access and haul roads in the mining area and to the plant have been created.
- Electricity: The mine currently makes use of power generators and Eskom electricity to supply power to the workshops, offices and sorting and dressing areas as well as other mining areas.
- Water: Mine process and potable water will be abstracted through boreholes and stored on site in 5 000 litre bottles, balancing dams, reservoir and storage dams at the quarries.

Other existing infrastructure in the mine area include:

- Quarries;
- Living quarters;
- Offices; and

- Workshops.

5.4.1 Access Roads

The mining right area is accessed via the N14 road from Kakamas to Springbok which intersects with a secondary road to Onseepkans Settlement. Access and haul roads in the mining area and to the plant have been created (Figure 5-2).

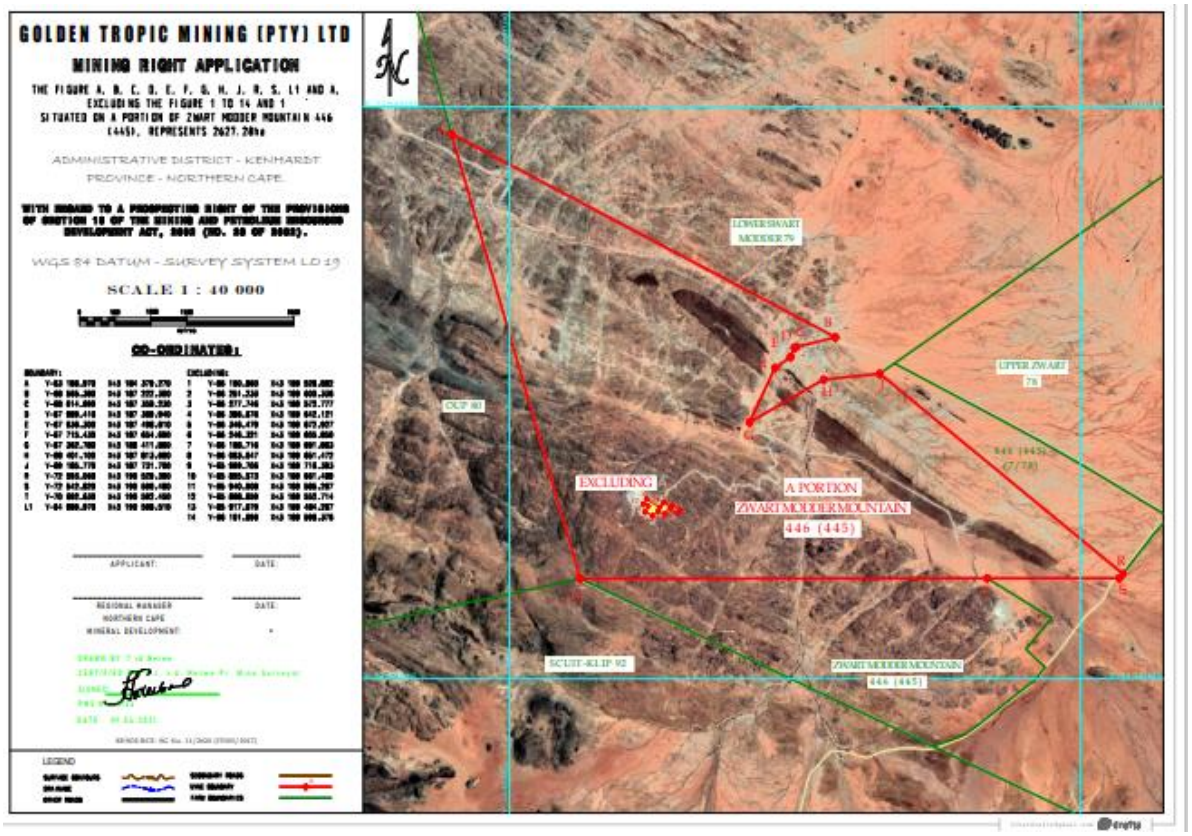


Figure 5-2: Road Network in project area

5.4.2 Electricity

The mine currently makes use of power generators and Eskom electricity to supply power to the workshops, offices and sorting and dressing areas as well as other mining areas. All the equipment to be used during the mining process is diesel powered.

5.4.3 Water

Regarding Schedule 1 water use where no WUL is required the following will be applicable:

- At the HQ drinking water about 1m³ is obtained from the Freshwater Pump (P5) with a direct feed from the 5 000l storage Plastic tank T1. Water for ablutions (brackish water) about 1m³ is obtained from the HQ Pump (P3) and stored in two 5 000l Plastic tanks T3.
- At the Red Living quarters drinking water about 2m³ is obtained from the Freshwater Pump (P5) and transported to the two 5 000l and one 2 500l storage Plastic tank T2.
- At the Cape Autumn Living quarters when developed drinking water about 2m³ will also be obtained from the Freshwater Pump (P5) and transported to two 5 000l storage Plastic tanks.
- At the Pink Living quarters drinking water about 2m³ is obtained from the Pink.
- Solar Pump (P10) and stored I three 5 000l storage Plastic tank T4.

With regard to the Section 21(a) WUL for abstraction of Groundwater the following will be applicable:

- For process water the calculation use assumes that the maximum number of circular saws in use at the same time for all quarries will never exceed 10 and diamond wire saws will never exceed 2.
- Water consumption for Circular saws is on average 5m³/day and for diamond wire saws 1.5m³/day and saws are in operation on average 6 hours per day.
- The long-term requirement is estimated at 26m³ per day at 60% recycling.
- The availability of groundwater (yield) will be verified as part of a 24-hour pump test do be done for the 4 bore holes with the highest yield P1, P4, P8 and P10.
- Recommendations from the Geo-Hydrological study will determine the availability of groundwater for mining purposes as well as pumping cycle.
- Water makeup in the case of water shortage will include increasing the recycled percentage or reducing the number of circular saws or replacing it with diamond wire saws.

Regarding Section 21(g) WUL Disposing of wastewater the following will be applicable:

- As water is only use during processing for cooling purposes poor quality water can be use which make recycling feasible.
- Most mines aim for a close loop system with nearly all water recycled but for calculation purposes recovery is estimated at 60% at start-up of operations and needs to be improve to 80% within the next 5 years.
- A “Biozone” or similar purifying system needs to be provided at all living quarters which will provide for 80% of domestic water be recycled for processing purposes.

Regarding Section 21(b) WUL Storage of water the following will be applicable:

- Water storage is mostly in 5 000 plastic tanks.
- A reservoir D1 is used at the P1 and P2 pumps
- A balancing dam for the red quarry pumps D2 is used to collect water before it is pumped up the mountain to the storage dam.
- The red and pink quarry each have one storage dam from where water is distributed to where it is needed by the sawing operations. D3 located at the red quarry and D4 located at the pink.

Table 5-1 provides the estimated water requirement calculation based on all quarries and all living quarters being developed within the next 5 to 10 years.

Table 5-1: Estimated water requirement calculation

Quarry	Water requirement m³/day		Obtain From Pump No/Name
	Domestic	Process	
Rainbow, Cape Autum, Desert Flame, Ocean Blue & Black	*		P1 Cape Autumn (Kudu)
2 Circular saws		10	P2 Cape Autumn
2 Wire saws		3	P3 HQ Pump
Red 1, Red 2 & Red 3	*	30	P4 Red Solar Pump
6 Circular saws			P6 Blue Pump
			P7 Balacing Dam pump
HQ Living quarters (LQ)	2	0	P5 Fresh Water Pump
			P3 HQ Pump
Cape Autumn Living quarters (LQ)	2	0	P5 Fresh Water Pump
Red Living quarters (LQ)	2	0	P5 Fresh Water Pump
Pink	*	10	P10 Pink Solar pump
2 Circular saws			P8 Pink pump 1
			P9 Pink pump 2
Pink Living quarters	2	*	P10 Pink Solar pump
TOTAL	8	53	

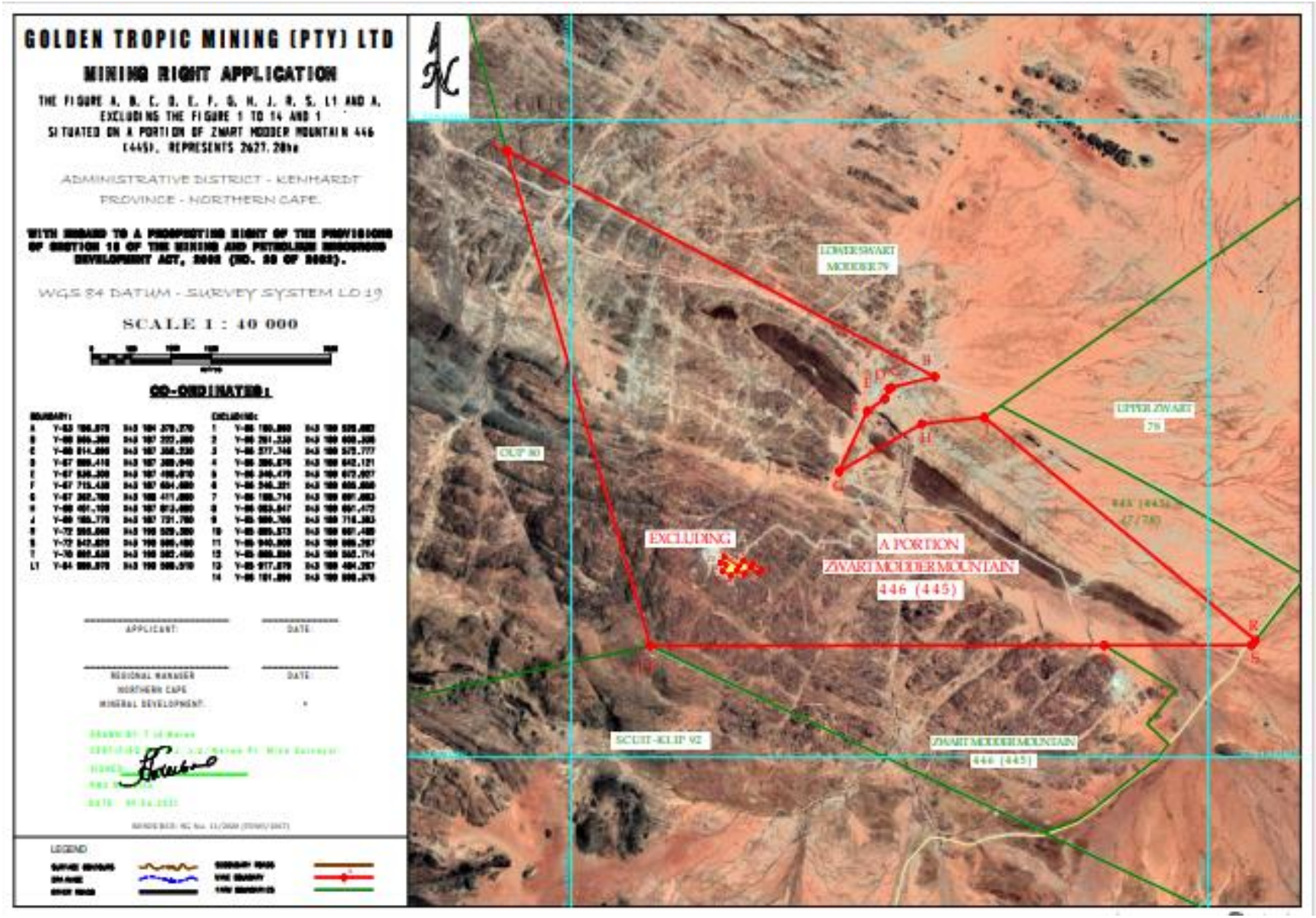


Figure 5-3: Mining Right Application Area- Regulation 2.2 Map

5.5 Listed and specified activities

Section 16 of the MPRDA requires, upon request by the Minister that an Environmental Management Programme (EMPr) be submitted and that the applicant must notify and consult with Interested and Affected Parties (I&APs). Section 24 of the NEMA requires that listed activities, which may potentially affect the environment negatively, must obtain an environmental authorisation from a relevant authority before the activities may commence.

Such activities are listed under the EIA Regulations (2014 which has been amended in 2017) and consist of:

- EIA Process (Government Notice Regulation (GNR) 982);
- Listing Notice 1 GNR 983 – Basic Assessment process,
- Listing Notice 2 GNR 984 – Scoping and EIA process;
- Listing Notice 3 GNR 985 – Activities in specific identified geographical areas only.

GNR 982, 983, 984 and 985 have been amended in 2017 through GNR 324, 325, 326 and 327, respectively.

The purpose of these regulations is to avoid negative impacts on the environment, and where these cannot be avoided, ensure the mitigation and management of the impacts to acceptable levels, while optimising positive environmental impacts.

The proposed project triggers activities listed in NEMA Listing Notice 1, 2 and 3 as provided in **Error! Reference source not found.**.

Table 5-2: Applicable Activities

NAME OF ACTIVITY	Aerial extent of the Activity Ha or m²	LISTED ACTIVITY	APPLICABLE LISTING NOTICE	WASTE MANAGEMENT AUTHORISATION
Mining Right Application	2 627.28 ha	X	GNR 984 as amended by GNR 325: Activity 17	[redacted]
Roads and Electrical Supply (already in place)	N/A	[redacted]		
Upgrade existing accommodation and office precincts and structures	Less than 5ha	X	GNR 983 as amended by GNR 327: Activity 27 GNR 983 as amended by GNR 327: Activity 28: GNR 985, as amended by GNR 324: Activity 12 g (iv)	
Vegetation Clearance for site establishment and infrastructure including: dressing areas, dispatch yards accommodation and logistics areas. areas for compressors and generators	>20ha	X	GNR 983 as amended by GNR 327: Activity 27 GNR 983 as amended by GNR 327: Activity 28: GNR 985, as amended by GNR	

NAME OF ACTIVITY	Aerial extent of the Activity Ha or m²	LISTED ACTIVITY	APPLICABLE LISTING NOTICE	WASTE MANAGEMENT AUTHORISATION
			324: Activity 12 g (iv)	
Upgrade or construct new workshop	±0.5ha	X	GNR 983 as amended by GNR 327: Activity 27 GNR 983 as amended by GNR 327: Activity 28: GNR 985, as amended by GNR 324: Activity 12 g (iv)	
Hydrocarbon storage	Less than 30m³			
Establishment of Waste Rock Dump	±3.5ha	X	GNR 983 as amended by GNR 327: Activity 27 GNR 983 as amended by GNR 327: Activity 28: GNR 985, as amended by GNR 324: Activity 12 g (iv)	X Category B (8, 9)
Residue Stockpiles/Deposits	>0.5ha	X	GNR 983 as amended by GNR 327: Activity 28: GNR 985, as amended by GNR 324: Activity 12 g (iv)	GNR 921 Category B (10)
Waste Management Facilities	>0.5ha	X	GNR 983 as amended by GNR 327: Activity 28: GNR 985, as amended by GNR 324: Activity 12 g (iv)	GNR 633 Category B (11)
Construction, expansion or decommissioning of waste management facilities and associated structures and infrastructure	>0.5ha	X	GNR 983 as amended by GNR 327: Activity 28: GNR 985, as amended by GNR 324: Activity 12 g (iv)	GNR 921 Category A (14)
Stockpiling of topsoil	>0.05ha	X	GNR 983 as amended by GNR 327: Activity 27 GNR 983 as amended by GNR 327: Activity 28: GNR 985, as amended by GNR 324: Activity 12 g (iv)	

NAME OF ACTIVITY	Aerial extent of the Activity Ha or m²	LISTED ACTIVITY	APPLICABLE LISTING NOTICE	WASTE MANAGEMENT AUTHORISATION
Transportation of material and ore	N/A			

6 Policy and legislative context

Table 6-1 lists the applicable legislation, policies and guidelines identified as relevant to the proposed project. In addition, a description of how the proposed activity complies with and responds to the legislation and policy context, is provided. This list is not exhaustive but rather represents an indication of the most applicable pieces of legislation relevant to the project.

Table 6-1: Policy and Legislative Context of Proposed Project

Legislation	Description and Relevance	Authority
Constitution of the Republic of South Africa, (No. 108 of 1996)	Chapter 2 – bill of rights Section 24 – Environmental Rights The proposed activities shall be conducted in such a manner that significant environmental impacts are avoided, where significant impacts cannot all together avoided be minimised and mitigated in order to protect the environmental rights of South Africans	N/A
Promotion of Access to Information Act (Act No. 2 of 2000) (PAIA	The Promotion of Access to Information Act (Act No. 2 of 2000) (PAIA) recognises that everyone has a right of access to any information held by the state and by another person when that information is required to exercise or protect any right. The purpose of the Act is to promote transparency and accountability in public and private bodies and to promote a society in which people have access to information that enables them to exercise and protect their right. The EIA/EMPr process to be undertaken in terms of the NEM: WA, NEMA and where required, the NWA, where the associated stakeholder consultation process will be aligned with the PAIA in the sense that all I&APs will be given an opportunity to register as an I&AP prior to the initiation of the project and all registered stakeholders will in turn be provided a fair opportunity to review and comment on any reports submitted to the competent authorities for decision making.	N/A
Minerals and Petroleum Resources Development Act 28 of 2002	The Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA) makes provision for equitable access to and sustainable development of South Africa's mineral resources. The MPRDA requires that the environmental management principles set out in NEMA shall apply to all mining operations and serves as a guideline for the interpretation, administration and implementation of the environmental requirements of NEMA. The MPRDA requires that a reconnaissance permission, prospecting right, mining right, mining permit, retention permit, technical corporation permit, reconnaissance permit, exploration right, production right, prospecting work programme; exploration work programme, production work programme, mining work programme, environmental management programme, or an environmental authorization issued in terms of the National Environmental Management Act, 1998, as the case may be, may not be amended or varied (including by extension of the area covered by it or by the addition of minerals or a share or shares or seams, mineralized bodies, or strata, which are not at the time the subject thereof) without the written consent of the Minister.	Department of Mineral Resources, Northern Cape Province

Legislation	Description and Relevance	Authority
	Section 22 of the MPRDA as amended by Section 18 of Act 49 of 2008 The proposed project requires a Mining Right from the DMR.	
National Environmental Management Act (NEMA) (No. 107 of 1998)	Section 24 – Environmental Authorisation (control of activities which may have a detrimental effect on the environment) Section 28 – Duty of care and remediation of environmental damage Environmental management principles will be incorporated into the EIA and EMPr, which the applicant will be required to comply with to ensure that negative impacts on the environment are avoided or kept to a minimum and that positive impacts are enhanced.	
National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) and the EIA Regulations 2014 (Government Notice (GN) 984), as amended	The EIA Regulations (GNR 982) were promulgated in terms of Sections 24 of the NEMA, to manage the process, methodologies and requirements for the undertaking of an EIA. The GNR 982 stipulates that the applicant for activities listed under GNR 983, 984 or 985 must appoint an independent EAP to manage the EIA process. Listed Activities are activities identified in terms of Section 24 of the NEMA which are likely to have a detrimental impact on the environment, and which may not commence without an EA from the Competent Authority (CA). EA required for Listed Activities is subject to the completion of either a Basic Assessment (BA) process or full Scoping and Environmental Impact Assessment (S&EIA) with applicable timeframes associated with each process. The EA must be obtained prior to the commencement of those listed activities. The project triggers activities listed in Listing Notices 1, 2 and 3 and will require an EA from the DMR. According to GNR 326 of the NEMA, activities listed in Listing Notice 2 require that a full S&EIA be undertaken. The applicable listed activities that will be triggered by the project is provided in **Error! Reference source not found.**.	
Department of Environmental Affairs (DEA) Integrated Environmental Management Guideline Series, Guideline 5: Assessment of the EIA Regulations, 2012 (Government Gazette 805)	Environmental impacts will be generated primarily in the construction phase of this project with associated operational phase impacts. These will be assessed as part of the EIA process.	
Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004	A full EIA (scoping and impact assessment) is required for the proposed project as activities are triggered under Listing Notice 2.	

