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TSHIFCOR INVESTMENT & RESOURCES (PTY) LTD

mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

SQUIZITO (PTY) LTD

DRAFT BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL 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).

PREPARED BY: TSHIFCOR INVESTMENT AND RESOURCES (PTY) LTD

NAME OF APPLICANT: SQUIZITO (PTY) LTD

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FILE REFERENCE NUMBER SAMRAD: GP 30/5/1/3/2 (10256) MP

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Compiled in terms of Appendix 1, Appendix 4 of the Environmental Impact Assessment Regulations, 2014 (Government Notice No. R 982) (EIA Regulations, 2014) and Submitted as contemplated in Regulation 19 of Chapter 4 of the EIA Regulations, 2014

For

The application for an Environmental Authorization in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), Environmental Impact Assessment Regulations 2014, Government Notice R983 - Government Notice R984 - Listing Notice 2 of 2014

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EXECUTIVE SUMMARY AND IMPORTANT NOTICE

Summary and Overview of the Project

Squizito (Pty) Ltd applied for an Environmental Authorisation for mining permit on portion of portion 10 of the farm Klipkop 396 JR, in the Magisterial District of Tshwane, Gauteng Province, South Africa. The application has been lodged in terms of Regulation 16 of the National Environmental Management Act (Act 107 of 1998) (NEMA): Environmental Impact Assessment (EIA) Regulations, 2014 and Section 27 of the Mineral and Petroleum Resources Development Act, 2004 (Act 28 of 2004). See Plan 1 for the Regulation 2(2) plan for the mining permit application area.

In terms of the NEMA (Act 107 of 1998). EIA regulations of 2014, the proposed mining permit activities triggers a listed activity 21 of Listing Notice 1 and the applicant cannot proceed without an environmental authorisation. Tshifcor Investment and Resources (Pty) Ltd has been appointed by Squizito (Pty) Ltd as an independent environmental assessment practitioner to undertake the environmental impact assessment for the proposed mining permit project. The purpose of the study is to identify and assess all the possible impacts that may arise from the implementation of the proposed project and also to find the most effective way of enhancing environmental benefits and mitigating potential impacts to encourage sustainable development of the area.

The public participation process was announced in the local newspaper (Streeknuus Newspaper) and the registration has been ongoing. The following process was undertaken:

- Publication of a media advertisement in the Streeknuus Newspaper;
- Erecting site notices at visible and accessible entry points in and around the proposed project area;
- Directly notifying affected I&APs and Stakeholders representing various sectors of society by distributing information via e-mail, Background Information and telephonically.

The proposed mining permit activities will be undertaken over a period of two (2) years and project components will include excavation, stockpiling, loading, hauling and transport, discard dumps and supporting infrastructure, on the 5ha of portion 10 of the farm Klipkop 396 JR.

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Potential risks and key issues identified were based on consultation with I&APs, through an internal process based on similar projects, current state of the environment of the site, and a site visit. A detailed description of the surrounding land use is provided below, ensuring that all environmental aspects are highlighted. A detailed description of the biophysical and social environment is included in the report, to ensure that all potential risks and issues are taken into consideration in all phases of the proposed project.

Environmental baseline data used in this report has been obtained through desktops and site visual assessment for surface water quantities and qualities, geohydrological data, topographical analyses, soil surveys, vegetation surveys, wetland surveys and geological conditions including socio-economic aspects. Weather data was acquired from the World Weather Online, 2016. Historic land use was determined through available data and by visual observations made during a field assessment. The data accumulated and analysed is therefore deemed sufficient to gain a baseline indication of the present state of the environment. The use of this baseline data for determining the potential impacts associated with this project is thus justified, and reliable conclusions could be made. The impacts that could arise during and after the proposed activities at the Proposed Project were determined and ranked according to their significance.

The findings and conclusions of this document (DBAR and EMPr), which concerns assessment of environmental impacts and a programme for management of the impacts for the proposed mining permit activities at the portion 10 of the farm Klipkop 396 JR, was compiled in terms of the EIA Regulations of 2014 for review by interested and affected parties including the competent authority. Based on the impact assessment, recommendations were made to mitigate significant negative impacts as well as to maximize positive impacts that will result from the proposed project.

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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, 1998 (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 a 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.

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PART A (BASIC ASSESSMENT PROCESS)

OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

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OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

The objective of the basic assessment process is to, through a consultative process—

(a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;

(b) identify the alternatives considered, including the activity, location, and technology alternatives;

(c) describe the need and desirability of the proposed alternatives,

(d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage , and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on the these aspects to determine:

(i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and

(ii) the degree to which these impacts—

(aa)can be reversed;

(bb) may cause irreplaceable loss of resources; and

(cc) can be managed, avoided or mitigated;

(e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—

(i) identify and motivate a preferred site, activity and technology alternative;

(ii) identify suitable measures to manage, avoid or mitigate identified impacts; and

(iii) identify residual risks that need to be managed and monitored

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PART A (SECTION ONE)

INTRODUCTION

Corporate Park South, 32 Gazelle Close, National Gate East, 1st Floor, Midrand 1686, Johannesburg, Republic of South Africa
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1. INTRODUCTION

1.1 WHO IS DEVELOPING THE BAR AND EMPR?

1.1.1 Name and contact details of the EAP who prepared the BAR and EMPr

Table 1-1: Details of the Environmental Assessment Practitioner

Company	Tshifcor Investment and Resources (Pty) Ltd
Contact Person	Mr Mpho Ramalivhana
SACNASP Membership No	400395/14
Tel No	+27 (011) 0275996
Cell No	+27 (078) 901 4833
Fax No	+27 (086) 605 9120
E-mail address	info@tshifcor.co.za
Address	Corporate Park South, 32 Gazelle Close, National Gate East, 1st Floor, Midrand 1686, Johannesburg, Republic of South Africa

1.1.2 Expertise of the EAP who prepared the BAR and EMPr

* **Mpho Ramalivhana**

Mpho Ramalivhana is currently the Senior Environmental Consultant at Tshifcor Investment and Resources (Pty) Ltd. He matriculated at Mudinane Secondary School in 2004 with a merit. He then went to the University of Limpopo (Turfloop Campus) to further his career from 2005 to 2007. He obtained a BSc Degree majoring with Microbiology and Botany. Then in 2008 he graduated top of his Honours Botany Class in the field of plant ecology. His honours project involved "the investigation of the floral composition of the granite hills within the campus of the University of Limpopo". Currently he is busy doing his Master's Degree with Tshwane University of Technology, and has over seven years' experience in professional consulting.

He also has extensive experience in conducting Environmental Impact Assessment, developing Environmental Management Plans and implementation of Environmental Monitoring Systems. He

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also has remarkable experience in conducting Environmental Audit, Environmental Due Diligence, Land Quality Assessment, Ecological Assessment and Environmental Site Assessment.

His recent experience has focused upon formal environmental authorisation processes, particularly the management of public participation processes, environmental screening process projects. He has experience in energy related projects, including alternative energy (solar and wind) and power transmission projects as well as projects for social infrastructure including inter alia road, housing and waste management. He is familiar in compiling the requisite documentation for Environmental Impact Assessments (EIA) and Environmental Management Plans (EMP). Furthermore, he has experience in undertaking environmental compliance monitoring and the bio-monitoring of water resources.

Prior joining Tshifcor, Mpho worked for companies such as Tshikovha Environmental and Communication Consulting, Parsons Brinckerhoff Africa (Now WSP), Muondli Consulting, South African National Biodiversity Institute and Limpopo Department of Economic, Environment and Tourism where his professional working career started. Mpho is a member of the South African Council of Natural Scientific, Profession (400395/14), South African Association of Botanists (SAAB) as well as the International Association of Impact Assessment – South Africa (IAIAsa).

* **Mrs Caroline Munyai**

Mrs. Caroline Munyai is currently an Environmental Consultant at Tshifcor Investment and Resources (Pty) Ltd. She matriculated at Ramauba Secondary School in 2005 with a merit. She then enrolled at the University of Venda to further her studies from 2006 to 2009. She obtained a BESc Honours Degree majoring with Mining and Environmental Geology. Then in 2010 she graduated with a distinction on her honours thesis. She has over five years' experience in environmental professional consulting.

Caroline also has extensive experience in environmental compliance/ permitting (including environmental impact assessments, basic assessments, water use license applications, social and environmental due diligence, social and environmental management systems, mining and prospecting right applications) and public participation /stakeholder engagement. Her recent experience has focused upon formal environmental authorisation processes, Basic Assessment processes, scoping, application for mining licenses included other related licenses.

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Prior joining Tshifcor, Caroline worked for state organisations and private sectors such as Department of Rural Development and Land Reform, South African Diamond and Precious Metals Regulations, Mintek and International Resource Limited (SA). She is currently a member of the Geological Society of South Africa (Membership 969180).

*Please refer to **Appendix 1** for the Curriculum Vitae of EAPs*

1.2 WHO WILL EVALUATE AND APPROVE THE BAR AND EMPR?

Before the proposed project can proceed, an Environmental Assessment Practitioner (EAP) must compile an application for an environmental authorisation for the proposed project. An impact assessment (basic assessment process) and Environmental Management Programme must be undertaken in support of the application for an environmental authorisation. The basic assessment process will determine the potential environmental impacts that may result from the proposed project and an environmental management programme will be compiled to provide measures for mitigation against the identified impacts. The above-mentioned application must be made to the competent authority and in terms of section 24D (1) of NEMA, the Minister responsible for mineral resources is the responsible competent authority for this application. In view of the above, the application for the environmental authorisation for the proposed project was submitted to the Department of Mineral Resources (DMR), Gauteng Regional Office for their consideration and decision making.

In the spirit of co-operative governance and in compliance with the requirements of NEMA and the MPRDA, the competent authority may, during the processing for the environmental authorisation application, consult with other organs of state that administers laws that relate to matters affecting the environment relevant to this application.

1.3 DETAILS OF THE APPLICANT

Table 1-2: Details of the Applicant

Company	Squizito (Pty) Ltd
Name of the Project	KlipKop Sand Project
Responsible Person	Miss. Nompumelelo Hlengiwe Ndlovu

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Tel No.	076 970 1770
E-mail address	mpumi.ndlovu@gabulaholdings.co.za
Postal Address	Private Bag X1, Juskei Park, Gauteng, 2153, South Africa

1.4 DESCRIPTION OF THE PROPERTY (LOCATION OF THE PROJECT)

1.4.1 Property description

Table 1-3: Details of the Mining Permit Application

Farm Name	Portion 10 of the Farm Klipkop 396 JR
Application Area (Hectares)	5 (ha) Hectors
Magistrate District	Tshwane
Distance and direction from nearest town:	36Km South East of Pretoria
21-digit Surveyor General Code of the farm	T0JR00000000039600010

1.4.2 Land Tenure and Use of Immediate and Adjacent Land

Land tenure for the properties within and immediately around the proposed mining permit project is indicated on **Figure 1-2**. The portion 10 of the land on which the proposed mining permit project will be undertaken is owned by Pasuri Trading (Pty) Ltd. Land use is determined by a number of factors which the land use determined for the proposed mining permit project as a whole, the project area land use and adjacent land specifically, and the associated issues of climate, resources, economic activity, topography, etc. The land use within and around the proposed mining area includes farming, sand mining, non-perennial rivers, roads infrastructures and manufacturing factories.

1.4.3 Locality Plan

Refer to **Figure 1-1** for the locality plan of the Klipkop Sand Project area.

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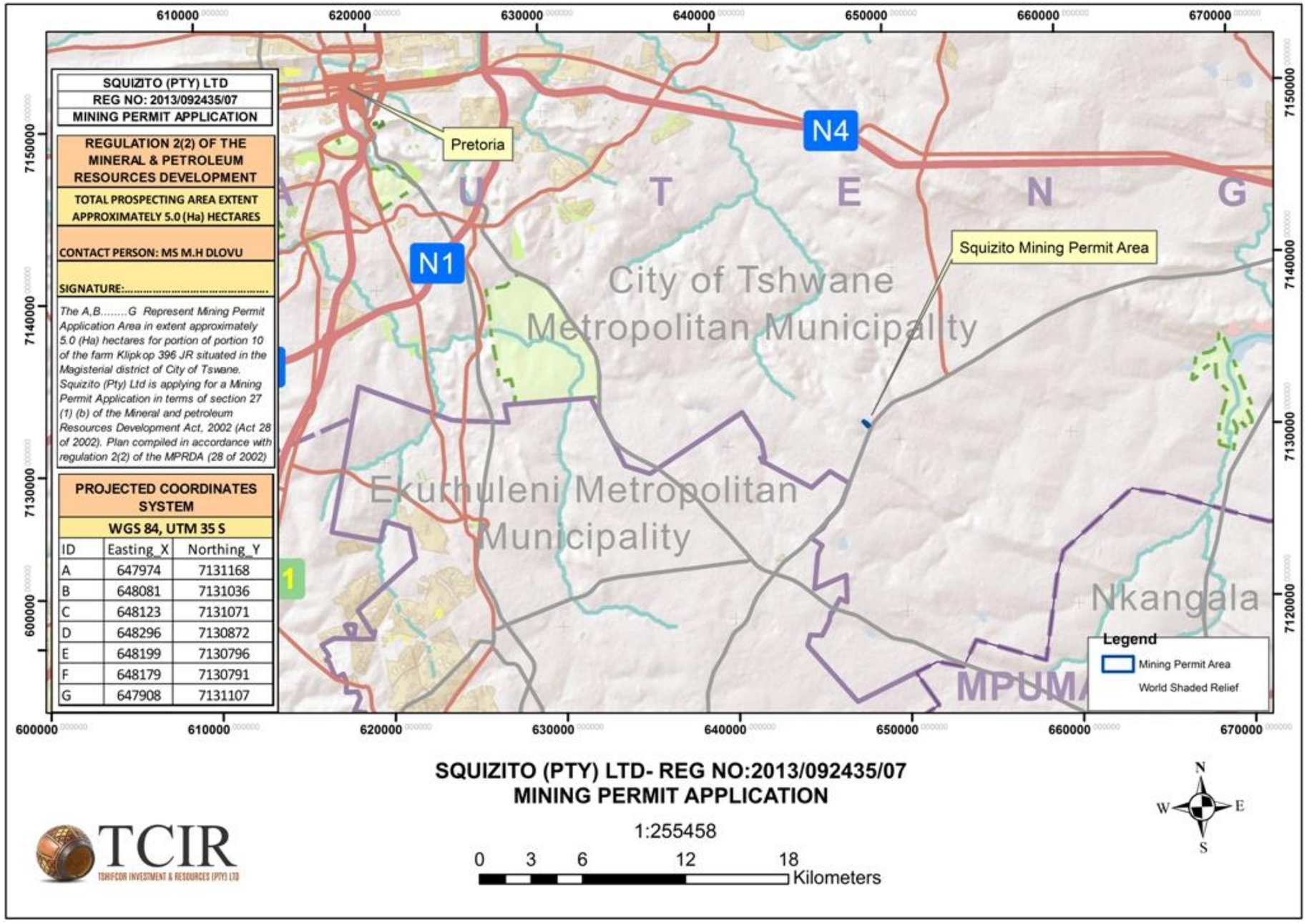

Figure 1-1: Locality Map showing the study area

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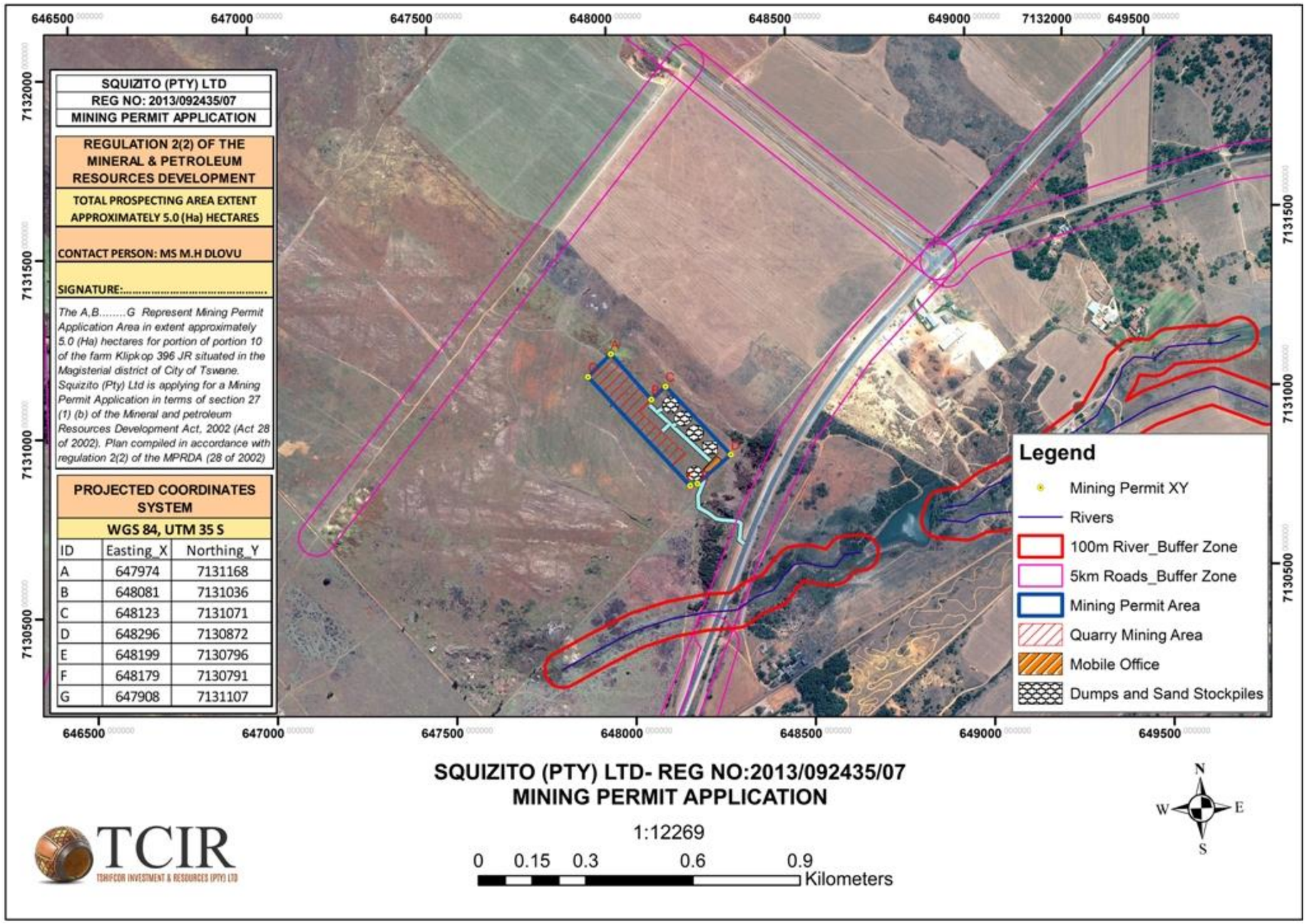

Figure 1-2: Land Tenure Plan for the proposed mining permit area

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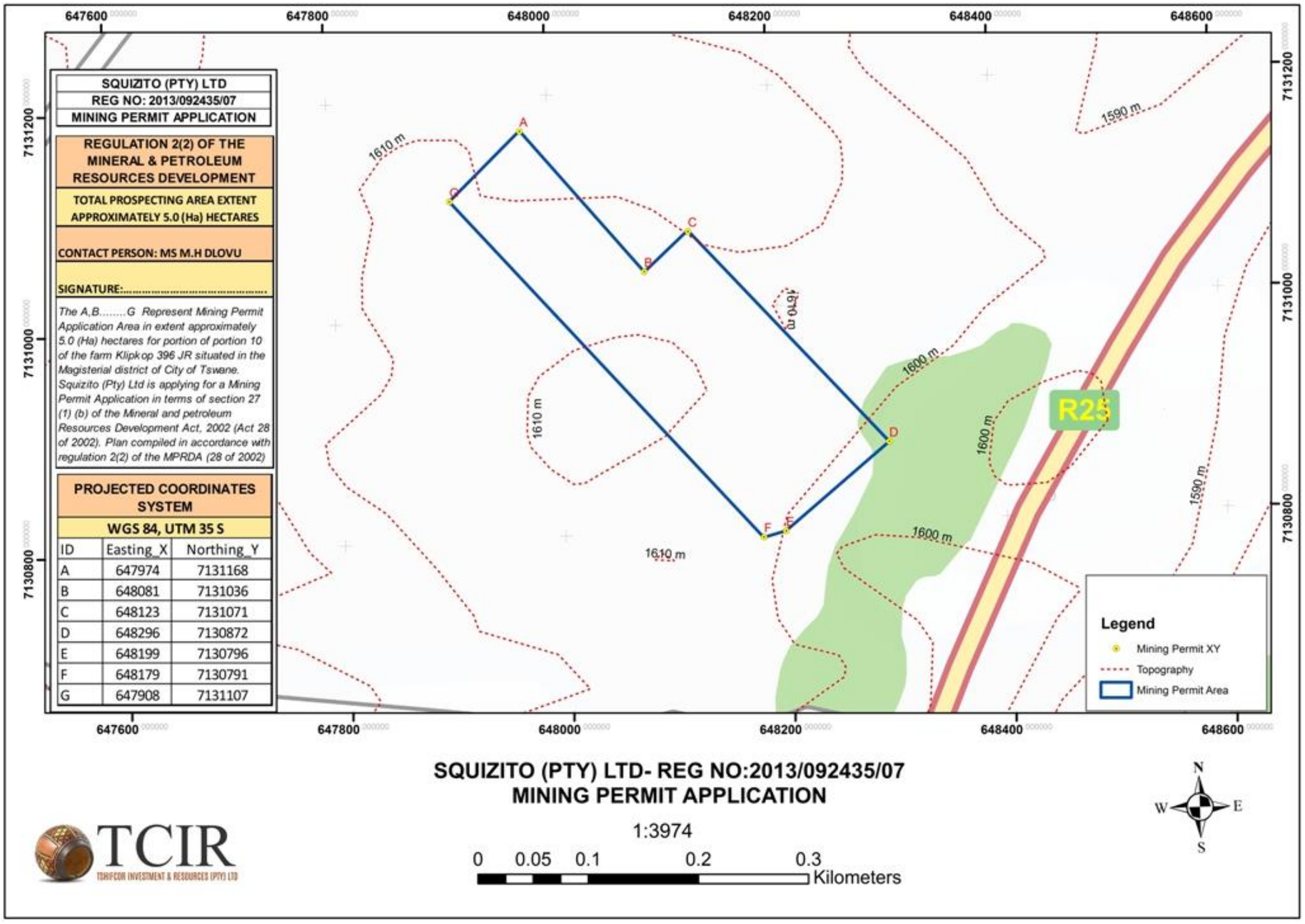

Figure 1-3: Plan as referred to in regulation 2.2 in terms of the MPRDA Act 28 of 2002

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SECTION TWO

DESCRIPTION OF THE SCOPE OF THE PROPOSED APPLICATION

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2. DESCRIPTION OF THE SCOPE OF THE PROPOSED PROJECT

2.1 LISTED ACTIVITIES AND SPECIFIED ACTIVITIES

Squizito (Pty) Ltd has applied to undertake mining activities for sand on portion 10 of the farm Klipkop 396 JR within the magisterial district of City of Tshwane, Gauteng Province. The proposed project entails mining of sand and project components will include excavation, stockpiling, loading, hauling and transport, discard dumps and supporting infrastructure, on the 5ha of portion of portion 10 of the farm Klipkop 396 JR. Access to the mining area will be via existing roads and private farms roads on request.

Squizito (Pty) Ltd, must obtained environmental authorisation before the commencement of the proposed mining permit activities. In view the above, Squizito (Pty) Ltd has applied for an environmental authorisation for listed activities within the proposed project area. The above-mentioned environmental authorisation application was acknowledgement by the Department on the 4th July 2017. This section will indicate the activities that were included in this environmental authorisation application. **Table 2-1** is compiled as prescribed by the Department of Mineral Resources Basic Assessment Report and EMPr template and reflect all mining project activities applied for.

