

ENVIRONMENTAL IMPACT



MANAGEMENT SERVICES

BASIC ASSESSMENT REPORT

ATOLL MODDERFONTEIN PROSPECTING
RIGHT

DMR REFERENCE NUMBER:

GP 30/5/1/1/2/10415 PR

GP 30/5/1/1/2/10415 MP

GP 20/5/1/1/3/2/1/10415 EM

EIMS REFERENCE NUMBER:

1048

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Leaders in Environmental Management



BASIC ASSESSMENT REPORT

ATOLL MODDERFONTEIN PROSPECTING RIGHT

DOCUMENT CONTROL

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REVISION AND AMENDMENTS

Date	No.	Description Of Revision Or Amendment
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ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

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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 (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 in instructions or guidance provided by the Competent Authority to the submission of applications.

It is therefore the instruction that the prescribed reports required in respect of application 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 requested 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 order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the applicant.

OBJECTIVE OF THE 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 activity is located and document how the proposed 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 the technology alternatives on 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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APPENDIX A: DETAILS AND EXPERIENCE OF THE EAP

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APPENDIX C: MAPS

APPENDIX D: IMPACT ASSESSMENT CALCULATIONS

ABBREVIATIONS

BAR	: Basic Assessment Report
BID	: Background Information Document
DMR	: Department of Mineral Resources
DWS	: Department of Water and Sanitation
EA	: Environmental Authorisation
EAP	: Environmental Assessment Practitioner
EIA	: Environmental Impact Assessment
EIMS	: Environmental Impact Management Services
EMPR	: Environmental Management Programme
GIS	: Geographic Information System
I&AP	: Interest and Affected Party
MPRDA	: Mineral and Petroleum Resources Development Act
NEMA	: National Environmental Management Act
NEMWA	: National Environmental Management Waste Act
NWA	: National Water Act
PPP	: Public Participation Process
PRA	: Prospecting Right Application
PWP	: Prospecting Works Programme

PART A: SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1. INTRODUCTION

Atoll Metal Recovery (Pty) Ltd (Atoll) (the Applicant) has submitted an application for a Prospecting Right in terms of Section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA) and an Application for Environmental Authorization in terms of Chapter 6 of GNR 982 promulgated under the National Environmental Management Act (Act 107 of 1998) (NEMA) to prospect for aggregate and dolomite over a portion of portion 1 of the farm Modderfontein 761R.

A previous Prospecting Right application was submitted by the Applicant under reference number GP30/5/1/1/2/10382PR. Following the results of the initial public consultation undertaken for that application, the size of the proposed prospecting area has been reduced and an amended application has now been submitted under a new reference number GP 30/5/1/1/3/2/1 (10415) EM.

The proposed project that will aim to explore and quantify the potential mineral reserves is referred to as the Modderfontein Prospecting Right. In order to undertake prospecting activities, Atoll will require a Prospecting Right in terms of the Mineral and Petroleum Resources Development Act (MPRDA, Act No.28 of 2002). The Applicant is also required to obtain an Environmental Authorisation (EA) in terms of the National Environmental Management Act (NEMA, Act No. 107 of 1998) which involves the submission of a Basic Assessment Report (BAR). Environmental Impact Management Services (Pty) Ltd (EIMS) have been appointed by Atoll to compile the BAR (this report) in support of the Prospecting Right application submitted by Atoll, which in turn will be submitted to the DMR for adjudication.

This BAR has been designed to meet the requirements for a BAR and Environmental Management Programme (EMPR) as stipulated in the 2014 EIA Regulations promulgated under the NEMA. The adjudicating authority for this Application will be the Department of Mineral Resources (DMR), and this report has been compiled in accordance with the applicable DMR guidelines and reporting template.

The proposed Modderfontein Prospecting Right Area is situated over a portion of portion 1 of the farm Modderfontein 761R which is located approximately 5 km east of Benoni and 5 km north of Brakpan, in Gauteng, South Africa.

Due to the abundance of historical data available for the proposed prospecting area and the concerns raised by I&AP's during the first application process, the Applicant developed the Prospecting Work Programme (PWP) to exclude invasive prospecting activities. Aggregate in the form of quartzite, dolerite and dolomite are the focus of the PWP.

The Prospecting Right Application and Application for EA was submitted to the DMR on the 21st of October 2015. The DMR accepted the Application for Environmental Authorisation on the 15th of December 2015. The BAR (this report) will be made available to Interested and Affected Parties

(I&AP's) for comment from the 18th of February 2016 to the 19th of March 2016. All comments received during this period will be included in the BAR submitted to the DMR for adjudication.