Legislation	Description and Relevance	Authority
Review in Environmental Impact Assessment, Integrated Environmental Management, Information Series 13, Department of Environmental Affairs and Tourism (DEAT), Pretoria.		
DEA Integrated Environmental Management Guideline Series, Guideline 7: Public Participation in the Environmental Impact Assessment Process, 2012 (Government Gazette 807)	Public participation is a requirement of the Scoping/EIA Process and will be conducted for the proposed project as stipulated in Chapter 6 of the NEMA.	
National Water Act, 1998 (Act 36 of 1998)	There is a drainage line that traverses the project area, should any prospecting activities and/or infrastructure be located within 100m of the drainage line, a Section 21 (c&) IWUL will be required. **21 (c) & (i):** Impeding, diverting and altering the flow of water in a watercourse. Altering the bed, banks, course or characteristics of a watercourse: All activities taking place within 100 m of a watercourse will be licensed under Section 21 c and i	Department of Water and Sanitation (DWS), Northern Cape
National Environmental Management Waste Act (Act No. 36 of 1998)	It is expected that activities listed in GNR921 (Category A and B) will be triggered for the waste rock dump, waste management facilities and residue stockpiles/deposits and will require a waste management licence. **Error! Reference source not found.** provides a list of GNR921 activities triggered by the project.	DMR and DWS, Northern Cape through the integrated application process
National Environmental Management Air Quality Act (Act No. 39 of 2004)	Air quality management Section 32 – Dust control. Section 34 – Noise control. Section 35 – Control of offensive odours. The principles of the NEM: AQA, focusing on minimisation of pollutant emissions will also be taken cognisance of in the development of the EMPr.	Department of Environmental Affairs and Sol Plaatje Local Municipality

Legislation	Description and Relevance	Authority
The National Forestry Act, 1998 (Act No. 84 of 1998) (NFA)	The NFA protects against the cutting, disturbance, damage, destruction or removal of protected trees. A biodiversity specialist study will be undertaken for the application. The study will include an assessment of the significance of biodiversity impacts and mitigation measures will be included in the EMPr. Should there be any protected trees that are affected by the project, Golden Tropic will apply for the required permit for the removal and/or relocation of the trees.	Department of Agriculture, Forestry and Fisheries (DAFF)
The National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEM:BA)	The National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEMBA) provides for the management and conservation of South Africa's biodiversity within the framework of NEMA, as well as the protection of species and ecosystems that warrant national protection and the sustainable use of indigenous biological resources. The Act provides for listing of threatened or protected ecosystems, in one of four categories: critically endangered, endangered, vulnerable or protected During the EIA process, biodiversity hotspots and bioregions will be investigated to determine the potential impacts that the project may have on the receiving environment. The management and control of alien invasive species on the impacted areas during all the phases of the project will be governed by the NEM: BA. The NEM: BA ensures that provision is made by the site developer to remove any alien species, which have been introduced to the site or are present on the site	Department of Environmental Affairs
Northern Cape Nature Conversation Act No. 9 of 2009	This Act provides sustainable utilization of wild animals, aquatic biota and plants to provide for them implementation of the convention on international trade in endangered species of wild fauna and flora. The Act provides for offenses and penalties of contravention Act, further provide for the appointment nature conservator to implement the provision of the Act. It also provides the issuing of the permits and other authorisations and provides matters connected therewith. Should there be any protected trees that are affected by the project, Golden Tropic will apply for the required permit for the removal and/or relocation of the trees.	Northern Cape Department of Nature Conservation (DENC)
Mine Health Safety Act, 1996 (Act No. 29 of 1996) (MHSA)	The Mine Health and Safety Act (Act No. 29 of 1996) (MHSA) aims to provide for protection of the health and safety of all employees and other personnel at the mines of South Africa. Golden Tropic will need to ensure that employees, contractors, sub-contractors and visiting personnel, adhere to this Act and subsequent amendment regulations on site.	Department of Mineral Resources (Northern Cape)
Conservation of Agricultural Resources Act (Act No. 43 of 1983)	Control measures for erosion Control measures for alien and invasive plant species The EMPr will include measures to control and manage alien invasive plant species.	Department of Agriculture Forestry and Fisheries

Legislation	Description and Relevance	Authority
National Heritage Resources Act 25 of 1999	Heritage Permit for structures 60 years or older. A heritage specialist study will be conducted for the project. The study will include an assessment of the significance of heritage impacts and mitigation measures will be included in the EMPr. Should there be any heritage and cultural resources that are affected by the project, Golden Tropic will apply for the required permit for the destruction and/or relocation of the trees.	Northern Cape Heritage Resource Authority
Restitution of Land Rights Act, 1994 (Act No. 22 of 1994), as amended in 2014.	Land Claims. There are no land claims associated with the affected property.	Department of Rural Development and Land Reform

6.1 Municipal Plans and Policies: Kai !Garib Integrated Development Plan

According to the Integrated Development Plan (IDP) for the Kai !Garib Local Municipality (2020/2021), mining and agriculture are the two primary economic sectors in the LM. The mining sector reached its highest point of growth of 7.6% in 2017. The Northern Cape Provincial Growth and Development Plan (PGDP) vision 2040 considers mining and mineral beneficiation to be part of driver 1 (Economic Growth and prosperity).

It is expected that the mining project will contribute significantly to the local, regional and national economy. The extent to which the project will contribute to the economy will be assessed during the impact assessment phase of the process.

6.2 Other guidelines

Other guideline that were made use of include:

- Northern Cape Provincial Biodiversity Conservation Plan;
- DWS, 2010. Operational Guideline: Integrated Water and Waste Management Plan. Resource Protection and Waste;
- Department: Water Affairs and Forestry, 2007. Best Practice Guideline A2: Water Management for Mine Residue Deposits;
- Department: Water Affairs and Forestry, 2007. Best Practice Guideline A4: Pollution control dams;
- Department of Water Affairs and Forestry, 2008. Best Practice Guideline A6: Water Management for Underground Mines.
- White paper on Integrated Pollution and Waste Management in South Africa, 2000;
- Department of Water Affairs and Forestry, 2006. Best Practice Guideline G1 Storm Water Management;
- Department of Water Affairs and Forestry, 2006. Best Practice Guideline G2: Water and Salt Balances;
- Department of Water Affairs and Forestry, 2006. Best Practice Guideline G3. Water Monitoring Systems;
- Department of Water Affairs and Forestry, 2008. Best Practice Guideline G4: Impact Prediction;
- Department of Water Affairs and Forestry, 2008. Best Practice Guideline H1: Integrated Mine Water Management;
- Department of Water Affairs and Forestry, 2006. Best Practice Guideline H3: Water Reuse and Reclamation;
- DEAT. 2002. Integrated Environmental Management, Information series 2: Scoping. Department of Environmental Affairs and Tourism (DEAT. 2002);
- DEAT. 2002. Integrated Environmental Management, Information series 3: Stakeholder Engagement. Department of Environmental Affairs and Tourism (DEAT. 2002);
- DEAT. 2002. Integrated Environmental Management, Information series 4: Specialist Studies. Department of Environmental Affairs and Tourism (DEAT. 2002);

- DEAT. 2002. Integrated Environmental Management, Information series 12: Environmental Management Programmes. Department of Environmental Affairs and Tourism (DEAT. 2002);
- DEA. 2012. Companion to the EIA Regulations 2010, Integrated Environmental Management Guideline Series 7, Department of Environmental Affairs; and
- DEA. 2017. Guideline on Need and Desirability, Department of Environmental Affairs (DEA), Pretoria, South Africa.

7 Motivation

7.1 Mining Benefits

The mining industry is of great importance to the South African economy. According to the DMR, in 2004, the total export earnings from granite was approximately R 342 million, with Italy being the greatest single importer of South African granite.

Opportunities that exist within mining are as follows:

- Constant demand on the market for commodities;
- Establishment of a permanent working group between the municipality and the mine managers responsible from developing local economic development initiatives;
- Encourage local SMME's and entrepreneurs to take advantage of procurement;
- Develop a database of available labour and skills to encourage the employment of local people;
- Provide skills training and support programmes; and
- Instigate mining procurement opportunities in consultation with the mines, develop a database of such opportunities and ensure that this information is made available to local businesses and communities.

International markets for the granite products have already been identified, where the cut granite will be exported from the Cape Town harbour where they will be further cut. Locally the product is being sold at the mine.

7.2 Environmental responsibility

It is expected that the mining project will have negative environmental impacts, including, but not limited to the impacts that have been included in Section 13 of this report.

The impacts will be investigated in detail during the impact assessment phase of the project. Where possible, measures to mitigate the impacts of the project will be identified and finalised during the impact assessment phase of the project. The mitigation measures will include designs and management practices that will be embarked on, to prevent and/or minimise the identified impacts on the social, cultural and environmental aspects. For each potential significant impact identified, mitigation measures will be specified. High level mitigation measures have been included in Section 13 of this report. These mitigation measures will be described in more detail in the EMPr that Golden Tropic will be required to comply with throughout the Life of Mine (LOM).

The EMPr will also include environmental monitoring programme that will allow Golden Tropic to keep track of the impacts of the project on the environment and where required, to take remedial action.

7.3 Socio-economic benefits

A Social and Labour Plan (SLP) has been developed for the proposed Golden Tropic Granite Mining project. The SLP includes community development which will be implemented by Golden Tropic as part of the social responsibility programme. Through the Human Resources Development Program, the Golden Tropic will ensure that communities and HDSA companies are offered an opportunity to develop educationally and economically.

Golden Tropic proposes to undertake the following:

- Employment: Golden Tropic intends to employ about 80 employees in total.

- Skills Development and Training: A full and detailed Skills Development Plan (SDP) containing annual future targets, numbers and programmes, will be compiled and submitted to the DMR within six (6) months of receiving the Mining Right. The compilation of this plan is dependent on the completion of individual assessments with each employee in order to determine their current and aspired levels of education and skills training, as well as their socio-economic backgrounds. To ensure that the objectives of the SDP are achieved, Golden Tropic will submit a workforce skills plan and an annual training report as per the MQA SETA requirements for the mine Project each year after granting of the mining right.
- Illiteracy level and Adult Basic Education and Training (ABET) needs: Golden Tropic will formulate and implement a Skills Development Plan (SDP) which will focus on the transfer of skills to employees, to further their capacity in the mining industry, and equip them with alternative skills for after mine closure. The illiteracy levels and ABET needs will be determined once the SDP has been developed and populated.
- Planned ABET training: ABET will be offered to employees and the community as part of the Golden Tropic Human Resource development. ABET for the community prioritised by Golden Tropic will ensure that the employees and communities are offered the opportunity to become functionally literate and numerate. It is anticipated that ABET training will amount to R 15 000 in year 2, R17 500.00 in year 3, R 20 000.00 in year 4 and R 22 500.00 in year 5.
- Core business training: Core business training will be offered to the front-end loader and Safety and Environment personnel. The total cost of core business training over the 5-year period will be R 95 500.00.
- Mentorship: It is the strategic intent of the Mine management to achieve full performance of all employees throughout the organization and a mentorship programme is regarded as a key instrument. The proposed mentorship model is to have external mentors for the senior management team, and then at the lower management and operational levels to partner staff members (the mentees) with higher skilled and experienced staff members (the mentors).
- Bursaries: The company will sponsor one person per year to attend modules towards mining or engineering. Preference will be given to a woman in order to help address the need for 10% of the women in mining more specifically in core mining positions. Some technical knowhow is required for acceptance to this institution. Should for some reason none of the employees get accepted in any given year, the company would open the opportunity to a qualifying member of the community and surrounding areas. The bursaries to be awarded will amount to R 135 000.00 over a 5-year period.
- Internship plan: Two (2) potential internship paths to be followed at the mine will include opportunity to expose senior / upper level (or even supervisory level management) to an internship. Assume one candidate from school or from TVET college undergoing mining related course (during holidays or end of year break) to spend about a month on site under the wings of senior mine management. Another which could realistically be offered is a short-term internship, offered solely to HDSA women, to be interns as operators. The intern will be employed on a short-term contract period by the applicant and will be paid a nominal salary by the applicant. Women interns from the labour sending area will be "employed" for a limited contract specifically as operators in this instance. An estimated budget of R 90 000.00 has been allocated to internships.

It is expected that the proposed mine will develop and implement a policy allowing for preferential procurement for the local businesses and training of local Small, Medium and Micro-sized Enterprises (SMME) on procurement and business management.

The proposed mine is expected to have a positive socio-economic benefit through employment of locals. Recruitment of labour will be guided by Golden Tropic's recruitment policies which are expected to promote the employment of local labour by the mine as well as by any appointed contractors. A

local employment procedure and recruitment process will be developed in consultation with local authorities and their representatives. Golden Tropic will ensure that a transparent process of employment will be followed to limit opportunities for conflict that may arise.

Golden Tropic will use recruitment to meet the targets as set forth in the SLP. Positions will be reserved and earmarked for both HDSA's and women in mining to ensure that the targets of women in mining and HDSA in all management levels are met. Although specialist and skilled labour may be recruited outside the local boundaries due to the skills scarcity, local residents will benefit through on the job training, where possible.

7.4 No-go option

The no-go alternative would entail not mining the granite and leaving the landuse in the area as agriculture and mining. Should the proposed mining development not take place, it entails that the land will continuously be used for agriculture and mining, depending on the landowners needs and desirability for the future. Agriculture is undoubtedly one of the most important sectors in South Africa, with agriculture contributing to Kai !Garib's, as is noted in the LM's IDP, Northern Cape Province and South Africa's Gross Domestic Product (GDP), but not nearly as much as the mining sector.

By not implementing this project the local economic and employment opportunities and revenue as well as the mined granite which could potentially have benefitted the economy would be lost.

The socio-economic impacts of no implementing the project include local, regional and more than likely national impacts:

- Local and regional: planned socio-economic initiatives within the surrounding communities (refer Section 7.3 above) would not be able to go ahead; and
- National: Loss opportunities in foreign exchange for South Africa will be incurred as the potential to sell the granite internationally will be lost.

Although not fully assessed at this time, the additional potential negative impacts on the environment associated with granite mining would not exist should the project not be implemented. The environmental, social and economic impacts will be assessed in detail during the impact assessment phase to identify and address all negative impacts, where possible.

8 Period for which the Environmental Authorisation is required

The EA/WML will be required for a period of 10 years.

9 Details of all Alternatives Considered

The identification and investigation of alternatives is a key aspect during the S&EIA process. All reasonable and feasible alternatives must be identified and assessed during the scoping phase to determine the most suitable alternatives to consider and assess during the impact assessment phase. There are however some significant constraints that have to be taken into account when identifying alternatives for a project of this scope. Such constraints include social, financial and environmental issues, which will be discussed in the evaluation of the alternatives. The preferred option is to be highlighted and presented to the authorities.

Alternatives can typically be identified according to:

- Location alternatives;
- Process alternatives;
- Technological alternatives; and
- Activity alternatives (including the No-go option).

For any alternative to be considered feasible, such an alternative must meet the need and purpose of the development proposal without presenting significantly high associated impacts. The alternatives are described, and the advantages and disadvantages are presented. It is further indicated which alternatives are considered feasible from a technical as well as environmental perspective.

Incremental alternatives typically arise during the impact assessment process and are usually included as a means of addressing identified impacts. These alternatives are closely linked to the identification of mitigation measures and are not specifically identified as distinct alternatives. This section provides information on the development footprint alternatives, the properties considered, as well as the type of activity, activity layout, technological and operational aspects of the activity.

9.1 The property on which or location where it is proposed to undertake the activity

The location of the proposed project components is constrained to the location of the existing and confirmed mineral resource (granite). Exploration work conducted on the proposed mining area included bulk sampling and some small-scale mining. These activities have led to the identification of granite deposits that are deemed feasible to mine. The proposed mining area is geologically located within the Bushmanland Group of the Namaqualand Metamorphic Complex which comprises of granitic gneiss as the majority lithology (Figure 9-1).

The granites in this area are considered to have potential as sources of dimension stone. They are also part of the Swartmodder Granite. The colours of the granite vary from terra-cotta red through pinkish to dark grey. Exploration work conducted on the proposed mining area included bulk sampling and some small-scale mining. These activities have led to the identification of granite deposits that are deemed feasible to mine. As such, the site is therefore regarded as the preferred site and alternatives are not considered.

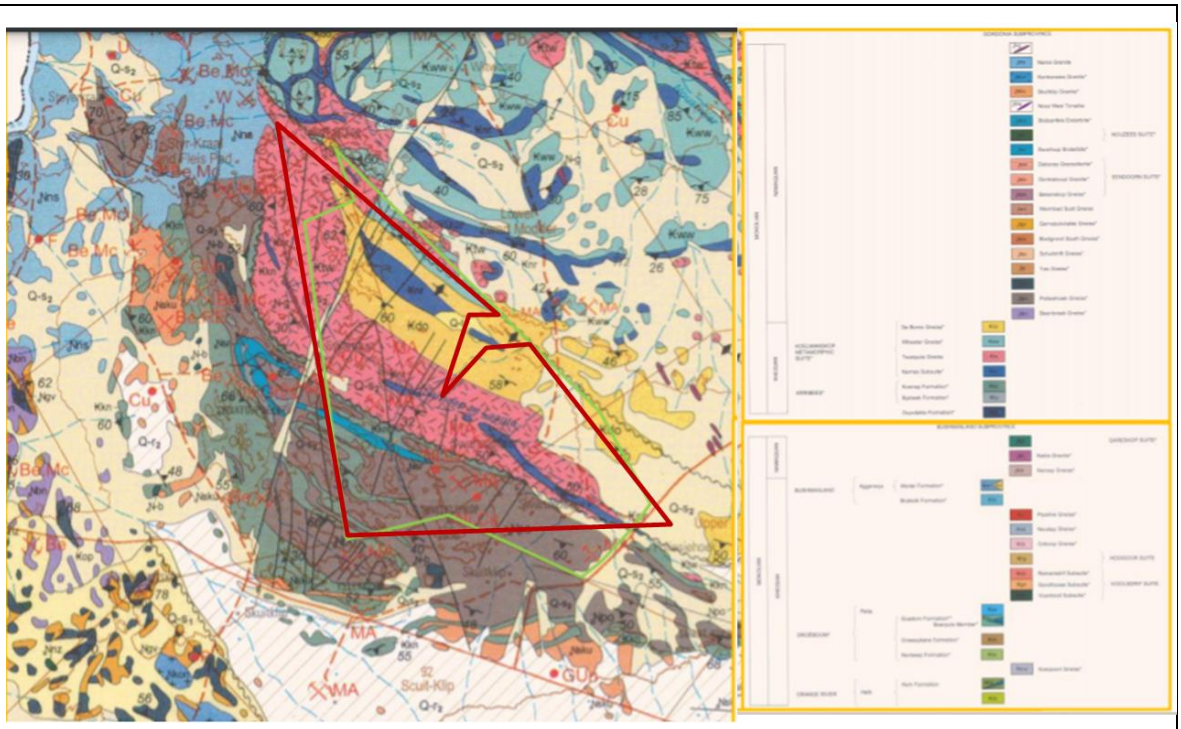


Figure 9-1: Geology of the proposed mining area

9.2 Type of Activity

An alternative to the type of activity would be agriculture and mining. It is however expected that due to low rainfall and high temperatures associated with the project area, the agriculture potential will be low.

A socio-economic impact assessment will be included in the impact assessment phase and the land use alternatives will also be investigated in more detail in the EIA phase once specialist investigations have been completed.

9.3 Design or Layout of the Activity

The design or layout of a mining project is determined by the shape, position and orientation of the mineral resource. It is expected that mining and rehabilitation will be undertaken sequentially to keep disturbed areas to a minimum.

The significance of the impacts will be investigated in depth during the impact assessment phase of the project.

9.4 The Technology to be used in the Activity

The technology used in a mining project will depend on the shape, position and orientation of the granite. This mining operation can be classified as quarrying the open or surface excavation of granite. Quarrying will be started at the surface and will maintain exposure to the surface throughout the extraction period. The excavation will have stepped or benched side slopes to ensure safety. Quarrying methods depend mainly on the desired size and shape of the stone and its physical characteristics and the main equipment used are diamond saws (rotary saws).

- Diamond saws are large diamond-impregnated circular blades up to 2 m in diameter that are used to form vertical cuts in the rock by moving the machine along a guideline or rail. Extremely accurate cuts can be made in this way.
- Wire saws consist of several pulleys over which pass an endless carborundum or diamond-impregnated steel wire.

The mining method will entail:

- The establishment of a flat floor through the use of diamond wire saws.
- The flat floor will be fitted with parallel rails which serve the rotary saws used to cut blocks from the ore body.
- The base of the blocks will be separated by small diameter plug and feather technique.
- The raw cut block will then be lifted out of the hole and placed for transport by block carrying front end loader to the dressing area where protuberances will be removed from the block.
- The 1st grade blocks will be transported to the dispatch yard and the 2nd grade blocks to a separate stockpile area.
- Waste blocks and offcuts will be transported front end loader to the waste rock dump area.

9.5 The Operation Aspects of the Activity

The operational plan for the mine is based on demand per granite colour. Access roads to be used will need to be negotiated with the landowners affected by the MRA and the conclusions from the negotiations will be included in the Draft EIA Report.

9.6 The Option of Not Implementing the activity

The no-go alternative would entail not mining the granite and leaving the landuse in the area as agriculture and mining. Should the proposed mining development not take place, it entails that the land will continuously be used for agriculture and mining, depending on the landowners needs and desirability for the future. Agriculture is undoubtedly one of the most important sectors in South Africa, with agriculture contributing to Kai !Garib's, as is noted in the LM's IDP, Northern Cape Province and South Africa's Gross Domestic Product (GDP), but not nearly as much as the mining sector.

By not implementing this project the local economic and employment opportunities and revenue as well as the mined granite which could potentially have benefitted the economy would be lost.

The socio-economic impacts of no implementing the project include local, regional and more than likely national impacts:

- Local and regional: planned socio-economic initiatives within the surrounding communities (refer Section 7.3 above) would not be able to go ahead; and
- National: Loss opportunities in foreign exchange for South Africa will be incurred as the potential to sell the granite internationally will be lost.

Although not fully assessed at this time, the additional potential negative impacts on the environment associated with granite mining would not exist should the project not be implemented. The environmental, social and economic impacts will be assessed in detail during the impact assessment phase to identify and address all negative impacts, where possible.

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10 Public Participation Process

The stakeholder engagement process, as part of the EA/WML process, is conducted in terms of NEMA (as amended) which provides clear guidelines for stakeholder engagement during an EIA. One of the general objectives of integrated environmental management set out in Section 23(2) of NEMA is to ensure the "*adequate and appropriate opportunity for public participation in decisions that may affect the environment*". The stakeholder engagement process is primarily aimed at affording stakeholders and Interested and Affected Parties (I&APs) the opportunity to gain an understanding of the project. In addition, the purpose of consultation with the landowners, affected parties and communities is to provide them with the necessary information about the proposed project so that they can make informed decisions as to whether and to which degree the project will affect them. The purpose of consultation with the stakeholders and I&APs is to provide the competent authority with the necessary information in order for them to make informed decisions.

Stakeholder engagement is a key element of the environmental decision-making process, and stakeholder engagement forms part of the scoping phase as well as the impact assessment phase. The process is primarily aimed at affording I&AP's the opportunity to gain an understanding of the proposed project. In addition, the purpose of consultation with the landowners, key stakeholders, and I&AP's is to provide them with the necessary information about the proposed project so that they can make informed decisions as to whether the project will affect them, and provide the EIA team with local knowledge of the area and raise concerns relating to the biophysical, socio-economic and cultural impacts that may arise.