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Table 2-1: Proposed Mining Permit project listed Activities

NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
PROPOSED MINING PERMIT PROJECT LISTED AND SPECIFIC ACTIVITIES			
NATIONAL ENVIRONMENTAL MANAGEMENT ACT			
Mining permit activities within the proposed project area for the mining of Sand which will includes excavation, stockpiling, loading, hauling and transport, discard dumps and supporting infrastructure	5 hectares (proposed mining permit area)	Activity 21 of Listing Notice 1: Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks, directly related to extraction of mineral resource, including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002). Activity 27 of Listing Notice 1: The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for- (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	GNR 983 (08 December 2014)

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2.2 DESCRIPTION OF THE PROPOSED MINING PERMIT PROJECT

Squizito (Pty) Ltd propose to mine sand on a 5ha of portion 10 of the farm Klipkop 396 JR. The proposed project entails excavation, stockpiling, loading, hauling and transport, discard dumps and supporting infrastructure.

2.2.1 Target Mineral

Sand (general), silica sand (general) and silica sand (silica) deposit exist in the Pretoria Group.

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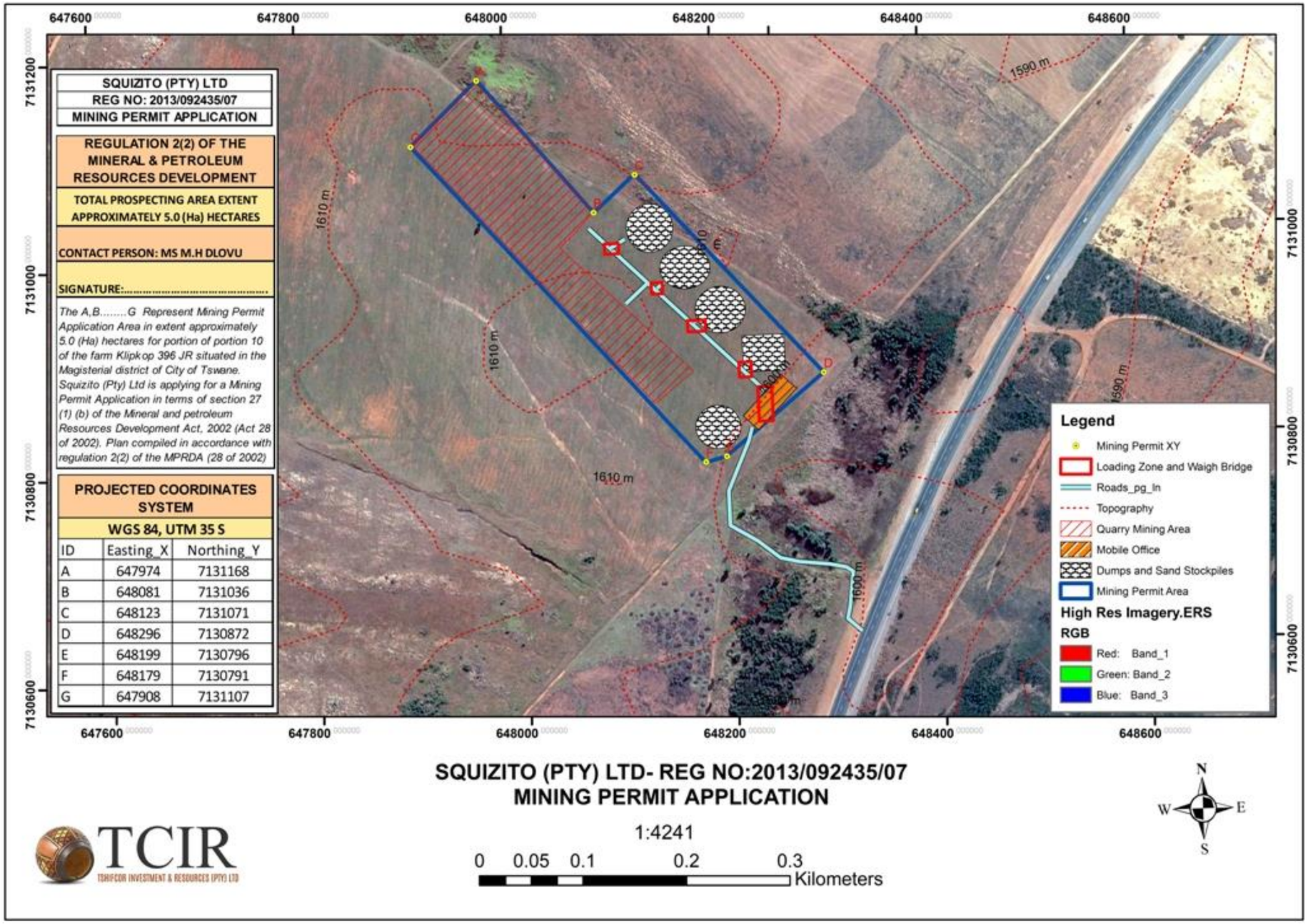

Figure 2-1: Proposed mining permit infrastructures

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2.2.2 The Mining Permit Method Statement to be used for the Proposed Project

In terms of NEMA regulations and requirements by the DMR, BAR and EMPr template, Squizito (Pty) Ltd must describe the methods and technology to be employed for the proposed project. In view of the above, a method statement for each phase of the proposed project has been provided. This identifies all actions, activities or processes associated with the proposed mining operation.

2.2.2.1 Specific activities to be undertaken

The specific activities that will be undertaken during the life of the project will include:

- Excavation of sand material and stockpiling of this material in front of the advancing opencast mining front, with bulldozers and front end loaders;
- Loading, hauling and transport of sand to the mine market.
- The overburden will be stockpiled separately from the topsoil and the waste rock, if any;
- Continuously backfilling the opencast void with waste rock, overburden and topsoil, in that order, followed by fertilisation and re-vegetation with locally indigenous species of grass, shrubs and trees;
- Decommissioning and removing all equipment, removing infrastructure, backfilling the opencast quarry, making the ex-operating area safe, shaping them to be free draining and rehabilitating them to a condition fit for grazing or game farming

Table 2-2: Equipment's to be used or needed

Equipment and/or Technology to be used	Excavator Bulldozer and Tipper truck Water cart 4x4 Bakkies
Materials required	Diesel
	Grease
	Hydraulic Oil
	Picks, shovels,
Storage Facility	Diesel, Grease and Oil
Spillage control	Dip trays

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Sanitation Facility	Chemical toilets
Waste Management	Waste skip and Bins
Water	Water will be transported to site
Safety	Safety Boards

2.2.2.2 Sand and Quarry Operations

An excavator will be used to dig out the sand material directly from the working face of the quarry operation. The quarry face will be designed to have a depth limit as high as five to eight meters for safe extraction. If the sand quarrying proceeds beyond the stipulated face height, then benches or steps will be used; this approach, called "benching," is not only safer, it also permits easier and less expensive restoration of the land after the quarry is closed.

The quarry floors will be kept flat and reasonably clear of holes to maintain drainage and minimize waste. The quarry floor will be graded, or sloped slightly away from the face. Sand extraction will be stopped prior to reaching the water table because going deeper can cause major drainage problems. The location of this area and the layout of the supporting infrastructure are shown schematically on **Figure 2-1**. The infrastructure footprint sizes are listed in **Table 2-3**.

Table 2-3: Footprint size of mining area and associated infrastructure

ITEM	FOOTPRINT (HECTARE)
Sand mining quarry Area	2
Sand Stockpile Area	1.5
Waste rock – Quarry Area	1.5
Total	**5**

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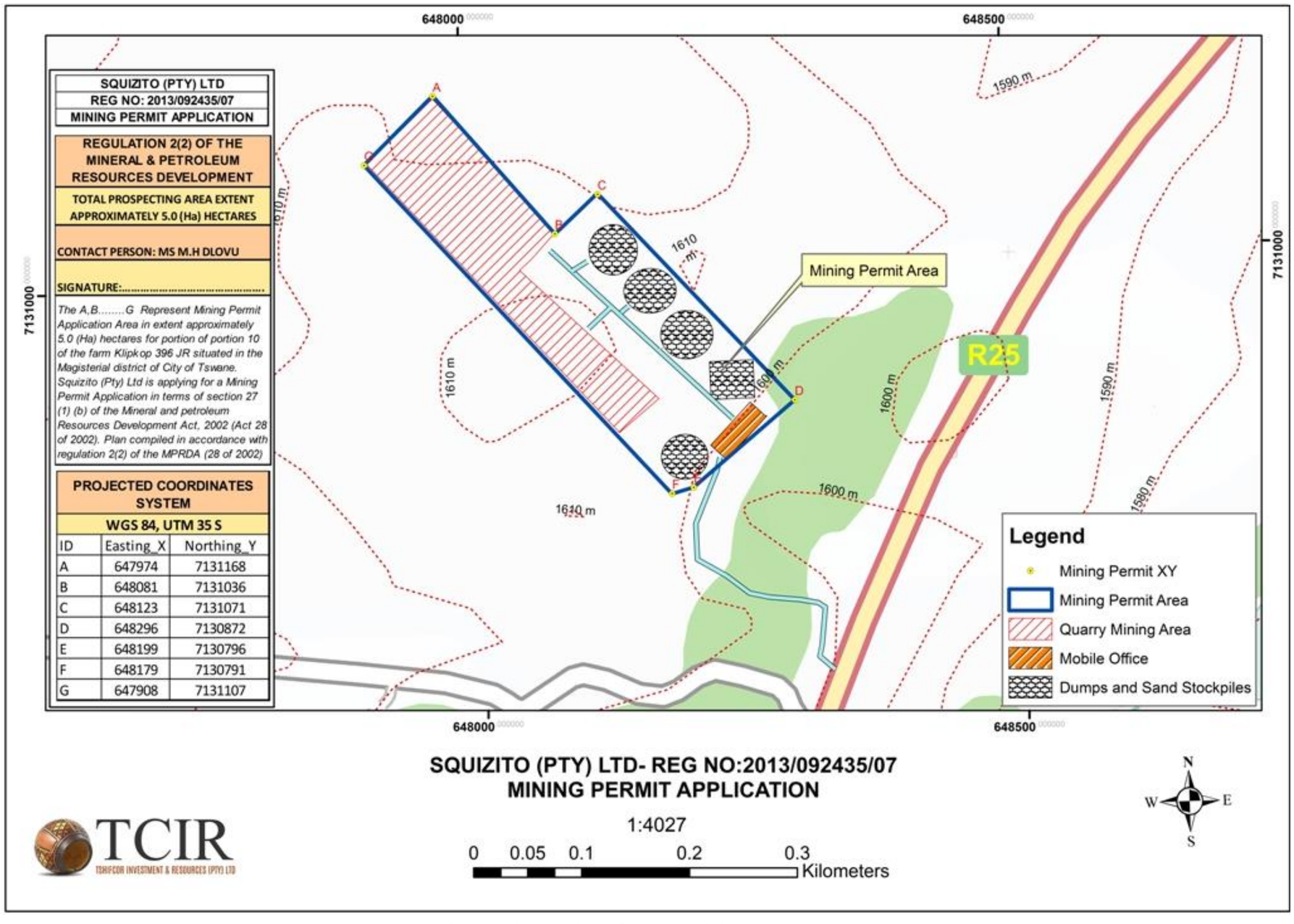

Figure 2-2: Location of Quarry mining area

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2.3 PROPOSED MINING PERMIT PROJECT SURFACE INFRASTRUCTURE DESCRIPTION

2.3.1 Access Roads

There are various main roads passing over the proposed project area and farm roads within the project area. Some of these roads will be used to access the proposed mining permit project area. Existing roads to be used during the proposed activities include the R25 and M6 provincial road and existing farm roads. Authorities will be informed of the road used where required, and land owners will also be requested permission to use their roads.

2.3.2 Power Line Infrastructure

No power line infrastructure will be affected and no electricity from the National Grid will be required for the proposed mining permit project. Only diesel powered vehicles and machinery will be used for the proposed project and its infrastructures.

2.3.3 Water Infrastructure

Water will be requested from the landowner's boreholes where available or other commercial suppliers (i.e purchased from the local Municipality). Water delivered to the project area (mining site) will be trucked with a water cart. This water will be used for the purpose of supplying service water, potable water and fire protection water. Service water will be required for the operation of machinery and dust suppression. Potable water supply will be required for domestic water use within the mining sites. Fire water will be required for firefighting purposes. A water tank will be used for the storage of water at the proposed project area. No water license is required for proposed mining activities in terms of Water Act (Act 36 of 1998).

2.3.4 Workshops and Buildings

Only mobile offices will be installed within the project area as indicated on the infrastructure map (**Figure 2-1**). No permanent building structures will be required for this project. All machinery will be maintained at an offsite workshop. Should emergency repairs be required the repairs will be conducted on site on areas covered with tarpaulins.

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2.3.5 Waste Management

2.3.5.1 Waste Identification and Management

Hazardous Waste

- Hazardous waste to be generated includes mineral residue, hydrocarbon wastes (oil and liquid fuel wastes),
- Mineral residue will include muds generated during the mining activities,
- Oil waste and liquid fuels waste include used oils bottles and containers from mine machinery and vehicles,
- Mineral residue will be stored within the site and will form part of rehabilitation materials,
- Hydrocarbon waste will be collected in 210 litre drums for storage. The drums will be placed on protected ground. The removal of the drums or any other appropriate receptacle will be undertaken by a waste disposal company, for disposal at a registered licensed waste disposal site. Waste disposal certificates will be kept.
- Chemical toilets will be used for the management of sewage waste generated on site.

General Waste

- General waste to be generated from the proposed project area include domestic waste such as food (left-overs), polystyrene, paper, and discarded personal protective equipment (PPE).
- This waste will be collected in marked 210l bins and disposal of at a registered landfill site closer to the proposed site.

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SECTION THREE

POLICY AND LEGISLATIVE CONTEXT

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3. POLICY AND LEGISLATIVE CONTEXT

3.1 CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA (ACT NO. 108 OF 1996)

Section 24 of the Constitution of the Republic of South Africa (Act No.108 of 1996) states that everyone has the right:

a. to an environment that is not harmful to their health or well-being; and
b. to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that;

i. prevent pollution and ecological degradation;
ii. promote conservation; and
iii. secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

In terms of Section 24 of the Constitution of the Republic of South Africa (Act No.108 of 1996), everyone has the right to an environment that is not harmful to their health or well-being. In addition, people have the right to have the environment protected, for the benefit of present and future generations, through applicable legislations and other measures that prevent pollution, ecological degradation and promote conservation and secure ecological sustainable development through the use of natural resources while prompting justifiable economic and social development. The needs of the environment, as well as affected parties, should thus be integrated into the overall project in order to fulfil the requirements of Section 24 of the Constitution. In view of the above, a number of laws pertaining to environmental management were promulgated to give guidance on how the principles set out in section 24 of the Constitution of the Republic of South Africa (Act No.108 of 1996) would be met. Below are laws applicable to the proposed project that were promulgated to ensure that section 24 of the Constitution of the Republic of South Africa (Act No.108 of 1996) is complied with.

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3.2 NATIONAL ENVIRONMENTAL MANAGEMENT ACT (ACT NO. 107 OF 1998)

Section 24(1) of the NEMA states: "In order to give effect to the general objectives of integrated environmental management laid down in this Chapter [Chapter 5], the potential consequences for or impacts on the environment of listed activities or specified activities must be considered, investigated, assessed and reported on to the competent authority or the Minister of the Department of Mineral Resources, as the case may be, except in respect of those activities that may commence without having to obtain an environmental authorisation in terms of this Act." In order to regulate the procedure and criteria as contemplated in Chapter 5 of NEMA relating to the preparation, evaluation, submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities, subjected to environmental impact assessment, in order to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts, and for matters pertaining thereto, Regulations (EIA Regulations, 2014) were promulgated. These Regulations took effect from the 4th of December 2014.

In addition to the above, Section 28 of the NEMA includes a general "Duty of Care" whereby care must be taken to prevent, control and remedy the effect of significant pollution and environmental degradation. This section stipulates the importance to protect the environment from degradation and pollution irrespective of the operations taking places or activities triggered / not triggered under GN983, GN984 and GN985. In view of the above, an environmental impact assessment is being undertaken to comply with the requirements of the NEMA and the NEMA EIA Regulations, 2014. The NEMA EIA Regulations of December 2014 determines requirements to be met in order to obtain an environmental authorisation. This report has therefore been compiled in compliance with the above regulations.

The listed activities triggered by the proposed mining permit activities are activity 21 and activity 27 of the Listed Notice 1 of the GNR983 and these activities has been assessed in the EIA process being undertaken (i.e. Basic Assessment). This BAR and EMPr will be submitted to the competent and commenting authority in support of the application for environmental authorisation.

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3.3 NATIONAL ENVIRONMENTAL MANAGEMENT AIR QUALITY ACT (ACT NO. 39 OF 2004)

The National Environmental Management: Air Quality Act (Act No.39 of 2004) (NEM: AQA) focuses on reforming the law regulating air quality in South Africa in order to protect the environment through the provision of reasonable measures protecting the environment against air pollution and ecological degradation and securing ecological sustainable development while promoting justifiable economic and social developments. This Act provides national norms and standards regulating air quality management and control by all spheres of government. These include the National Ambient Air Quality Standards (NAAQS) and the National Dust Control Regulations (NDCR). The standards are defined for different air pollutants with different limits based on the toxicity of the pollutants to the environment and humans, number of allowable exceedances and the date of compliance of the specific standard.

On 22 November 2013 the list of activities which result in atmospheric emissions which have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage was published under GN R893 in Governmental Gazette No 37054, in terms of Section 21(1)(b) of the NEM: AQA.

The proposed mining permit activities will not trigger any of the activities listed under the above-mentioned Regulations as Squizito (Pty) Ltd will ensure that emissions from their activities complies with the standards as set in the above-mentioned regulations. Dust Control Regulations describe the measures for control and monitoring of dust, including penalties. These regulations will be applicable during the mining phase.

3.4 THE NATIONAL HERITAGE RESOURCES ACT (ACT NO. 25 OF 1999)

The National Heritage Resources Act (Act No. 25 of 1999) (NHRA) focuses on the protection and management of South Africa's heritage resources. The governing authority for this act is the South African Heritage Resources Agency (SAHRA). In terms of the NHRA, historically important features such as graves, trees, archaeology and fossil beds are protected as well as culturally significant symbols, spaces and landscapes. Section 38 of the NHRA stipulates the requirements a developer must undertake prior to development. In terms of Section 38 of this act, certain listed activities require authorisation from provincial agencies:
(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

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(b) the construction of a bridge or similar structure exceeding 50 m in length;
(c) any development or other activity which will change the character of a site—
(i) exceeding 5 000 m^2 in extent; or
(ii) involving three or more existing erven or subdivisions thereof; or
(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
(d) the re-zoning of a site exceeding 10 000 m^2 in extent; or
(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,

The applicant must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Stand-alone HIAs are not required where an EIA is carried out as long as the EIA contains an adequate HIA component that fulfils the provisions of S38. In such cases only those components not addressed by the EIA should be covered by the heritage component.

Further assessment of the proposed area has been done during site assessment to determine if there are any sites that require protection. So far no sites has been identified, however, if any sites can be identified prior mining activities the areas will be marked and no mining will be undertaken in close proximity of such a sites. A permit may be required should they be any identified cultural/heritage sites on site required to be disturbed or destroyed as a result of the proposed mining permit activities. The DBAR has been also submitted to the SAHRA for their further comments.

3.5 NATIONAL ENVIRONMENTAL MANAGEMENT BIODIVERSITY ACT (ACT NO. 10 OF 2004) (NEMBA)

The National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEMBA) provides for the management and protection of South Africa's biodiversity within the framework established by NEMA. The Act aims to legally provide for biodiversity conservation, sustainable, equitable access and benefit sharing and provides for the management and control of alien and invasive species to prevent or minimize harm to the environment and indigenous biodiversity. The

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Act imposes obligations on landowners (state or private) governing alien invasive species as well as regulates the introduction of genetically modified organisms. The Act encourages the eradication of alien species that may harm indigenous ecosystems or habitats.

In terms of S57, the Minister of Environmental Affairs has published a list of critically endangered, endangered, vulnerable, and protected species in GNR 151 in Government Gazette 29657 of 23 February 2007 and the regulations associated therewith in GNR 152 in GG29657 of 23 February 2007, which came into effect on 1 June 2007.

In terms of GNR 152 of 23 February 2007: Regulations relating to listed threatened and protected species, the relevant specialists must be employed during the EIA Phase of the project to incorporate the legal provisions as well as the regulations associated with listed threatened and protected species (GNR 152) into specialist reports in order to identify permitting requirements at an early stage of the EIA Phase.

The Act provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), and vulnerable (VU) or protected. The first national list of threatened terrestrial ecosystems has been gazetted, together with supporting information on the listing process including the purpose and rationale for listing ecosystems, the criteria used to identify listed ecosystems, the implications of listing ecosystems, and summary statistics and national maps of listed ecosystems (National Environmental Management: Biodiversity Act: National list of ecosystems that are threatened and in need of protection, (GG 34809, GN 1002), 9 December 2011).

The Basic Assessment Report and Environmental Management Programme has been complied to ensure that all applicable requirements prescribed in the NEMBA are complied with.

3.6 MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT (ACT NO. 28 OF 2002) (MPRDA)

The Department of Mineral Resources (DMR) is responsible for regulating the mining and minerals industry to achieve equitable access to the country's resources and contribute to sustainable development. The Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA) requires that an EIA be conducted and that the EMP be drafted for the mitigation of impacts identified during the environmental impact assessment for a mining project. During

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December 2014, the "One Environmental System" was implemented by Government which initiated the streamlining of the licensing processes for mining, environmental authorisations and water use. Under the One Environmental System, The Minister of Mineral Resources, will issue environmental authorisations and waste management licences in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), and the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEMWA), respectively, for mining and related activities. The Minister of Environmental Affairs will be the appeal authority for these authorisations.

In view of the above the application for the environmental authorisation and mining permit application for the proposed project was submitted to the Department of Mineral Resources as the competent authority.

3.7 NATIONAL WATER ACT (ACT NO. 36 OF 1998) (NWA)

The National Water Act (Act No. 36 of 1998) (NWA) is the primary regulatory legislation, controlling and managing the use of water resources as well as the pollution thereof in South Africa. The NWA recognises that the ultimate aim of water resource management is to achieve sustainable use of water for the benefit of all users and that the protection of the quality of water resources is necessary to ensure sustainability of the nation's water resources in the interests of all water users. The NWA presents strategies to facilitate sound management of water resources, provides for the protection of water resources, and regulates use of water by means of Catchment Management Agencies, Water User Associations, Advisory Committees and International Water Management. The National Government has overall responsibility for and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest. Further, an industry can only be entitled to use water if the use is permissible under the NWA. The enforcing authority on water users is the Department of Water and Sanitation (DWS).

Further, Regulation 704 of the NWA deals with the control and use of water for mining and related activities aimed at the protection of water resources.

No water use licence application has been submitted to the Department of Water and Sanitation for their consideration. However, measures will be undertaken to ensure that requirements in terms of the NWA and the GN 704 are complied with where necessary.

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3.8 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT (ACT NO. 59 OF 2008)

The National Environmental Management: Waste Act (NEMWA) requires that all waste management activities must be licensed. According to Section 44 of the NEMWA, the licensing procedure must be integrated with an EIA process in terms of the NEMA.

The objectives of NEMWA involve the protection of health, wellbeing and the environment. The NEMWA provides measures for the minimisation of natural resource consumption, avoiding and minimising the generation of waste, reducing, recycling and recovering waste, and treating and safely disposing of waste.

As no waste disposal site is to be associated with the proposed project, no permit is required in this regard. Waste handling, storage and disposal during operation is required to be undertaken in accordance with the requirements of the Act, as detailed in the EMPr.

3.9 THE NATIONAL ENVIRONMENTAL MANAGEMENT: PROTECTED AREAS ACT (ACT NO. 57 OF 2003)

The aim of the National Environmental Management: Protected Areas Act (No 57 of 2003) is to provide for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and natural seascapes. The purpose of a Protected Environment is amongst others to protect a specific ecosystem outside a special nature reserve world heritage site or nature reserve and also to ensure the use of the natural resources in the area is sustainable.

3.10 THE CONSERVATION OF AGRICULTURAL RESOURCES ACT (ACT NO. 43 OF 1983)

The Conservation of Agricultural Resources Act (No 43 of 1983) requires the maintenance of riparian vegetation and provides a list of invasive alien vegetation that must be controlled or eradicated.