1.1. REPORT STRUCTURE

This report has been compiled in accordance with the 2014 NEMA EIA Regulations. A summary of the report structure, and the specific sections that correspond to the applicable regulations, is provided in Table 1 below.

TABLE 1: REPORT STRUCTURE

Environmental Regulation	Description	Section in Report
NEMA Regulation 982 (2014)		
Appendix 1(3)(a):	Details of –	Section 1.2
	(i) The EAP who prepared the report; and (ii) The expertise of the EAP, including a curriculum vitae;	Section 1.3
Appendix 1(3)(b):	The location of the activity, including:	Section 1.4
	(i) The 21 digit Surveyor General code of each cadastral land parcel;	Section 1.5
	(ii) Where available, the physical address and farm name; and (iii) Where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	
Appendix 1(3)(c):	A plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale, or, if it is – (i) A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken;	Section 1.5

	(ii) On land where the property has not been defined, the coordinates within which the activity is to be undertaken;	
Appendix 1(3)(d):	A description of the scope of the proposed activity, including –	Section 2
	(i) All listed and specified activities triggered and being applied for; and	Section 2.1
	(ii) A description of the activities to be undertaken including associated structures and infrastructure;	Section 2.2
Appendix 1(3)(e):	A description of the policy and legislative context within which the development is proposed including –	Section 3
	(i) An identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and	
	(ii) How the proposed activity complies with and responds to the legislation and policy context plans, guidelines, tools frameworks, and instruments;	
Appendix 1(3)(f):	A motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location;	Section 4
Appendix 1(3)(g):	A motivation for the preferred site, activity and technology alternative;	Section 5
Appendix 1(3)(h):	A full description of the process followed to reach the proposed alternative within the site, including:	Section 6
	(i) Details of all the alternatives considered;	Section 6.1
	(ii) Details of the public participation process undertaken in terms of regulation 41 of the	Section 6.2

Regulations, including copies of the supporting documents and inputs;	Section 6.3
(iii) A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	Section 6.4 Section 6.5
(iv) The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage, and cultural aspects;	Section 6.6 Section 6.7
(v) The impacts and risks identified for each alternative including the nature, significance, consequence, extent, duration, and probability of the impacts, including the degree to which these impacts –	Section 6.8 Section 6.9
(aa) Can be reversed;	Section 6.10
(bb) May cause irreplaceable loss of resources; and	
(cc) Can be avoided, managed or mitigated;	
(vi) The methodology used in determining and ranking the nature, significance, consequences, extent duration and probability of potential environmental impacts and risks associated with the alternatives;	
(vii) Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological social, economic, heritage and cultural aspects;	
(viii) The possible mitigation measures that could be applied and level of residual risk;	
(ix) The outcome of the site selection matrix;	
(x) If no alternatives, including alternative locations for the activity were investigated, the	

	<p>motivation for not considering such; and</p> <p>(xi) A concluding statement indicating the preferred alternatives, including preferred location of the activity;</p>	
Appendix 1(3)(i):	<p>A full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including –</p> <p>(i) A description of all environmental issues and risks that were identified during the environmental impact assessment process; and</p> <p>(ii) An assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;</p>	Section 7
Appendix 1(3)(j):	<p>An assessment of each identified potentially significant impact and risk, including –</p> <p>(i) Cumulative impacts;</p> <p>(ii) The nature, significance and consequence of the impact and risk;</p> <p>(iii) The extent and duration of the impact and risk;</p> <p>(iv) The probability of the impact and risk occurring;</p> <p>(v) The degree to which the impact and risk can be reversed;</p> <p>(vi) The degree to which the impact and risk may cause irreplaceable loss of resources; and</p> <p>(vii) The degree to which the impact and risk can be mitigated;</p>	Section 8

Appendix 1(3)(k):	Where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report;	Section 9
Appendix 1(3)(l):	<p>An environmental impact statement which contains –</p> <ul style="list-style-type: none"> (i) A summary of the key findings of the environmental impact assessment; (ii) A map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and (iii) A summary of the positive and negative impacts and risks of the proposed activity and identified alternatives; 	Section 10
Appendix 1(3)(m):	Based on the assessment, and where applicable, impact management measures from its specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPR;	Section 11
Appendix 1(3)(n):	Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;	Section 12
Appendix 1(3)(o):	A description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed;	Section 13
Appendix 1(3)(p):	A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;	Section 14