The stakeholder engagement process will be conducted in terms of NEMA, which provides clear guidelines for stakeholder engagement during an EIA as summarised in Table 10-1.

Table 10-1: NEMA Stakeholder Guidelines

NEMA Section	Applicability to Stakeholder Engagement
Chapter 1	Outlines the principles of environmental management, several pertaining to public consultation (e.g. Chapter 1, subsections (2), (3), (4) (f), (g), (h), (k), (q) and (r).
Chapter 6,	Regulations 39 – 44 of the amended EIA Regulations GNR) 326, promulgated on 8 December 2014, specify the minimum requirements for stakeholder engagement in an EIA process conducted under the NEMA.
Section 24J of the NEMA	In 2017, the Minister of Environmental Affairs published, Section 24J of the NEMA in terms of**,** Public Participation Guidelines which guide the Public Participation Process in order to give effect to Section (2)(4)(f), (o) and 24 (1A)(C) of the NEMA.

The application process will commence with a scoping phase which will inform the impact assessment phase. This scoping phase will provide Interested and Affected Parties (I&AP's) an opportunity to provide the EAP with issues and concerns with respect to the proposed project in order to inform the technical studies so that they can evaluate these concerns during the EIA phase of the project.

The draft Scoping and EIA Reports will be made available for public review prior to submission to the DMR for authorisation. All the comments received will be captured and addressed where feasible in the Scoping and EIA Reports.

Figure 10-1 provides a diagram of an Integrated Stakeholder Engagement Process for the proposed project.

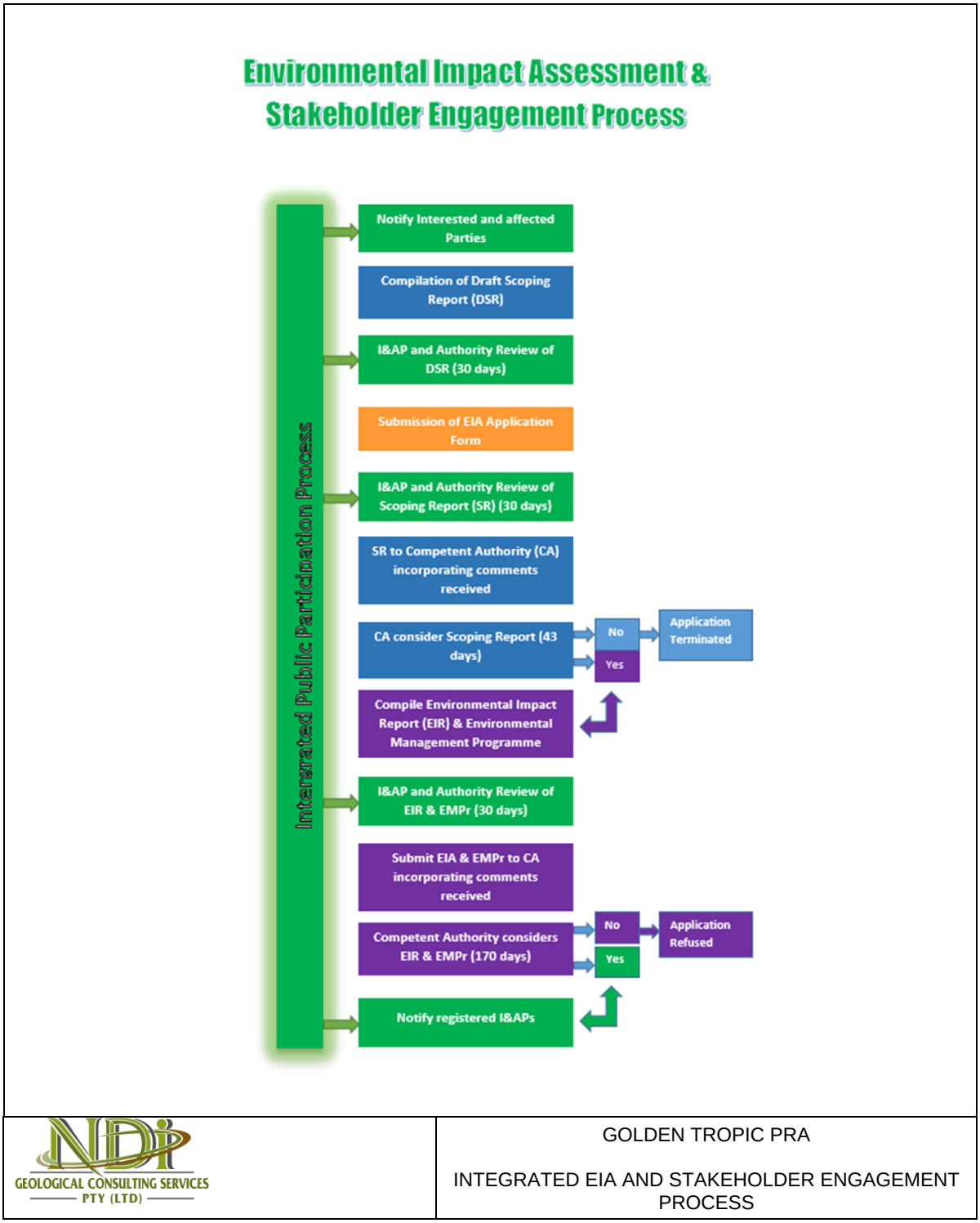


Figure 10-1: Integrated EIA and Stakeholder Engagement Process

All the above-mentioned guidelines have been incorporated into this stakeholder engagement process. The application will be submitted to the DMR for authorisation as the competent authority. Identified commenting authorities on this application include:

- DWS – Regional Office;
- SAHRA – Provincial;
- Kai !Garib Local Municipality;
- ZF Mgcawu District Municipality; and
- Northern Cape Department of Nature Conservation (DENC).

10.1 Details of the Public Participation Process

10.1.1 Stakeholder Identification Interested and Affected Parties

Interested and Affected Parties (I&APs) were identified using GIS and cadastral information to identify affected and adjacent properties. The affected and adjacent property owners were identified using the surveyor general website, www.deedsweb.gov.za. In addition, registered I&AP's were also sourced from responses to the advertisements, site notices and written notification to I&AP's associated with the project.

The I&AP's register will be maintained for the duration of the study where the details of stakeholders are captured and automatically updated upon communication to the EAP. The identification, registration, and comments from I&AP's will be an on-going activity.

The identified affected and adjacent properties are provided in Table 10-2 and Table 10-3.**Error! Reference source not found.**

Table 10-2: List of Affected Farm and Farm Portions

Farm	Portions	21 Digit Survey General Code
Zwart Modder Mountain No. 446 (445)	A portion of the farm	C03600000000044600000

Table 10-3: List of Adjacent Farm and Farm Portions

Farm	Portions	21 Digit Survey General Code
Scuit-Klip 92	Portion 1	C03600000000009200001
Zwart Modder Mountain No. 446 (445)	Remaining portion of the farm	C03600000000044600000
Scuit-Klip 92	Remainder	C03600000000009200000
Scuit-Klip 92	Portion 2	C03600000000009200002
Upper Zwart 78	Remainder	C03600000000007800000
Upper Zwart 78	Portion 2	C03600000000007800002
Lower Zwart Modder 79	Portion 1	C03600000000007900001
Lower Zwart Modder 79	Remainder	C03600000000007900000
OUP 80	Remainder	C03600000000008000000

A map of the affected and adjacent farm portions and farm portions of the site are illustrated in **Error! Reference source not found.**

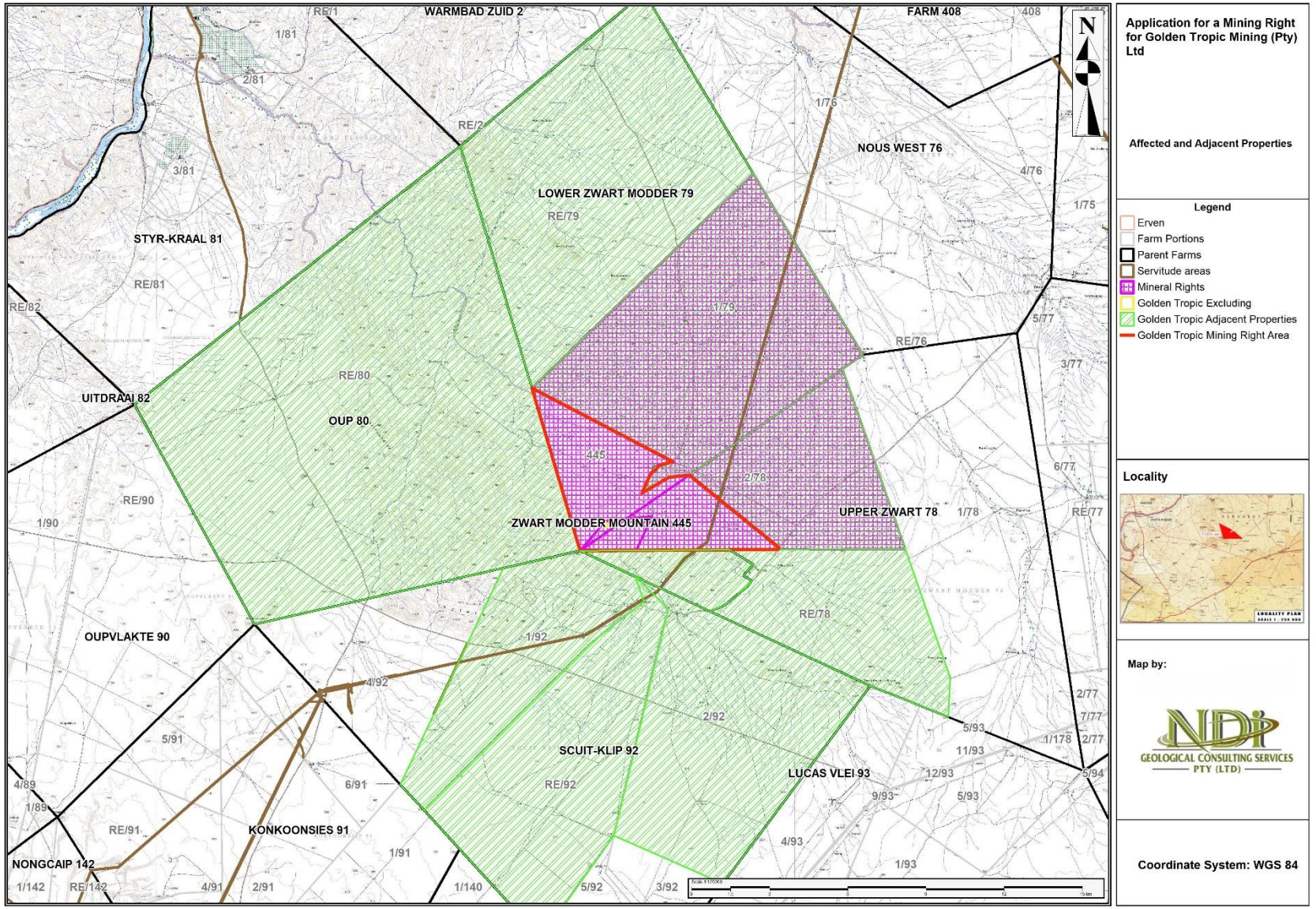


Figure 10-2: Affected and Adjacent Properties

10.1.2 Notification and Registration of the I&APs

Ndi Geological Consulting Services (Pty) Ltd made use of various methods to inform stakeholder of Golden Tropic's intention to undertake the required EA/WML process. Stakeholders were provided with the opportunity to participate and register as I&AP's during the announcement phase of the project.

Distribution of Notification Letters

Notification letters were sent to identified I&AP's, informing them of the proposed project.

Site Notice Placements

Sites notice boards (Size A2: 600 mm X 420 mm) notifying stakeholders and I&AP's of the proposed activity were placed at conspicuous places in the project area. These areas of placement were determined according to the quantity of potential I&AP's that may pass by.

Newspaper Advertisements

Newspaper advertisements notifying stakeholders about the proposed project and the opportunity to participate in the EIA process were placed in the newspapers.

10.1.3 Notification of the Availability of the Draft Scoping Report

The availability of the DSR was announced by means of SMS, letters and emails to registered I&APs. The DSR, announcement letters and comment forms were made available for public viewing and comment in the same public places as for the project announcement phase.

10.1.4 Stakeholder commenting period

The Scoping Report will be made available for a 30-day commenting period from 14 June 2021 to 16 July 2021.

The Scoping Report will also be made available to the competent and commenting authorities during the 30-day stakeholder review and commenting period. Stakeholders are encouraged to submit their written comments to the EIA team through the contact details provided. Stakeholders could also fill in comment forms at one of the public places and/or contact the EAP via telephone, email or fax to submit comments and to discuss any issues of concern.

All comments received thus far have been incorporated into the Scoping Report. All comments raised by stakeholders will be recorded and will be included in the Final Scoping Report. The comments will also be collated into the Comments and Responses Register (CRR) which will form an Appendix to the final Scoping Report.

10.1.5 Public Meeting

Depending on the responses received during the registration period, and where requested by the stakeholders, a public meeting may be held during the Scoping Phase of the project, ensuring that the COVID-19 Regulation requirements are met. This would preferably be undertaken through, where possible, online meetings. In cases where stakeholders do not have internet access, the meetings will be held with no more than 50 stakeholders in attendance. Stakeholders will be informed of the COVID-19 Regulation requirements that will be enforced during the meeting.

The stakeholders will have the opportunity to comment on the report and plan of study and raise issues that may need to be included in the impact assessment phase. All comments received will be incorporated into the final Scoping Report.

10.1.6 Comment and Response Report

A summary of comments received will be included in the CRR, which will form an Appendix to the Final Scoping Report to be submitted to the DMR however comments received to date from pre-application consultations are included in Section 10.1.7.

10.1.7 Summary of Issues Raised by I&APs

There are no comments that have been received from the stakeholders during the project notification process. Any comments received throughout the EIA process will be included in Table 10-4..

Table 10-4: Summary of the Issues Raised by the I&APs

Interested and Affected Parties **List the names of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted.**		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Consultation Status (consensus dispute, not finalised, etc)**
AFFECTED PARTIES					
Landowner/s	X				
Lawful occupier/s of the land	X				
Landowners or lawful occupiers on adjacent properties	X				
Municipal councillor	X				
Municipality	X				
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA	X				

Interested and Affected Parties **List the names of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted.**		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Consultation Status (consensus dispute, not finalised, etc)**
Communities	X				
Dept. Land Affairs	X				
Traditional Leaders	X				
Dept. Environmental Affairs	X				
Other Competent Authorities affected	X				
OTHER AFFECTED PARTIES	X				
INTERESTED PARTIES	X				

10.2 Public Participation process going forward

The Public Participation Process will be ongoing throughout all the project phases. The stakeholder engagement proposed for the Impact Assessment Phase is presented below.

10.2.1 Stakeholder engagement during impact Assessment phase

Stakeholders will be informed once the competent authority (DMR) has accepted the Scoping Report and granted permission for the commencement of the impact assessment phase of the process.

Stakeholder engagement during the Impact Assessment will focus on providing information and opportunity for public comment on the findings and recommendations of the impact assessment and management programme/plan. The draft findings will be presented in the Draft EIA / EMPr Report to be reviewed and commented on by the public.

The availability of the Draft EIA and EMPr Report for public comment will be announced in the same newspaper as for project announcement.

Registered I&AP's will be informed through SMSes and letters distributed by email in advance of the report being made available. Stakeholders will be invited to a public meeting where the contents of the Draft EIA/EMPr will be presented and stakeholders will have the opportunity to comment. Stakeholders will be invited to comment on the Draft EMPr Report in any of the following ways:

- By raising comments during meetings where the content of the Draft EIA/EMPr Report will be presented;
- By completing comments forms available with the report at public places, and by submitting additional written comments, by email or fax, or by telephone, to EAP; and
- The draft EIA/EMPr Report will be available for comment for a period of 30 days at public places in the project area as per the announcement and scoping phase and placed on the Ndi Geological Consulting Services (Pty) Ltd website.

Depending on the responses received during the registration period, and where requested by the stakeholders, a public meeting may be held during the impact assessment phase of the project, ensuring that the COVID-19 Regulation requirements are met. Should a meeting be required, where possible online meetings will be held, and where stakeholders do not have internet access, the meetings will be held with no more than 50 stakeholders in attendance. Stakeholders will be informed of the COVID-19 Regulation requirements that will be enforced during the meeting.

Where necessary, comments and issues raised by I&AP's during the commenting period will be consolidated into the Final EIAR and EMPr with the relevant response issued by the EAP. The Final EIAR and EMPr will then be submitted to the DMR for decision making. The comments will also be collated into the CRR that will form an Appendix to the Final EIAR.

10.2.2 Notification of authority decision

Registered stakeholders will be advised in writing (mail, email, fax and SMS) of the authority decision on the EIA / EMPr, and details on the procedure to appeal the decision. Notification to registered stakeholders will summarise the authorities' decision and provide information according to legal requirements on how to lodge an appeal should they so wish.

11 Baseline Characterisation

This section provides a general overview of the status quo of the environmental and social context within which the proposed project is located. All of the proposed activities will take place within the affected properties. While most of the descriptions below are focused on the site itself, where necessary the regional context of the environmental features is also explained. For each environmental aspect discussed below, proposed environmental issues/impacts have been highlighted qualitatively where applicable. The EIA will explore these issues on a quantitative level.

11.1 Geographical

The proposed project area is situated in the Kai !Garib Local Municipality's area of jurisdiction, within the ZF Mgcawu District Municipality, Northern Cape Province (Figure 11-1). The LM consists of 3 large towns: Kakamas, Keimoes and Kenhardt.

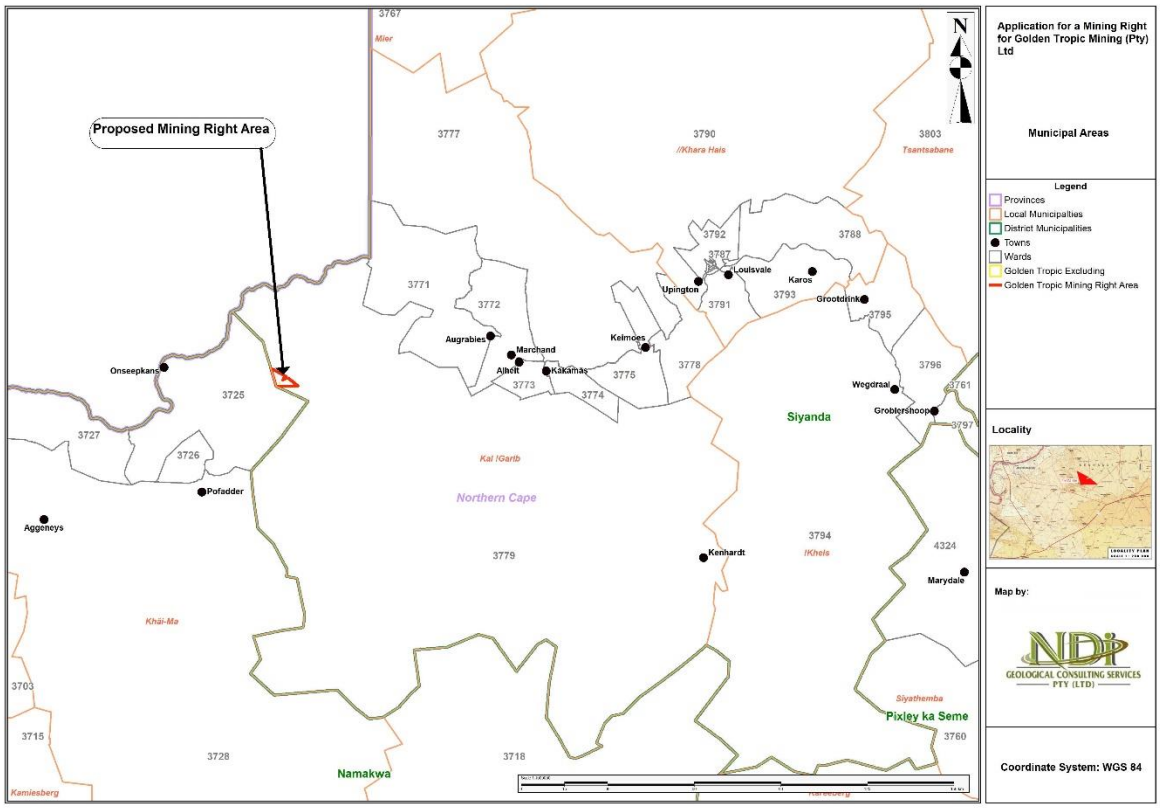


Figure 11-1: Municipal Areas

11.2 Topography

The 20 m contours show that the north-eastern section of the project site has a flatter gradient compared to the north-western, south western and south-eastern sections (Figure 11-2).