Control of invasive vegetation has been discussed in the Environmental Management Plan (EMPr).

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3.11 NATIONAL FOREST ACT (ACT NO. 84 OF 1998)

The purpose of this act is to amongst others, promote the sustainable management and development of forests for the benefit of all.

The act defines the following:
"Forest" includes-
(a) a natural forest, a woodland and a plantation;
(b) the forest produce in it; and
"Natural forest" means a group of indigenous trees-
(a) whose crowns are largely contiguous; or
(b) which have been declared by the Minister to be a natural forest under section 7(2); (c) the ecosystems which it makes up"

A license is required to cut, disturb, damage or destroy any indigenous tree in a natural forest; or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any tree, or any forest product derived from an indigenous tree in a natural forest.

Further, the minister may publish a list of protected trees. No person may- (a) cut, disturb, damage or destroy any protected tree; or (b) possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, or any forest product derived for a protected tree, except- if they have a license to do.

The proposed project site does not include a natural forest and thus no permit will be required from DAFF for the destruction or damage in terms of this Act.

3.12 THE OCCUPATIONAL HEALTH AND SAFETY ACT (ACT NO. 9 OF 1997)

The Occupational Health and Safety Act, 1993 (No.85 of 1993) provides for the health and safety of people at work as well as the health and safety of persons using plant and machinery. The applicant, Squizito (Pty) Ltd, will be required to meet the requirements of the OHS Act during the operational phases of the proposed project.

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SECTION FOUR

NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

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4. NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

In terms of the EIA Regulations the need and desirability of any development must be considered by the relevant competent authority when reviewing an application. The need and desirability must be included in the reports to be submitted during the environmental authorisation application processes. This section of the BAR and EMPr will indicate the need and desirability for the proposed mining permit project.

The sand is the key materials used in the construction of roads and buildings. The mining operation will help the Tshwane Municipality's achieve the 2017/2018 IDP which plans to meet the key challenges facing the area including housing (*City Tshwane General and Regional Report 2013 and City of Tshwane Draft 2017/2018 Review March 2017*). The Region 6 is adjacent to Region 7 of the City of Tshwane. Therefore, the housing in Region 7 forms a complex problem. Challenges specifically relating to housing include expanding informal settlements, land invasion, dilapidated hostels, informal dwellings and backyard shacks, a need for rental housing stock, the illegal occupation of houses, illegal dumping, and the non-availability of land for low and middle-income housing. The sand can thus help meet demands of the Municipality in terms of service delivery and promoting development of the area by the provision of sand for cement to be used in construction.

The broader socio-economic benefits of the project include employment, skills development, local economic development through the availability and affordability of the sand, and increased business development for the area generally. While the project is small in operation, the providing of high quality sand to be used will aid the construction sector in the area in terms of service delivery and local economic development.

As the housing forms a complex problem in the adjacent Region 7 of Region 6. Challenges specifically relating to housing include expanding informal settlements, land invasion, dilapidated hostels, informal dwellings and backyard shacks, a need for rental housing stock, the illegal occupation of houses, illegal dumping, and the non-availability of land for low and middle-income housing. Squizito (Pty) Ltd expects that substantial benefits from the project will accrue to the immediate project area, the sub-region and the province of Gauteng Province. Further to the above, it has been determined that the mining project activities will not have a conflict with the spatial development plans, the integrated Development Plans, the Environmental Management framework, existing industrial and commercial development of the Local Municipality.

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The applicant further commits to ensure their contribution to environmental education and to their employees during the project life. The employees will be made aware of work that may be harmful to their health and the environment and of any work posing danger. This is undertaken in terms of the Mine Health and Safety Act, 1999 (Act 25 of 1999) and their regulations, which gives the employees the right to refuse work that is dangerous. The applicant will respect decisions of employees regarding the above and is committed to the protection of employees against any dangerous working environment.

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SECTION FIVE

MOTIVATION FOR THE PREFERRED DEVELOPMENT FOOTPRINT

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5. MOTIVATION FOR THE PREFERRED DEVELOPMENT FOOTPRINT

Mining is the most important economic sector in the country as a whole, and the area proposed for the project lies within the Silverton and Daspoort Formation. The farm Klipkop 396 JR on which the proposed project located, is underlain by rocks of the Silverton and Daspoort Formation. These Formations comprise quartzite and shale (Published Geological Maps, 2528 CA Pretoria and 2528 CB Silverton 1:50 000).

The project site is located in the Region 6 of City of Tshwane Municipality and according to the municipality's City of Tshwane (2013). Draft 2013/14 IDP Review 28 March 2013, they identified that the northern part of the region has fewer job opportunities and less development than the southern part. Although the region in general has good access to municipal services, the region has grown substantially and thus maintenance of infrastructure will be required in the future. In addition, *City of Tshwane Draft 2017/2018 Review March 2017,* also indicate that the housing in Region 7 forms a complex problem. Challenges specifically relating to housing include expanding informal settlements, land invasion, dilapidated hostels, informal dwellings and backyard shacks, a need for rental housing stock, the illegal occupation of houses, illegal dumping, and the non-availability of land for low and middle-income housing.

The proposed method of mining sand deposit which will be mainly include excavation, stockpiling, loading, hauling and transport, discard dumps and supporting infrastructure, does not require extensive machinery or any development for new structures as compared to other methods, making it feasible for one excavator and a bulldozer to be utilised for this type of project. This also reduces the overall costs, environmental and social impact associated with the mining permit processes, thus allowing financial viability in mining activities.

5.1 CONSIDERATION OF ALTERNATIVES

The National Environmental Management Act 107 of 1998, Environmental Impact Assessment Regulations, 2014 requires BAR and EMPr to identify alternatives for projects applied for. In terms of the above-mentioned regulations an alternative in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to the (a) the property on which or location where it is proposed to undertake the activity; (b) the type of activity to be undertaken; (c) the design or layout of the activity;(d) the

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technology to be used in the activity;(e) the operational aspects of the activity; and (f) the option of not implementing the activity.

5.1.1 Location Alternatives

The location alternative considered for the proposed project include the mining site and access routes. The location alternatives were selected based on a number of criteria, which include the environmental considerations (how sensitive is the area in terms of soils, wetlands, groundwater etc.) and the dependency of the project to the required infrastructure.

5.1.1.1 Mining Site and Access Routes

Two locations were considered for the proposed sand mining activity. The initial location was further south east of the applied area (Onbekend 398JR). However, it was discovered that the site has a mining right application, and there is a watercourse within the area, also the area falls within the CBA important areas. To minimize the impacts of the sand mining operation, this site was ruled out in favour of a site located outside the CBA important areas. Locational alternatives were limited to areas where there is no application and where the area doesn't fall under CBA important areas. Based on the above, portion 10 of the farm Klipkop 396 JR have been found the best alternative as per the attached locality map (**Figure 1-1**).

The project location is between the R25, M6 and M30, where is surrounded by sand mining, farming, game drives & nature walks, therefore there is no need to construct road and this will help on decreasing the negative impact on the environment when the project commence with mining. No alternatives were considered for the access roads as the intention is to use existing roads as well as farm roads. This will ultimately reduce the impact/ environmental footprint of the proposed project.

5.1.2 Design/Layout Alternatives

The proposal layout for the sand mining activity will be as per the attached infrastructure sketch plan (**Figure 2-1**). There will be one entrance via existing access gravel road from the R25. There will also be four (4) sections of dumps and sand stockpiling, less than a meter from the farm gravel existing road. There will be mobile site office and a portable chemical toilet within the mobile

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offices, which will be utilised by the employees. The site has been minimised to impact the smallest possible area.

5.1.3 Technology Alternatives

The only practical means of sand mining is per a front-end loader and excavator method, and/or by means of the barge, hose and pump system. Accordingly no other input alternatives were considered. It has been determined that the only best technological way of undertaking the proposed activities would be to use front-end loader and excavator.

5.1.4 Input Material Alternatives

As mentioned above, that the front-end loader and excavator will be utilised and this equipment's uses energy such as petrol and diesel, therefore the best way will be to use current available energy on the operation of the proposed project. In view of the above, no input material alternatives were considered for this project.

5.1.5 Operational Alternatives

5.1.5.1 Mining Permit Operational Methods

The mining area must be clearly demarcated (Working Areas and No-go Areas), by means of pegs/markers at all corners of the site and along its boundaries (where practical). Permanent pegs/markers must be firmly erected and maintained in their correct position throughout the life of the operation.

Working areas

- The Site shall be divided into working areas and 'no-go' areas and shall be marked on appropriate plans for reference.
- Working areas are those areas required by the mining permit to erect their site works.

No-go Areas

- No-go' areas are generally those large areas outside the designated working areas, and may include, but not be limited to:

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- Existing services and infrastructure (e.g. overhead power line towers and bridge pylons)
- Watercourses
- Any heritage sites that receives the protection from PHRAG (Provincial Heritage Resources Authority Gauteng).
- Natural or special features as defined in the Environmental Specification

5.1.6 No Go Option

The 'no-go' alternative is the option of not undertaking mining permit activities on the project site. The no-go option assumes the site remains in its current state. The no go alternative would result in no impacts on the social and biophysical environment.

The Project Manager and Safety Officers shall ensure that all "no go" areas are demarcated and that no unauthorised entry, litter, stockpiling, dumping or storage of equipment or materials shall be allowed within the demarcated "no go" areas. Once mining activities within an area has been completed and the area has been rehabilitated and re-vegetated, it shall be considered a "no go" area.

5.2 DETAILS OF THE PUBLIC PARTICIPATION PROCESS FOLLOWED AND RESULTS THEREOF

Public participation is the cornerstone of any EIA process. The principles of the NEMA govern many aspects of EIA's, including public participation. The general objectives of integrated environmental management laid down in the NEMA include to "ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment".

The National Environmental Management Principles include the principle that "The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary to achieve equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured", which basically means that the person responsible for the application (EAP) must ensure that provision of sufficient and transparent information on an ongoing basis to stakeholders are made to allow them to comment, and to ensure that the participation of previously disadvantaged people like women and the youth are undertaken.

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In terms of the EIA Regulations, 2014, when applying for environmental authorisation, the Environmental Assessment Practitioner managing the application must conduct at least a public participation process where all potential or registered interested and affected parties, including the competent authority, are given a period of at least 30 days to submit comments on each of the basic assessment reports, EMPr, scoping report and environmental impact assessment report, and where applicable the closure plan. In this case a Basic Assessment Report (BAR) is considered.

This section of the BAR and EMPr will give an explanation of the public participation process undertaken in order to comply with the above-mentioned requirements. A number of public participation guidelines were published in a bid to assist persons responsible for the environmental authorisation applications. As much of the available guidelines were used in determining the public participation process, in guiding the public participation process of the proposed project.

Squizito (Pty) Ltd is applying for an environmental authorisation for the proposed Mining Permit Project. The application for the environmental authorisation is undertaken in terms of the process as laid out in part 2 of Chapter 4 under the NEMA EIA Regulations, 2014. The abovementioned regulations require that an applicant for an environmental authorisation submit a BAR and EMPr to the competent authority after having subjected the reports to a public participation process. In view of the above, a public participation process was initiated for the proposed mining permit project. The public participation process for the proposed project is designed to provide sufficient and accessible information to interested and affected parties (I&APs) in an objective manner to assist them to:

- raise issues of concern and make suggestions for enhanced benefits;
- contribute local knowledge and experience;
- verify that their issues have been captured;
- verify that their issues have been considered in the technical investigations; and
- comment on the findings of the EIA.

The following has been conducted in undertaking of the public participation process for the proposed mining permit project.

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5.2.1 Registration and BAR phase

The public participation process commenced by providing potential Interested and affected parties (I&AP's) an opportunity to register as interested and affected parties and to comment on the proposed project. The registration and commenting process started on the 14th of July 2017 and the draft Basic Assessment Report has been distributed to all identified interested and affected parties on the 23rd August 2017 and they have been afforded a 30 days (23rd August 2017 to 23rd September 2017) opportunity to comment on the draft report prior to submitting the final to the DMR. The due date to comment on the draft BAR has been stipulated as the 21st September 2017. The aim is provide all the parties enough time (at least 30 days) to comment on the proposed project as per NEMA regulation as amended in 2014.

5.2.1.1 Notification of the potential interested and affected parties

The following methods of notification were used to notify the potential interested and affected parties of the opportunity to register during the public participation process for the proposed project:

- Site Notices were fixed on 18th of July 2017, at different areas surrounding the properties affected by the proposed project. The notices were compiled in compliance with the requirements of Regulation 41(3) of the EIA Regulations, 2014. Please see attached **Appendix 2** for proof of site notices.

- Written notices were sent to all identified interested and affected parties including land owners of the land on which the proposed project will be undertaken, owners/lawful occupiers of land immediately adjacent to the proposed project area, the municipal councillors of the ward in which the proposed project is situated, representatives of the municipalities which has jurisdiction over the proposed project area: City of Tshwane Local Municipality and organ of state such as Department of Rural development and Land Reform, Department of Agriculture and Forestry, Department of Water and Sanitation, Department of Roads and Transport, Department of Environment Affairs, Department of Water Affairs and The South African National Roads Agency SOC Ltd. The written notices were compiled to comply with the requirements of Regulation 41(3) of the EIA Regulations, 2014. Note that landowners (including lawful occupiers) within the proposed project area and all authorities are automatically registered as interested and affected parties (**Appendix 3** for acknowledgement of BID and written letter).

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- A newspaper advert was placed on the local newspaper (Streeknews) on the 14th July 2017. The newspaper advert was according to the Regulation 41(C)(i) of the NEMA EIA Regulation 2014. See **Appendix 4** for proof of newspaper advert.

- A meeting with the Interested and Affected Parties surrounding the proposed mining permit was undertaken on the 29th July 2017 at portion 10 of the farm Klipkop 396 JR. During the proceedings of the abovementioned meetings, the attendants were advised that the DBAR and EMPr will be made available as soon as is complete as new information were identified of which it need to be added on the draft report prior to subjecting it to public participation and were encouraged to comment on this report and methods of commenting on the DBAR and EMPr were explained to the attendants during these meeting. Please see **Appendix 5** for meeting attendance registry and meeting minutes.

5.2.1.2 Registered Interested and affected parties

The following **Table 5-1** shows the current registered interested and affected parties for the mining permit project (database of IAPs will be updated at all times):

Table 5-1: List of Registered Interested and Affected Parties

Names	Farm/Organisation	Address	Contact Details	E-mail
Jerry Mahlangu	City of Tshwane Municipality	Cnr Botha and Kruger Street, Bronkhorstspruit	012358 6825/63	JerryMah@Tshwane.gov.za
Sipho Luthuli				siphol2@tshwane.gov.za
Dineo Siko				dineos@tshwane.gov.za
Cathrine Mahlangu	Dept. Rural Development and Land Reform (land restitution)	Private Bag X833, Pretoria, 0001	0123106508	Cathrine.Mahlangu@drdlr.gov.za
Phorster Sambo	Department of Rural Development and Land reform		0123373600	

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Fungisani Marubini	Department of Agriculture, Forestry & Fisheries	Private Bag X 138, Pretoria, 0001	0123197605	fungisanim@daff.gov.za
Lydia Forssman	Department of Transport	159, Forum Building, Crn Bosman & Struben Street, Pretoria Central,0001	0123093148	Forssman@dot.gov.za
Alfred Mugobi	Gauteng Provincial Government Dept. of Transport	P O Box 194, Bronkhorstspruit, 1020	013932 3178/0171	alfred.mugobi@gauteng.gov.za
Dan Motaung	Gauteng Provincial Dept. of Agriculture and Rural Development	Umnotho house, 56 Elloff Street, Johannesburg	0112402500	Dan.Motaung@gauteng.gov.za
Mokgadi Maloba	Dept. Water and Sanitation	No 22 Rooth Street, Bronkhorspruit 1020 Private Bag X 10580, Bronkhorspruit 1020	0139322061	MalobaM@dws.gov.za
Khathu Nemalili		Private Bag X313, Pretoria, 0001	0123197605	Nemalilik@dws.gov.za
Stanford Macevele				MaceveleS@dws.gov.za
Sello Phuroe	Department of Environmental Affairs	No 22 rooth Street, Bronhorspruit, 1020	0861112468	sphuroe@environment.gov.za
Salome Mandane		473 Steve Biko, Arcadia, Pretoria, 0083		smandane@environment.gov.za

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		Private Bag X 447, Pretoria, 0001		
Dr M.E Tau	Department of Forestry and Natural Resources Management	20 Steve Biko Street, Arcadia, Pretoria 0002	0828845541	mmaphakat@daff.gov.za
Liza Mokubedi	The South African National Roads Agency SOC Ltd,	38 Ida Street, Menlo Park	0124266200	kruger@nra.co.za
Ms Margaret-Anne Diedricks	Department of Water Affairs	185 Francis Baard Street	0123368152	centralp@dwa.gov.za
André Coetzee	Schalk Burger SA (Pty) Ltd	Plot 43, R631 Boschkop Road, Zwavelpoort,	0861007272 0824475623	andrec@schalkburger.co.za
Braam van den Berg	Schalk Burger legal counsel		0833202973	
Mr Jannie	Quesera Bikers/family Venue		0829263889	info@quesera.co.za
Ms Emmie Willemse	Green Sand	CNR R25 & M6 Kameelzynkraal, Centurion, 0157	0782007490	Sales@greensand.co.za
Ms Doreen Cordier	Zermatt		0833056017	
Myra Pienaar	Plot 23 Klipkop			myra@yellowpaperclip.co.za
Mr Abraham Kiewiets			0727008730	
AV Rensberg			0829325343	
Mark de Jager	Plot 253		0828710249	markus_dj@yahoo.com
A Frurik	Plot 224		0822925774	

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Venessa De Jager	Plot 253		0825741562	venessa.myburgh@gmail.com
Daniel Casparus	Portion 46 Klipkop		0827746456	zululandsafaris@telkomsa.net
A Boessenkool	Plot 246		0725407154	allardboes@gmail.com
Sandra Reynder	Plot 49 P O Box 33546, Glenstan_a, 0010		0827882571	sreynder6tdh@sa.net
Raymond Geens	40 Rietfontein 395 JR	Bronberg Bewaria		iti03938@mweb.co.za
A Kiewiets	Portion 14 547 JR		0727008730	Kiewitz63@gmail.com
A Ras	Portion 46 396 JR		0824444242	rasadriaan@yahoo.com
C Yeo	12 Klipkop		0799202791	colin.yeo1@gmail.com
Roy Adcock	T208/256		0794891243	roy@takecontrolenergy.co.za
H Spath	Plot 39		0836291425	helen@coigg.co.za
J Nezar	Plot 198		0832362202	jpnezar@gmail.com
B Botes	Klipkop 21		0832751303	bennie@A2Hconsulting.co.za
K Rhodes	Tiegerpoort 206		0824400292	Kenrhhodes380@gmail.com
L Hamman	Watercrest, Klipkop 397		0824479044	Lauwhamman@gmail.com
Barry van der Merwe	Greenergy Solutions		012940 8280/ 084 732 3325	barry@greenergysolutions.co.za
Johan & Liz van Enter	Portion 20 Klipkop 396			vanenter@plotnet.net piet@pvanren.co.za
Ute Rhodes				uterhodes@icloud.com
VAN NIEKERK, WILLEM			0823880334	willem.van.niekerk@monsanto.com
Miros Kaffka	Portion 11 Klipkop 396		0824634292 0129914578	miros@mikafin.co.za

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Hannes Vorster	Integrated Convoy Protection (Pty) Ltd		0826002514 0128118600	Hannes@icp.co.za
Henriëtte Kieser		Desert Wolf Estate, 48 Klipkop, Lynnwood Road,	0128111168 0824505922	hanriette@dessert-wolf.com
Rosa van der Merwe	Greens Sand		Tel: 012 6631263 Cell: 082 7844993 Fax:086686 4849	rosa@greensand.co.za

5.2.1.3 Proof of Consultation

Proof of the above-mentioned consultation has been attached as Appendix 2 to Appendix 5 on this report.

5.2.1.4 Finalisation of interested and affected parties

The updating of the database for interested and affected parties will be finalised on the 22nd of September 2017. All parties who have indicated the interest of being registered as interested and affected parties will be added to the list of interested and affected parties.

Note: All organs of state, which have jurisdiction in respect of any aspect of the proposed project and the competent authority are automatically registered as interested and affected parties.

5.2.2 Draft Basic Assessment Report

The DBAR and EMPr have been made available for comment to all relevant stakeholders and all IAPs as from the 23rd of August 2017 to the 22nd of September 2017 (30 calendar days).

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5.2.2.1 Comments, Issues and Response on the Draft report

On lapsing of the commenting period on the Draft report, all comments and issues, responses and reactions received from the interested and affected parties will be recorded and responses to the comments made and will be attached on the final report to be submitted to DMR and the table below will be populated with all comments received as per NEMA regulation.

Table 5-2: List of Interested and affected parties (IAP) list of comments and their response for the public participation carried out.

INTERESTED AND AFFECTED PARTIES (IAPS) ***(this column, and Mark with an X were those who were in fact consulted)***		**DATE COMMENTS RECIEVED**	**ISSUES RAISED**	**EAP RESPONSE TO ISSUES**	**SECTION AND PARAGRAPH REFERENCE**
Andre Coetzee	**X**	**19/07/2017**	Good day Caroline, Following our earlier telephonic discussion, we as owners of Portion 10 of the Farm Klipkop 396 JR would like to meet with you as soon as possible to discuss the planned Sand Mining operations on our property. Please let me know when you are available to meet.	Dear André, Thank you very much for your call this afternoon. I really really appreciate it. Please let's meet sometime during the course of next week atleast before the planned public meeting. I will make sure that I avail myself and my team any day that will suit your	**Appendix 6**

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			As mentioned, we are based in Pretoria, but we can meet as a venue that is convenient, and not necessarily at the property in question. I would like to invite our director as well, but have to check his diary first. Please find all relevant contact information below, should you need to get hold of us. Thank you.	director. Although I will prefer it to be anytime between 10h00am to 15h00pm to avoid traffic. Thank you for the contact information and thank you for agreeing on face to face meeting as it is always suitable this way. In the meantime please see attached Background Information Document and a formal notification as a Farm Owner, just to familiarize yourself with the proposed project. Looking forward to meet you and please do not hesitate to contact me if you require anything related to this proposed project.	