Appendix 1(3)(q):	Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, and the date on which the activity will be concluded, and the post construction monitoring requirements finalised;	Section 15
Appendix 1(3)(r):	An undertaking under oath or affirmation by the EAP in relation to: <ul style="list-style-type: none"> (i) The correctness of the information provided in the reports; (ii) The inclusion of comments and inputs from stakeholders and I&Ps; (iii) The inclusion of inputs and recommendations from the specialist reports where relevant; and (iv) Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties; 	Section 16 Section 27
Appendix 1(3)(s):	Where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	Section 17
Appendix 1(3)(t):	Any specific information that may be required by the competent authority; and	Section 18
Appendix 1(3)(u):	Any other matters required in terms of section 24(4)(a) and (b) of the Act.	Section 19
Appendix 4(1)(1)(a):	Details of – <ul style="list-style-type: none"> (i) The EAP who prepared the EMPR; and (ii) The expertise of that EAP to prepare an EMPR, including a curriculum vitae; 	Section 20.1

Appendix 4(1)(1)(b):	A detailed description of the aspects of the activity that are covered by the EMPR as identified by the project description;	Section 20.2
Appendix 4(1)(1)(c):	A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers;	Section 20.3
Appendix 4(1)(1)(d):	<p>A description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including –</p> <ul style="list-style-type: none"> (i) Planning and design; (ii) Pre-construction activities; (iii) Construction activities; (iv) Rehabilitation of the environment after construction and where applicable post closure; and (v) Where relevant, operation activities; 	Section 21
Appendix 4(1)(1)(e):	A description and identification of impact management outcomes required for the aspects contemplated in paragraph (d);	Section 21.5
Appendix 4(1)(1)(f):	A description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (d) and (e) will be achieved, and must, where applicable, include actions to –	Section 21.6

	<ul style="list-style-type: none"> (i) Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii) Comply with any prescribed environmental management standards or practices; (iii) Comply with any applicable provisions of the ac regarding closure, where applicable; and (iv) Comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable; 	
Appendix 4(1)(1)(g):	The method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 23
Appendix 4(1)(1)(h):	The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 23
Appendix 4(1)(1)(i):	An indication of the persons who will be responsible for the implementation of the impact management actions;	Section 23
Appendix 4(1)(1)(j):	The time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Section 23
Appendix 4(1)(1)(k):	The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Section 23
Appendix 4(1)(1)(l):	A program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Section 24

Appendix 4(1)(1)(m):	An environmental awareness plan describing the manner in which – (i) The applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii) Risks must be dealt with in order to avoid pollution or the degradation of the environment; and	Section 25
Appendix 4(1)(1)(n):	Any specific information that may be required by the competent authority.	Section 26

1.2. DETAILS OF THE EAP

EIMS was appointed by the Applicant as the Environmental Assessment Practitioner (EAP) to compile this report. The contact details of the EIMS consultant who compiled the report are as follows:

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1.3. EXPERTISE OF THE EAP

1.3.1. QUALIFICATIONS OF THE EAP

In terms of Regulation 13 of the 2014 EIA Regulations (Government Notice R. 982), an independent Environmental Assessment Practitioner (EAP), must be appointed by the applicant to manage the application. EIMS has been appointed by the Applicant as the EAP and is compliant with the definition of an EAP as defined in Regulations 1 and 13 of the EIA Regulations and Section 1 of the NEMA. This includes, inter alia, the requirement that EIMS is:

- 1) Objective and independent;
- 2) Has expertise in conducting EIA's;
- 3) Comply with the NEMA, the Regulations and all other applicable legislation;
- 4) Takes into account all relevant factors relating to the application; and
- 5) Provides full disclosure to the applicant and the relevant environmental authority.

The declaration of independence of the EAP and the Curriculum Vitae (indicating the experience with environmental impact assessment and relevant application processes) of the consultants that were involved in the BAR process and the compilation of this report are attached as Appendix A.

1.3.2. SUMMARY OF EAP'S PAST EXPERIENCE

EIMS is a private and independent environmental management-consulting firm that was founded in 1993. EIMS has in excess of 20 years' experience in conducting EIAs, including many EIA's for mines and mining related projects. Please refer to the EIMS website (www.eims.co.za) for examples of EIA documentation currently available.

Bradley Wilson is a senior consultant and project manager offering environmental management, auditing, monitoring, training and rehabilitation services. Bradley is a registered Professional Scientist (SACNSP- #400248/13) in the fields of Environmental Science and Ecology. He holds a Master's Degree in Environmental Science (Ecology) from the University of the Witwatersrand. Bradley has over six years' experience in the environmental management and environmental auditing field. His experience lies mainly with environmental auditing, environmental due diligence, and the EIA processes including the compilation of Scoping Reports, EMP's and EMPR's. In addition to

environmental assessments, Bradley also has significant experience with mineral tenure components and the undertaking of due diligence work. Bradley is well versed in South African legislation as well as International Best Practise guidelines including Equator Principles, IFC Performance Standards and World Bank EHS guidelines.