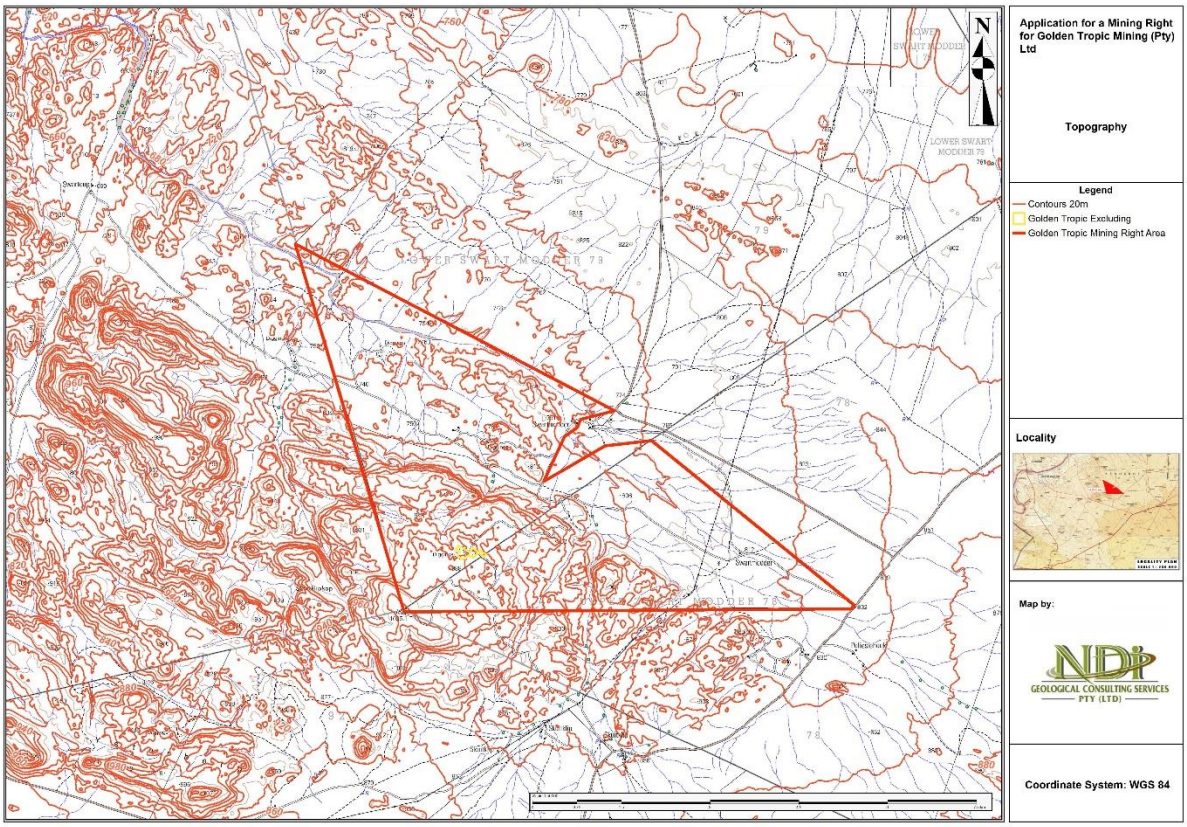


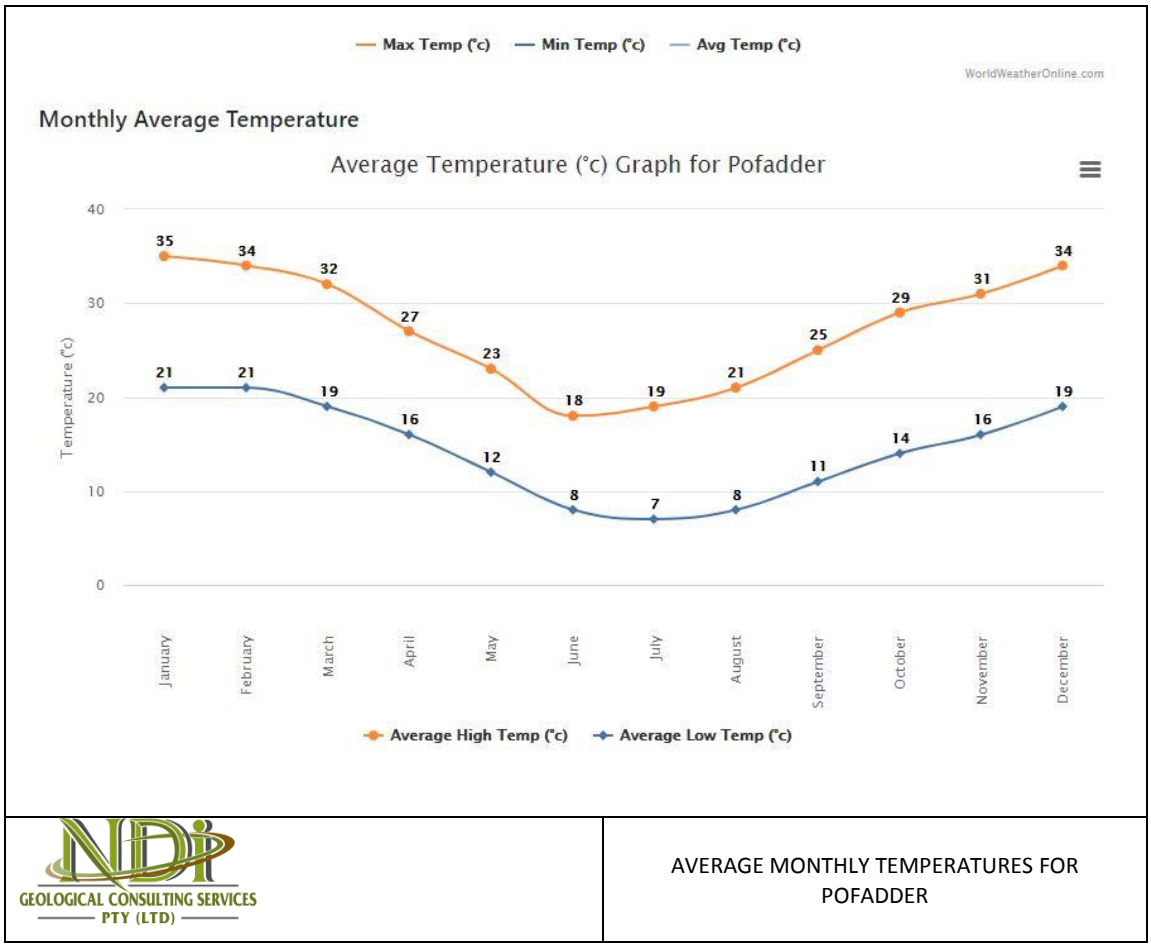
Figure 11-2: Topography

11.3 Climate

The climate is continental and is little affected by the ameliorating influences of the oceans. It is an arid biome, where most of the rivers are non-perennial, apart from the Orange River and the few permanent streams in the south-west that originate in the neighbouring higher rainfall areas.

11.3.1 Average Monthly Temperatures

The average monthly temperatures (Minimum and Maximum) as received from Pofadder are indicated in Figure 11-3.



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AVERAGE MONTHLY TEMPERATURES FOR POFADDER

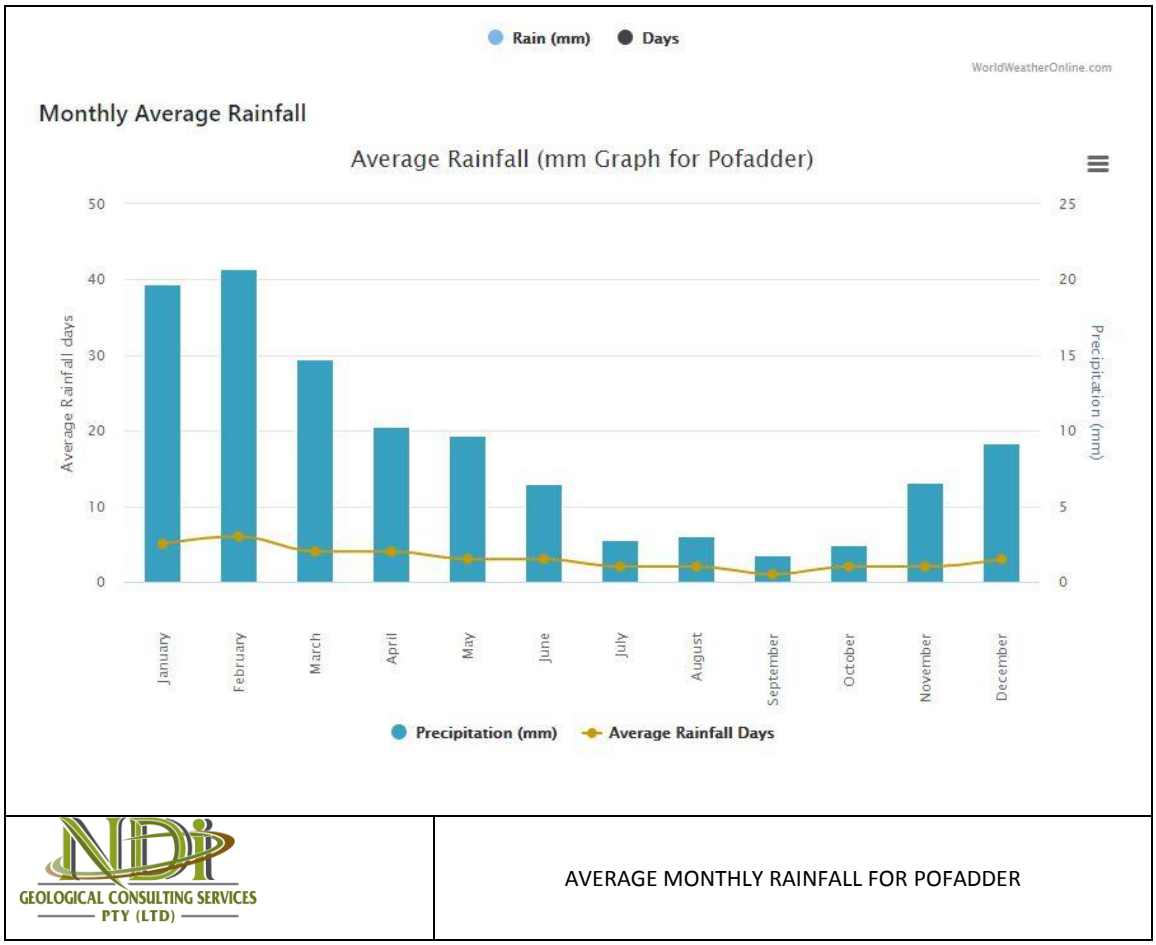
Figure 11-3: Average Monthly Temperatures for Kimberley (Source: Weather SA)

The figure indicates that:

- The highest maximum temperature is experienced during December, January, February and March where the average maximum goes beyond 32 °C.
- The coldest months of the year are June and July, where the average temperature drops well below 10 °C.

11.3.2 Average Monthly Rainfall

Figure 11-4 indicates the average monthly rainfall for the region.



GEOLOGICAL CONSULTING SERVICES PTY (LTD)

AVERAGE MONTHLY RAINFALL FOR POFADDER

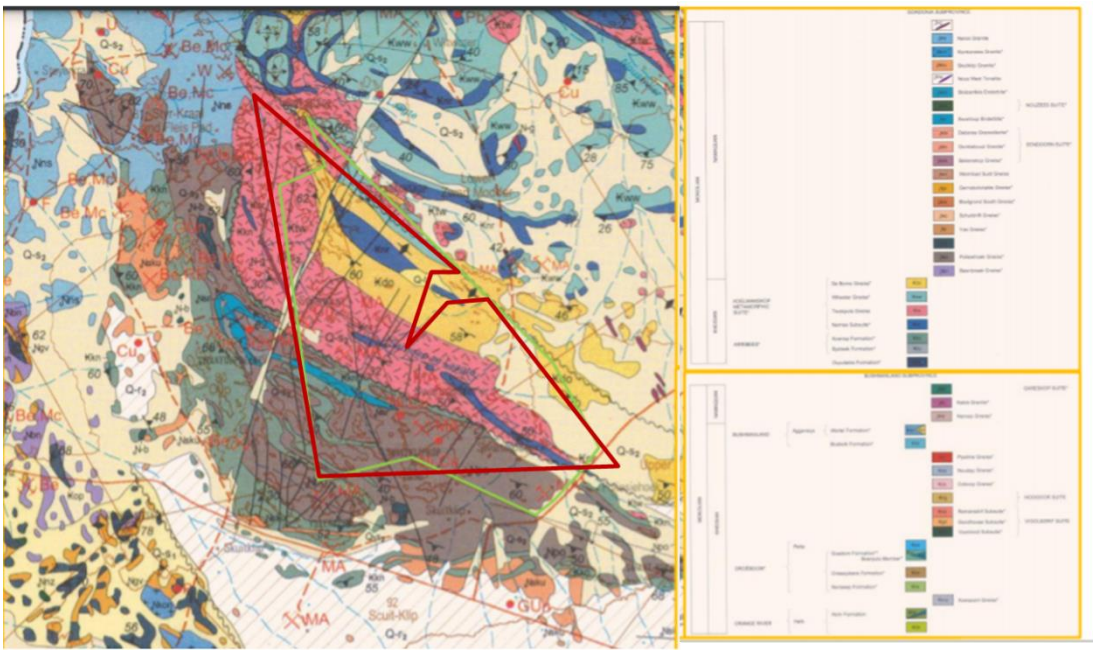
Figure 11-4: Average Monthly Rainfall for Kimberley (Source: Weather SA.)

The average monthly rainfall data indicates that:

- The highest rainfall months are January to February with an average of ±20mm; and
- The dry months are June and September with an average of below 5mm.

11.4 Geology

The proposed mining area is geologically located within the Bushmanland Group of the Namaqualand Metamorphic Complex which comprises of granitic gneiss as the majority lithology. The granites in this area are considered to have potential as sources of dimension stone. They are also part of the Swartmodder Granite. The colours of the granite vary from terra-cotta red through pinkish to dark grey. Figure 11-5 shows the geology of the property.



GEOLOGICAL CONSULTING SERVICES PTY (LTD)	GEOLOGY

Figure 11-5: Local Geology

11.5 Surface Water Resources

The project is located within quaternary catchments, which include C81E (located within the Lower Orange Water Management Area (WMA) (Figure 11-7).

The Samoep River and several tributaries and drainage lines traverse the project area (Figure 11-6). The Samoep River is not considered a Freshwater Ecosystem Priority Area (FEPA).

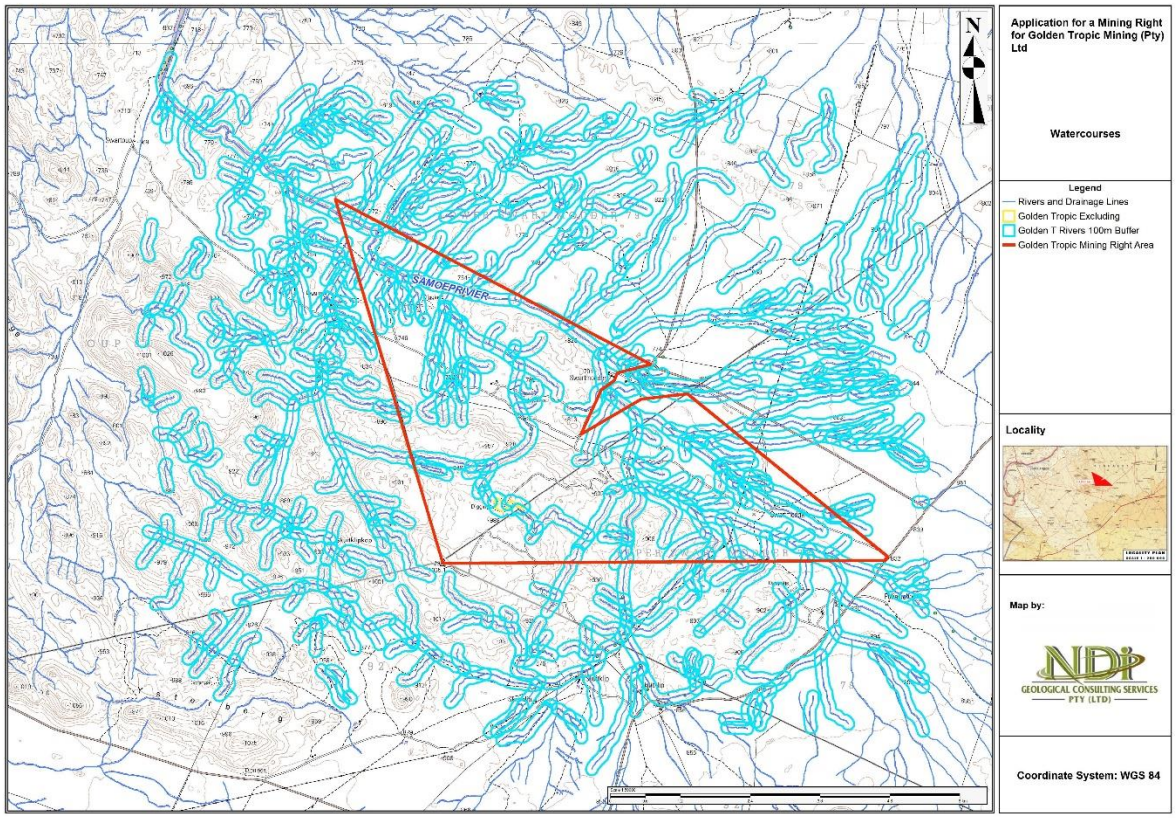


Figure 11-6: Rivers, Streams and Drainage Lines

According to the SANBI NFEPA (2011), the affected quaternary catchment areas are not regarded as important in terms of fish sanctuaries, rehabilitation or corridors.

In addition, the project area is also not considered important in terms of translocation and relocation zones for fish.

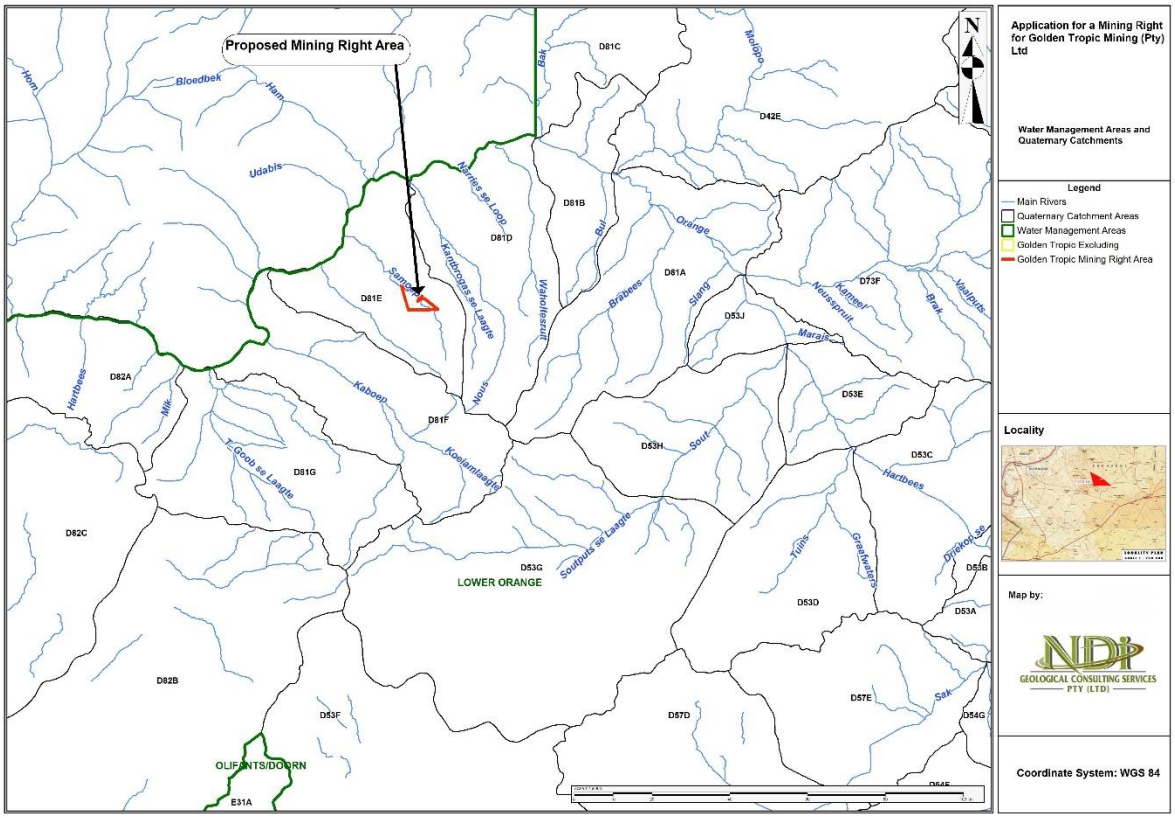


Figure 11-7: Water Management Areas and Quaternary Catchment Areas

11.6 Wetlands

The SANBI data shows that there are no wetlands occurring on the study area.