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Raymond Geens		**20/07/2017**	Can you please send me a map that shows Portion 10 Klipkop 396 JR with the adjacent properties. I cannot work with coordinates. As a resident of the area I would first like to establish whether there is an impact on my property. Distance to my property is critical. Thanks.	Good day Sir, Thank you very much for your correspondence. As per your request, please see attached map that show the applied area in red and the surrounding farms. Please feel free to conduct me if you require any other information related to this application. Kind Regards	**Appendix 6**
Hannes Vorster		**24/07/2017**	Good day Caroline Kindly forward the relevant documentation and reports regarding this matter Regards	Dear Hannes, Thank you for your correspondence regarding this application. Please note that I will put your details under our database for this project. In the meantime see the a□ached documents as listed below:	**Appendix 6**

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				1. Background Information Document 2. Letter of Notification 3. Comments and Response sheet Please note that as a registered IAP, the Environmental Report will be forwarded to you as soon as it is complete for a 30 days review and comments period prior to submitting it to Department of Mineral Resources. Do not hesitate to conduct me should you have any inquiries related to this matter.	
Henriëtte Kieser		**26/07/2017**	Good morning, I refer to the notice regarding EA for a proposed sand mine permit on portion of the farm Klipkop396 JR. According to the notice the report should be available on your website from 24 July but has not yet been published.	Dear Henriette, Thank you for your correspondence regarding this proposed Mining Permit Project of Sand in Portion 10 of the farm Klipkop 396 JR. The availability of the Draft Basic Assessment Report has been	**Appendix 6**

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			Please make the report available to us immediately, otherwise there will not be enough time to study the report before the meeting scheduled for 29 July 12:00 and the meeting would have to be postponed. I look forward to your prompt response.	postponed, therefore as soon as this report is available it will be forwarded to you and other Registered Interested and Affected Parties and you will be given atleast 30 days to review and comment prior to submitting the final to the DMR. Therefore you will have enough _me (30 days) to review the report and comment. The meeting cannot be postponed, it can only be investigated after this meeting and after the circulation of the Draft BAR if there is a need for the second meeting. The way of commenting on the Draft BAR will be communicated. In the meantime you can have Background information	

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				document to familiarize yourself with the proposed project.	
Sandra Reynders		**25/07/2017**	Good day 1. I hereby requested the Draft Basic Assessment Report with regards to the proposed mining permit of sand. 2. I want to register as you point out in the document. 3. Please send me directions to Klipkop 10 for attending the meeting on the 29th of July.	Dear Sandra, Thank you for your correspondence regarding this proposed Mining Permit Project of Sand in Portion 10 of the farm Klipkop 396 JR. 1. The availability of the Draft Basic Assessment Report has been postponed, therefore as soon as this report is available it will be forwarded to you and other Registered Interested and Affected Parties and you will be given atleast 30 days to review and comment prior to submitting the final to the DMR. 2. You are registered under our Interested and Affected Parties database, it will also be	**Appendix 6**

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				better if you can send your physical/postal address. 3. The meeting will be held at the farm Klipkop portion 10, which is at Cnr R25 and M6, Bapsfontein, Gauteng, 2510. For in case you get lost on the way do not hesitate to give me a call.	
Sandra Reynders		**27/07/2017**	Dear Caroline Please send me the gps coordinates as well as the specific road of entrance. Thank you.	Dear Sandra, Please find below the GPS coordinates. Latitude: 25°55'24.41"S Longitude: 28°28'47.60 "E Note that this are the gate coordinates (where the meeting will be held) and the road you should take from R25 Kempton Park side is M6 left turn, from Bronkhorstspruit side is M6 right turn. There is only one entrance to the farm on M6. Also see the	**Appendix 6**

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				attached google map.	
Miros Kaffka		**26/07/2017**	Good day, I trust this email finds you well. Could you please forward the Basic Dra Assessment Report for the application of the mining permit on portion 10 of the Farm Klipkop to me? Thank you.	Dear Miros, Thank you for your correspondence regarding this proposed Mining Permit Project of Sand in Portion 10 of the farm Klipkop 396 JR. The availability of the Draft Basic Assessment Report has been postponed, therefore as soon as this report is available it will be forwarded to you and other Registered Interested and Affected Parties and you will be given atleast 30 days to review and comment prior to submitting the final to the DMR. In the meantime you can have Background information document to	**Appendix 6**

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				familiarize yourself with the project.	
Miros Kaffka		**27/07/2017**	Good day Caroline, My family trust owns the remainder of Portion 11 of the Farm Klipkop 396JR and it is therefore key that I receive the necessary documentation. If I am correct, a meeting has been planned for this coming Saturday on Portion 10. Your locality map does not make it clear where the property concerned is situated. Is there any chance that you can be more specific about where the property concerned (Klipkop 10) is situated ? I suppose it is along the Graham Road extension (Lynnwood Road extension). Looking forward to your reply.	Dear Miros, That is very true, all the correspondence and any necessary documentation regarding this application will be made available for you through this email. The meeting is planned for Saturday the 29th July 2017 at the Portion 10 of Klipkop at 12:00pm. Below is the coordinates for the exact point where the meeting will be held. It is at the entrance of the portion 10, and along the M6 road/Graham road. Latitude: 25°55'24.41"S Longitude: 28°28'47.60 "E I hereby also attach the map that shows your family portion	**Appendix 6**

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				and the applied portion, the distance between the two is about 4.8km.	
Roy Adcock		**03/08/2017**	Dear Caroline, I have registered with you at the public meeting. My summary of questions is attached above. Please ensure that all these issues are addressed in your report and also make sure that a reply copy is forwarded to me. Kind regards	Dear Roy, Thank you very much. Please see attached response letter.	**Appendix 6**
Willem		**03/08/2017**	Dear Caroline, Could you send me an electronic version of the Draft Basic assessment Report please	See attached DBAR and EMPR as per your request.	**Appendix 6**
Andre Coetzee		**01/08/2017**	Good day Caroline, I received a disturbing call yesterday afternoon. There was a meeting held on site (Klipkop 10) on Saturday, 29 July 2017, which was attended by some of the neighbouring	Good day André, Thank you very much for taking my call this afternoon. As per our telephonic conversation, indeed the meeting was held and during the meeting proceedings as it	**Appendix 6**

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			property owners/ stakeholders. We, as owners of Klipkop 10 did not attend this meeting. During this meeting it was indicated from your side that the mining of sand will go ahead on our property, regardless of the discussions of this meeting, and concerns raised by those attending. A period of 30 days were indicated before mining will start. This is of great concern as we were not included in this process at all! As land owners we feel that we should have an urgent meeting to discuss the planned mining project. Since our director is undergoing surgery today, I suggest that we arrange a preliminary meeting to get all the relevant parties together and discuss the details	is always the case in most of the meeting we have held for other projects like this one, there is always emotional people about mining projects. The main point of holding the meeting was for us to work according to the regulations and as arranged we know is always better to have a separate meeting with the owner. No any mining is going to start without you as the owner of the land being notified. And the process is still a long process as this is just a starting point, the 30 days period mentioned is for the Environmental report that has to be given to all Interested and Affected parties including state department for their reviews and comments. Still	

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			of this project as soon as possible. I can then report and present the facts to our director for further feedback. Needless to say, it is crucial that the land owner is involved in the planned mining project and any mining activity not start without our consent.	after this 30 days the DMR usually give the final decision within the period of about 107 days. As the land owner you will be updated about all the developments including the correspondence from the DMR. It is very crucial for the landowner to be involved and to give consent. The concerns raised by neighbouring land owners will be taken into consideration and will be addressed. As discussed, can we have the first meeting on Friday (04th August 2017) at 10:00am or 11:00am.	
Johan & Liz van Enter		**03/08/2017**	Attached please find our response to the abovementioned proposal _With regards to the above-mentioned application for a sand mine we would like to	Thank you for your objections, Please note the below: There is a mine adjacent to the applied area for the same product, We strongly believe that if sand mining was	**Appendix 6**

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			strongly object to this application as it will have a major impact on the environment. We purchased our land more than twenty years ago and one of the main reasons was that it was in a conservancy area. We are convinced that the proposed mining activities will have a major impact on the environment not to even mention the hazardous consequences to our much-treasured wildlife. We were fortunate to have been informed of this application at such a late stage as no local notifications were placed in the area whatsoever.	really that bad to the environment and the wildlife, all the wildlife and the environment within the area would have already been deteriorated. The site notices were erected and proof of such have been attached as appendix 2, we also know that this notices were quickly removed as soon as we vacant the area. We are thankfully that even so you managed to get the information regarding the proposed project.	
Barry van der Merwe		**04/08/2017**	Can you send me the Drafted Basic Assessment Report for the application below. Further, register me as an opposing party to this application.	You are registered under the IAPs database. Please find attached DBAR and EMPr for your further review and comments.	**Appendix 6**

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Ute Rhodes		**04/08/2017**		Dear Ute, Thank you for your correspondence regarding the proposed mining permit application on portion 10 of the Klipkop 396JR. Please see attached response letter..	**Appendix 6**
Sandra Reynders		**04/08/2017**	Please see the attached document "Friends of the Klipkop area and surroundings". There is some questions in the document with regards to the proposed sand mine on Portion 10 of the farm Klipkop that was raised on the meeting 29th of July 2017 and I kindly request your written answers on the questions. I look forward to your prompt response.	Dear Sandra, Thank you for your correspondence regarding the proposed mining permit application on portion 10 of the Klipkop 396JR. Please see attached response letter..	**Appendix 6**

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Sandra Reynders		**04/08/2017**	Dear Mrs Caroline Munyai With referral to the above excerpt from a document that was handed out on the public meeting on the 29th of July 2017, with regards to the proposed Sand mine on Portion 10 of the farm Klipkop 396 JR, I kindly request a copy of the "Drafted Basic Assessment Report" that was supposed to be available on your website from the 24th July 2017. On Friday the 4th August 2017 there was still no report available on the mentioned website. See attached Screen Print of the specific page on the website.	As mentioned during meeting proceedings, as soon as the draft BAR is available it will be emailed to all registered IAPs including you. And all will be given a 30 days period to review and comment the DBAR.	
Sandra Reynders		**04/08/2017**	Dear Caroline I refer to the" Regulatory Authorisation Proc esses for a proposed Project on Portion 10 of the farm Klipkop	It was discussed in the meeting that all the listed concerns in regard to the issues of the below topics as per your emails, will be included	

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			396 JR, in the Magisterial District of Tshwane, Gauteng Province". Please make the following reports with regards to the above mentioned sand mine available to us immediately: 1.Ecological Studies 2. Surface and ground water studies 3. Soil studies 4. Air quality studies 5. Noise studies 6. Traffic studies I look forward to your prompt response.	on the Draft Basic Assessment of which will be made available to all IAPs in due time or when is finalised for the period of 30 days for their reviews and comments. 1.Ecological Studies 2.Surface and ground water studies 3 Soil studies 4.Air quality studies 5.Noise studies 6.Traffic studies Hope the above is in order.	
Daniel Casparus		**04/08/2017**	Dear Mrs Caroline Munyai With referral to the above excerpt from a document that was handed out on the public meeting on the 29th of July 2017, with regards to the proposed Sand mine on Portion 10 of the farm Klipkop 396 JR, I kindly request a copy of the	As mentioned during meeting proceedings, as soon as the draft BAR is available it will be emailed to all registered IAPs including you. And all will be given a 30 days period to review and comment the DBAR.	

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			"Drafted Basic Assessment Report" that was supposed to be available on your website from the 24th July 2017. On Friday the 4th August 2017 there was still no report available on the mentioned website. See attached Screen Print of the specific page on the website.		
Daniel Casparus		**04/08/2017**	Dear Caroline I refer to the" Regulatory Authorisation Processes for a proposed Project on Portion 10 of the farm Klipkop 396 JR, in the Magisterial District of Tshwane, Gauteng Province". Please make the following reports with regards to the above mentioned sand mine available to us immediately:	It was discussed in the meeting that all the listed concerns in regard to the issues of the below topics as per your emails, will be included on the Draft Basic Assessment of which will be made available to all IAPs in due time or when is finalised for the period of 30 days for their reviews and comments.	

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			1. Ecological Studies 2. Surface and ground water studies 3. Soil studies 4. Air quality studies 5. Noise studies 6. Traffic studies I look forward to your prompt response.	1.Ecological Studies 2.Surface and ground water studies 3 Soil studies 4.Air quality studies 5.Noise studies 6.Traffic studies Hope the above is in order.	
Raymond Geens		**04/08/2017**	Caroline, please take note of my attached letter regarding proposed sand mining on Portion 10 Klipkop 396 JR	Dear Raymond, Thank you for your correspondence regarding the proposed mining permit application on portion 10 of the Klipkop 396JR. Please see attached response letter.	**Appendix 6**
Markus & Vanessa de Jager		**04/08/2017**	Good day Caroline, Attached please find our concerns regarding the above subject	Dear Markus and Vanessa, Thank you for your correspondence regarding the proposed mining permit application on portion 10 of the Klipkop 396JR. Please see	

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				attached response letter.	
Myra Pienaar		**05/08/2017**	Can you send me the Drafted Basic Assessment Report for the application below. Further, register me as an opposing party to this application.	You are registered under our IAPs database. See attached DBAR and EMPr for your review and comments.	
			Dear Mrs Caroline Munyai With referral to the above excerpt from a document that was handed out on the public meeting on the 29th of July 2017, with regards to the proposed Sand mine on Portion 10 of the farm Klipkop 396 JR, I kindly request a copy of the "Drafted Basic Assessment Report" that was supposed to be available on your website from the 24th July 2017. On Friday the 4th August 2017 there was still no report available on the	As mentioned during meeting proceedings, as soon as the draft BAR is available it will be emailed to all registered IAPs including you. And all will be given a 30 days period to review and comment the DBAR.	

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			mentioned website. See attached Screen Print of the specific page on the website.		
Rosa van der Merwe		**07/08/2017**	Dear Caroline I refer to the" Regulatory Authorization Processes for a proposed Project on Portion 10 of the farm Klipkop 396 JR, in the Magisterial District of Tshwane, Gauteng Province". Please make the following reports with regards to the above mentioned sand mine available to us immediately: 1.Ecological Studies 2.Surface and ground water studies 3. Soil studies 4. Air quality studies 5.Noise studies 6.Traffic studies I look forward to your prompt response.	It was discussed in the meeting that all the listed concerns in regard to the issues of the below topics as per your emails, will be included on the Draft Basic Assessment of which will be made available to all IAPs in due time or when is finalised for the period of 30 days for their reviews and comments. 1.Ecological Studies 2.Surface and ground water studies 3 Soil studies 4.Air quality studies 5.Noise studies 6.Traffic studies Hope the above is in order.	

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5.3 ENVIRONMENTAL ATTRIBUTES (BASELINE INFORMATION AS PER INITIAL DESKTOP INVESTIGATIONS AND SITE OBSERVATION)

5.3.1 BIOPHYSICAL ENVIRONMENT

5.3.1.1 Geology

The geology of the study region is outlined on the 1: 250 000 geological map of South Africa (Council for Geoscience, Pretoria) (**Figure 5-1**). The proposed mining permit project is underlain by ancient Precambrian sedimentary bedrocks of the Transvaal Supergroup, and in particular by the Silverton Formation (in brown colour) and Daspoort Formation (Vdq) of the Pretoria Group.

In stratigraphic terms the Silverton and Daspoort Formation are sandwiched between the Strubenkop (Vst) Formation and Diabase (in green colour) from vaalian to post magolian age within the Pretoria Group succession (**Figure 5-1**).The Silverton Formation of the Transvaal Basin is a heterolithic (*i.e.*lithologically varied), mudrock-dominated succession of moderate to deep basinal mudrocks that were deposited on an offshore shelf along the margins of the Kaapvaa lCraton, mainly by suspension settling but with subordinate influence by gravity flow and storm processes (Eriksson *et al.* 2002, 2009). Volcanic ash-rich intervals (tuffs, tuffaceousshales) are common, and there are minor beds of chert and carbonate, while sandstones become commoner in the upper part of the succession that was deposited under shallower, shoaling conditions. In the eastern part of the Pretoria Basin.

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5.3.1.2 Climate

Pretoria's climate is classified as warm and temperate. When compared with winter, the summers have much more rainfall. The average annual temperature in Pretoria is 17.8 °C. Precipitation here averages 697 mm (https://en.climate-data.org). The temperatures are highest on average in January, at around 22.4 °C. At 11.0 °C on average, July is the coldest month of the year.

The proposed mining permit operation is near Pretoria and located in the humid subtropical high-pressure belt. The mean circulation of the atmosphere over the subcontinent is anticyclonic throughout the year, excepting near the surface. The synoptic patterns affecting the typical weather experienced in the region owe their origins to the subtropical, tropical and temperate features of the general atmospheric circulation over Southern Africa.

5.3.1.3 Topography

The topography of the proposed mining permit project is gentle slope and slightly steep toward the south of the portion 10 of the farm Klipkop 396 JR.

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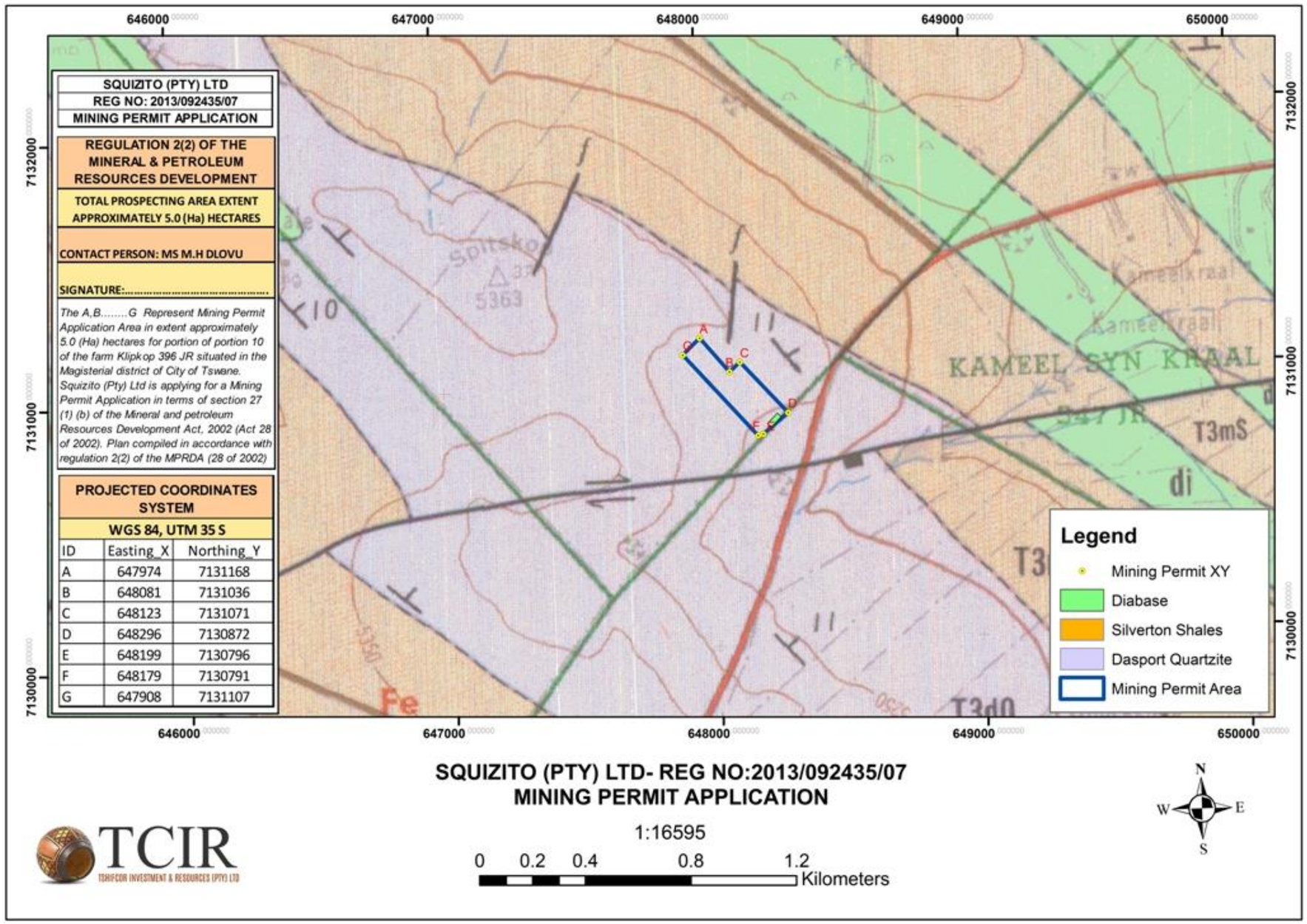

Figure 5-1: Geological Map covering the proposed mining permit area

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5.1.3.4 Soils

The soil in the proposed mining permit is a brown loam, mostly sandy. The slope is relatively flat and ranges between 1° and 5° toward the north east boundaries of portion 10 of the farm Klipkop 396 JR. The soil type of this area is commonly known to contain *Loudetia simplex–Elionurus muticus Mixed Grassland* (**Figure 5-2**). The percentage rockiness in the project area is not as high as in the *Rhus magalismontana–Loudetia simplex* Rocky Grassland. Rocks occur mostly as gravel but some rock sheets may be present. Grasses dominate this subcommunity and the few woody species present are scattered and inconspicuous.

Figure 5-2: Soil of the applied mining permit

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5.3.1.5 Land Use

The Land use within the proposed mining permit project area and immediately adjacent to the proposed mining permit area includes mining of different types of sand, game farming, commercial farming, factory, and entertainment businesses (**Figure 5-3**).

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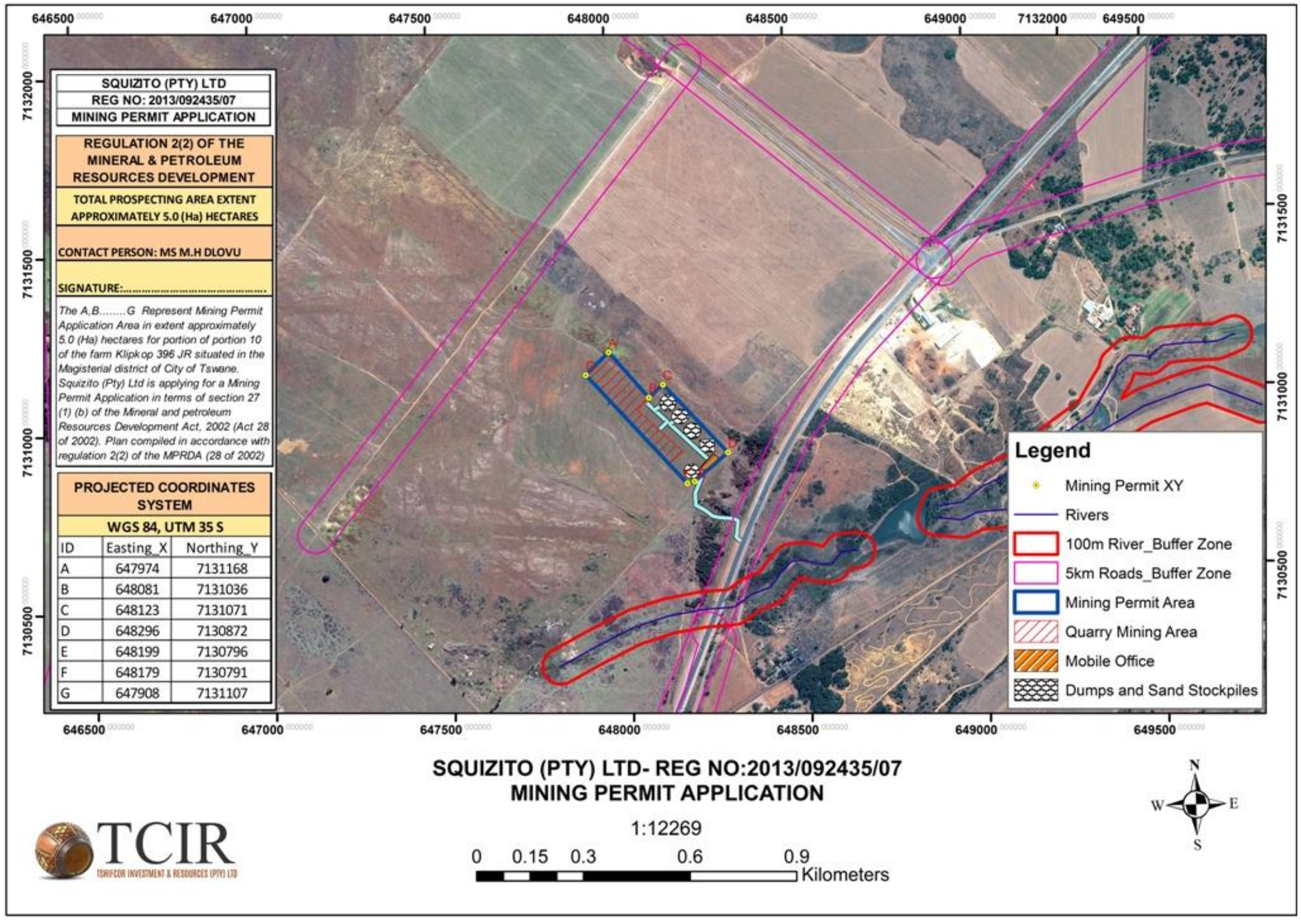

Figure 5-3: Land use and soil cover on the mining permit area

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5.3.1.6 Natural Vegetation/ Plant Life

The project site falls within the Rand Highveld grassland (**Figure 5-4**). The vegetation type occurs on a highly variable landscape with extensive sloping plains and a series of ridges slightly elevated over undulating surrounding plains. The vegetation is species-rich, wiry, sour grassland alternating with low, sour shrubland on rocky outcrops and steeper slopes. There is a high diversity of herbs. Rocky hills and ridges carry sparse (savannoid) woodlands accompanied by a rich suite of shrubs. Poorly conserved, only small patches protected.