1.4. LOCATION OF THE OVERALL ACTIVITY

The table below indicates the farm portions that fall within the Prospecting Right Application Area.

TABLE 2: LOCALITY DETAILS

Farm Name	A portion of portion 1 of the farm Modderfontein 76 IR
Application Area (Ha)	86.55 ha
Magisterial District	Ekurhuleni South East Magisterial Districts
Distance and direction from nearest town	Modderfontein 76 IR is located approximately 5 km east of Benoni and 5 km north of Brakpan, in Gauteng, South Africa. The farm can be accessed from the N12, onto the Snake Road off-ramp, traveling south along Snake Road turning east on New Modder Road.
21 digit Surveyor General Code for each Portion	Portion 1 of the Farm Modderfontein 76IR - T0IR00000000007600001

1.5. LOCALITY MAP

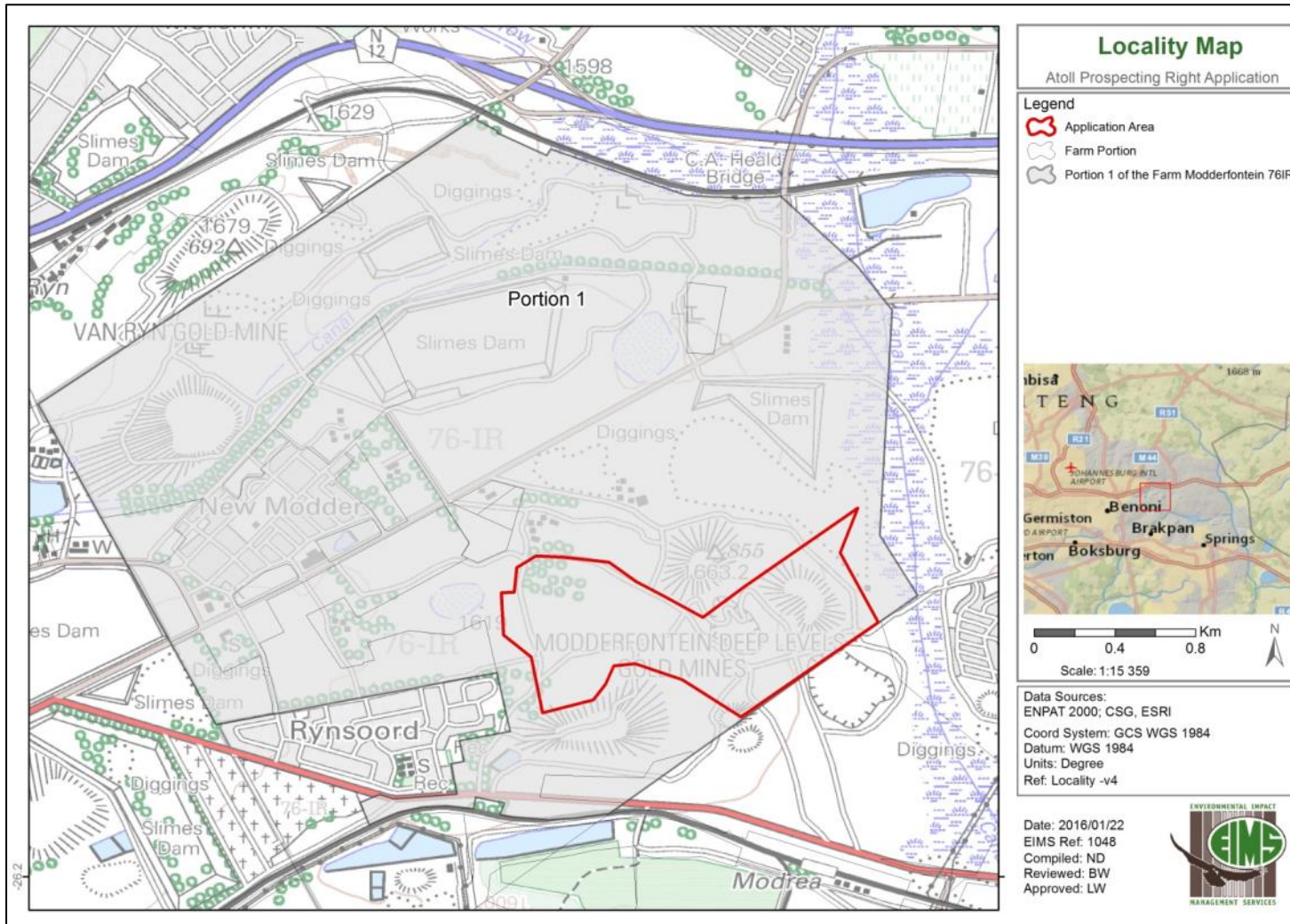


FIGURE 1: LOCALITY MAP INDICATING THE APPLICATION AREA

2. DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY

Figure 2 below depicts the proposed prospecting area. No invasive prospecting activities will be undertaken as part of the proposed PWP. Five non-invasive activities will be undertaken, namely data collection, data capture and database development, topographical and geophysical survey, resource modelling, and reporting and resource estimation. The scope of these activities is as follows:

Data Collection

- Commercial discussions with previous operators on the land to obtain the historic data; and
- Literature survey.