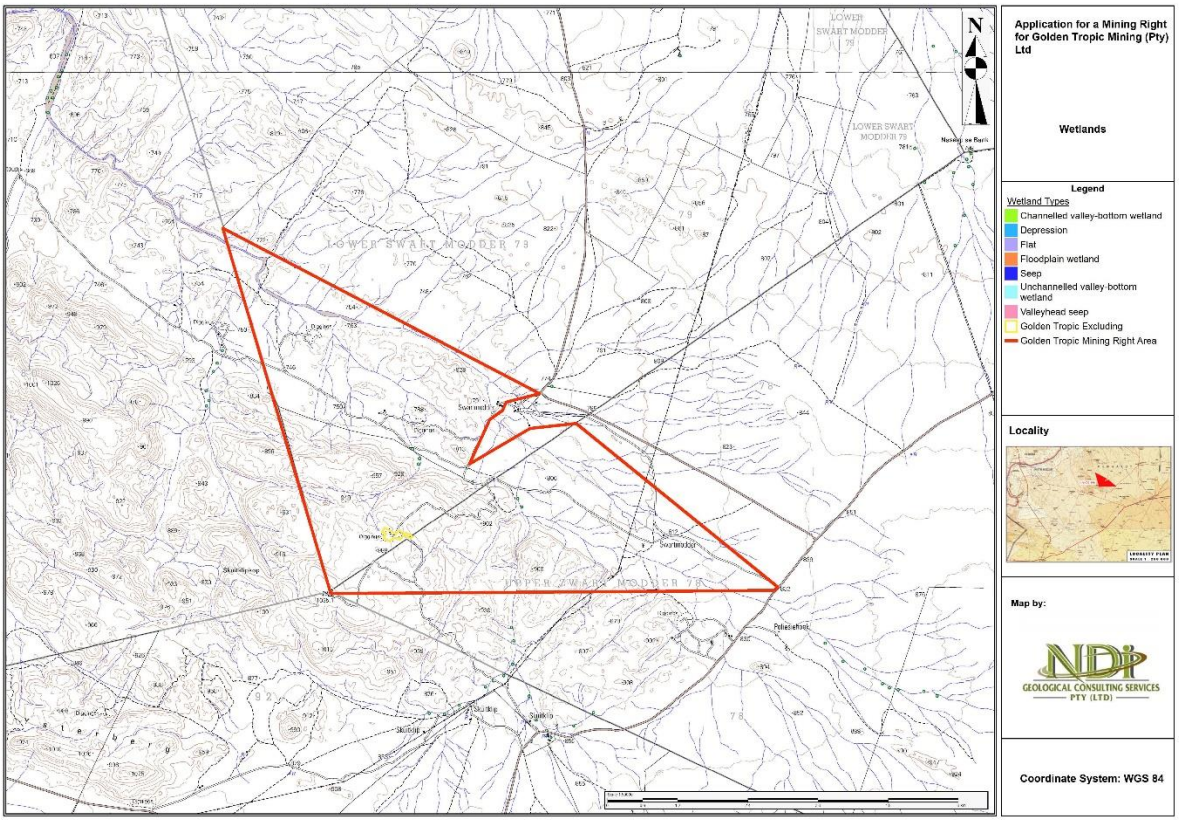


Figure 11-8: Wetland Types

11.7 Groundwater

11.7.1 Groundwater Yield

The DWS National Groundwater Archive (NGA) shows that the groundwater yield in the project area is low and is between 0.1 and 0.5l/s and that the aquifer is intergranular and fractured (

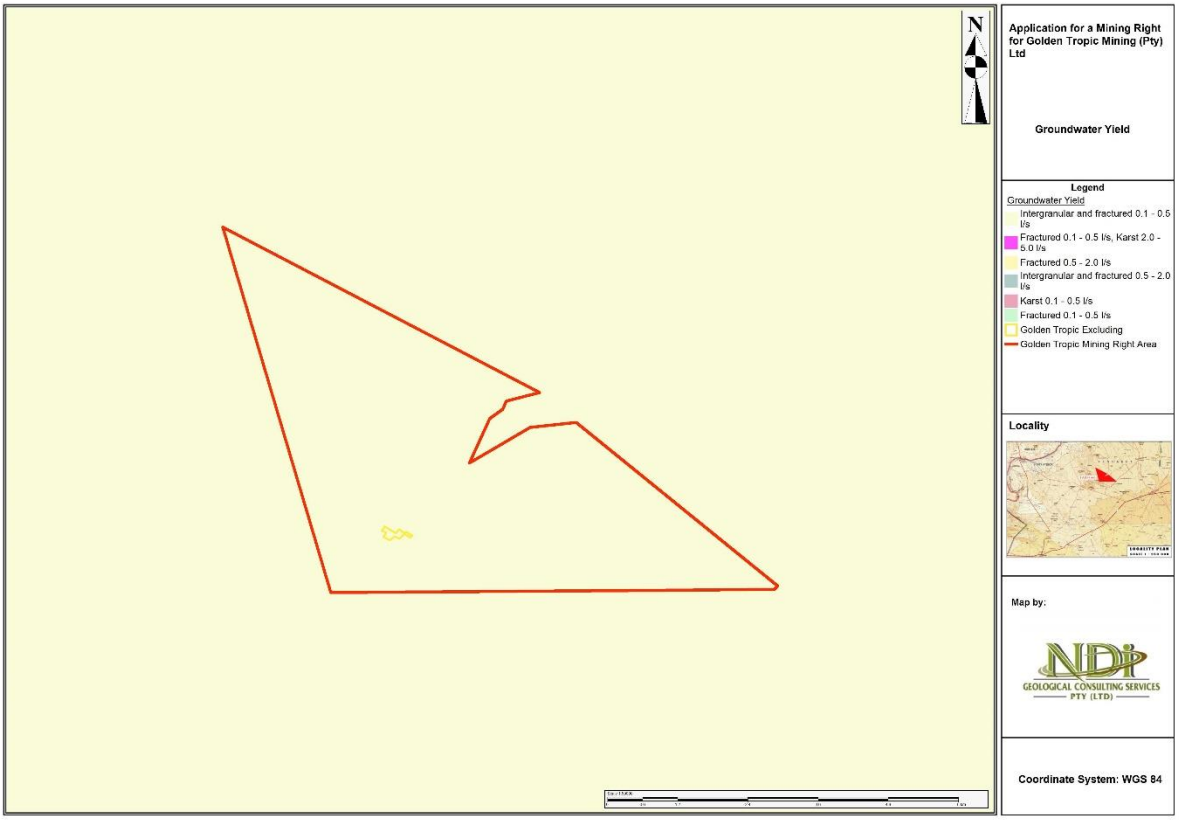


Figure **11-9**).

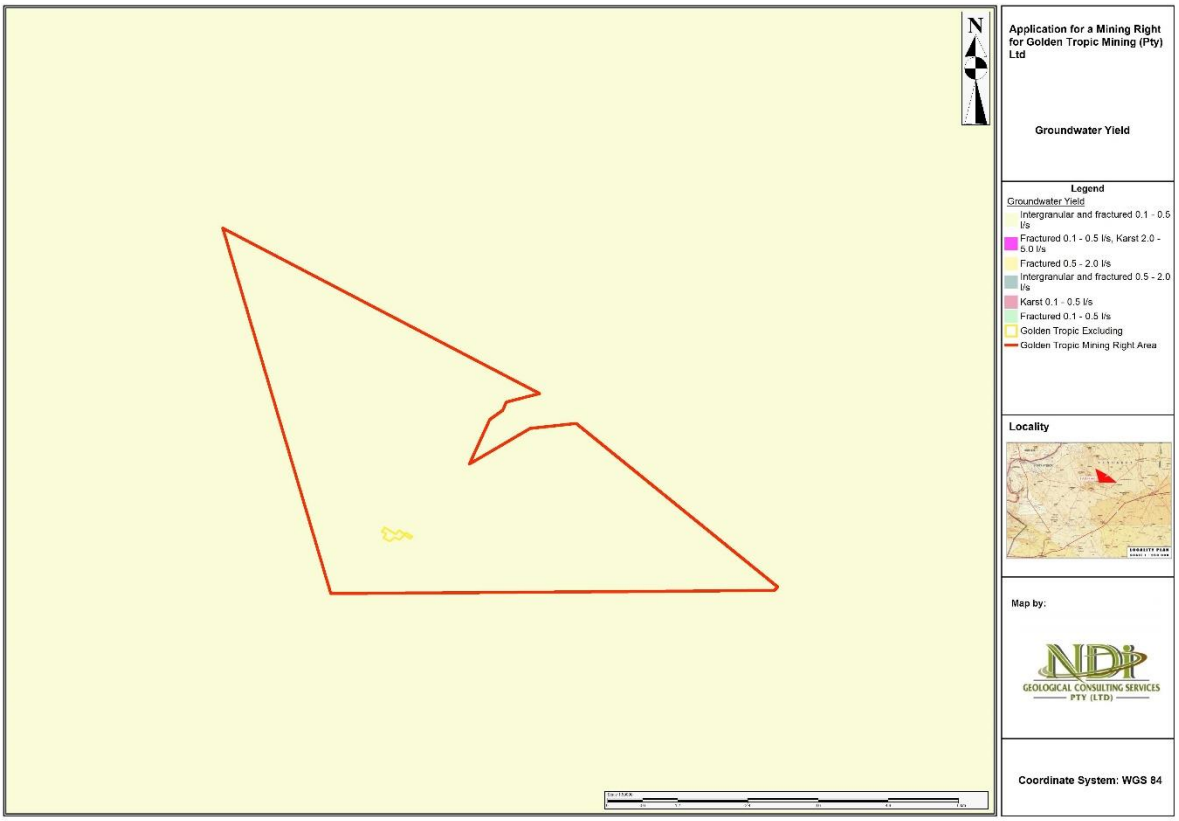


Figure 11-9: Groundwater Yield

11.7.2 Groundwater Recharge

The groundwater recharge is considered low, between 0 and 1 000mm/yr (Figure 11-10). This is expected due to the dry and hot climate in the area.

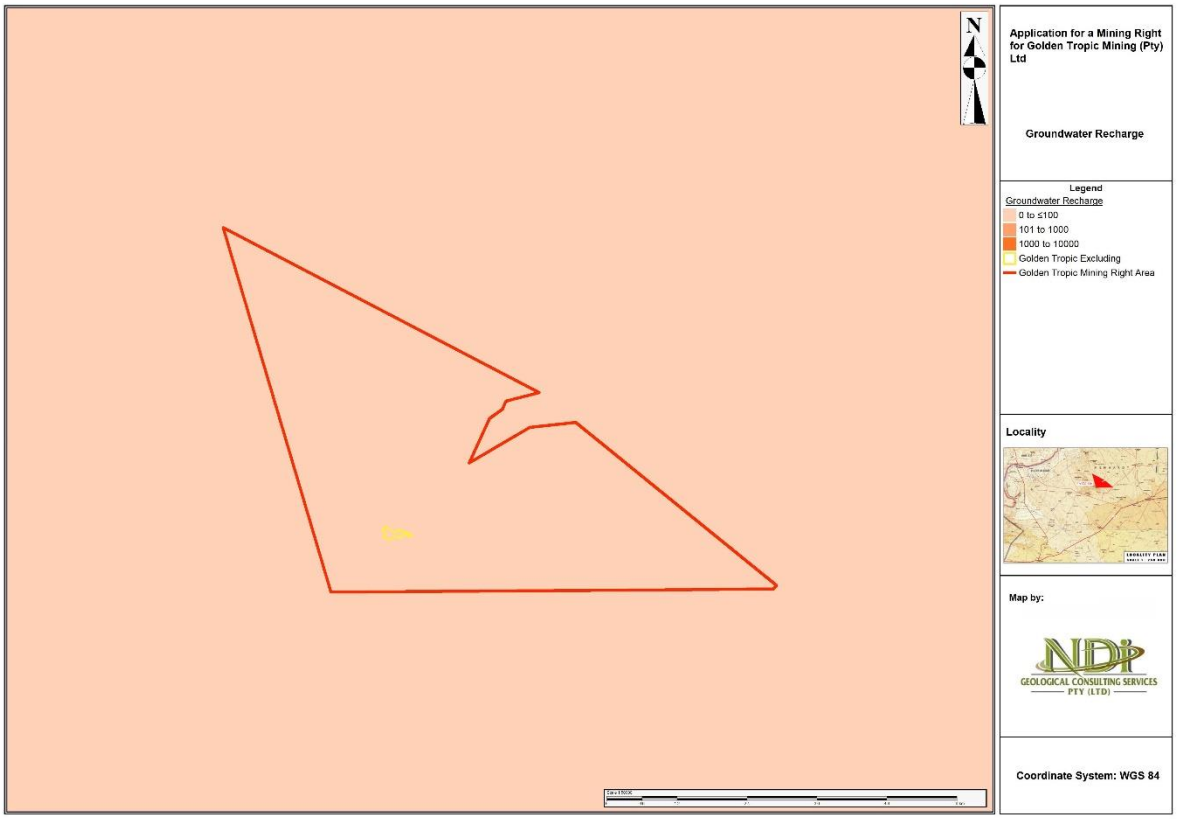


Figure 11-10: Groundwater Recharge

11.7.3 Groundwater Quality

The groundwater in the area is generally of poor quality, with Electrical Conductivity (EC) levels between 300 and 1 000 mS/m as shown in Figure 11-11.

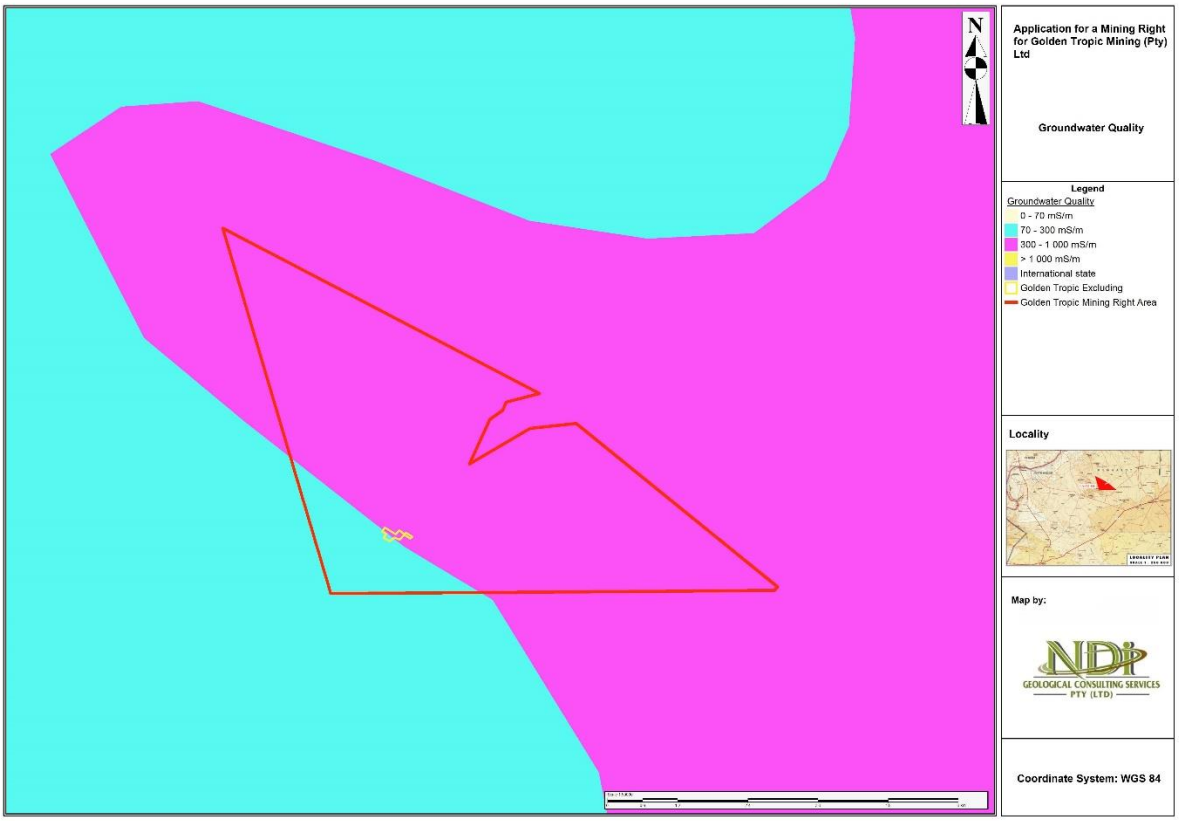


Figure 11-11: Groundwater Quality

11.8 Biodiversity

11.8.1 Biomes

The proposed mining area is located in the Nama Karoo Biome as shown in Figure 11-12. The Nama Karoo Biome is a vast, open, arid region dominated by low-shrub vegetation and abundance of rock. Although not remarkably rich in species or endemism, the flora and fauna of the region are surprisingly adapted to its climatic boundaries. The major pressure to biodiversity is posed by overgrazing farm animals, introduction of alien species of plants, mining and conversion of native habitat to agriculture. In this biome the temperatures can vary dramatically between day and night times. This biome is dominated by low growing shrubs. Reptiles and small invertebrates are common.

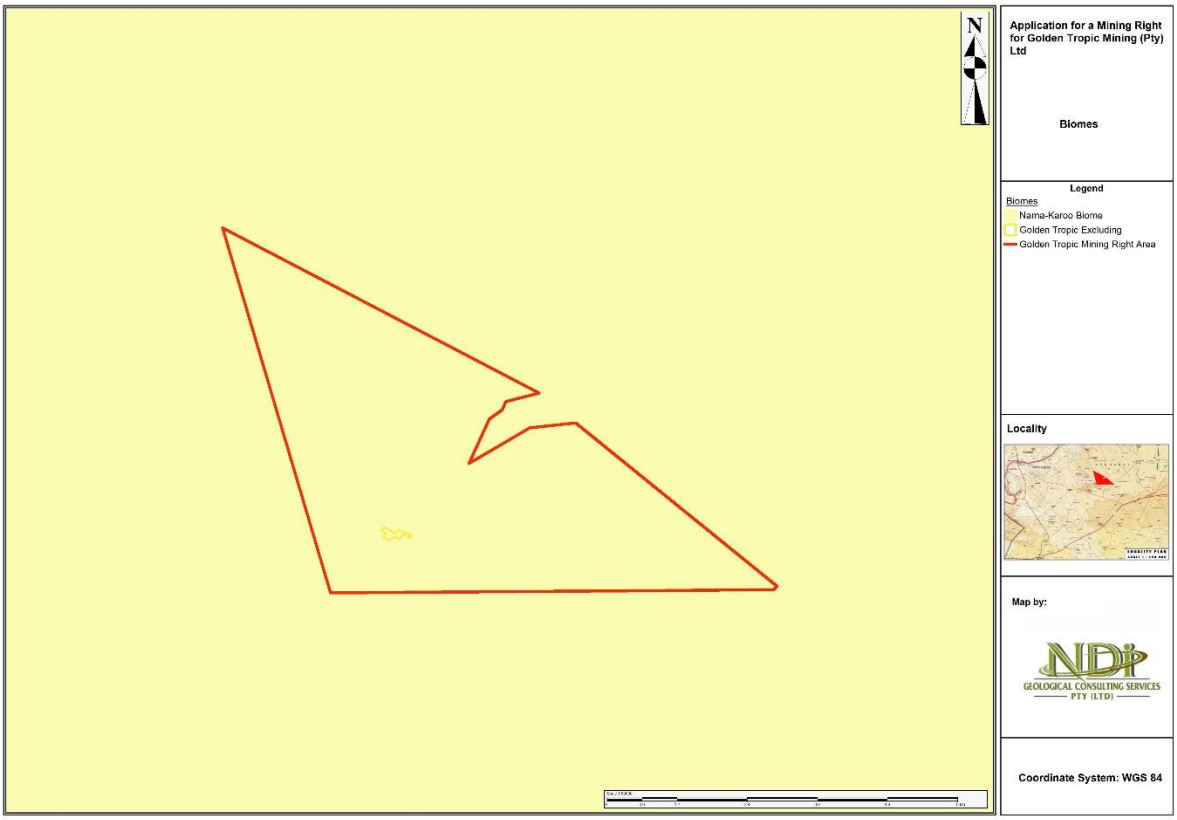


Figure 11-12: Biomes

11.8.2 Bioregions

The proposed mining area is located in the Bushmanland Bioregion (Figure 11-13). The Bushmanland Bioregion occurs from the north-eastern part of the Namaqualand area in the west to around Prieska in the east and from around Upington in the north to the Brandvlei/Sak River vicinity in the south.

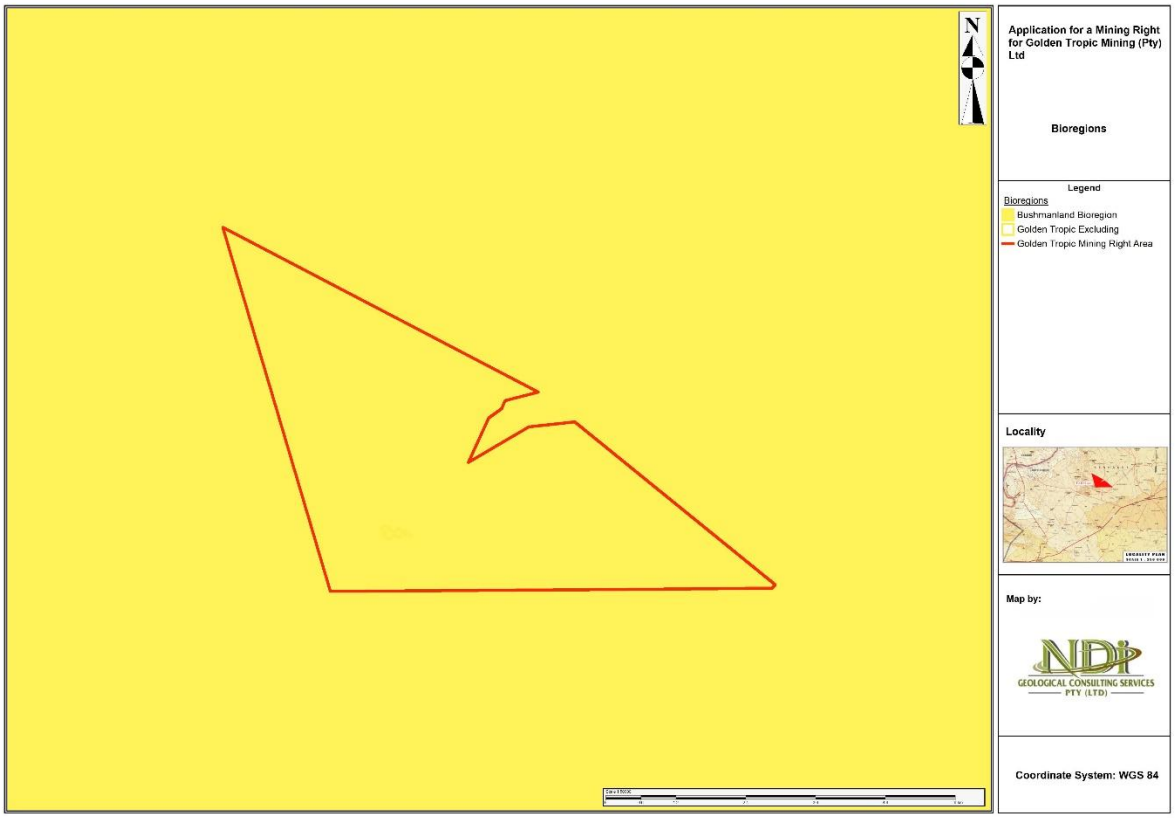


Figure 11-13: Bioregions

11.8.3 Vegetation Types

According to the SANBI remaining vegetation types database, there is no remaining natural vegetation on the affected area.