Almost half has been transformed mostly by cultivation. The grassland occupying 26% of South Africa, is centrally located in the country (Bredenkamp 1999). Environmental gradients exist, causing the floristic composition, vegetation dynamics and ecosystem functioning to vary considerably across this biome, despite the relatively uniform vegetation structure. These gradients include a rainfall gradient ranging from 400 to >1200 mm per year, a temperature gradient from frostfree to snow in winter and altitude ranging from sea level to 3300 m (O'Connor & Bredenkamp 2003).

The vegetation where the proposed mining permit will be established has a low percentage of rockiness. Rocks occur mostly as gravel but some rock sheets may be present. Grasses dominate this subcommunity and the few woody species present are scattered and inconspicuous.

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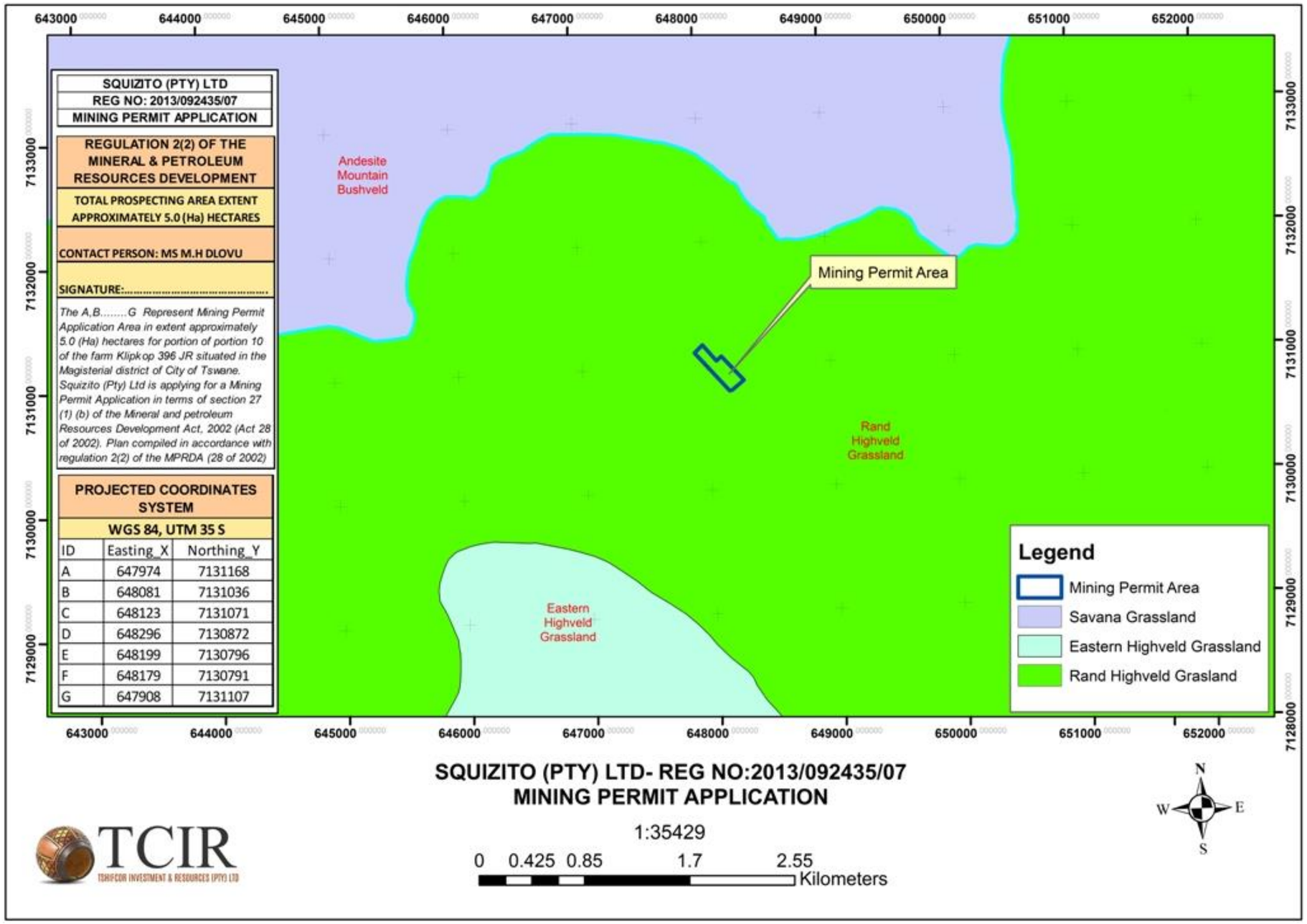

Figure 5-4: Vegetation map of the project area

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5.3.1.7 Flora and Fauna

- **Flora**

The local area for the proposed project comprises grassland of the Transvaal Bankenveld. Naturally occurring grasses are sour and wiry comprise members of the Narrow Heart Love Grass, Purple Finger Grass, Creeping Brittle Grass and Wire Grass species (**Figure 5-5**). The vegetation within the immediate study area has largely been cleared and flattened due to its primary use as grazing land as well.

Figure 5-5: Flora of the proposed mining permit area

- **Fauna**

Aside from the reserved buffalos which occur upon the portions of portion 10, a number of smaller animals typically associated with rural areas, ecological supportive areas (**Figure 5-6**) and land zoned for agriculture are also found on-site, such rodents i.e. rats and field-mice, lizards, grasshoppers, various beetles and the associated avifauna which prey upon these.

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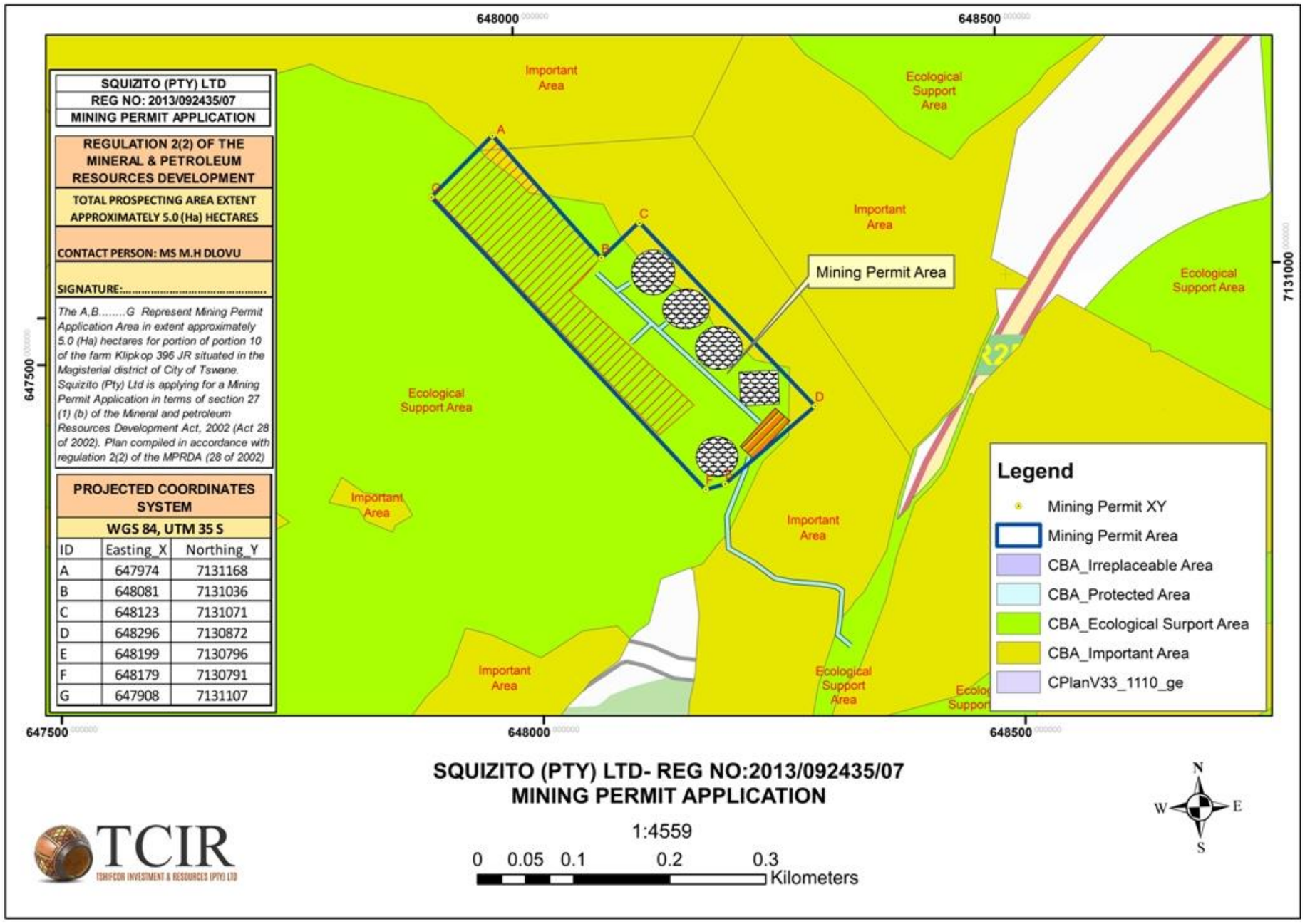

Figure 5-6: Biodiversity map of the project area

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5.3.1.8 Water

5.3.1.8.1 Surface Water

The proposed project is situated within 5km from the Piennars River which forms part of Roodeplaat dam quaternary catchment and about 2km from the non-perennial stream that forms part of the Bronkhorstspruit dam. The Pienaars River drains the area from Pretoria northwards to the Waterberg Mountains near the town of Warmbaths. All these rivers are perennial and their flows are supplemented by substantial discharges of treated domestic and industrial effluent. Flows in these rivers are also enhanced by water imported from the Vaal River system to the south of Johannesburg, which is used principally for domestic and industrial water supplies prior to treatment and discharge.

5.3.1.8.2 Geohydrology

According to the information obtained from the hydrogeological map of Johannesburg, toposheet 2526, and the site observation groundwater in the mining permit area occurs mainly within the Dwyka or Silverton Formations of the Karoo Supergroup. The Dwyka tillites are known to have a low permeability. In most cases groundwater in this formation occurs within the weathered zone and sometimes in the contact zone between the Dwyka formation and other formations.

The Silverton Formation, which comprises mainly of shales, has a larger groundwater yield potential than that of the overlying Dwyka Formation. Groundwater occurrence in this formation favours weathered shale, brecciated or jointed zones and especially the contact zone between the intrusive diabase pieces and the shale.

Prior and during the mining activities, the extent to which groundwater flow into mining workings will be assessed. The depth of the groundwater table will be assessed and the pre project groundwater quality so that this does not disturbed by the mining activities.

5.3.1.9 Sensitive Landscapes

Based on the field work and desktop study no perennial streams or natural wetlands were identified within the project area (**Figure 5-7**).

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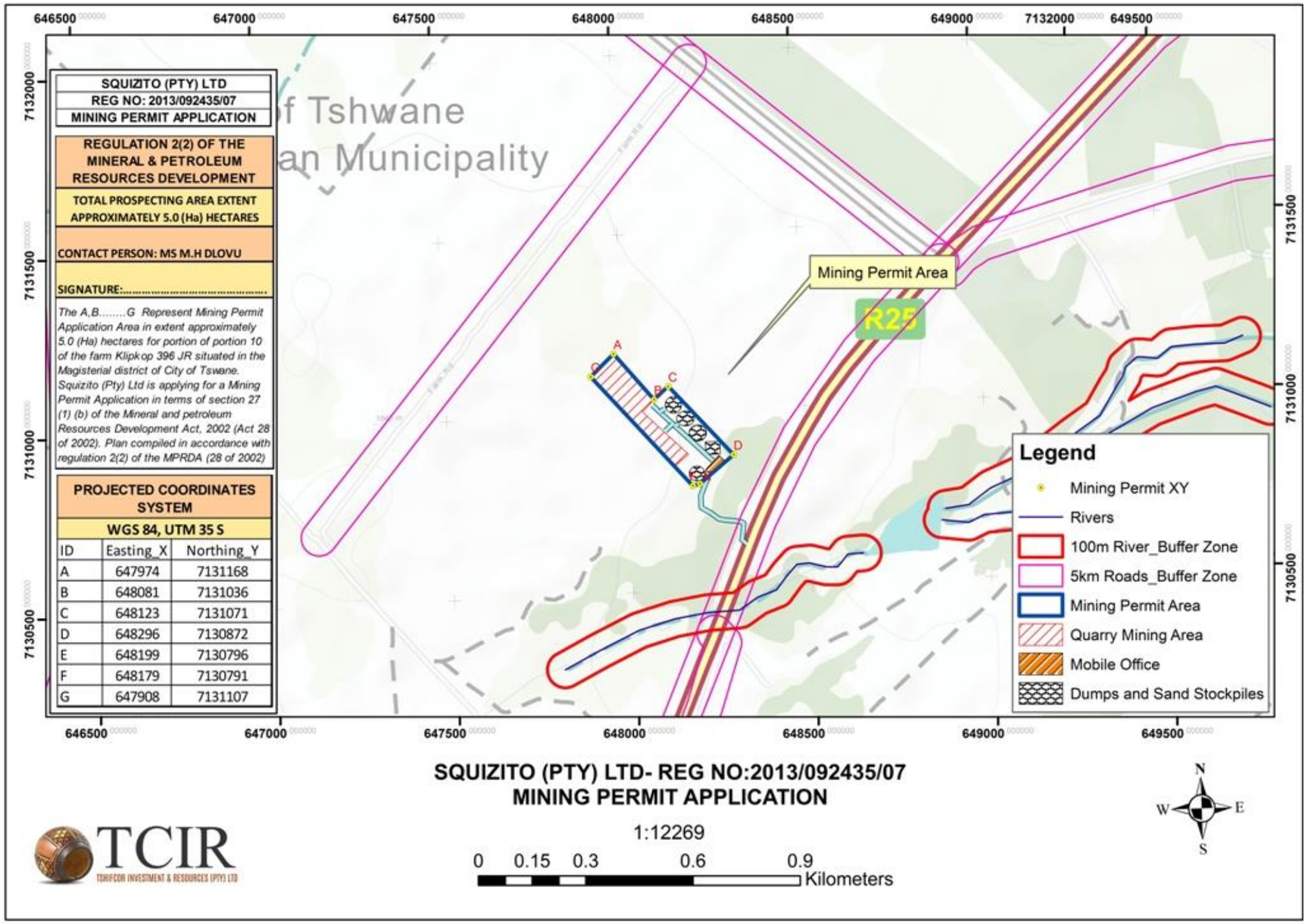

Figure 5-7: Sensitive landscape map in relation to the proposed mining permit area

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5.3.1.10 Air Quality

Potentially air pollution from human activities may arise as a result of particulates entering the atmosphere. The sources of air pollution from human activities comprise of three broad categories i.e. stationary sources (agriculture, mining, quarrying, manufacturing, mineral products, industries and power generation), community sources (homes or buildings, municipal waste and sewage sludge incinerators, fireplaces, cooking facilities, laundry services and cleaning plants) and mobile sources (combustion-engine vehicles and fugitive emissions from vehicle traffic). Air pollutants are generally classified into suspended particulate matter (dust, fumes, mists and smokes), gaseous pollutants (gases and vapours) and odours.

Assessment of the proposed mining permit project area has determined that all three categories of air pollution sources are found at the proposed project area. The details regarding the proposed project site indicates that the applied area and adjacent, is surrounded by sand mining activities, factory, agricultural activities, several game drives and entertainment businesses. The main sources of pollution include emissions from dust coming from stockpile of sand at Green's Sand. Agricultural activities, game drives and entertainment activities also produce nuisance dust.

5.3.1.11 Noise

The current ambient noise levels in the area are already significantly impacted on by the prevailing Green's Sand and other commercial business activities surrounding portion 10 of the farm Klipkop 396 JR. The existing noise sources will typically be from the commercial business as well as vehicular activities on the R25, M6 and M30 roads in the area.

5.3.1.12 Socio-Economic Status

This section focus on demonstrating the City of Tshwane socio-economic development status and with the aim that the Region 6 socio-economic status, where proposed mining permit will be established is enclosed. The information contained in this section is sourced from:

- City of Tshwane DRAFT 2016/17 IDP Review March 2016
- *City of Tshwane Social Facility Planning Using Accessibility Analysis Project report: 2015/16*
- *Census 2011 by Statistics South Africa*
- *Stats SA: Quarterly Labour Force Survey, Quarter 4, 2015*
- *IHS Global Insight 2016*

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The proposed Klipkop sand project is situated in Region 6 of the City of Tshwane Metropolitan Municipality. The City of Tshwane is home to a range of higher-value functions such as corporate headquarters, financial and business services and manufacturing, and high-order public services, such as national departments, universities and major hospitals. To be more specific, the City of Tshwane accommodates more than 30 Johannesburg Stock Exchange (JSE) listed companies, home of national government departments, three Universities and host 134 foreign embassies and missions, giving it the largest concentration of diplomatic and foreign missions in the world after Washington DC in the USA.

As part of the continued commitment of the South African government to improve service delivery and ensure economic growth for all its citizens, the Municipal Demarcation Board resolved to re-determine the boundaries of the Metsweding District Municipality (which was made up of the Nokeng tsa Taemane and Kungwini Local Municipalities) and the City of Tshwane Metropolitan Municipality so that they would form a new single metropolitan municipality effective from 18 May 2011. Today, Tshwane covers just more than 33% of the total land area of Gauteng's 19 055 square kilometres, has 7 administrative regions, 105 wards and 210 councillors.

5.3.1.13 Population size and Composition

- **Population size**

The City of Tshwane makes up more than 3.1 million of the total population in the Province of Gauteng. As already alluded above, the City of Tshwane is divided into seven administrative regions, the population per regions is as follows, Region 1 (Old North West) with 867 548, Region 2 (Old North West) with 359 715, Region 3 with (Old Central Western) with 649 831, Region 4 (Old Southern) with 409 831, Region 5 (Nokeng tsa Taemane) with 98 504, Region 6 (Old Eastern) with 641 388 and Region 7 (Old Kungwini) with 125 998.

Table 5-3: City of Tshwane population distribution by region

Region	Percentage of the population
1	27.5%
2	11.4%
3	20.6%

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4	13.0%
5	3.1%
6	20.3%
7	4.0%

The regions 1, 6 and 3 have the highest population concentrations. The overall population growth for the City of Tshwane between 1996 and 2014 was 2.9 percent.

- **Composition**

The City of Tshwane continues to be a diverse and culturally vibrant capital City. In 2011 the total population of Tshwane was 2.9 million and has since increased to 3.2 million in 2014. For the period 2011-2014, Tshwane's population grew by 280 246. The **Figure 5-8** below provided an overview of how the total population in Tshwane has been changing over the 2011 – 2014 period. As indicated in the figure, total population in the City has been increasing at a declining rate. In 2011 the growth rate was determined to be 3.4%, which has since decreased to 3.1% in 2014. This could indicate that either the birth rate or immigration to the city declined.

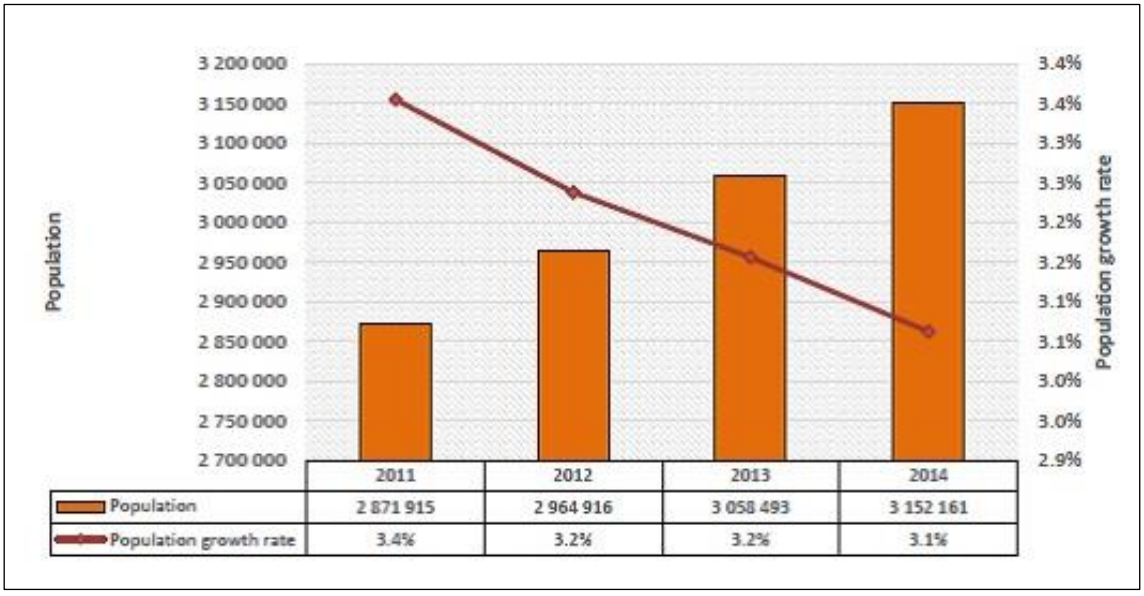

Figure 5-8: Tshwane's population by Regions, 2014

The **Figure 5-9** below reveals the demographic breakdown of the City of Tshwane in percentages, the largest population group residing in the City of Tshwane is African accounting for approximately 77.6 percent. This is followed by the White population group accounting for

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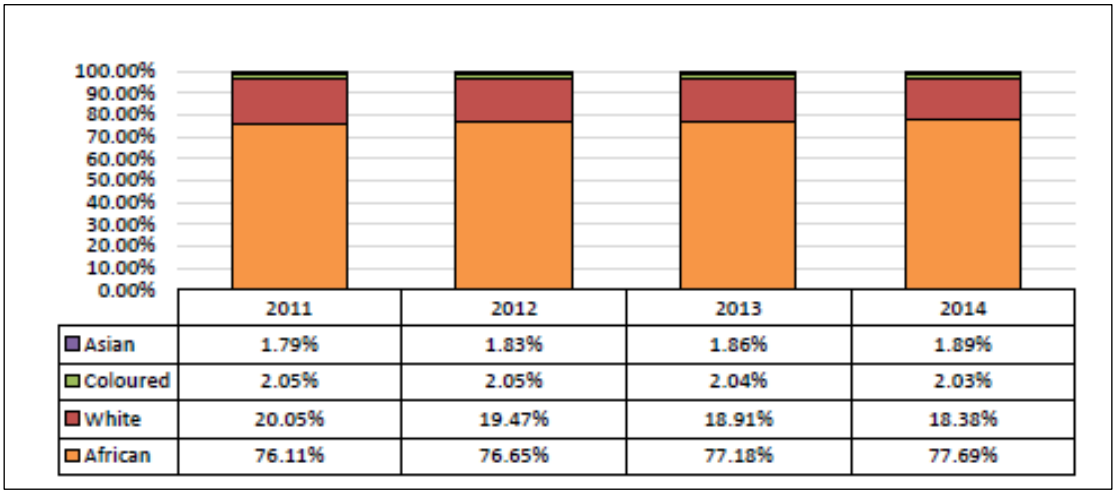
approximately 18.4 percent, the Coloured population group accounting for approximately 2.03 percent and smallest population group is the Asian population group accounting for only 1,89 percent of Tshwane's population.



	2011	2012	2013	2014
Asian	1.79%	1.83%	1.86%	1.89%
Coloured	2.05%	2.05%	2.04%	2.03%
White	20.05%	19.47%	18.91%	18.38%
African	76.11%	76.65%	77.18%	77.69%

Figure 5-9: Percentage of population groups to Tshwane's total population, 2011–2014

The population pyramid for the City of Tshwane is reflected in **Figure 5-10** and provides the 2014 population pyramids. As indicated in the figure, there is a youth bulge in Tshwane's population profile; this is likely due to the large student population in the City resulting from the large concentration of higher education institutions. Approximately, 61 percent of Tshwane's population is younger than 35, with 35 percent being between the ages of 15-34. Senior residents (65+ age group) in Tshwane only account for approximately 6 percent of the total population. On average, the gender breakdown is evenly distributed across all age bands as illustrated in the figure.