Data Capture and Database Development

- Inventorise and Capture project data;
- Data verification, digitization, compilation; and
- Development of Databases.

Topographical/geophysical Survey

- Gathering of Cadastral Surveys;
- Detailed topographical survey of the area; and
- Geophysical survey of the area.

Resource Modelling

- Development of 3D geological model.

Reporting and Resource Estimation

- Compilation of plans to show surface structures and mineralogy extent; and
- Resource estimation.

TABLE 3: TIMEFRAMES EACH OF THE PROPOSED ACTIVITIES

Phase	Year 1	Year 2	Year 3	Year 4	Year5
Data Collection	X				
Data Capture and Database Development		X			
Topographical/geophysical Survey			X		
Resource Modelling				X	

Reporting and Resource Estimation

X

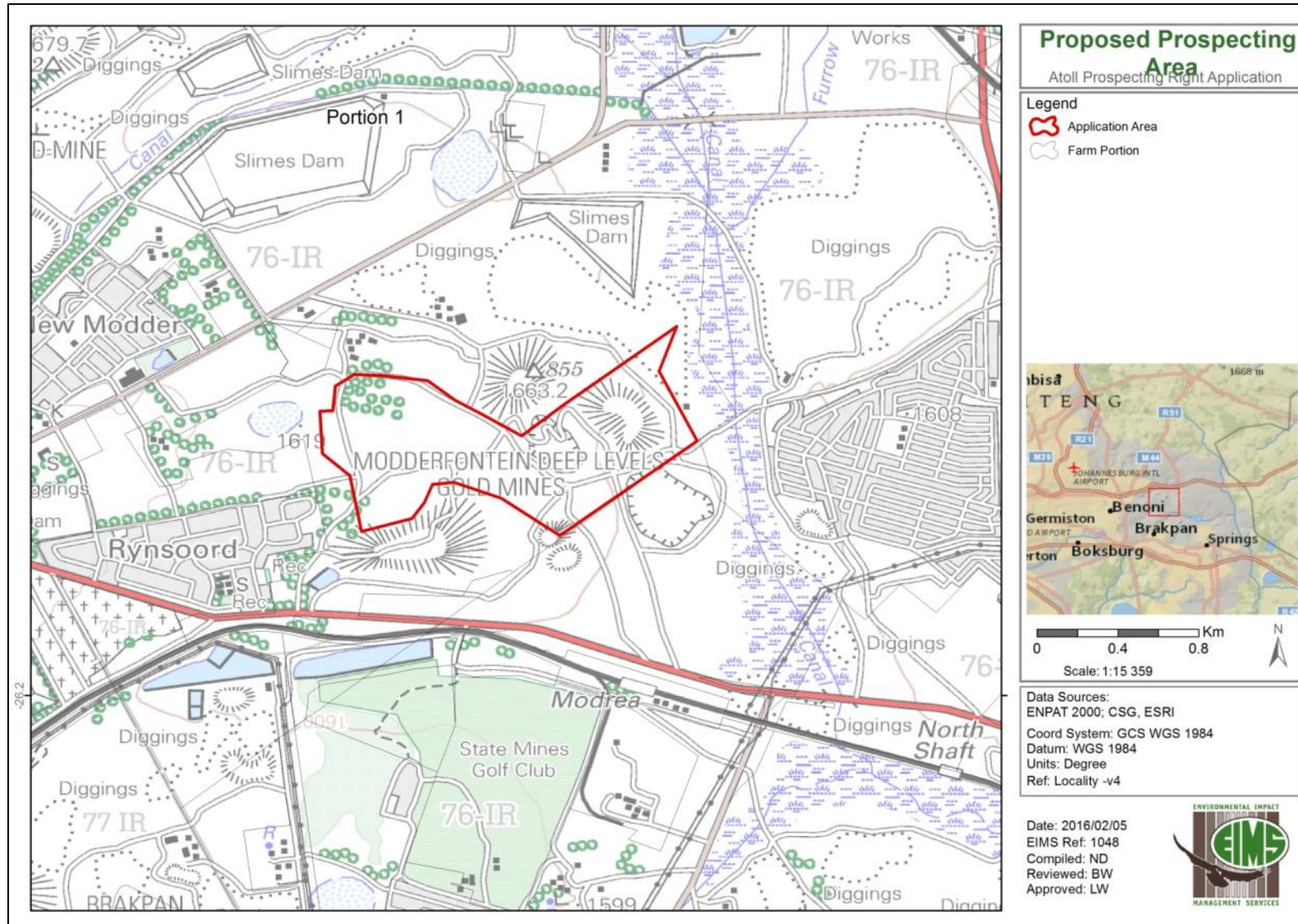


FIGURE 2: PROPOSED PROSPECTING AREA WITHIN PORTION 1 OF THE FARM MODDERFONTEIN 76 IR

2.1. LISTED AND SPECIFIED ACTIVITIES

TABLE 4: LISTED AND SPECIFIED ACTIVITIES

Name of Activity	Aerial Extent of Activity (Ha or m ²)	Listed Activity	Applicable Listing Notice
Activities directly related to prospecting of a mineral resource, including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks.	86.55 ha	X	GNR 983
Data Collection	N/A	N/A	N/A
Data Capture and Database Development	N/A	N/A	N/A
Topographical/Geophysical Survey	86.55 ha	N/A	N/A
Resource Modelling	N/A	N/A	N/A
Reporting and Resource Estimation	N/A	N/A	N/A

2.2. DESCRIPTION OF ACTIVITIES TO BE UNDERTAKEN

The application will follow a phased approach, where the prospecting work program is divided into several sequential phases. At the end of each phase there will be a brief period of compiling and evaluating results. The results will not only determine whether prospecting proceeds, but also the manner in which it will go forward. The applicant will only action the next phase of prospecting, once satisfied with the results obtained in the previous phases. In addition, smaller, non-core parts of the prospecting work program will be undertaken, if warranted.

The proposed non-invasive prospecting includes a literature survey, field reconnaissance/mapping, and land survey of the geology, outcrops and waste rock dumps located within the area identified for prospecting.

Phase 1: Data Collection and Literature Survey

The proposed prospecting area is known to have detailed borehole drilling data available for the property. This borehole data is currently in the possession of a mining company that previously mined and explored the area. The focus of data acquisition will begin with commercial negotiations to allow Atoll to gain access to the borehole data for use in the desktop study, geological model and potential resource estimate. Once agreements have been reached, a broad scale data search will commence to locate any outstanding and supplementary data for the project area.