The proposed site is associated with ecosystems that are considered to be threatened (Figure 11-14). The threatened ecosystems associated with the site are the Bushmanland Arid Grassland, Blouputs Karroid Grassland and Lower Gariep Broken Veld.

- Lower Garieb Broken Veld: According to Mucina and Rutherford (2006) this vegetation type is associated with hills and low mountains, slightly irregular plains but with some rugged terrain with spare vegetation dominated by shrubs and dwarf shrubs, with annuals conspicuous, especially in spring, and perennial grasses and herbs. Groups of widely scattered low trees such as Aloe dichotoma var. dichotoma and Acacia mellifera subsp. detinens occur on slopes of koppies and on sandy soils of foot slopes respectively. This vegetation type is Least Threatened, with 4% statutorily conserved in the Augrabies Falls National Park, with only a very small part transformed.
- Blouputs Karroid Thornveld: Mucina and Rutherford (2006) describe this vegetation type as an open shrubland on slightly undulating rocky plains dominated by patchy occurrences of *Acacia mellifera* subsp. *detinens.* Prominent lower shrubs include *Phaeoptilum spinosum*, *Boscia foetida* and *Cadaba aphylla*, while the dominant grasses include *Schmidtia Kalahari-ensis* and *Stipagrostis ciliate, S. obtuse* and *S. uniplumis*. This vegetation type is Least Threatened, with about 27% statutorily conserved in the Augrabies Falls National Park, with only a very small part transformed.
- Bushmanland Arid Grassland: According to Mucina and Rutherford (2006) this vegetation is associated with extensive to irregular plains on a slightly sloping plateau sparsely vegetated by grassland dominated by white grasses which gives this vegetation type the character of semi-desert ‘steppe”, with low shrubs in places, and annual herbs after good rainfalls. This vegetation type has small patches conserved in the Augrabies Falls National Park with very little of the area transformed.

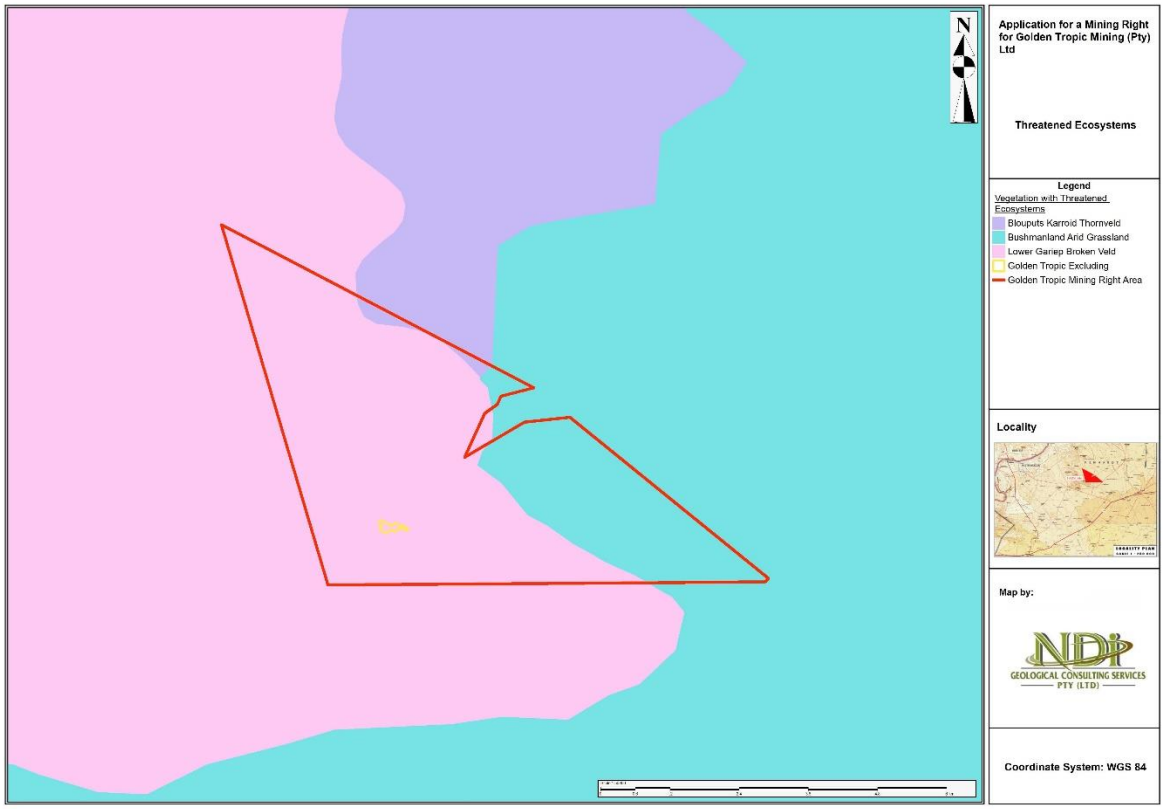


Figure 11-14: Vegetation with Threatened Ecosystems

According to SANBI, the all the ecosystems are classified as Least Threatened (Figure 11-15).

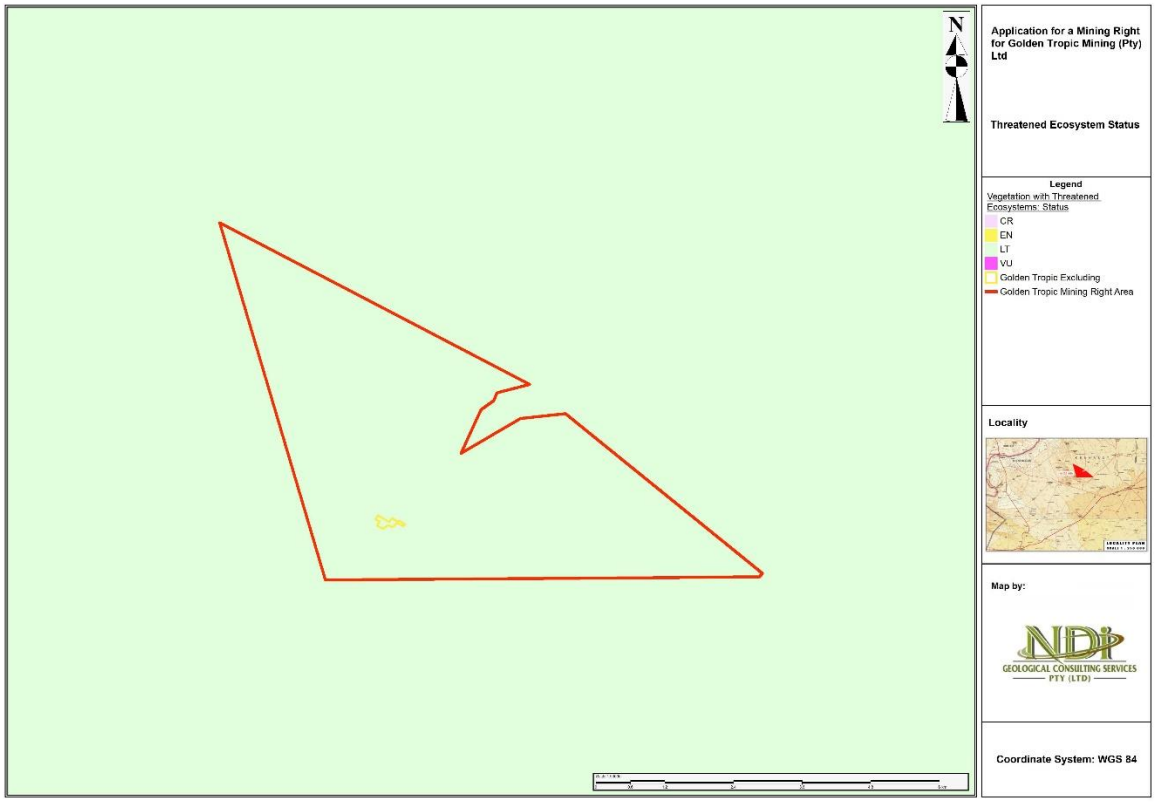


Figure 11-15: Status of Vegetation with Threatened Ecosystems

11.9 Conservation Plan

According to the Northern Cape Provincial Biodiversity Conservation Plan (C Plan), a portion of the affected property is classified as a Critical Biodiversity Area (CBA (areas required to meet biodiversity targets for ecosystems, species and ecological processes, as identified in a systematic biodiversity plan) (Figure 11-16).

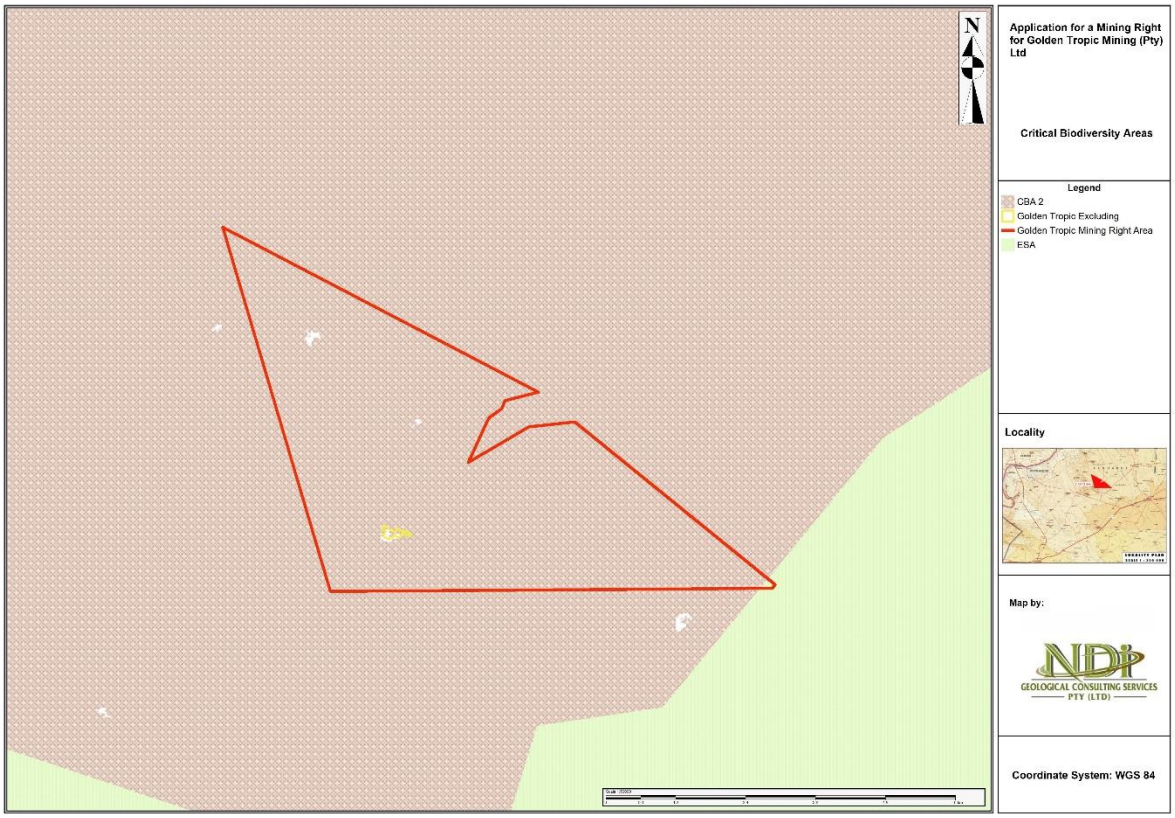


Figure 11-16: Northern Cape C Plan Areas of Conservation Importance

The Namakwa District CPlan shows that a portion of the affected area is classified as an Ecological Support Area (ESA). Ecological Support Areas are not essential for meeting biodiversity targets but play an important role in supporting the ecological functioning of Critical Biodiversity Areas (CBAs) and/or in delivering ecosystem services.

Figure 11-17 provides a map showing areas of conservation importance that may be affected by the mining activities.

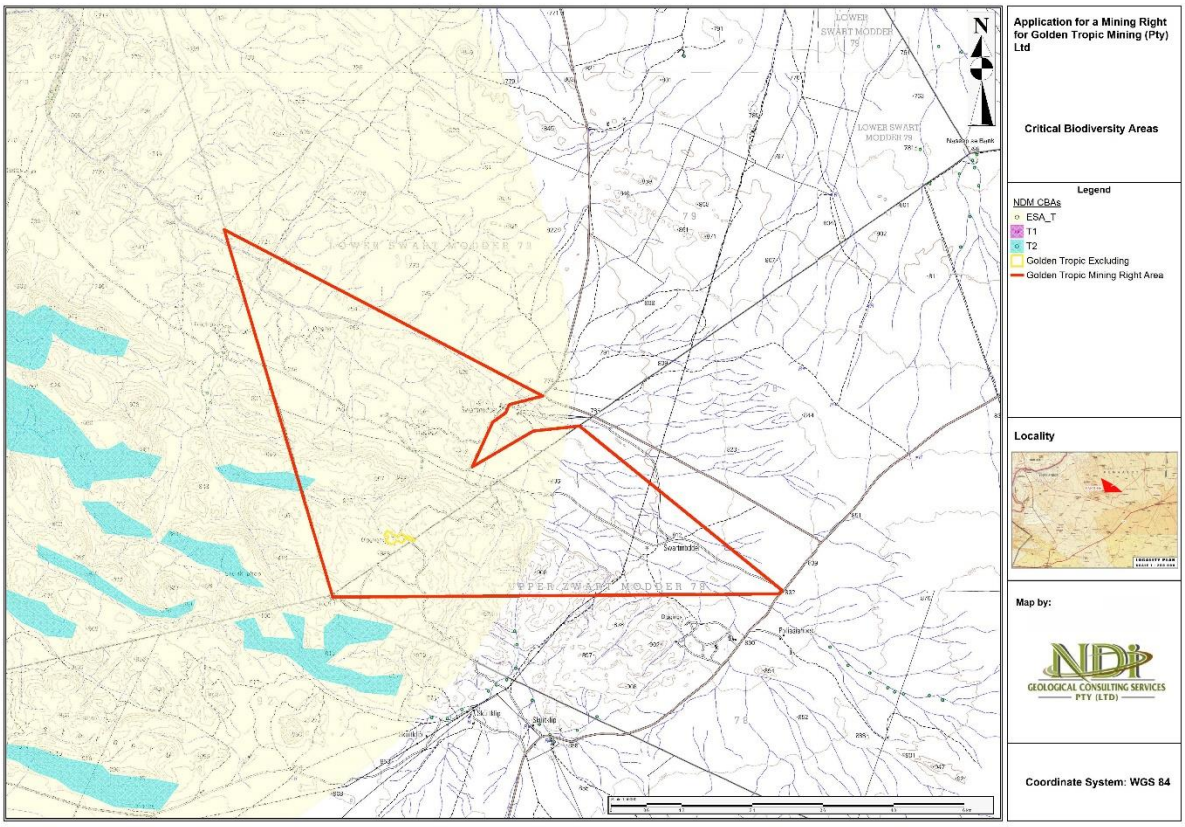


Figure 11-17: NDM C Plan Areas of Conservation Importance

11.10 Heritage Resources

Heritage resources may be tangible, such as buildings and archaeological artefacts or intangible such as landscapes and living heritage. Their significance is based upon their aesthetic, architectural, historical scientific, social, spiritual, linguistic economic or technological values; their representation of a particular period; their rarity and their sphere of influence. There are a number of heritage and cultural resources in the Northern Cape Province.

A site specific Heritage Impact Assessment (HIA) will be conducted where potential impacts on heritage resources will be assessed in the impact assessment phase of the project and mitigation measures to be implemented in the event that heritage and cultural resources are encountered will be included in the EMPr. .

11.11 Noise

The MRA area is located in a rural area and the typical noise rating in the area is expected to be that for rural districts / suburban districts with little road traffic. According to SANS 10103:2008, the continuous noise rating level is thus likely between 35 dB(A) at night to 45 /50 dB(A) during the day.

11.12 Socio-Economic

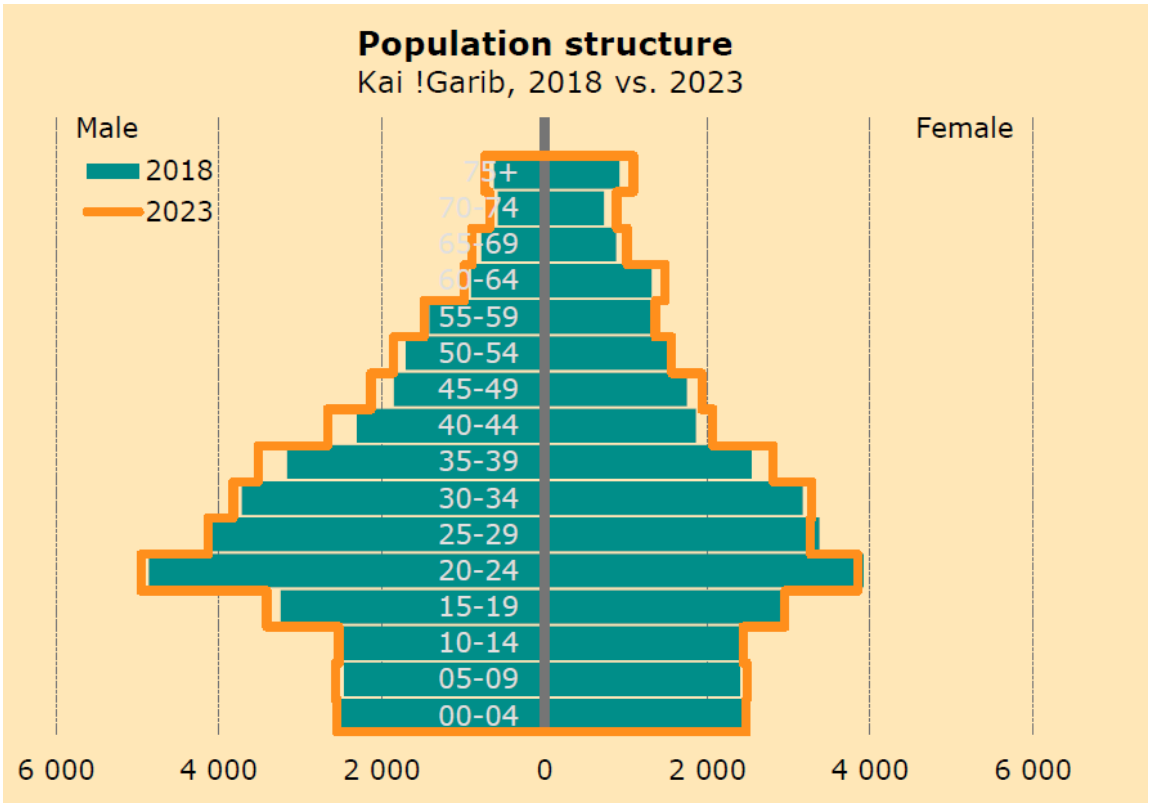
The proposed mining project will be located within the Kai !Garib Local Municipality which is situated in the ZF Mgcawu District Municipality. With 284 375 people, the ZF Mgcawu District Municipality housed 0.5% of South Africa's total population in 2019. Between 2008 and 2018 the population growth averaged 1.53% per annum which is similar than the growth rate of South Africa as a whole (1.57%). Compared to Northern Cape's average annual growth rate (1.66%), the growth rate in ZF Mgcawu' s population at 1.51% was very similar than that of the province.

11.12.1 Population

With 70 500 people (36 800 males and 33 700 females), the Kai !Garib Local Municipality housed 0.1% of South Africa's total population in 2018. Between 2008 and 2018 the population growth averaged 0.87% per annum which is about half than the growth rate of South Africa as a whole (1.57%). Compared to ZF Mgcawu's average annual growth rate (1.53%), the growth rate in Kai !Garib's population at 0.87% was about half than that of the district municipality.

Based on the present age-gender structure and the present fertility, mortality and migration rates, Kai !Garib's population is projected to grow at an average annual rate of 0.9% from 70 500 in 2018 to 73 900 in 2023.

The population projection of Kai !Garib Local Municipality shows an estimated average annual growth rate of 0.9% between 2018 and 2023. The average annual growth rate in the population over the projection period for ZF Mgcawu District Municipality, Northern Cape Province and South Africa is 1.2%, 1.3% and 1.3% respectively. The Northern Cape Province is estimated to have an average growth rate of 1.3% which is very similar than that of the Kai !Garib Local Municipality. The South Africa as a whole is estimated to have an average annual growth rate of 1.3% which is very similar than that of Kai !Garib's projected growth rate.