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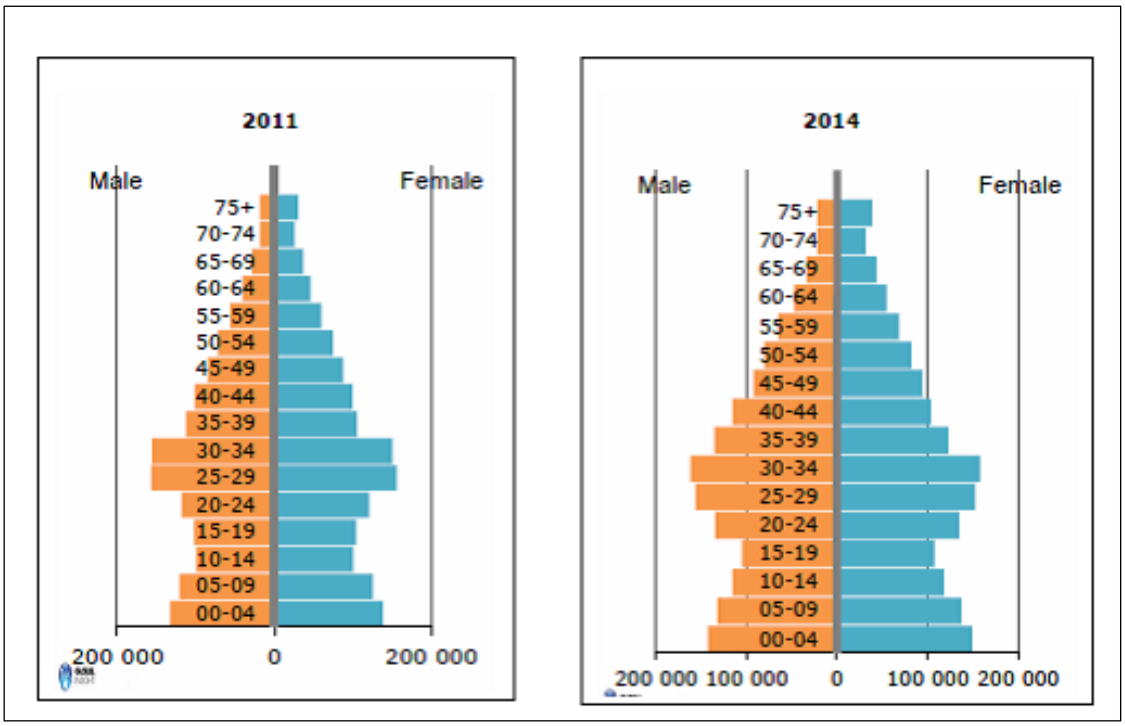

Figure 5-10: City of Tshwane's population pyramid

5.3.1.14 Education

The City of Tshwane being government's administrative capital and a city with the largest concentration of higher education institutions in the country boasts a relatively better educated population than other metros in the country. As indicated in figure 2.10, the percentage of persons with no schooling or grade 2 represents a marginally small part of the City's population, at approximately 3.9 percent in 2014. Tshwane has a large concentration of persons with matric and post-matric qualifications currently recorded at 57.3 percent (**Figure 5-11**).

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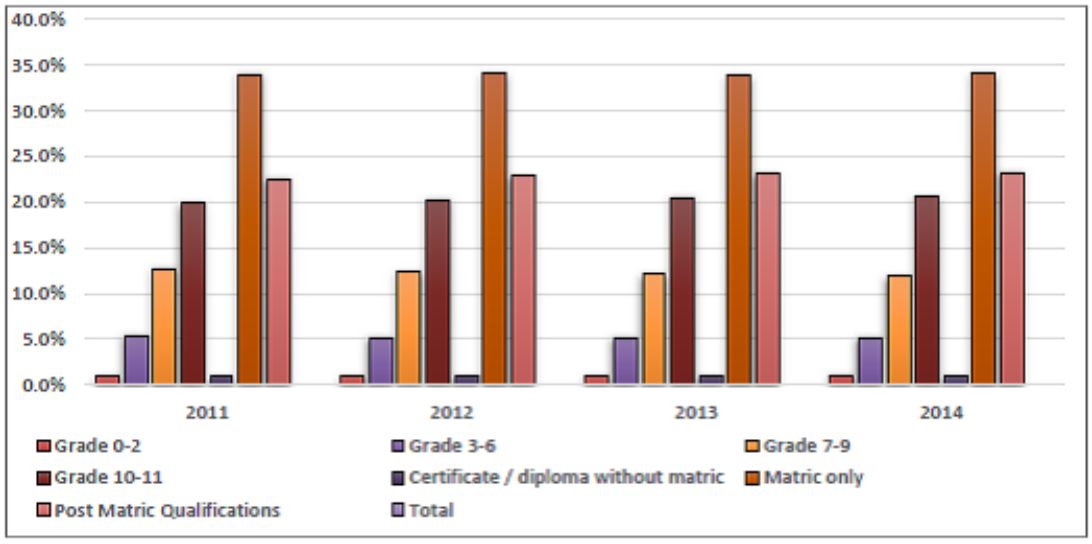

Figure 5-11: Highest levels of schooling for the population aged 20 years and older in Tshwane.

5.3.1.15 Health facilities

Emergency Medical Services and Primary Health Care Clinic Services are the function of the Gauteng provincial government, who are planning to transfer responsibility for these services to the provincial government. The cost of this transfer and the viewpoint of SALGA, which is against it, are hampering this process.

The memorandum of understanding between the CoT and the Gauteng provincial government states that current primary health care and emergency medical services should be rendered to national norms and standards and, for the CoT to comply, operational and capital budgets are needed. Most services are rendered through the 23 fixed local government clinics and 3 satellite clinics.

5.3.1.16 Employment Status

The City of Tshwane is the fourth biggest municipality in South Africa and second biggest in Gauteng in terms of gross value added by region with gross value add of R243.4 billion. In 2014, City of Tshwane contributed 25 percent to the provincial economy. Moreover, Tshwane accounted for 9 percent of the Country's economic compared as compared to 15 percent for the City of Johannesburg. Furthermore, the economic output of the City of Tshwane has expanded at an annual average of 4.0 percent per annum over the last five years, outstripping the national GDP

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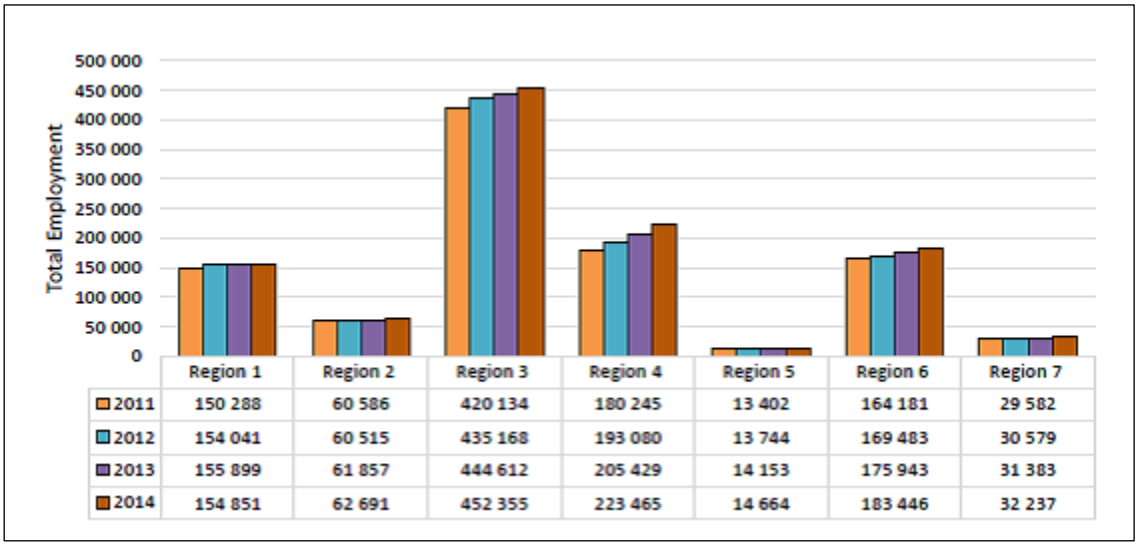
growth average by at least one percentage point between 2010 and 2014. Overall no city in the Gauteng City Region outperformed the growth rates recorded by the CoT in the last five years (**Figure 5-12**).



	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7
2011	150 288	60 586	420 134	180 245	13 402	164 181	29 582
2012	154 041	60 515	435 168	193 080	13 744	169 483	30 579
2013	155 899	61 857	444 612	205 429	14 153	175 943	31 383
2014	154 851	62 691	452 355	223 465	14 664	183 446	32 237

Figure 5-12: Total Employment per Region, formal and informal sector, 2011–2014

- **Unemployment rate**

The unemployment rate in Tshwane declined. In 2011, the unemployment rate was 21.6 percent, and improved slightly to 21.1 percent in 2014. The unemployment rate disaggregated by population group also saw some improvement over the reviewed period. The African population recorded an improvement from 26.1 to 25.1 percent, the White population from 6.4 to 6.2 percent and the Asian population unchanged at 4.3 percent, the Coloured population improved slightly from 20.3 to 19.9 percent. The figure below indicates the changes over the 2011–2014 period (**Figure 5-13**).

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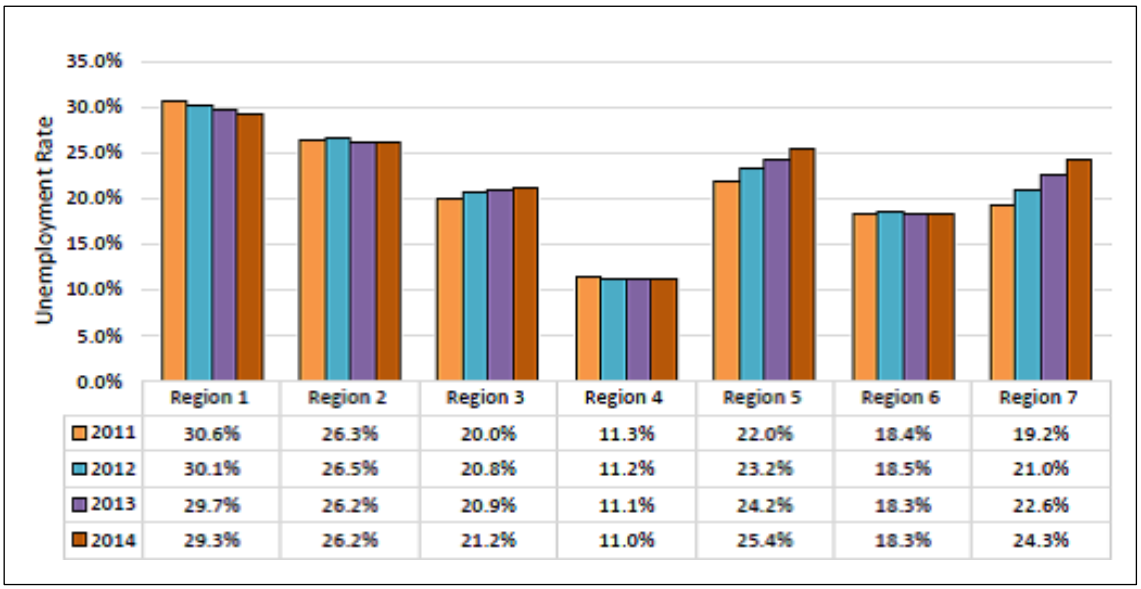

	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7
2011	30.6%	26.3%	20.0%	11.3%	22.0%	18.4%	19.2%
2012	30.1%	26.5%	20.8%	11.2%	23.2%	18.5%	21.0%
2013	29.7%	26.2%	20.9%	11.1%	24.2%	18.3%	22.6%
2014	29.3%	26.2%	21.2%	11.0%	25.4%	18.3%	24.3%

Figure 5-13: Unemployment rate (official definition) by population group, 2011–2014

5.3.1.17 Housing

Bulk Meeting the demand for housing remains one of the City's biggest challenges as can be evidenced by the existence of informal settlements. The City has reduced the number of informal settlements from 150 to 1157 through formalisation of informal settlements.

Informal settlements and informal dwellings are likely to continue to exist with the city being the magnet for internal and international migrants who come into the city in search of education, job opportunities as well as access to various social facilities such as education and health services.

To address the challenge of informality and to improve the living conditions, the City has continued to provide rudimentary water and sanitation services to informal areas. Since the start of the term in 2011, 24 informal settlements were formalised to meet proclamation requirements. Further, the city has through its formalisation process provided formal stands to 48 informal settlements as steps towards meeting.

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5.3.2 BUILT ENVIRONMENT

5.3.2.1 Access Roads

There are various main roads passing through the proposed project area (**Figure 5-14**). These roads will be used to access the proposed mining project area. Existing roads to be used include the R25, M30 and M6 National roads and a number of already existing private farm roads within the farm. Authorities will be informed of the road used where required, and land owners of private farms will also be requested permission to use their existing roads. No new roads will be built for the proposed project. The proposed mining site is more than 500m from all existing roads.

Figure 5-14: Existing roads within the proposed mining area.

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5.3.2.2 Human Settlement

There is no identified human settlement within the proposed mining area, all the identified settlement are more than 2km from the proposed mining site. Therefore, no any planned mining activities closer to settlement areas.

5.3.2.3 Railway Line

There is a Transnet railway line which is located about 5km away from the proposed mining area. Railway line falls under sensitive landscape and no any activities will happen closer to the railway line as it is way-out from the proposed mining area.

5.3.2.4 Power Line Infrastructure

There is no mainlines for powerline passing through the proposed mining area. The identified powerlines grid are 2km outside the planned mining activity area. No power line infrastructure will be affected as no electricity will be required for the proposed prospecting project.

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6. ENVIRONMENTAL IMPACT ASSESSMENT

6.1 ENVIRONMENTAL IMPACT ASSESSMENT PROCESS FOLLOWED

6.1.1 Approach to Environmental Impact Assessment

"The term 'environment' is used in the broadest sense in an EIA. It covers the physical, biological, social, economic, cultural, historical, institutional and political environments."

An Environmental Impact Assessment is a good planning tool. It identifies 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.

6.1.2 Environmental Impact Assessment Process Followed

Under Section 24 of the National Environmental Management Act (NEMA), the Minister promulgated the regulations pertaining to environmental impact assessments (EIA Regulations, 2014) under Government Notice R982 in Government Gazette 38282 of 4 December 2014. These EIA regulations repealed the 2010 EIA regulations and therefore any process relating to environmental authorisations must be undertaken under the EIA Regulations, 2014.

Chapter 4 of the EIA Regulations, 2014 deals with the provisions for application for environmental authorisation. In view of the above, Squizito (Pty) Ltd is obliged to comply with provisions of Chapter 4 for the intended environmental authorisation application for the activities (listed activities) within the proposed project.

Part 2 of chapter 4 of the EIA Regulations, 2014 contemplate process to be undertaken for the application for environmental authorisation for the proposed project, which is the BAR process. The process to be followed is describe below.

6.1.2.1 Pre-application consultation with the Competent Authority

In terms of section 24D (1) of the National Environmental Management Act, 1998 (Act 107 of 1998), the Minister responsible for mineral resources is the competent authority for environmental matters relating to mining and associated activities. In view of the above, the application for the

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environmental authorisation for the proposed project was submitted to the Department of Mineral Resources (DMR), Gauteng Regional Office for their consideration and decision making. The application for the environmental authorisation was acknowledged by the competent authority on the 04th July 2017.

6.1.3 Public Participation Process

Public participation is the cornerstone of the EIA process. The principles of the NEMA govern many aspects of EIA's, including public participation. These include provision of sufficient and transparent information on an ongoing basis to stakeholders to allow them to comment. Comments received from the public participation process will be included in the impact assessment and measures will be determined on how the comments will be addressed during the life of the proposed project.

The following steps was taken during the public participation process:

- Providing an opportunity for potential interested and affected parties to register,
- Making reports compiled available to register and potential interested and affected parties for their comments,
- Further to the above, interested and affected parties and the public will be informed of the decision taken by the responsible authorities on the submitted application.

The above process will ensure that the BAR and EMPr is subjected to a public participation process for 30 calendar days, which ensures that the proposed project is brought to the attention of interested and affected parties, the public and relevant organs of state including the competent authority.

6.1.3.1 BAR Phase

In compliance with Regulation 19 of the EIA Regulations, 2014, the BAR and EMPr will be submitted to the competent authority within 90 days after the lodging of the environmental authorisation application.

As part of the public participation, the DBAR and EMPr is made available to the competent authority, potential and registered interested and affected parties for their comment for a period of 30 calendar days during the EIA phase.

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6.1.3.2 Information Gathering

Environmental baseline data has been obtained, pertaining to surface water, geohydrological data, topographical analyses, soil surveys, vegetation surveys, wetland surveys and geological conditions. Weather data was acquired from the South African Weather Service. Historic land use was determined through available data and by visual observations made during various field studies. The data accumulated and analysed is sufficient to gain a baseline indication of the present state of the environment. The use of this baseline study for impact assessments is thus justified and reliable conclusions could be made.

6.1.3.3 Decision on the BAR application

In compliance with Regulation 20 of the EIA Regulations, 2014, the competent authority will within 107 days of receipt of the final BAR and EMPr grant or refuse the environmental authorisation application.

6.2 ENVIRONMENTAL IMPACT ASSESSMENT METHODOLOGY

The following prediction and evaluation of impacts is based on the proposed mining permit project and associated activities. The evaluation distinguishes between significantly adverse and beneficial impacts and allocates significance against national regulations, standards and quality objectives governing:

- Health & Safety;
- Protection of Environmentally Sensitive Areas;
- Land use; and
- Pollution levels.

Irreversible impacts are also identified.

The significance of the impacts is determined through the consideration of the following criteria:

Probability	:	likelihood of the impact occurring
Area (Extent)	:	the extent over which the impact will be experienced.
Duration	:	the period over which the impact will be experienced.

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Intensity : the degree to which the impact affects the health and welfare of humans and the environment (includes the consideration of unknown risks, reversibility of the impact, violation of laws, precedents for future actions and cumulative effects).

The above criteria are expressed for each impact in tabular form according to the following definitions:

Table 6-1: Environmental impact criteria expressed for each impact in tabular form according to each definition.

Probability	**Definition**
Low	There is a slight possibility (0 – 30%) that the impact will occur.
Medium	There is a 30 –70% possibility that the impact will occur.
High	The impact is definitely expected to occur (70% +) or is already occurring.
Area (Extent)	**Definition**
Small	0 – 40 ha
Medium	40 – 200 ha
Large	200 + ha
Duration	**Definition**
Short	0 – 5 years
Medium	5 – 50 years
Long	51 – 200 years
Permanent	200 + years
Intensity	**Definition**
Low	Does not contravene any laws. Is within environmental standards or objectives. Will not constitute a precedent for future actions. Is reversible. Will have a slight impact on the health and welfare of humans or the environment.
Medium	Does not contravene any laws. Is not within environmental standards or objectives. Will not constitute a precedent for

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	future actions. Is not reversible. Will have a moderate impact on the health and welfare of humans or the environment.
High	Contravene laws. Is not within environmental standards or objectives. May constitute a precedent for future actions. Is irreversible. Will have significant impact on the health and welfare of humans or the environment.
Significance and Risk category	**Definition**
Negligible	The impact/risk is insubstantial and does not require management
Low	The impact/risk is of little importance, but requires management
Medium	The impact/risk is important; management is required to reduce negative impacts to acceptable levels
High	The impact/risk is of great importance, negative impacts could render options or the entire project unacceptable if they cannot be reduced or counteracted by significantly positive impacts positive impacts, and management of the impacts is essential
Positive (No Risk identified)	The impact, although having no significant negative impacts, may in fact contribute to environmental or economical Health

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6.3 RESULTS OF THE ENVIRONMENTAL IMPACT ASSESSMENT

6.3.1 Assessment of the Mining Permit Application Area impacts/risks

6.3.1.1 Construction Phase

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
CONSTRUCTION PHASES							
Table 6-2: Site Establishment: Establishment of the access (tracks)to the mining permit site, Establishment of the mobile office site, Site physical surveying and demarcation of mining sites							
The establishment of access and the surveying with demarcating of the mining sites may result in the stripping of soils if the site establishment is not properly conducted. This may result in the loss of soils and erosion that may render the area unusable. During site establishment, machinery and vehicles used for the mining permit operation may result in hydrocarbon leakages, which may result in the contamination of the soils within the access tracks, mobile office-site and mining sites.	Soil/Land capability	Without mitigation					Establishment of the site will be undertaken according to the mining permit method statement. No soil stripping will be allowed during site establishment. Ensure none disturbance of soil when conducting surveys. Any area that may result into the disturbance of the soils will be rehabilitated immediately on discovery. Machinery to be used for the operation will be of good working conditions. Any hydrocarbon spill
		S	L	S	M	M	
		With mitigation					
		S	L	S	L	L	

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							from the site establishment will be remediated immediately.