The literature survey will involve the gathering of topographical, geological data, land-use and vegetation maps, excavating techniques, mineral processing techniques and markets. The data obtained will be in the form of historical borehole information, cadastral maps, geological maps, geophysical surveys. Furthermore, the information pertaining to previous exploration or mining will be consulted and integrated. Data will be scrutinised and verified for accuracy (QA/QC procedure). Aerial photographic images will be used to trace contrasting lithologies.

Phase 2: Data Capture, Database Development

The data collected during the first year will be collated and captured in a database for use in spatial mapping and modelling of the geological resource. The use of spatial mapping or geographic information systems (GIS) shall allow the development of a geological model which can be used to further refine the prospecting programme for the target area.

Phase 3: Topographical/Geophysical Survey

Cadastral surveys of the surrounding areas will be obtained from the Surveyor General's Office, as a benchmark for locality reference. The topography of the prospecting right application area (PRA) area will be surveyed to determine the original ground level (OGL), positions of historic prospecting; the locality of historic waste rock dumps and their dimensions will be determined to obtain 3-dimensional points for accurate resource estimation calculations. The surveys will include the positions of previously drilled boreholes/test pits emanating from past exploration of the area. The survey data will be used to determine and compile plans of:

- i. Surface contours;
- ii. Surface structures;
- iii. Localities of sampling sites/boreholes/test pits; and
- iv. Aggregate volumes, top soil thickness and weathering profile.

The Resistivity Geophysical Survey Method (RGSM) will be applied at selected points to measure the depth of weathered rock. This will be used in conjunction with the boreholes/test pits to enhance the 3-dimensional sub-surface geological model.

Phase 4: Resource Modelling

A 3-dimensional geological model will be constructed from which the extent of the resources can be determined. This would reveal the modelled volume of suitable aggregate, the weathered material and topsoil within the area.

Phase 5: Reporting and Resource Estimation

Mineral valuation, design and surface infrastructure requirements will be determined once the measured resources have been established. Should historical cores be available, these may be used (based on negotiation with the owners) to refine the geological model. Completion of the 3D geological model shall allow the estimation of the resource to commence.