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POPULATION PYRAMID

Figure 11-18: Population Pyramid - Kai !Garib Local Municipality, 2018 Vs. 2023 [Percentage]

The population pyramid reflects a projected change in the structure of the population from 2018 and 2023. The differences can be explained as follows:

- In 2018, there is a significantly larger share of young working age people between 20 and 34 (32.8%), compared to what is estimated in 2023 (31.6%). This age category of young working age population will decrease over time.
- The fertility rate in 2023 is estimated to be slightly higher compared to that experienced in 2018.
- The share of children between the ages of 0 to 14 years is projected to be slightly smaller (20.4%) in 2023 when compared to 2018 (21.3%).

In 2018, the female population for the 20 to 34 years age group amounts to 14.9% of the total female population while the male population group for the same age amounts to 18.0% of the total male population. In 2023, the male working age population at 17.5% still exceeds that of the female population working age population at 14.1%, although both are at a lower level compared to 2018.

11.12.2 Level of Education

The number of people without any schooling decreased from 2008 to 2018 with an average annual rate of -3.17%, while the number of people within the 'matric only' category, increased from 6 420 to 8 920. The number of people with 'matric and a certificate/diploma' increased with an average annual rate of 1.35%, with the number of people with a 'matric and a Bachelor's' degree increasing with an average annual rate of 0.07%. Overall improvement in the level of education is visible with an increase in the number of people with 'matric' or higher education.

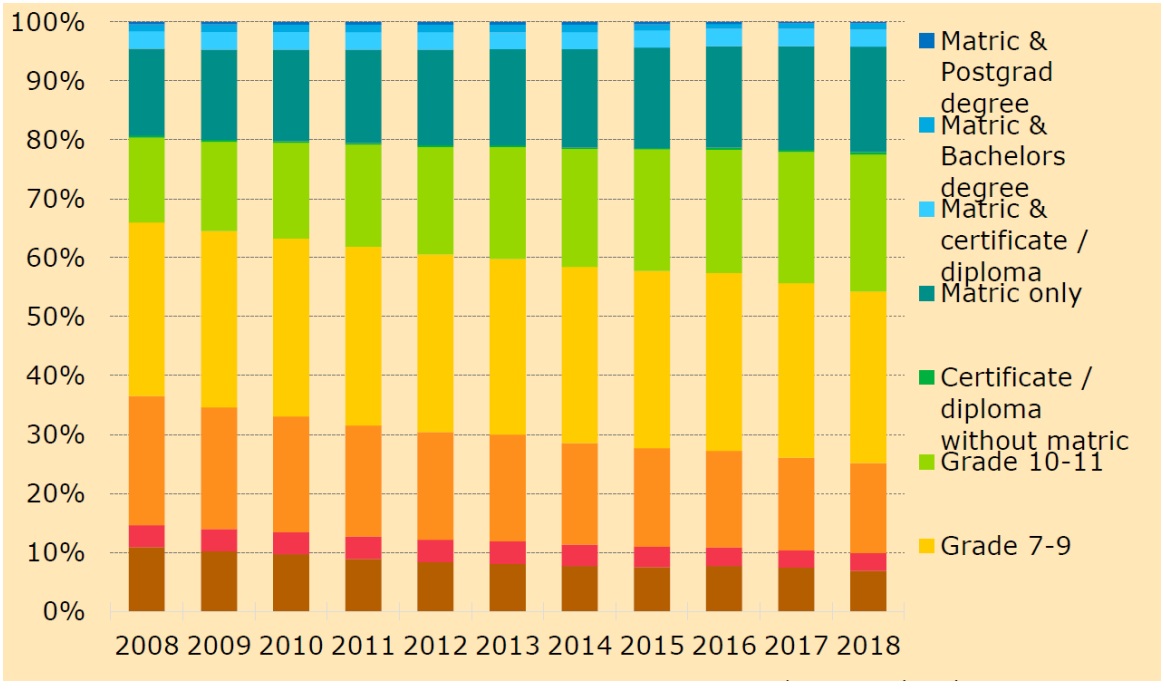


Figure 11-19: Highest Level of Education: Age 15+ - Kai !Garib Local Municipality, 2008-2018 [Percentage]

The number of people without any schooling in Kai !Garib Local Municipality accounts for 29.53% of the number of people without schooling in the district municipality, 5.26% of the province and 0.15% of the national. In 2018, the number of people in Kai !Garib Local Municipality with a matric only was 8,920 which is a share of 20.33% of the district municipality's total number of people that has obtained a matric. The number of people with a matric and a Postgrad degree constitutes 15.53% of the district municipality, 2.59% of the province and 0.03% of the national.

A total of 42 800 individuals in Kai !Garib Local Municipality were considered functionally literate in 2018, while 13 400 people were considered to be illiterate. Expressed as a rate, this amounts to 76.11% of the population, which is an increase of 0.1 percentage points since 2008 (66.12%). The number of illiterate individuals decreased on average by -2.27% annually from 2008 to 2018, with the number of functional literate people increasing at 2.63% annually.

Kai !Garib Local Municipality's functional literacy rate of 76.11% in 2018 is lower than that of ZF Mgcawu at 79.67% and is lower than the province rate of 78.61%. When comparing to National Total as whole, which has a functional literacy rate of 84.42%, it can be seen that the functional literacy rate is higher than that of the Kai !Garib Local Municipality.

11.12.3 Employment Levels

The working age population in Kai !Garib in 2018 was 51 000, increasing at an average annual rate of 1.21% since 2008. Out of the economically active population, there are 4 170 that are unemployed, or when expressed as a percentage, an unemployment rate of 12.0%. Up to here all the statistics are measured at the place of residence. In 2008, 50.0% of the total population in Kai !Garib Local Municipality were classified as economically active which decreased to 49.2% in 2018. Compared to the other regions in ZF Mgcawu District Municipality, Kai !Garib Local Municipality had the highest EAP as a percentage of the total population within its own region relative to the other regions.

The unemployment rate is an efficient indicator that measures the success rate of the labour force relative to employment. In 2008, the unemployment rate for Kai !Garib was 11.2% and increased overtime to 12.0% in 2018. The gap between the labour force participation rate and the unemployment rate increased which indicates a positive outlook for the employment within Kai !Garib Local Municipality.

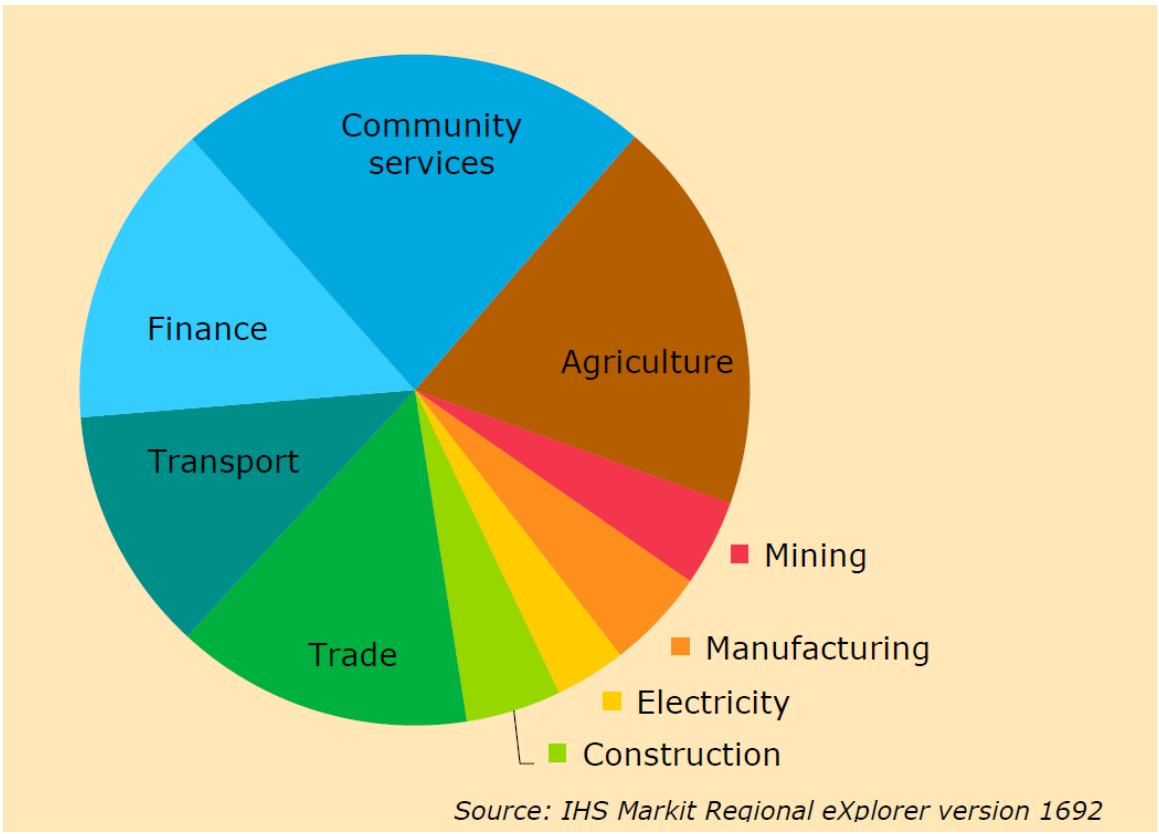
11.12.4 Economic Statistics

With a GDP of R 5.62 billion in 2018 (up from R 3.05 billion in 2008), the Kai !Garib Local Municipality contributed 22.80% to the ZF Mgcawu District Municipality GDP of R 24.6 billion in 2018 increasing in the share of the ZF Mgcawu from 23.60% in 2008. The Kai !Garib Local Municipality contributes 5.72% to the GDP of Northern Cape Province and 0.12% the GDP of South Africa which had a total GDP of R 4.87 trillion in 2018 (as measured in nominal or current prices). It's contribution to the national economy stayed similar in importance from 2008 when it contributed 0.13% to South Africa, but it is lower than the peak of 0.13% in 2008. It is expected that Kai !Garib Local Municipality will grow at an average annual rate of 0.09% from 2018 to 2023.

In 2018, the community services sector is the largest within Kai !Garib Local Municipality accounting for R 1.14 billion or 22.9% of the total GVA in the local municipality's economy. The sector that contributes the second most to the GVA of the Kai !Garib Local Municipality is the agriculture sector at 19.1%, followed by the finance sector with 14.7%. The sector that contributes the least to the economy of Kai !Garib Local Municipality is the electricity sector with a contribution of R 170 million or 3.43% of the total GVA.

The economic sectors that recorded the largest number of employment in 2018 were the agriculture sector with a total of 12 400 employed people or 44.6% of total employment in the local municipality.

The community services sector with a total of 5 960 (21.4%) employs the second highest number of people relative to the rest of the sectors.



GEOLOGICAL CONSULTING SERVICES PTY (LTD)

GVA BY BROAD ECONOMIC SECTOR

Figure 11-20: Gross Value Added (GVA) by broad economic sector Kai !Garib Local Municipality, 2018

11.13 Description of the current land uses.

The majority of the affected area is currently being used for agriculture and mining.

12 Assumptions and limitations

In accordance with the purpose of scoping, this report does not include detailed investigations on the receiving environment, which will only form part of the impact assessment phase. The project area environment was assessed through site visits, desktop screening, incorporating existing information from previous studies and input received from authorities and I&APs to date. A refinement of all maps will also be undertaken in the impact assessment phase, if necessary.

13 Anticipated Environmental, Social and Cultural Impacts

Table 13-1Table 13-2 provides a high-level assessment of the potential impacts and associated mitigation measures which could result from the proposed mining project during construction, operation and decommissioning/closure. These impacts will be further refined and assessed according to the impact assessment methodology in Section 14.

Table 13-1: Summary of Potential Environmental Impacts Associated with the Proposed Development

Element of Environment	Potential Impact Descriptions
Socio-Economic	Possible job opportunities during the construction and operation.
Hydrogeology	Possible groundwater contamination.
Surface water	Possible surface water contamination.
Aquatic ecosystems and riparian areas	Possible impacts on aquatic ecosystems and riparian areas
Air Quality	Possible impact on Air Quality in the area.
Climate Change	Possible contribution to climate change through emission of Green House Gases
Vibrations	Possible impacts on private properties and fauna due to vibrations
Noise	Possible generation of noise during construction and operation.
Soils/Land Use/Land Capability	Loss of soil resource and change in land capability and land use.
Biodiversity	Disturbance and loss of biodiversity, especially SCC.
Aquatic ecology	Possible loss, sedimentation and contamination of aquatic resources
Heritage	Possible impact on heritage and cultural resources (including graves) in the area.
Traffic	Potential safety issues due to the increased traffic.
Cumulative Impacts	Cumulative Impacts

Table 13-2 provide a high-level assessment of the potential impacts and associated mitigation measures which could result from the proposed mine during construction (C), operation (O) and decommissioning/closure (D). These impacts will be further refined and assessed according to the impact assessment methodology in Section 14 during the EIA phase of the study.

Table 13-2: Anticipated impacts for the proposed Golden Tropic MRA

Aspect	Impact	Mitigation	Phase		
			C	O	D
Geology	Loss of mineral resources	Due to the nature of mining, very limited mitigation measures can be implemented to limit the loss of geological resources, as vast quantities of rock as ore will be removed as well as overburden	X	X	
	Stability of geological structures	Ensure safe operation of the overburden and waste rock dumps.	X	X	
Topography	Impact of the mining related infrastructure on the topography	Indigenous trees may be planted at strategic locations to act as a visual screen. Re-vegetation of the slopes of overburden stockpiles will be carried out concurrently with the mining operation, as and when suitable areas become available. All areas cleared of surface infrastructure will be rehabilitated and re-vegetated. Re-vegetated areas will be monitored and maintained until such time as a vegetation cover has been established which can be shown to be self-sustaining.	X	X	X
Air Quality	Dust pollution emanating from the waste rock dumps, primary blasting operations and other mine related sources, i.e. movement of vehicles on unpaved haul roads.	The waste dumps will be re-vegetated to stabilise the soils and fine materials, thereby limiting the potential wind-blown dust that may be generated at these facilities. Where practical rehabilitation should be undertaken in tandem with the construction activities. All aspects of the re-vegetation programme will be monitored, and corrective action will be taken, if and when necessary. Dust suppression measures must be implemented to minimise nuisance. Transportation of dust raising material without covering should be restricted to an appropriate speed level (roughly 30 km/h) if dispersion of particulates and fugitive dust are observed leaving the transportation vehicles. Good housekeeping practices are to be implemented with respect to dust control in operational areas to reduce fugitive dust emissions. All construction equipment must be scheduled for preventative maintenance to ensure the functioning of the exhaust systems to reduce excessive emissions and limit air pollution.	X	X	X
	Increase in fugitive dust due to construction work and movement of material.		X	X	X
			X		
	Increase in carbon emissions and ambient air pollutants (NO_2 and SO_2) as a result of movement of vehicles and operation of machinery/equipment.		X	X	X
Surface Water	Water that is adversely impacted contaminating the environment	Stormwater Management infrastructure that separates clean and dirty water will be installed and maintained at all mining related infrastructure as required by Regulation 704 of NWA. Clean stormwater will be diverted around potential pollution sources and released into the environment. Dirty stormwater runoff) shall be contained, re-used, evaporated or treated Stormwater runoff from stockpiles should be controlled so that is does not enter existing surface water courses. Regular monitoring and maintenance of mine infrastructure shall be undertaken regularly to ensure that there are no undue leakages or spillage occurrence which will result in contamination of water resources. Where required, remedial work will be undertaken as soon as practically possible	X	X	X
			X	X	
			X	X	X

Aspect	Impact	Mitigation	Phase		
			C	O	D
Groundwater	Impacts on Groundwater: • Potential for Acid Mine Drainage • Impacts on groundwater quality due to infiltration of contaminated water	A groundwater monitoring programme will be developed and implemented. Where there is evidence of groundwater contamination, the mine will investigate the source of contamination, implement remedial measures to reduce the impact to an acceptable level as well as identify measures for the control and minimisation of potential future contamination in both the short and long term. Should it be proven that groundwater quality in the surrounding area has been affected by the mine, an alternative water supply or equal or better quality will be identified and provided to the directly affected groundwater user(s). The PCD will be lined using an HPDE liner system to avoid groundwater contamination.	X	X	X
	Reduction in groundwater available to surrounding groundwater users.	The mine shall minimise the abstraction of groundwater by recycling water and using process water as far as is possible. No abstraction of borehole water may be undertaken without a licence from the DWS.	X	X	X
Heritage and Palaeontology Resources	The proposed project has the potential to impact on local graves within the area.	No heritage and/or cultural sites shall be destroyed and/or relocated without the approval of SAHRA; If archaeological sites or graves are exposed during mining activities, it should immediately be reported to a heritage practitioner who will advise on the steps to be taken to manage any potential impacts.	X	X	X
	The proposed project has the potential to impact on sites of archaeological importance.				
	Drilling of boreholes and the opencast and underground mining has potential to impact on palaeontological resources	Should fossils be exposed during mining activities, it should immediately be reported to a heritage specialist so that an investigation and evaluation of the finds can be made.	X	X	X
Visual	Scaring of the landscape as a result of the clearance of vegetation.	The number of construction vehicles and machinery to be used shall be kept to a minimum; Movement of vehicles shall be kept to outside busy hours to minimise the visual impacts on the residents; Materials transported on public roads must be covered; and Where possible, rehabilitation of the work areas shall be undertaken in tandem with construction to ensure that areas stripped of vegetation are kept to a minimum.	X		X
	Visual intrusion as a result of the movement of machinery and the establishment of the required infrastructure.		X	X	X
	Indirect visual impact due to dust generation as a result of the movement of vehicles and materials, to and from the mine area.		X	X	X

Aspect	Impact	Mitigation	Phase		
			C	O	D
Soils and Land use and Land capability	Loss of soil and land capability due to reduction in nutrient status, de-nitrification and Leaching due to stripping and stockpiling of soils from infrastructural footprint areas	Soil will be stored with as little compaction as possible Mine infrastructure will, at mine closure, either be demolished or an alternative use for infrastructure will be decided upon. All areas cleared of surface infrastructure will be rehabilitated and re-vegetated Measures to control erosion of soil, such as contouring and vegetation cover, will be implemented, monitored and maintained Contaminated soil shall be removed and disposed of to an appropriate licensed landfill site in terms of NEM: WA, or can be removed by a service provider that is qualified to clean the soil	X	X	X
	Loss of land capability	Due to the nature of the mining operation it is not possible to significantly mitigate the impact of mining on land capability during the operational phase. However, the mine will implement the following mitigation measures to minimise the impact on the baseline land use and land capability: • Minimise the footprint area of the mining operation and location of mining infrastructure and structures to that which is absolutely necessary • A rehabilitation plan will be developed to achieve the negotiated end land use. Currently, the proposed end use is limited to wilderness land with the possibility of limited grazing • Stockpiled soil will be used for rehabilitation purposes • Grassed areas will be maintained and monitored to ensure that the vegetation cover is self-sustaining	X	X	X
Ecology: Flora	Loss of localised biodiversity habitats within sensitive areas due to site clearance and establishment of drill sites.	The Contractor shall be on the lookout for SCC and any floral SCC encountered within the mine footprint area to be relocated to areas with suitable habitat, outside the disturbance footprint. Floral species of conservation concern, if encountered within the development footprint, are to be handled with care and the relocation of sensitive plant species to suitable similar habitat is to be overseen by a botanist. The proposed development footprint shall be kept to the minimum. All disturbed areas must be concurrently rehabilitated during construction; Prohibit the collection of any plant material for firewood or medicinal purposes. Edge effect control shall be implemented to avoid further habitat degradation outside of the proposed footprint area Monitoring of relocation success will be conducted during the operational phase. Vehicles shall only be allowed on designated roadways to limit the ecological footprint of the project. An Alien Invasive Plant Species Management plan to be developed and implemented. All sites disturbed by mine activities shall be monitored for colonisation by exotic or invasive plants. Exotic or invasive plants shall be controlled as they emerge.	X	X	X
	Loss of localised floral species diversity including, SCC, RDL and medicinal protected species due to site clearance and establishment of drill sites.		X		X
	Potential spreading of alien invasive species as indigenous vegetation is removed, and pioneer alien species are provided with a chance to flourish.		X	X	X

Aspect	Impact	Mitigation	Phase		
			C	O	D
Ecology: Flora	Vegetation clearance may result in loss of faunal habitat ecological structure, species diversity and loss of species of conservation concern.	The proposed development footprint areas shall remain as small as possible and where possible be confined to already disturbed areas. No trapping or hunting of fauna shall be permitted. Edge effects of all construction and operational activities, such as erosion and alien plant species proliferation, which may affect faunal habitat, need to be strictly managed. Should any SCC be encountered within the study area, these species will be relocated to similar habitat within or in the vicinity of the study area with the assistance of a suitably qualified specialist. No informal fires in the vicinity of construction areas shall be permitted. An alien vegetation management programme must be developed and implemented in order to manage alien plant species occurring within the site, and to prevent further faunal habitat loss.	X		X
	Habitat fragmentation as a result of construction activities of the access roads leading to loss of floral diversity.		X		
	Loss of faunal diversity and ecological integrity as a result of mining activities, erosion, poaching and faunal specie trapping.		X	X	X
	Movement of vehicles result in collision with fauna, resulting in loss of fauna.		X	X	X
Climate	Emissions of Green House Gases as a result of the use of plant, heavy moving machinery, generators etc.	All the construction vehicles shall undergo maintenance on a regular basis to improve on the combustion engine vehicle efficiency and reduce GHG emissions.	X	X	X
Traffic	Increase in traffic volumes as a result of pre-construction activities which may lead to an increase in traffic congestion along the public roads as well as the farm roads around the mine area.	Local speed limits and traffic laws shall apply at all times to minimise the occurrences of accidents on public roads The number of vehicles and trips shall be kept to a minimum Where possible the transportation of materials and rubbish shall be undertaken outside traffic peak hours to minimise inconveniencing residents	X	X	X
Noise	Noise, generated from mining related activities and operation	Vehicles will be maintained in good condition. The surrounding communities will be informed well in advance of noisy events. Vehicles and equipment will be regularly maintained.	X	X	X

Aspect	Impact	Mitigation	Phase		
			C	O	D
Socio-Economic	Impacts on the surrounding communities due to mining activities taking place	If desirable, and should the need exist, decommissioned buildings left in good conditions may be offered to the local municipality to serve as schools, clinics, or other alternative use. Water and power supplies may also remain except for the changeover to local management of the services. • Recruitment practises will favour locals. • The mine will ensure that it complies with the Mine Health and Safety Act. • The mine will have a community liaison officer and have an open-door policy whereby problems identified by the communities can be raised and addressed by the mine management team. Records of such interactions shall be kept on file at the mine.	X	X	X

14 Methodology to be used in determining the significance of environmental impacts

The following methodology for determining the significance of environmental impacts will be utilised for the EIA/EMPr phase.