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
CONSTRUCTION PHASES							
Current land use over the area to be used for site establishment will cease completely for a period of 2 years. This may have an impact on the land owners' livelihood should they not be able to use the land.	Land capability	Without mitigation					Use sites that are not mostly used and that are in the degraded state for the proposed development. This will be done in agreement with the land owner. The setting-up of the mining permit area will be conducted to ensure that rocky ridges, sensitive grass lands, indigenous trees and shrubs, site of farmlands actively used for farming are avoided.
		S	M	S	M	M	
		With mitigation					
		S	L	S	L	L	
The establishment of the site (access, mobile office-site and mining sites) may result in the removal of	Natural vegetation	Without mitigation					Use sites with most disturbed vegetation cover for the development. No strip of topsoil
		S	L	S	L	L	
		With mitigation					

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vegetation cover if the establishment is not done correctly. This may render the land unusable to the land owners after completion of the project.		S	L	S	L	N	and vegetation will be allowed during site establishment. Ensure minimal disturbance of vegetation when erecting mobile office space and surveys. Any area that may result into the disturbance of the vegetation cover must be rehabilitated immediately on discovery.
Animal burrows and habitats remaining within the proposed development site may be destroyed during construction. This may result in the migration of remaining animal life away from the affected areas. Poaching of wild animals and livestock by the laborers will result in the loss of wild live and loss of livestock to the land owner.	Animal Life	Without mitigation					Establishment of the site will be undertaken according to the mining permit method statement. No soil stripping will be allowed during site establishment. Any area that may result into the disturbance of the soils must be rehabilitated immediately on discovery. Use sites with most degraded environment for the site development. Poaching will be prohibited at the mining permit site.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	
NATURE OF THE IMPACT	**ENVIRONMENTAL ASPECT**	**IMPACT ASSESSMENT**					**MITIGATION MEASURES**
		E	**P**	**D**	**I**	**S**	
CONSTRUCTION PHASES							
		Without mitigation					

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Exposure of soils during construction by the stripping of vegetation and soils may cause erosion, which may lead to increased silt loads in surface water runoff. This may result in the contamination of the clean water environment. Waste generated from the site may result in the contamination of surface and ground water should not management of such waste be undertaken.	Surface and Ground Water	S	L	S	M	M	The proposed mining site is not within any sensitive landscapes. Avoid stripping of areas within the construction sites. Rehabilitate areas that may have been mistakenly stripped. Storm water upslope of the mining permit sites should be diverted around these areas. Proper waste management facilities will be put in place at the office site and mining site. Any hydrocarbon spill from the site establishment will be remediated as soon as possible.
		With mitigation					
		S	L	S	L	L	
Construction activities during the establishment of the site will include material off-loading. These activities will result in the mobilization of particulates that will migrate away from the site to the nearby local sites. This will be a nuisance to the	Air Quality	Without mitigation					Ensure that specific management measures for mining permit area are complied with. During delivery of construction materials the wet surface management to be implemented to insure that dust is controlled.
		S	L	S	L	L	
		With mitigation					

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communities and will result in aesthetic impacts associated with fugitive dust emissions. On-site dust fall may have health and nuisance implications to employees who are handling the construction processes.		S	L	S	L	N	

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
CONSTRUCTION PHASES							
The noise level generated from the construction activities may exceed the SANS 10103 Levels for Residential areas and may exceed the maximum rating levels for ambient noise indoors. This may have an impact in the surrounding residents and employees using/delivering the machinery.	Noise	Without mitigation					Ensure that proper management measures as well as technical changes are undertaken into consideration to reduce the impacts on surrounding plots and employees. This include ensuring that less noisy equipment are used, that equipment are kept in good working order and that the equipment must be fitted with correct and appropriate noise abatement measures and where possible use white-noise generators instead of tonal reverse
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	

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							alarms on heavy vehicles operating on sites.
The activities undertaken during the construction of the mine and associated infrastructure will be visible from the nearby roads and properties. However, due to the undulating topography, visibility for the most part will most probably be restricted to short distances.	Visual Aspects	Without mitigation					Inform the land owner on the type of machinery and equipment to be used at the mining permit site. Ensure that lighting is conducted in manner that will reduce the impacts on visual aspects at night times.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	
NATURE OF THE IMPACT	**ENVIRONMENTAL ASPECT**	**IMPACT ASSESSMENT**					**MITIGATION MEASURES**
		E	**P**	**D**	**I**	**S**	
CONSTRUCTION PHASES							
The site may be located in close proximity to a heritage site and may result in the destruction of the identified heritage site.	Sites of Archaeological and Cultural Importance	Without mitigation					There is no archeological site identified, therefore establishment of the mining permit area will be away from any heritage sites. A management plan will be drafted for the sustainable preservation of the graveyards if any be identified on site.
		S	**M**	**S**	**H**	**H**	

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		With mitigation					
		S	**L**	**S**	**L**	**L**	
The commencement of the proposed project may result in an influx of 'outsiders' seeking jobs, which may be caused by increase in local unemployment levels. This may result in the potential increase in crime. It must however be noted that mining permit activities would unlikely attract job seeker due to its small nature of its scale.	Socio economic aspects	Without mitigation					Recruitment will not be undertaken on site. Employment of farm laborers will be undertaken with the advice from the farm owners. Locals residing on adjacent of the farm will also be prioritized for employment.
		S	**L**	**S**	**L**	**L**	
		With mitigation					
		S	**L**	**S**	**L**	**N**	

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6.3.1.2 Operational Phase

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
Table 6-3: Mining activities, loading, hauling and transportation							
Noise generated from mining permit operations activities may add to the current noise levels. This may have impacts on surrounding property owners and occupiers.	Noise	Without mitigation					Ensure that proper management measures as well as technical changes are undertaken to reduce the impacts on surrounding residents and employees. This include ensuring that less noisy equipment are use, that equipment is kept in good working order and that the equipment must be fitted with correct and appropriate noise abatement measures and where possible use white-noise generators instead of tonal reverse alarms on heavy vehicles operating sites. The speed of not more than 40km/hour will be maintained at the proposed project site. Limit operation of machinery and vehicle movement between sunrise and sunset.
		S	**L**	**S**	**M**	**L**	
		With mitigation					
		S	**L**	**S**	**L**	**L**	
The machinery for operations will be visible from the nearby residents and properties.	Visual Aspects	Without mitigation					Ensure that the period used for the mining machinery is optimized.
		S	**L**	**S**	**L**	**L**	
		With mitigation					

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		S	L	S	L	N	
NATURE OF THE IMPACT	**ENVIRONMENTAL ASPECT**	**IMPACT ASSESSMENT**					**MITIGATION MEASURES**
		E	**P**	**D**	**I**	**S**	
OPERATIONAL PHASES							
Operation may affect the day to day operation of the land owners hence result in direct impact on their livelihood.	Socio economic aspects	Without mitigation					Ensure that all safety measures (EMPr) are implemented to prevent the impacts on the property owners. Ensure that negotiations on compensation are undertaken before the mining activities can commence. This will include any other conditions that the landowner may deem necessary for the mining operation.
		S	**L**	**S**	**L**	**L**	
		With mitigation					
		S	**L**	**S**	**L**	**N**	
Operation will result in the employment of locals and support on local businesses.	Socio economic aspects	Positive					The applicant will ensure that as far as possible locals will be used during the operation of the mining permit project.
The mining operation may result in the destruction of graves and any other heritage sites during operational phase of the project.	Sites archaeological and cultural importance	Without mitigation					Demarcating mining location more than five hundred meters from the identified heritage sites. So far no heritage sites have been identified.
		S	**M**	**S**	**H**	**H**	
		With mitigation					
		S	**S**	**S**	**L**	**L**	

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6.3.1.3 Decommissioning and Closure Phases

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
DECOMMISSIONING AND CLOSURE PHASES							
Table 6-4: Decommissioning of mining permit site (Site Rehabilitation)							
The removal of the mobile office site equipment and the rehabilitation of the mining sites and associated access infrastructure will result in the affected soil and land use being restored. This will also result in the resumption of the use of the land since the infrastructure would have been removed.	Soils, Land Capability and Land Use	Positive impact					Ensure that rehabilitation is conducted in accordance with a rehabilitation method statements approved by the management. See description of the rehabilitation plan and management actions in the EMPr. Ensure that contamination of the rehabilitated area by carbonaceous material and hydrocarbon liquids are prevented.
Positive impacts will result due to the reduction in areas of disturbance and the return of land use of the affected areas and making available an area that was covered by the mining sites.	Land Use	Positive impact					

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NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
DECOMMISSIONING AND CLOSURE PHASES							
The use of vehicles/machinery during the rehabilitation of the exploration sites may result in compaction of soils and in the spillages of hydrocarbon liquids from the vehicles and machinery. This will result in the contamination of and destruction of the vegetation cover and soils.	Soils and Natural Vegetation	Without mitigation					Ensure that the rehabilitation work is done in such a manner that the environment is protected from probable spillages and contamination by carbonaceous material. Tarpaulins will be placed on the ground to prevent oil, grease, hydraulic fluid and diesel spills during emergency repairs. All oil spills will be remedied using approved methodologies. The contaminated soils will be removed and disposed of at a licensed waste disposal facility. All waste generated from the mining sites will be collected in proper receptacles and removed top registered disposal facilities e.g., sewage treatment plant, sold waste disposal site or hydrocarbon recycling or treatment facilities.
		S	**M**	**S**	**M**	**M**	
		With mitigation					
		S	**L**	**S**	**L**	**L**	
During the decommissioning and closure phases equipment will be removed, stockpiled soils will be	Surface Water	Without mitigation					Ensure that water leaving the site do not have elevated silt load. Ensure that the
		S	**L**	**S**	**L**	**L**	
		With mitigation					

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used for rehabilitation, the open pit will be refilled, levelled, top soiled and the area re-seeded. During the process of rehabilitation surface water runoff from the rehabilitation site may have elevated silt load, which may cause pollution of the nearby water environment.		S	L	S	L	N	rehabilitated areas are free draining and that water from these areas is clean.
NATURE OF THE IMPACT	**ENVIRONMENTAL ASPECT**	**IMPACT ASSESSMENT**					**MITIGATION MEASURES**
		E	**P**	**D**	**I**	**S**	
DECOMMISSIONING AND CLOSURE PHASES							
Rehabilitation and removal of the mining permit sites and equipment will require vehicular movement. This will result in the vehicles and due to blowing winds. Vehicles and machinery will also generate diesel or petrol fumes. Generated dust will migrate towards the predominant wind direction and may settle on surrounding properties including nearby vegetation.	Air Quality	Without mitigation					Dust suppression must be conducted during the decommissioning phase of the project whenever excessive dust is generated. Correct speed will be maintained at the proposed project rehabilitation sites. Vehicle maintenance must be conducted regularly to avoid excessive diesel fumes.
		S	**L**	**S**	**L**	**L**	
		With mitigation					
		S	**L**	**S**	**L**	**N**	

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Noise will be generated during the removal of equipment and rehabilitation of the sites. This noise is not expected to exceed occupational noise limits and will be short lived.	Noise	Without mitigation					Where necessary, provided employees with ear plugs and employees must be instructed to use the ear plugs. Ensure that equipment is well maintained and fitted with the correct and appropriate noise abatement measures.
		S	**L**	**S**	**L**	**L**	
		With mitigation					
		S	**L**	**S**	**L**	**N**	

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6.4 SUMMARY OF SPECIALIST REPORTS

Based on the information collect from site including the desktop information, no specialist studies were deemed necessary to be conducted for the proposed project.

6.5 ENVIRONMENTAL IMPACT STATEMENT

Squizito (Pty) Ltd has applied for a mining permit over the portion 10 of the farm Klipkop 396 JR. The mining permit operation will involve the excavation of sand within proposed project area.

6.5.1 Description of affected environment

The proposed mining permit project is underlain by ancient Precambrian sedimentary bedrocks of the Transvaal Supergroup, and in particular by the Silverton Formation (in brown colour) and Daspoort Formation (Vdq) of the Pretoria Group. The topography of the proposed mining permit project is gentle slope and slightly steep. Land use in the general area is characterized by farming, grazing activities, mining, stockpiling of mined materials, provincial roads, game drives, factory and entertainment businesses. Due to the above land uses significant change has occurred on the natural vegetation, as the area being utilised for grazing and farming.

6.5.2 Summary of key findings of the environmental impact assessment

During the proposed mining permit operation impacts may only occur on soils, natural vegetation, surface water, groundwater, sensitive landscapes, air quality, noise and visual aspects should the mining permit method statement not be adhered to. Alternatives considered for the location mining sites has shown that the selected locations would be the most favourable.

Squizito (Pty) Ltd will undertake measures to ensure that the identified impacts are minimised. Assessment of the impacts with the proposed mitigation measures has shown the significance of the impacts on all affected environmental aspects to be reduced to low and negligible significance. Land use will not change after mining permit activities. Several landowners and land occupiers within the adjacent properties of the proposed project area may be affected although on a temporary basis during establishment and mining activities. Measures such as safety along the roads and dust suppression will be undertaken to ensure that the impacts on the land owners and land occupiers are minimised.

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Assessment of the vegetation within the footprint of the development area has shown limited presence of natural vegetation. Storm water runoff from the dirty water areas of the mining sites, its associated surface infrastructure may have a detrimental impact on the surrounding water environment should this water be released to the environment. In order to prevent the occurrence of the above-mentioned impacts, therefore, sediments will be created from the site during the construction, operational and decommissioning phase, which may impact negatively on the surrounding water environment.

No campsite will be erected within the mining area, all workers will be transported from their original residents to mining area. The employees will be given stick instruction not to undertaken activities that will affect the environment and that may have an impact on the landowner. Waste generated from the site will be collected in proper receptacle and disposed of in registered waste disposal sites.

6.5.3 Final Master Layout Plan

The final maps showing the layouts of the proposed project plan are included on this report and same will be submitted to the DMR for approval (**Figure 2-1**). The map has been developed to superimpose the proposed mining permit project together and associated infrastructure with the environmental sensitivities within the proposed project site.

6.6 ASPECTS FOR INCLUSION AS CONDITIONS OF THE ENVIRONMENTAL AUTHORISATION

The construction of the proposed project should be implemented according to the conclusions of this report and the specifications of the EMPr to adequately mitigate and manage potential impacts associated with construction activities. The construction activities and relevant rehabilitation of disturbed areas should be monitored against the approved EMPr, the Environmental Authorisation (once issued) and all other relevant environmental legislation. Relevant conditions to be adhered to include:

- A mining permit location map as shown in **Figure 1-1** and **Figure 2-1** detailing the mining permit area should be submitted to the relevant landowners and the DMR once again prior to the

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commencement of these activities to confirm that there is no any changes on the mining permit locations;

- The mining activities should be restricted to daytime;
- All wastes generated must be disposed of at an appropriate registered landfill and disposal certificate be kept on site,
- All relevant practical and reasonable mitigation measures detailed within this report and within the EMPr must be implemented,
- The implementation of this EMPr for all life cycle phases of the proposed project is considered key in achieving the appropriate environmental management standards as detailed in this report,
- An independent Environmental Control Officer (ECO) should be appointed to monitor compliance with the specifications of the EMPr for the duration of the construction period,
- Creation of new access roads should be minimised as far as possible,
- Squizito (Pty) Ltd will not undertake any new activity that was not part of this environmental impact assessment and that will trigger a need for an environmental authorisation without proper authorisation,
- Squizito (Pty) Ltd must, where necessary, undertake specialist's studies, management procedures and method statement should the need arise,
- The EMPr must be implemented fully at all stages of the proposed mining permit project.

6.7 DESCRIPTION OF ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE

The EIA Regulations, 2014 outline specific requirements that a description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures must be provided in the BAR. The assessments undertaken are based on conservative methodologies and these methods attempts to determine potential negative impacts that could occur on the affected environmental aspects. These impacts may however be of smaller magnitude than predicted, while benefits could be of a larger extent than predicted.

This section outlines various limitations to the specialist studies that have been undertaken and indicates, where appropriate, the adequacy of predictive methods used for the assessment. This has been done to provide the authorities and interested and affected parties with an understanding of how much confidence can be placed in this impact assessment.

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The EIA has investigated the potential impact on key environmental media relating to the specific environmental setting for the site. A number of desktop assessment were undertaken and result thereof and are presented in this report. The information provided in this DBAR and EMPr is therefore considered sufficient for decision-making purposes.

6.8 REASONED OPINION AS TO WHETHER THE PROPOSED PROJECT SHOULD OR SHOULD NOT CONTINUE

6.8.1 Reason why the activity should be authorised or not

According to the impact assessment undertaken for the proposed project, the key impacts of the project are on soils, natural vegetation and land owners/occupiers. The project will also have positive impacts due to the employment to be created although for a short term (maximum of 2 years).

The public are provided an opportunity to review the DBAR and EMPr and provide their input/comments and concerns. All comments that will be received during Public Participation Process will be included in the Final BAR and EMPr. Their comments will be addressed as far as possible to the satisfaction of the interested and affected parties.

The management of the impacts identified in the impact assessment for all phases of the proposed project will be undertaken through a range of programmes and plans contained in the EMPr. In consideration of the programmes and plans contained within the EMPr, layouts and method statements compiled for the project, which is assumed will be effectively implemented, there will be significant reduction in the significance of potential impacts. Based on the above, it is therefore the opinion of the EAP that the activity should be authorised.

6.9 PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION

The environmental authorisation should be granted for two (2) years.

6.10 UNDERTAKING

The undertaking is presented at the end of the current document.

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6.11 FINANCIAL PROVISION

According to Appendix 3 of the EIA Regulations, 2014, where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts must be provide in the BAR and EMPr. In order to avoid duplication, the financial provision for the proposed project has only been provided under the relevant section of the EMPr.

6.12 OTHER INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

Aside from the BAR and EMPr, the competent authority also requires the proof of consultation, technical ability, health and safety mining ability and financial ability.

6.13 OTHER MATTERS REQUIRED IN TERMS OF SECTION 24 (4)(A) AND (B) OF THE ACT

Any matter required in terms of the above section of the Act will be complied with by Squizito (Pty) Ltd.

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PART B (SECTION ONE)

ENVIRONMENTAL MANAGEMENT PROGRAMME

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7. ENVIRONMENTAL MANAGEMENT PROGRAMME

7.1 DETAILS OF THE EAP

The details of the EAP are provided in section 1.1 of part A of this document.

7.2 DESCRIPTION OF THE ASPECTS OF THE ACTIVITY

The requirements to describe the aspects of the activity are covered by the environmental management programme and are included in PART A of the document under section 1. The reader is therefore referred to section 1 of PART A of this document.

7.3 COMPOSITE MAP

The map superimposing the proposed project, its associated structures and infrastructure on the environmental sensitivities of the preferred site has been attached on this document **Figure 7-1**. Note that all areas that must be avoided due to their environmental sensitivity are indicated in the map.

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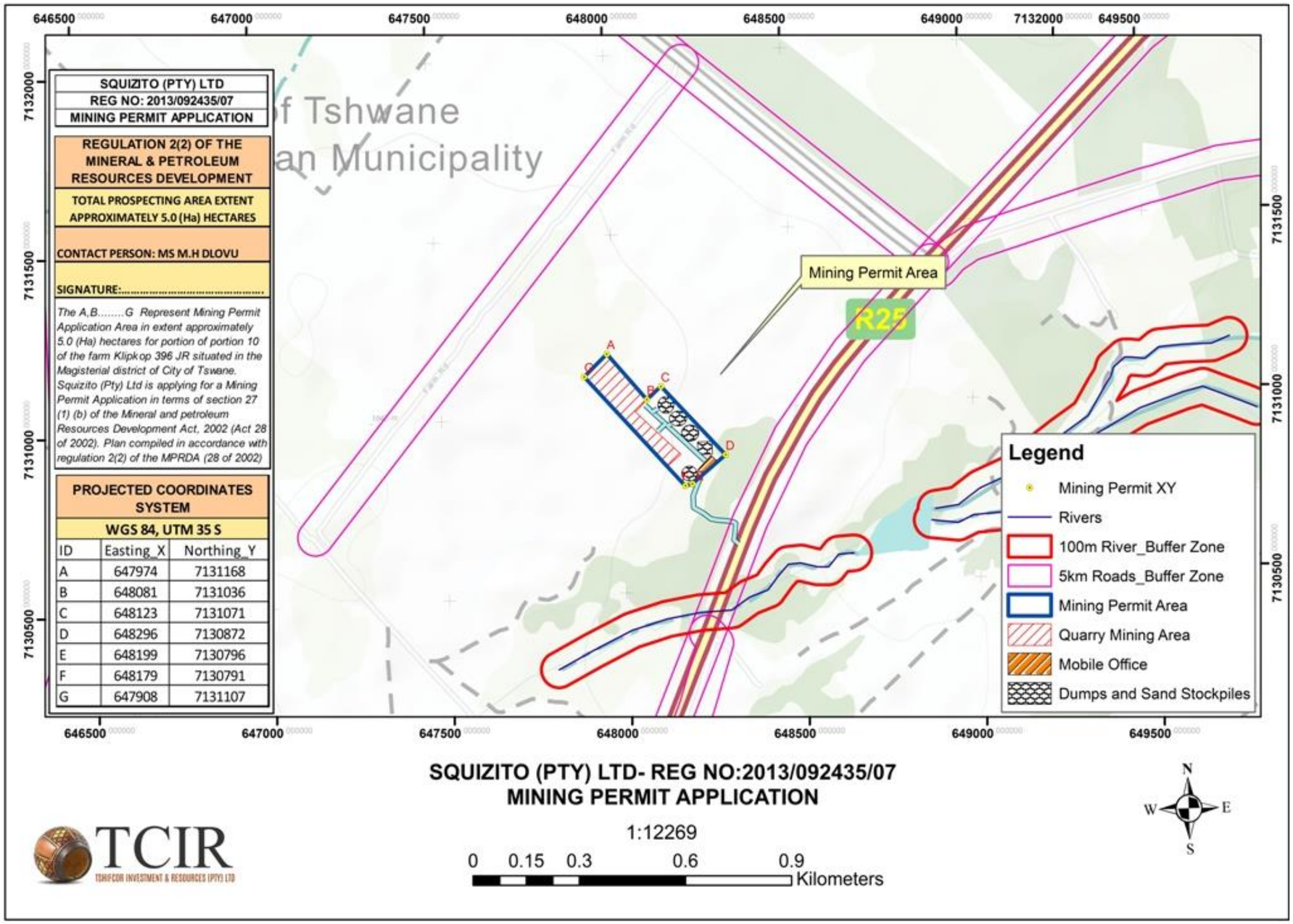

Figure 7-1: Composite map for the proposed mining permit application.

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7.4 DESCRIPTION OF THE MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS

7.4.1 GENERAL CLOSURE PRINCIPLES AND OBJECTIVES

The following are the closure objectives, general principles and objectives guiding closure of the Mining permit area closure planning:

- Rehabilitation of areas disturbed as a consequence of mining permit to a land capability that will support and sustain a predetermined post-closure land uses;
- Removal of all infrastructure/equipment that cannot be beneficially re-used, as per agreements established, and returning the associated disturbed land to the planned final land use;
- Removal of existing contaminated material from affected areas;
- Establishment of final landforms that are stable and safe in the long run;
- Establishment and implementation of measures that meet specific closure related performance objectives;
- Monitoring and maintenance of rehabilitated areas forming part of site closure to ensure the long-term effectiveness and sustainability of measures implemented.

7.4.2 MANAGEMENT OF ENVIRONMENTAL DAMAGE, ENVIRONMENTAL POLLUTION AND ECOLOGICAL DEGRADATION CAUSED BY THE MINING PERMIT PROJECT ACTIVITIES

The following actions will be undertaken by Squizito (Pty) Ltd to ensure that the closure objectives are attained.

7.4.2.1 Infrastructure Areas

- All infrastructure and equipment used during the mining permit operation will be removed from the site.
- All rehabilitated areas will be maintained for a period of 2 years, where after the frequency will be reassessed. Where necessary, vegetation cover will be maintained by annual application of fertiliser.
- Maintenance with respect to erosion will be conducted on a minimum three monthly basis if and where required.

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- Aquatic monitoring in one month prior mining permit activities and twice again every two months after mining permit operation will be conducted to ensure that the mining activity did not contaminate the water resources.

7.4.2.1.1 Buildings (Office, Workshops and Stores)

Mobile structures will be used and such structures will be removed from the sites during decommissioning of the site.

7.4.3 POTENTIAL RISK OF ACID MINE DRAINAGE

The proposed sand mining does not have potential risk of acid mine drainage.

7.4.4 STEPS TAKEN TO INVESTIGATE, ASSESS AND EVALUATE THE IMPACTS OF THE ACID MINE DRAINAGE

Since there is no risk of acid mine drainage, there will be no need for steps to be taken to investigate, assess and evaluate the impacts of acid mine drainage.

7.4.5 ENGINEERING AND DESIGNS SOLUTIONS TO BE IMPLEMENTED TO AVOID OR REMEDY ACID MINE DRAINAGE

Since there is no risk of acid mine drainage, there will be no need for engineering and designs solutions to be implemented to avoid or remedy acid mine drainage.

7.4.6 MEASURES TO REMEDY RESIDUAL OR CUMULATIVE IMPACTS FROM ACID MINE DRAINAGE

Since there is no risk of acid mine drainage, there will be no need for measures to remedy residual or cumulative impacts from acid mine drainage.

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7.4.7 VOLUMES AND RATES OF WATER USE REQUIRED FOR THE PROPOSED PROJECT

Minimum water will be required during mining and this will only amount to 1080 cubic meters / quarter Litter and the required amount does not trigger water use licence. Water to be used will be accessed from the nearby landowners on request or municipality at a rate.

7.4.8 WATER USE LICENCE APPLICATION

No water use activities will be undertaken during the proposed mining operation; hence no water use licence will be applied for. However, further confirmation from the Department of Water and Sanitation is still pending.