Due to the nature of data collection and the historical borehole datasets, it is proposed that no invasive sampling/drilling will be necessary. In the event that it is determined that additional data is required for completion of the geological model and resource estimation, the Applicant shall advise the DMR timeously and will adjust the PWP (if new prospecting techniques are to be employed) in the form of an Amendment Application (Section 102 Application).

3. POLICY AND LEGISLATIVE CONTEXT

TABLE 5: POLICY AND LEGISLATIVE CONTEXT

Applicable Legislation and Guidelines	Reference Applied (i.e. where in this document has it been explained how the development complies with and responds to the legislation and policy context)	Where How does this Development Comply with and Respond to the Legislation and Policy Context
<p>National Environmental Management Act (NEMA): GNR 983 Activity 20: Activities directly related to prospecting of a mineral resource, including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks.</p>	<p>This entire report is prepared as part of the Application for Environmental Authorisation under the NEMA.</p>	<p>In terms of the National Environmental Management Act an Application for Environmental Authorisation subject to a Basic Assessment Process has been applied for.</p>
<p>Minerals and Petroleum resources Development Act (MPRDA): In support of the Prospecting Right Application submitted by Atoll the applicant is required to conduct a NEMA BAR process in terms of Section 5A and Chapter 16 of the MPRDA.</p>	<p>This entire report is prepared as part of the Prospecting Right Application under the MPRDA.</p>	<p>In terms of the Mineral and Petroleum Resources Development Act a Prospecting Right Application has been applied for.</p>
<p>National Water Act (NWA):</p>	<p>Due to the nature of the</p>	<p>In terms of the National water Act no</p>

Water may not be used without prior authorisation by the DWA. Section 21 of the NWA water uses for which authorisation is required.

proposed prospecting activities no Section 21 water uses will be triggered, therefore there is no requirement to apply for Water Use authorisation in terms of the NWA.

Water Use Licence has been applied for.

4. NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

The minerals being prospected for are aggregate (quartzite, conglomerate, diamictite, sandstone) and dolomite. These minerals are necessary for construction activities and are used as material for infrastructure development. The proposed Modderfontein Prospecting Right, if approved, will allow Atoll to determine if there is an economically viable resource available in the area. The wealth of previous geological information compiled also allows for the potential identification of a resource without the need for invasive prospecting to be undertaken unlike other prospecting operations. Should it not proceed, the mineral resource could potentially be lost. Additionally the proposed prospecting constitutes a continuation of an existing land use.

Should prospecting prove successful and a resource quantified, it would indicate a potential viable economic activity in the form of mining that is likely to contribute to the provision of resources to infrastructure development.

5. MOTIVATION FOR THE OVERALL PREFERRED SITE, ACTIVITIES AND TECHNOLOGY ALTERNATIVE

The application area has been selected as the preferred site based on the historical geological data available for the region, which indicates the potential for economically viable minerals to occur. The wealth of previous geological information compiled also allows for the potential identification of a resource without the need for invasive prospecting to be undertaken.

The activities listed in the PWP have been selected as they do not require invasive prospecting in order to determine the economic viability of the mineral resources in the prospecting area. Some of the techniques employed in the non-invasive prospecting activities will include a literature survey, field reconnaissance/mapping, and land survey of the geology, outcrops and waste rock dumps.

6. FULL DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED ALTERNATIVES WITHIN THE SITE

6.1. DETAILS OF DEVELOPMENT FOOTPRINT ALTERNATIVES

There will be no development footprint due to the fact that no invasive prospecting will be undertaken. The geology is the primary driver in determining the location of prospecting and mining. The geology of this area has already been explored historically providing a wealth of information that with update can be used to determine the presence of potential resources without requiring invasive activities. As such no assessment of alternative development scenarios was conducted.

6.1.1. PROPERTY

The application area has been selected based predominantly on historical data available for the region, which indicates the potential for economically viable resources to occur. The area is underlain by sedimentary rocks of the Vryheid Formation of the Ecca Group, which is underlain by diamictite of the Dwyka Group. The Vryheid Formation and Dwyka Group form part of the lower sedimentary rocks of the Karoo Supergroup. The Karoo Supergroup is underlain by the Witwatersrand Supergroup. The Witwatersrand Supergroup, in the application area, comprises of quartzite and conglomerate of the Turffontein Group, which is underlain by quartzite and conglomerate of the Johannesburg Group.

Historically, the area surrounding the application area has been extensively mined for gold. Despite the previous mining for precious metals, the underlying geology includes various minerals of interest which may still be exploited. The non-invasive prospecting activities proposed are designed to allow for the identification of the preferred target areas through the use of historical data, desktop, and on site techniques.