The impact assessment methodology has been formalised to comply with Regulation 31(2) (i) of NEMA, which states the following:

> *(2) An environmental impact assessment report must contain all information that is necessary for the competent authority to consider the application and to reach a decision …, and must include –*
> *(I) an assessment of each identified potentially significant impact, including –*
> *(i)* ***cumulative impacts****;*
> *(ii) the* ***nature*** *of the impact;*
> *(iii) the* ***extent*** *and* ***duration*** *of the impact;*
> *(iv) the* ***probability*** *of the impact occurring;*
> *(v) the* ***degree*** *to which the impact can be* ***reversed****;*
> *(vi) the* ***degree*** *to which the impact may* ***cause irreplaceable loss of resources****; and*
> *(vii) the* ***degree*** *to which the impact can be* ***mitigated****.*

All the identified potential impact will be assessed according to the following Impact Assessment Methodology as described below. This methodology has been utilised for the assessment of environmental impacts where the consequence (severity of impact, spatial scope of impact and duration of impact) and likelihood (frequency of activity and frequency of impact) have been considered in parallel to provide an impact rating and hence an interpretation in terms of the level of environmental management required for each impact.

The first stage of any impact assessment is the identification of potential environmental activities[1], aspects[2] and impacts which may occur during the commencement and implementation of a project. This is supported by the identification of receptors[3] and resources[4], which allows for an understanding of the impact pathway and an assessment of the sensitivity to change. Environmental impacts5 (social and biophysical) are then identified based on the potential interaction between the aspects and the receptors/resources.

The significance of the impact is then assessed by rating each variable numerically according to defined criteria as outlined in Table 14-1. The purpose of the rating is to develop a clear understanding of influences and processes associated with each impact. The severity[6], spatial scope[7] and duration[8]

[1]An ***activity*** is a distinct process or task undertaken by an organisation for which a responsibility can be assigned. Activities also include facilities or pieces of infrastructure that are possessed by an organisation.

[2]An ***environmental aspect*** is an 'element of an organisations activities, products and services which can interact with the environment'. The interaction of an aspect with the environment may result in an impact.

[3]***Receptors*** comprise but are not limited to people or man-made structures.

[4]***Resources*** include components of the biophysical environment.

[5]***Environmental impacts*** are the consequences of these aspects on environmental resources or receptors of particular value or sensitivity, for example, disturbance due to noise and health effects due to poorer air quality. Receptors can comprise, but are not limited to, people or human-made systems, such as local residents, communities and social infrastructure, as well as components of the biophysical environment such as aquifers, flora and palaeontology. In the case where the impact is on human health or well-being, this should be stated. Similarly, where the receptor is not anthropogenic, then it should, where possible, be stipulated what the receptor is.

[6]***Severity*** refers to the degree of change to the receptor status in terms of the reversibility of the impact; sensitivity of receptor to stressor; duration of impact (increasing or decreasing with time); controversy potential and precedent setting; threat to environmental and health standards.

[7]***Spatial scope*** refers to the geographical scale of the impact.

[8]***Duration*** refers to the length of time over which the stressor will cause a change in the resource or receptor.

of the impact together comprise the consequence of the impact and when summed can obtain a maximum value of 15. The frequency of the activity9 and the frequency of the impact10 together comprise the likelihood of the impact occurring and can obtain a maximum value of 10. The values for likelihood and consequence of the impact are then read off a significance rating matrix table as shown in Table 14-1. This matrix thus provides a rating on a scale of 1 to 150 (low, medium low, medium high or high) based on the consequence and likelihood of an environmental impact occurring.

Natural and existing mitigation measures, including built-in engineering designs, are included in the pre-mitigation assessment of significance. Measures such as demolishing of infrastructure, and reinstatement and rehabilitation of land, are considered post-mitigation.

Table 14-1: Criteria for Assessing Significance of Impacts

SEVERITY OF IMPACT	**RATING**
Insignificant / non-harmful	1
Small / potentially harmful	2
Significant / slightly harmful	3
Great / harmful	4
Disastrous / extremely harmful	5

SPATIAL SCOPE OF IMPACT	**RATING**
Activity specific	1
MRA specific (within the MRA boundary)	2
Local area (within 5 km of the PRA boundary)	3
Regional	4
National	5

DURATION OF IMPACT	**RATING**
One day to one month	1
One month to one year	2
One year to ten years	3
Life of operation	4
Post closure / permanent	5

CONSEQUENCE

FREQUENCY OF ACTIVITY / DURATION OF ASPECT	**RATING**
Annually or less / low	1
6 monthly / temporary	2
Monthly / infrequent	3
Weekly / life of operation / regularly / likely	4
Daily / permanent / high	5

FREQUENCY OF IMPACT	**RATING**
Almost never / almost impossible	1
Very seldom / highly unlikely	2
Infrequent / unlikely / seldom	3
Often / regularly / likely / possible	4
Daily / highly likely / definitely	5

LIKELIHOOD

[9] ***Frequency of activity*** refers to how often the proposed activity will take place.

[10] ***Frequency of impact*** refers to the frequency with which a stressor (aspect) will impact on the receptor.

Consequence

Likelihood														
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
3	6	9	12	15	18	21	24	27	30	33	36	39	42	45
4	8	12	16	20	24	28	32	36	40	44	48	52	56	60
5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
6	12	18	24	30	36	42	48	54	60	66	72	78	84	90
7	14	21	28	35	42	49	56	63	70	77	84	91	98	105
8	16	24	32	40	48	56	64	72	80	88	96	104	112	120
9	18	27	36	45	54	63	72	81	90	99	108	117	126	135
10	20	30	40	50	60	70	80	90	100	110	120	1	140	150

	High	76 to 150	Improve current management
	Medium High	40 to 75	Maintain current management
	Medium Low	26 to 39	
	Low	1 to 25	No management required

SIGNIFICANCE = CONSEQUENCE x LIKELIHOOD

15 The positive and negative impacts that the proposed activity and alternatives

Refer to Section 13 for the positive and negative impacts identified for the proposed project. A detailed assessment of the positive and negative impacts associated with the project will be developed and included in the EIA/ EMPr Report.

16 Possible mitigation measures that could be applied and the level of risk

Refer to Section 13 for the positive and negative impacts identified for the proposed mining project. It is anticipated that the management measures associated with the activities will be adequate to manage the impacts association with the project. This will be further assessed during the EIA/EMPr phase. Detailed mitigation and management measures of the positive and negative impacts associated with the project will be developed and included in the EIA/ EMPr Report.

17 The outcome of the site selection matrix

The location of the proposed project components is constrained to the location with potential for the aggregate stone-dolerite, clay and sand. The location of the proposed project components is constrained to the location of the existing and confirmed mineral resource (granite). Exploration work conducted on the proposed mining area included bulk sampling and some small-scale mining. These activities have led to the identification of granite deposits that are deemed feasible to mine. The proposed mining area is geologically located within the Bushmanland Group of the Namaqualand Metamorphic Complex which comprises of granitic gneiss as the majority lithology (Figure 9-1).

The granites in this area are considered to have potential as sources of dimension stone. They are also part of the Swartmodder Granite. The colours of the granite vary from terra-cotta red through pinkish to dark grey. Exploration work conducted on the proposed mining area included bulk sampling and some small-scale mining. These activities have led to the identification of granite deposits that are deemed feasible to mine. As such, the site is therefore regarded as the preferred site and alternatives are not considered.

The scoping assessment that has been conducted for the project shows that there are no fatal flaws associated with the project location. However, should sensitive environments such as heritage resources, SCC etc be affected by the project layout, the site layout plan will be revised. This will be confirmed during the detailed specialist assessment in the EIA/EMPr phase of the project.

18 Motivation where no alternatives were considered

The location of the proposed project is constrained to the location of the mineral resource, and proven reserve. Exploration work conducted on the proposed mining area included bulk sampling and some small-scale mining. These activities have led to the identification of granite deposits that are deemed feasible to mine. As such, the site is therefore regarded as the preferred site and alternatives are not considered.

The applicant will revise the layout of the project should there be fatal flaws identified. This will be assessed in detail during the impact assessment phase of the project.

19 Statement motivation the preferred site

Alternatives relating to site layout, infrastructure and operation activities were considered. The location of the proposed project is constrained to the location of the mineral resource, and proven reserve. Exploration work conducted on the proposed mining area included bulk sampling and some small-scale mining. These activities have led to the identification of granite deposits that are deemed feasible to mine. As such, the site is therefore regarded as the preferred site and alternatives are not considered.

The scoping assessment that has been conducted for the project shows that there are no fatal flaws associated with the project location. However, should sensitive environments such as heritage resources, SCC etc be affected by the project layout, the site layout plan will be revised to ensure that impacts on sensitive areas are avoided and/or minimised.

20 Plan of study for the environmental impact assessment process

20.1 Description of alternatives to be considered including the option of not going ahead with the activity

According to the MPRDA and NEMA regulations, feasible alternatives need to be considered and assessed during the Scoping and Impact Assessment Phase of the project. The alternatives identified must serve to achieve the triple bottom-line of sustainability i.e. they must meet the social, economic and ecological needs of the public. The alternatives must also aim to address the key significant impacts of the proposed project by maximizing benefits and avoiding or minimizing the negative impacts. The primary objective must be to avoid all negative impacts, rather than to minimise them.

The “feasibility” and “reasonability” of and the need for alternatives must be determined by considering, inter alia:

- The general purpose and requirements of the activity;
- Need and desirability;
- Opportunity costs;
- The need to avoid negative impact altogether;
- The need to minimise unavoidable negative impacts;
- The need to maximise benefits, and
- The need for equitable distributional consequence.

A comparative assessment, in fulfilment with the above listed criteria, of all alternatives identified will be undertaken as part of the Impact Assessment Phase. Refer to Section 9 for consideration of alternatives.

20.2 Description of aspects to be assessed as part of the environmental impact assessment process

The proposed infrastructure and activities will be located within the property boundaries shown in Section 4.1. The following key infrastructure will form part of the proposed project as the infrastructure footprints (and associated infrastructure footprints) and surrounding areas will need to be assessed during the impact assessment phases of the project:

The infrastructure includes:

- Roads and electrical supply (already in place);
- Dressing areas, dispatch yards accommodation and logistics areas;
- Areas for compressors and generators;
- Quarries;
- Waste Rock Dump;
- Hydrocarbon storage areas;
- Residue Stockpiles/deposits;
- Waste management facilities;
- Living quarters;

- Offices; and
- Workshops.

20.3 Description of aspects to be assessed by specialists

A number of specialist studies have been conducted in the proposed project area. Findings from these studies will be incorporated into the impact assessment phase. A heritage assessment conducted for the previous application will be used.

Based on the outcomes of the DEFF screening tool and associated protocols for specialist assessment, specialist themes for which the site is rated as being of Low or Medium sensitivity generally require a "Compliance Statement" by the EAP or specialist. Those rated as High or Very High sensitivity will require detailed Specialist Impact Assessment to describe aspects of the baseline and assess potential impacts of the project. Based on the findings of the screening tool, the following specialist studies will be conducted:

- Terrestrial Biodiversity (flora and fauna);
- Heritage Resources and Palaeontology; and
- Aquatic Biodiversity studies.

In addition, the following will continue during the EIA phase:

- Public participation and consultation;
- Environmental Management Programme;
- Comparative alternatives assessment; and
- Amend site layout designs and Mining Works Programme, if required.

Certain impacts that are anticipated to be of limited or lower significance, either by virtue of the scale of the impacts, their short duration (e.g. construction phase only), disturbed nature of the receiving environment and/or distance to communities, will be assessed by EAP Team and have been reported directly into the EIA Report.

The EAP will make use of the impact assessment methodology described in Section 14 and will ensure that the specialist studies reports comply with the requirements of Appendix 6 of the NEMA.

20.4 Proposed method of assessing the environmental aspects including the proposed method of assessing alternatives

Refer to Section 14 which provides a description of the methodology to be used in the assessment of environmental impacts.

20.5 The proposed method of assessing duration significance

Refer to Section 14 which provides a description of the methodology to be used in the assessment duration of significance.

20.6 The stages at which the Competent Authority will be consulted

The consultation process to be followed with the DMR as part of the review and decision-making stages include:

- Scoping review and decision-making stage (Draft and Final);
- Environmental impact assessment review and decision-making stage (draft and final); and

- The environmental authorisation decision making and appeal process stage.

The CA will be consulted throughout the application process via email, phone calls and potential meetings during the following phases of the process:

- Final Scoping Phase;
- Draft EIA/EMPr Phase; and
- Final EIA/EMPr Phase.

20.7 Particulars of the public participation process with regard to the impact assessment process that will be conducted

The Public Participation Process will be ongoing throughout the project phases. The stakeholder engagement proposed for the Impact Assessment Phase is presented below.

20.7.1 Stakeholder engagement during impact Assessment phase

Stakeholders will be informed once the competent authority (DMR) has accepted the Scoping Report and given permission for the commencement of the impact assessment phase of the process.

Stakeholder engagement during the impact assessment phase will focus on providing information and opportunity for public comment on the findings of the specialist studies and the findings and recommendations, impact assessment and management programme. The draft findings will be presented in the Draft EIA / EMPr Report to be commented on by the public.

The availability of the Draft EIA/ EMPr Report for public comment will be announced in the same newspaper as for project announcement.

Registered I&AP's will be informed through notification letters distributed by email in advance of the report being made available. Should it be required, stakeholders will be invited to a public meeting where the contents of the Draft EIA/EMPr will be presented and discussed. Stakeholders will have an opportunity to review and comment on the Draft EIA/EMPr Report in any of the following ways:

- By raising comments during meetings where the content of the Draft EIA/EMPr Report will be presented;
- By completing comments forms available with the report at public places, and by submitting additional written comments, by email or fax, or by telephone, to the EAP; and
- The draft EIA/EMPr Report will be available for comment for a period of 30 days at public places in the project area as per the announcement and scoping phase and placed on the Ndi Geological Consulting Services (Pty) Ltd website.

Depending on the responses received during the registration period, and where requested by the stakeholders, a public meeting may be held during the impact assessment phase of the project, ensuring that the COVID-19 Regulation requirements are met. Should a meeting be required, where possible online meetings will be held, and where stakeholders do not have internet access, the meetings will be held with no more than 50 stakeholders in attendance. Stakeholders will be informed of the COVID-19 Regulation requirements that will be enforced during the meeting.

Where necessary, comments and issues raised by I&AP's during the commenting period will be consolidated into the Final EIAR and EMPr with the relevant response issued by the EAP. The Final EIAR and EMPr will then be submitted to the DMR for decision making. The comments will also be collated into the CRR that will form an Appendix to the Final EIAR.

20.7.2 Notification of authority decision

Registered stakeholders will be advised in writing (mail, email, fax and SMS) of the authority decision on the EIA / EMPr. The notification will include details on the procedure to appeal the decision relating to each authorisation.

Notification to registered stakeholders will summarise the authorities' decision and provide information according to legal requirements on how to lodge an appeal should they so wish.

20.8 Description of the tasks that will be undertaken during the environmental impact assessment process

The following activities will take place as part of the planned environmental authorisation process going forward:

- Develop the Final Scoping Report once comments and feedback have been received from stakeholders and authorities;
- Conduct the Impact Assessment according to the impact assessment methodology as provided in Section 14;
- Develop an EMPr: The EMPr will be compiled to mitigate the impacts identified in the impact assessment;
- Develop specialist recommendations: Findings from the specialist studies will be summarised in the EIA/EMPr Report;
- Provide stakeholder feedback on the assessment phase in accordance with the approach that is proposed in Section 10 of this report;
- Submit the draft EIA/EMPr for stakeholder and authority review: The Final EIA/EMPr will be submitted to the relevant authorities following the incorporation of stakeholder comments; and
- Communicate the decision on the application for the MRA and EA/WML to registered stakeholders.

20.9 Measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored

Detailed mitigation and management measures of the positive and negative impacts associated with the project will be developed and included in the EIA/ EMPr Report. Section 13 provides a preliminary assessment of potential impacts and mitigation measures that may be implemented to minimise, reverse or manage the identified impacts.

20.10 Other information required by the Competent Authority

20.10.1 Impact on the socio-economic conditions of any directly affected person

Full details on the socio-economic conditions will be made available during the EIA phase after the specialist studies have been conducted and consultation with the community, stakeholders and other I&APs has been concluded.

The proposed project will provide employment opportunities, skills development, social development programmes, community upliftment and economic injection to the local area. Furthermore, negative impacts including visual, traffic, service delivery, land use changes and security and safety will be assessed and discussed during the EIA phase.

20.10.2 Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act

The Northern Cape is rich in archaeological sites and landscapes that reflect the complex South African heritage from the Stone Age to Colonial history. Within the region, Stone Age sites and complexes have been, and are still being investigated in some detail.

A site specific HIA will be conducted by a specialist as part of the impact assessment phase.

20.10.3 Other matters required in terms of Sections 24(4)(a) and (b) of the Act

Section 24(4)(b)(i) of the NEMA (as amended), provides that an investigation must be undertaken of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity. Alternatives have been discussed in Section 9 of this draft Scoping Report and will be addressed in detail during the EIA phase once the specialist assessments and comments from I&APs, stakeholders and the competent authorities have been received.

21 Undertaking regarding correctness of information

I Ndivhudzannyi Mofokeng herewith undertake that the information provided in the foregoing report is correct, and that the comments and inputs from stakeholders and Interested and Affected parties has been correctly recorded in the report.

Signature of the EAP

DATE: 2021/06/15

22 Undertaking regarding level of agreement

I, Ndivhudzannyi Mofokeng herewith undertake that the level of agreement with interested and Affected Parties and stakeholders has been correctly recorded and reported herein.

Signature of the EAP

DATE: 2021/06/15

23 Statement of Ndi Geological Consulting Independence

Neither Ndi Geological Consulting Services (Pty) Ltd nor any of the authors of this report have any material present or contingent interest in the outcome of this report, nor do they have any pecuniary or other interest that could be reasonably regarded as being capable of affecting their independence or that of Ndi Geological Consulting Services (Pty) Ltd.

Ndi Geological Consulting Services (Pty) Ltd has no prior association with Golden Tropic regarding the proposed mining activities that are the subject of this report. Ndi Geological Consulting Services (Pty) Ltd has no beneficial interest in the outcome of the technical assessment being capable of affecting its independence.

Ndi Geological Consulting Services (Pty) Ltd.'s fee for completing this report is based on its normal professional daily rates plus reimbursement of incidental expenses. The payment of that professional fee is not contingent upon the outcome of the report.

24 Conclusion

The aim of this Scoping Report is to provide an indication of the identified, positive and negative environmental and socio-economic impacts associated with the proposed project activities. The stakeholder engagement in the Scoping Phase will play an important role in determining possible impacts and allowing the concerns by the public to be adequately addressed in the Impact Assessment Phase of the EIA process. The Draft Scoping Report has presented:

- The environmental process undertaken so far;
- A brief description of the proposed project;
- A baseline description of the current environment;
- The potential environmental and social impacts identified to date; and
- The recommended environmental process to be followed to develop the EIA/EMPr Report (Plan of Study).

A comprehensive public involvement process will be implemented during scoping. The EIA process is; however, iterative and therefore additional potential issues/impacts and alternatives may be identified during the impact assessment phase that may require further investigation/consideration. Once the Scoping Report comment period is concluded, the report will be updated with the additional issues, and submitted to DMR. An EIA/ EMPr Report will be compiled and subjected to a round of public comment. The EIA will then be presented to the authorities for decision-making. On submission of the EIA/ EMPr Report to the DMR, notification will be sent to registered I&AP's to inform them of the submission of the documents; and the opportunity to request copies of the Final reports.

Extensive consideration has been given to the proposed design of the project. No fatal flaws have been identified during the scoping phase of this project. A comprehensive impact assessment will be undertaken and incorporated into the EIA/EMPr Report during the impact assessment phase. The proposed comprehensive stakeholder engagement process in the PoS will ensure that the stakeholders are involved in the process, from the conception of the EA/WML application process to the end. It is anticipated that implementation of the PoS presented in this report will result in an adequate EIA process which will result in the formulation of a sound EMPr to be implemented at the proposed mine.

It is anticipated that implementation of the PoS presented in this report will result in an adequate EIA process which will result in the formulation of a sound EMPr to be implemented throughout the mining activities by Golden Tropic.

The process followed during the detailed impact assessment phase will meet the requirements of the legislation to ensure that the DMR receives enough information to enable informed decision-making.

All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.

Appendices

Appendix 1: EAP Qualifications

Appendix 2: EAP CV

Appendix 3: Locality Map

Appendix 4: Listed Activity Map

Appendix 5: Stakeholder Engagement Documentation