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7.5 ENVIRONMENTAL MANAGEMENT PROGRAMME

Impact Activity Reference	Environmental Attribute	Impact Management Objectives	Targets (Impact Management Outcomes)	Management Actions and Interventions	Responsibility for Actions/Intervention	Monitoring Action	Responsibility and Frequency for Monitoring	Time period for Management Action
1. CONSTRUCTION PHASE								
Table 7-1: Establishment of access to mining sites								
Loss of soils, erosion of the soils and impacts on owner's livelihood.	Soils, Land Use and Land capability	To ensure that the activities in the development of the mining sites and associated infrastructure do not have detrimental impacts	Ensure that the establishment of the mining permit sites is undertaken in accordance with the approved EMPr	Establishment of the site will be undertaken according to the mining method statement	Appointed contractor and site manager	Visual monitoring through inspections.	Environmental Control Officer (ECO) during construction.	During construction phase

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		on the soils, land use and land capability						
				No soil stripping will be allowed during site establishment	Appointed contractor.	Visual monitoring and inspections.	ECO monthly	During construction phase
				Should it be necessary to conduct surveys, ensure no disturbance of soil.	Appointed contractor	Visual monitoring and inspections.	ECO monthly	During construction phase
				Any area that may result into the disturbance of the soils must be rehabilitated immediately on discovery	Appointed contractor and the applicant site manager	Visual monitoring and inspections.	ECO monthly	During construction phase

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				Machinery to be used for the operation will be of good working conditions. Any hydrocarbon spill from the site establishment will be remediated as soon as possible	Appointed contractor	Visual monitoring and inspections.	ECO monthly	During construction phase
				Use sites that are unused and that are in the degraded state for the proposed development. This must be done in agreement with the land owner. The setting up of the mining permit area must be conducted such that ensure that rocky ridges, sensitive grass lands, indigenous trees and	Appointed contractor	Undertake regular inspections	ECO monthly	During construction phase

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				shrubs, sites of farmlands actively used for farming are avoided.				
Impact Activity Reference	**Environmental Attribute**	**Impact Management Objectives**	**Targets (Impact Management Outcomes)**	**Management Actions and Interventions**	**Responsibility for Actions/Intervention**	**Monitoring Action**	**Responsibility and Frequency for Monitoring**	**Time period for Management Action**
Loss of natural vegetation in the affected areas	Flora	To ensure that the establishment of the mining permit site and associated infrastructure/equipment do not have	The management of the impact will comply with the company's biodiversity management plan.	Use sites with most disturbed vegetation cover for the development.	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly	During construction phase

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		detrimental impact on the area's flora.						
				No strip of topsoil and vegetation will be allowed during site establishment.	Appointed contractor and site manager.			During construction phase
				Ensure minimal disturbance of vegetation when conducting surveys if necessary	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly	During construction phase
				Any area that may result into the disturbance of the vegetation cover must be rehabilitated immediately on discovery	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly	During construction phase

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Migration of animal life due to disturbance caused proposed project	Animal Life	Ensure that the animal life within in the project area is not affected by the proposed project	Maintenance of the current status on animal life within the project area	Establishment of the site will be undertaken according to the mining permit method statement	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly	During construction phase
				No soil stripping will be allowed during site establishment. Any area that may result into the disturbance of the soils must be rehabilitated immediately on discovery	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly	During construction phase
				Use sites with most degraded environment for the site development	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly	During construction phase

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				Poaching will be prohibited at the mining permit site	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly	During construction phase
Deterioration of water quality in the nearby steams and within the ground water regime.	Surface and Ground Water	Ensure that the establishment of the project and its associated infrastructure does not have detrimental impact on nearby stream and the groundwater regime.	The quality of streams and groundwater within the site will comply with the target DWS target water quality objectives. Construction will be in compliance with the regulations under	Site establishment will not be undertaken within sensitive landscapes.	Appointed contractor and site manager.	Regular inspections	ECO monthly	During construction phase

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			the GN704.					
				Avoid stripping of areas within the construction sites.	Appointed contractor and site manager.	Regular inspections	ECO monthly	During construction phase
				Rehabilitate areas that may have been mistakenly stripped	Appointed contractor and site manager.	Regular inspections	ECO monthly	During construction phase
				Storm water upslope of the mining permit sites should be diverted around these areas	Appointed contractor and site manager.	Regular inspections	ECO monthly	During construction phase

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				Proper waste management facilities will put in place at the mining site. Any hydrocarbon spill from the site establishment will be remediated as soon as possible.	Appointed contractor and site manager.	Regular inspections	ECO monthly	During construction phase
Impact Activity Reference	**Environmental Attribute**	**Impact Management Objectives**	**Targets (Impact Management Outcomes)**	**Management Actions and Interventions**	**Responsibility for Actions/Intervention**	**Monitoring Action**	**Responsibility and Frequency for Monitoring**	**Time period for Management Action**
Wetland destruction and loss of habitat.	Sensitive Landscapes	Ensure that the construction activities do not have detrimental impacts on the	Maintain the current state of the sensitive landscapes within the project area (farm dams and	Construction activities will be limited to be more than five hundred meters from the site establishment will be remediated as soon as possible.	Appointed contractor and site manager.	Inspection to ensure compliance with the action plan will be conducted at the construction site.	Eco will conduct the inspections monthly	Whenever construction is undertaken near the sensitive landscapes.

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		sensitive landscapes	seepage zone).					
Air pollution through air pollutants' emissions, from the construction site.	Air quality	Ensure that the operations during the construction phase do not result in detrimental air quality impacts.	The construction will be undertaken such that the ambient air quality does not exceed the National Air Quality Standards	Wet suppression using water will be conducted at areas with excessive dust emissions.	Appointed contractor and site manager.	Visual inspection of areas with possible dust emissions.	ECO monthly	Throughout the construction phase.
				Traffic will be restricted to demarcated areas and traffic volumes and speeds within the construction site will be controlled	Appointed contractor and site manager.	Regular inspections	ECO monthly	Throughout the construction phase.

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Increased noise levels.	Noise aspects	Ensure that the noise levels emanating from the construction sites will not have detrimental effects on the mine employees and surrounding communities/and owners.	The noise levels from the construction sites will be managed and measures will be taken to ensure that noise levels are below the National Noise Control Regulations, SANS10103:2008 guidelines.	Limit the maximum speed to 40 km/h or less, subject to risk assessment. Less noisy equipment will be used, the equipment will be kept in good working order and the equipment will be fitted with correct and appropriate noise abatement measures	Appointed contractor and site manager.	Undertake site checks on speeds used.	Site manager	Throughout the construction phase.

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				Ensure that the employees are issued with earplugs and that they are instructed to use them.	Site manager	Speed checking will be conducted.	Site manager checking as regularly as possible	Throughout the duration of the construction phase.
				Educate employees on the dangers of hearing loss due to mine machinery noise	Site manager	Use of earplugs will be checked and reported	Site manager will check the use of the earplugs as regularly as possible	Throughout the duration of the construction phase
Visual impacts on the surrounding communities and road users from the	Visual aspects	Ensure that the operations during the construction phase do not result in detrimental visual impacts on surrounding	Measures will be undertaken by the mine to ensure that visual aspects from the site are complying with the relevant	The land owner will be informed on the type of machinery and equipment to be used at the mining permit site.	Applicant and site manager	The constructed perimeter berms will be inspected for compliance the design specifications.	Mine Engineer on a monthly basis.	Throughout the construction phase.

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construction		properties communities and road users.	visual standards objectives					
				Lighting will be conducted in manner that will reduce the impacts on visual aspects at night times.	Appointed Contractor	Night time inspection of the site will be undertaken	The site manager once	During construction phase
Impact Activity Reference	**Environmental Attribute**	**Impact Management Objectives**	**Targets (Impact Management Outcomes)**		**Management Actions and Interventions**	**Responsibility for Actions/Intervention**	**Monitoring Action**	**Responsibility and Frequency for Monitoring**

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Damage or destruction of sites with archaeological cultural significance.	Sites of archaeological and cultural importance	Ensure that the construction activities do not have detrimental impacts on the heritage sites.	The construction will be undertaken in compliance with the requirements of the National Heritage Resources Act, 1999 (Act 25 of 1999) and recommendations from the specialist.		The establishment of the sites will be away from any identified grave site or heritage sites. A buffer of five hundred meters will be created between the sites and the proposed camp and mining sites.	Applicant and site manager	The site will be monitored for any damages on a regular basis.	ECO monthly
Impact from the influx of job seekers	Socio-economic aspects	Ensure that measures are taken to discourag	Measures taken will be in line with the company's		Recruitment will not be undertaken on site. Farm labourers will not employed unless	Appointed contractor and site manager	Visual monitoring	Site manager

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and employment of farm labourers		e influx of job seekers and employment of farm labourers	recruitment policies		agreed to with the farms owners			

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7.6 FINANCIAL PROVISION

Section 24 P of NEMA requires an applicant applying for an environmental authorisation related to mining to comply with the prescribed financial provision for the rehabilitation, closure and ongoing post decommissioning management of negative environmental impacts before the Minister responsible for mineral resources issues the environmental authorisation. The above-mentioned financial provision may be in the form of an insurance, bank guarantee, trust fund or cash.

Regulations pertaining to the financial provision for prospecting, exploration, mining or production operations (GNR 1147) were promulgated on the 20th of November 2015. Squizito (Pty) Ltd has undertaken the financial provision determination in line with the requirements of section 11 of the Regulations pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations (GNR 1147). The financial provision determination for the proposed project will be submitted to the Department of Mineral Resources for their consideration.

7.6.1 DESCRIPTION OF CLOSURE OBJECTIVES AND EXTENT TO WHICH THEY HAVE BEEN ALIGNED TO THE DESCRIBED BASELINE ENVIRONMENT

The closure objectives for the proposed project as detailed under section 7.4.1 of the EMPr, were determined in consideration of physical (infrastructure), biophysical (environmental) and socioeconomic measures as well as alignment to the closure components provided by the Department of Mineral Resources (DMR). See section 7.4.1 for the closure objectives.

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7.6.2 CONFIRMATION THAT THE ENVIRONMENTAL OBJECTIVES IN RELATION TO CLOSURE HAVE BEEN CONSULTED WITH LANDOWNERS AND INTERESTED AND AFFECTED PARTIES

The DBAR and EMPr is been made available to the interested and affected parties during the public participation process for the proposed project. Note that the consultation of interested and affected parties included the owners of the property directly affected by the proposed project and owners of land immediately adjacent the proposed project area. The above confirms that the land owners and interested and affected parties are being consulted regarding the environmental objectives in relation to the closure of the proposed project.

7.6.3 REHABILITATION PLAN FOR THE PROPOSED PROJECT

In terms of Regulation 23 of NEMA EIA Regulations, 2014, an EMPr must address the requirements as determined in the regulations, pertaining to the financial provision for the rehabilitation, closure and post closure of the proposed operations. In view of the above, a rehabilitation plan for the proposed project has been compiled and detailed below:

In order to obtain a self-sustainable and stable closure plan, the following will be done where natural grassland had been disturbed during the mining permit process.

a. Rehabilitation and Closure

The clearing of soil surface areas would be restricted to what is really necessary for mining permit purpose. During the closure of these sites, or where vegetation is lacking or compacted, the areas would be ripped or ploughed and levelled in order to re-establish a growth medium and if necessary appropriately fertilised to ensure the regrowth of vegetation and the soil ameliorated based on a fertilizer recommendation (soil sample analysed).

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As the project progresses there will be an increase in the topsoil surface area disturbed initially but also at the same time concurrent rehabilitation will take place which involves the replacement of topsoil on backfilled mining permit area.

i. Rehabilitation of access roads

- Whenever a mining permit is suspended, cancelled or abandoned or if it lapses and the holder does not wish to renew the right, any access road or portions thereof, constructed by the holder and which will no longer be required by the landowner/tenant, shall be removed and/or rehabilitated to the satisfaction of the Regional Manager.
- Any gate or fence erected by the holder which is not required by the landowner / tenant, shall be removed and the situation restored to the pre mining permit situation.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining permit operation, be corrected and the area be seeded with a seed mix to the Regional Manager's specification.

ii. Rehabilitation of the surface mining permit site

On completion of operations, all buildings, structures or objects on the office site shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002), which states:

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1. When a prospecting right, mining right, retention permit or mining permit lapses, is cancelled or is abandoned or when any prospecting or mining operation comes to an end, the holder of any such right or permit may not demolish or remove any building, structure, object -

A & b. which may not be demolished in terms of any other law;

c. which has been identified in writing by the Minister for purposes of this section; or

d. which is to be retained in terms of an agreement between the holder and the owner or occupier of the land, which agreement has been approved by the Minister in writing.

2. The provision of subsection (1) does not apply to bona fide mining equipment which may be removed after all the foreign matter has been removed from the sites, the excavations shall be backfilled with subsoil, compacted and levelled with previously stored topsoil. No foreign matter such as cement or other rubble shall be introduced into such backfilling.

   All rescued plants should be bagged and kept on a designated on-site nursery, and should be returned to site once all mining permit operation is completed and rehabilitation of disturbed areas is required. Replanting should only occur in springs or early summer (September to November), once the first rains have fallen, in order to facilitate establishment.

   Seed should be collected from plants earmarked for removal prior to disturbance, in order to reduce the impact on plants. If seeds are collected from nearby seedbanks, it may indirectly affect the availability of seed as a source of food for a variety of animals and birds.

   On completion of the mining permit operation, the above areas shall be cleared of any contaminated soil. The surface shall then be ripped or ploughed to a depth of at least 300mm and the topsoil previously stored adjacent the site, shall be spread evenly to its original depth over

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the whole area. The area shall then be fertilised if necessary (based on a soil analysis). The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora. Where the site has been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.

Photographs of the office sites and mining sites, before and during the operation and after rehabilitation and closure, shall be taken at selected fixed points and kept on record for the information of the Regional Manager.

Photographs of the demarcation site, before and during the mining permit activities, after rehabilitation and closure, shall be taken at selected fixed points and kept on record for the regional manager's information and annual reporting.

Rehabilitation of the new topographical landscape in such a way that it would blend in with the surrounding landscape and allow normal (controlled) surface drainage to continue.
Implement water control systems in order to prevent erosion.

Visual impact would be addressed by means of:

- Re-vegetation (grasses);

- Removal of any building, scrap, domestic waste, etc. that would otherwise contribute to a negative visual impact.

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iii. Fertilising of Areas to be rehabilitated

If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a seed mix to his or her specification.

iv. Seeding of Grass Seed Mixture and planting of Woody Species

The eventual seed mixture takes into account the availability of seed, different soil situations and the prevailing climatic conditions of the area. The following mixture will be applicable to the mining permit site:

- *Cenchrus ciliaris*
- *Cynodon dactylon*
- *Digitaria eriantha*
- *Heteropogon contortus*
- *Panicum maximum*

b. Demolition of infrastructure/buildings

On completion of operations, all structures on the mining permit terrain shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act,2002 (Act No. 28 of 2002).

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c. Invasive and alien control programme

Develop and implement an invasive and alien control programme to control the spread of weeds and other invasive species. Eradicate exotic weeds and invader species if it invades the terrain. All illegal invader plants and weeds shall be eradicated as required in terms of Regulation 15 & 16 of the Act on Conservation of Agricultural Resources, 1983 (Act no. 43 of 1983) which list the plants.

d. Final Land use after rehabilitation

The Klipkop land use within the proposed mining permit project area will have to be rehabilitated. However, for the first 3 years the area will need to be monitored every second month and more of agriculture activities will need to be conducted to bring the land to its original state.

7.6.4 COMPATIBILITY OF THE REHABILITATION PLAN WITH THE CLOSURE OBJECTIVES

The rehabilitation plan has been drafted to be compatible with the closure objectives.

7.6.5 DETERMINATION OF THE QUANTUM OF THE FINANCIAL PROVISION REQUIRED TO MANAGE AND REHABILITATE THE ENVIRONMENT

The proposed project is sand mining project. The closure components has been determined based on the BAR and EMPr to be submitted and the generally accepted closure methods. Areas and distances were determined with the aid of visual observations and the proposed surface layout plans. The latest Master rates for the different components were obtained from the DMR. Weighting factors were applied based on the nature of the terrain (undulating) and the proximity to urban areas (remote). The determination of the financial provision for the proposed project is expanded in Table below. Based on the calculations indicated in **(**Table 7-2**),** the quantum of pecuniary provision required for the proposed mining permit project is **R193 377.98** (One

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hundred and ninety three thousand, three hundred and seventy-seven rand and ninety eight cents).

7.6.6 METHOD OF PROVIDING FOR THE FINANCIAL PROVISION

According to Regulation 8 pertaining to the pertaining to the financial provision for prospecting, exploration, mining or production operations (GNR 1147), an applicant or holder of a right or permit must make financial provision by one or a combination of the following:

- financial guarantee from a bank registered in terms of the Banks Act, 1990 (Act No. 94 of 1990) or from a financial institution registered by the Financial Services Board as an insurer or underwriter;
- deposit into an account administered by the Minister responsible for mineral resources; or;
- contribution to a trust fund established in terms of applicable legislation.

Squizito (Pty) Ltd has opted to use a financial guarantee to provide for the determined quantum for financial provision.

Table 7-2: Assessment of the quantum for financial provision for mining permit project, 2017

No	Description	Unit	A Quantity	B Master rate	C Multiplication factor	D Weighting factor	E=A*B*C*D Amount
1	Dismantling of processing plant and related structures	m^3					R0.00

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2(A)	Demolition of steel buildings and structure	m^2					R0.00
2(B)	Demolition of reinformced concrete buildings and structures	m^2					R0.00
3	Rehabilitation of access roads	m^2	50	R32.00	1	1	R1 600.00
4(A)	Demolition and rehabilitation of electrified railway lines						R0.00
4(B)	Demolition and rehabilitation of non-electrified railway lines	m					R0.00
5	Demolition of housing and/or administration facilities	m^2	10	R32.00	1	1	R320.00
6	Opencast rehabilitation including final voids and ramps	m^2	0.2	R182 063.65	1	1	R36 412.73

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7	Sealing of shafts, adits and inclines	m^3					R0.00
8(A)	Rehabilitation of overburden and spoils	ha	0.3	R125 016.15	1	1	R37 504.85
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (salts)	ha					R0.00
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich waste)	ha					R0.00
9	Rehabilitation of subsided areas	ha					R0.00
10	General surface rehabilitation	ha	0.5	R99 033.88	1	1	R49 516.94
11	River diversions	ha					R0.00
12	Fencing	m	5	R32.00	4	4	R2 560.00
13	Water management	ha					R0.00
14	2 to 3 years of maintenance and aftercare	ha	0.5	R13 179.41	1	1.1	R7 248.68

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15(A)	Specialist study	sum		
15(B)	Specialist study	sum		
			SUBTOTAL 1	R135 163.19

1	Weighting factor 2	(0%, 5% or 10%)	
2	Preliminary and General	12,5% of subtotal 1	R16 895.40
3	Administration and supervisionn costs	6,0% of subtotal 1	R8 109.79
4	Engineering drawings and specifications	2,0% of subtotal 1	R2 703.26
5	Engineering and procurement of specialist work	2,5% of subtotal 1	R3 379.08
6	Development of closure plan	2,5% of subtotal 1	R3 379.08
7	Final groundwater modelling**	2,5% of subtotal 1	R3 379.08
8	Contingency	10,0% of subtotal 1	R13 516.32
		SUBTOTAL 2	R34 466.61

VAT (14%)	R23 748.17

GRAND TOTAL (SUBTOTAL 1 + SUBTOTAL 2 + VAT) **R193 377.98**

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7.7 MECHANISM FOR MONITORING COMPLIANCE WITH AND PERFOMAMCE ASSESSMENT AGAINST THE ENVIRONMENTAL MANAGEMENT PROGRAMME AND REPORTING THEREOF

7.7.1 INSPECTIONS AND MONITORING

During the impact assessment, potential impacts on the environment were identified. Mitigation measures were also specified for prevention and management of the impact so as to minimise their effect on the environment. This section will describe how the mine intends to ensure that the mitigation measures are being undertaken and that their effectiveness is proven.

A monitoring programme has been developed for the identified impacts and their mitigation measures. This monitoring programme will be undertaken and results thereof used to determine the effectiveness of the mitigation measures. The ECO will have an overall responsibility for ensuring that all monitoring is conducted according to the approved EMPr.

7.7.2 MONITORING COMPLIANCE WITH AND PERFORMANCE ASSESSMENT AGAINST THE ENVIRONMENTAL MANAGEMENT PROGRAMME AND REPORTING THEREOF

As part of the general terms and conditions for an environmental authorisation and in order to ensure compliance with the EMPr and to assess the continued appropriateness and adequacy of the EMPr, Squizito (Pty) Ltd will:

- Conduct monitoring on a continuous basis (see EMPr).
- Conduct performance assessments of the environmental management programme once in every two years.
- Compile and submit a performance assessment report to the minister in which compliance with the approved Environmental Management Programme is demonstrated.
  The performance assessment report will as a minimum contain the following:

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- Information regarding the period applicable to the performance assessment
- The scope of the assessment,
- The procedure used for the assessment,
- The interpreted information gained from monitoring the approved environmental management programme,
- The evaluation criteria used during the assessment,
- The results of the assessment.
- Recommendations on how and when non-compliance and deficiencies will be rectified,

7.7.3 ENVIRONMENTAL AWARENESS PLAN

An Environmental Awareness and Risk Assessment Schedule have been developed and is outlined below. The purpose of this schedule is to ensure that employees are not only trained but that the principles are continuously re-enforced.

Table 7-3: Environmental Awareness and Risk Assessment

Frequency	Time Allocation	Objective
Induction (all staff and workers)	1 hour training on environmental awareness training as part of site induction	• Develop an understanding of what is meant by the natural environmental and social environment and establish a common language as it relates to environmental, health, safety and community aspects. • Establish a basic knowledge of the environmental legal framework and consequences of non-compliance.

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		• Clarify the content and required actions for the implementation of the Environmental Management Plan. • Confirm the spatial extent of areas regarded as sensitive and clarify restrict ions. • Provide a detailed understanding of the definition, the method for identification and required response to emergency incidents.
Monthly Awareness Talks (all staff and workers)	30-minute awareness talks	Based on actual identified risks and incidents (if occurred) reinforce legal requirements, appropriate responses and measures for the adaptation of mitigation and/or management practices.
Risk Assessments (supervisor and workers involved in task)	Daily task based risk assessment	Establish an understanding of the risks associated with a specific task and the required mitigation and management measures on a daily basis as part of daily tool box talks.

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7.7.3.1 Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment

As prescribed in above table, Task/Issue Based Risk Assessments must be undertaken with all worker involved in the specific task in order to establish an understanding of the risks associated with a specific task and the required mitigation and management measures.

7.7.3.2 Environmental Awareness Training Content – Induction Training

The following environmental awareness training will be provided to all staff and workers who will be involved in mining permit activities.

- Description of the approved mining permit activities and content of the mining permit,
- An overview of the applicable legislation and regulations as it relates to environmental, health, safety and community including (but not limited to):
- General Environmental Legal Principles and Requirements
- Air Quality Management
- Water and Wastewater Management
- Hazardous Substances
- Non-Mining-Related Waste Management
- The Appropriate Remediation Strategies & Deteriorated Water Resources
- Biodiversity
- Weeds and Invader Plants
- Rehabilitation
- Contractors and Tenants
- Energy & Conservation
- Heritage Resources
- General Health and Safety Matters
- Basic Conditions of Employment
- Compensation for Occupational Injuries and Diseases

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- General Mine Health and Safety Matters
- Smoking in the Workplace
- Noise & Hearing Conservation
- Handling, Storage and use of Hazardous Substances
- Weapons and Firearms
- Content and implementation of the approved Environmental Management Plan
- Al located responsibilities and functions
- Management and Mitigation Measures
- Identification of risks and requirements adaptation
- Sensitive environments and features
- Description of environmentally sensitive areas and features
- Prohibitions as it relates to activities in or in proximity to such areas
- Emergency Situations and Remediation
- Methodology to the identify areas where accidents and emergency situations may occur, communities and individuals that may be impacted
- An over view of the response procedures,
- Equipment and resources
- Designate of responsibilities
- Communication, including communication with potentially Affected Communities
- Training schedule to ensure effective response.

7.7.3.3 Development of procedures and checklists

The following procedures will be developed and all staff and workers will be adequately trained on the content and implementation thereof.

7.7.3.4 Emergency Preparedness and Response

The procedure will be developed to specifically include risk identification, preparedness, response measures and reporting. The procedure will specifically include spill and fire risk, preparedness and response measures. The appropriate emergency control centers (fire department, hospitals)

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will be identified and the contact numbers obtained and made available on site. The procedure must be developed in consultation with all potentially affected landowners.

In the event that risks are identified which may affect the adjacent landowners (or other persons), the procedure will include the appropriate communication strategy to inform such persons and provide response measures to minimize the impact.

7.7.3.5 Incident Reporting Procedure

Incident reporting will be undertaken in accordance with an established incident reporting procedure to (including but not limited to):

- Provide details of the responsible person including any person who:

(i) is responsible for the incident;
(ii) owns any hazardous substance involved in the incident; or
(iii) was in control when the incident occurred;

- Provide details of the incident (time, date, location);
- The details of the cause of the incident;
- Identify the aspects of the environment impacted;
- The details corrective action taken, and
- The identification of any potential residual or secondary risks that must be monitored and corrected or managed.

7.7.3.6 Environmental and Social Audit Checklist

An environmental audit checklist will be established to include the environmental and social mitigation and management measures as developed and approved as part of the Environmental Management Plan. Non- conformances will be identified and corrective action taken where required.

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8. UNDERTAKING

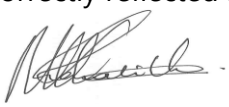
The EAP herewith confirms

a. the correctness of the information provided in the reports ☒

b. the inclusion of comments and inputs from stakeholders and I&APs; ☒

c. the inclusion of inputs and recommendations from the specialist reports where relevant; ☒and

d. that the 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 are correctly reflected herein. ☒



Signature of the environmental assessment practitioner:

TSHIFCOR INVESTMENT AND RESOURCES (PTY) LTD

Name of company:

22 August 2017

Date:

END-

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