6.1.2. TYPE OF ACTIVITY

Due to the nature of data collection and the extensive historical borehole datasets, invasive prospecting such as drilling is deemed unnecessary during the initial investigation. This is due to the

availability of previously drilled boreholes and associated geological data adjacent to and within the application area. Due to the previous mining in the area, there exists historical exploration data. Agreements shall be reached with data owners to acquire previous borehole drilling data and any other data regarding the mineral resource in the area.

6.1.3. DESIGN OR LAYOUT

No invasive activities are planned. As such there are no design or layout alternatives to consider.

6.1.4. TECHNOLOGY ALTERNATIVES

The technologies listed in the PWP have been selected as they are proven and do not require the use of invasive prospecting techniques, in order to determine resource viability within the proposed prospecting area. Some of the techniques employed in the non-invasive prospecting will include a literature survey, field reconnaissance/mapping, and land survey of the geology, outcrops and waste rock dumps. These technologies have been selected due to their non-invasive nature and ability to provide information, at the level required, to determine and estimate a potential resource. As such no further technology alternatives are considered.

6.1.5. OPERATIONAL ASPECTS

At this stage no invasive activities will be undertaken. As such there are no operational aspect alternatives to consider.

6.1.6. OPTION OF NOT IMPLEMENTING

If the prospecting right is not granted the potential to identify viable mineral resources could be lost. Historical prospecting and mining activities have taken place within the proposed prospecting right area and as such the proposed prospecting activities represent a continuation of surrounding land uses. Additionally, it allows for marginal land impacted on by historical prospecting and mining activities to be re-introduced into the economy. There are extremely few negative impacts likely to occur as a result of the prospecting work and therefore the lost opportunity of positive impacts outweighs the negative impacts of implementing the proposed prospecting activities.

6.2. DETAILS OF THE PUBLIC PARTICIPATION PROCESS FOLLOWED

6.2.1. HISTORICAL PUBLIC PARTICIPATION

A previous Prospecting Right Application was submitted by the Applicant under reference number GP30/5/1/1/2/10382PR. Following the results of the public consultation for that application, the size of the proposed prospecting area has been reduced and an amended application has now been submitted under reference number GP 30/5/1/1/3/2/1 (10415) EM.

I&AP's were given 30 days within which to comment on the previous prospecting application and provide EIMS with comment and concerns. Some of the most significant concerns raised were concerns from the landowners and other I&AP's who may be affected by the proposed prospecting activities. The majority of comment received during the consultation period related to pollution (water and air), safety impacts, traffic impacts and structural damage impacts. The most significant concern raised by landowners included concerns over invasive prospecting activities being undertaken on land that has been earmarked for residential development purposes. In addition seven (7) objections were received during this previous application process. Comments obtained during the previous BAR consultation period were utilised to determine the extent and scope of this, the second application.

6.2.2. PUBLIC PARTICIPATION METHODOLOGY

The Public Participation Process (PPP) is a requirement of several pieces of South African Legislation and aims to ensure that all relevant I&AP's are consulted, involved and their opinions are taken into account and a record included in the reports submitted to Authorities. The process ensures that all stakeholders are provided this opportunity as part of a transparent process which allows for a robust and comprehensive environmental study.

The legal landowners and other pre-identified key I&AP's were sent an initial notification letter on the 28th of January 2016, disseminated via email, fax and registered mail. I&AP's were provided a period of 14 days (from the 29th of January 2016 to the 11th of February 2016) to register for the proposed project. All registered I&AP's were further notified of the availability of the BAR from the 18th of February 2016 to the 19th of March 2016 for review and comment. All comments received during this period will be included in the final BAR.

6.2.3. IDENTIFICATION OF I&AP'S

An initial I&AP list was compiled using WinDeed searches to determine the registered landowners of the project affected land parcels. The I&AP database was compiled containing the following categories of stakeholders:

- National Government;
- Provincial Government;
- Local Government;
- Agricultural Sector;

- Organised Business;
- Host and Adjacent Communities;
- Land Claimants;
- Other organisations, clubs, communities, and unions; and
- Various NGO's.

6.2.3.1. LIST OF AUTHORITIES IDENTIFIED AND NOTIFIED

The following authorities have been identified and notified of the proposed Modderfontein Prospecting Right Application:

- City of Ekurhuleni Metropolitan Municipality;
- Ekurhuleni Municipality;
- Gauteng Department of Agriculture and Rural Development;
- Gauteng Department of Agriculture and Social Development;
- Gauteng Department of Economic Development;
- Gauteng Department of Health and Social Development;
- Gauteng Department of Infrastructure Development;
- Gauteng Department of Local Government;
- Gauteng Department of Mineral Resources;
- Gauteng Department of Roads and Public Transport;
- Gauteng Department of Roads and Transport;
- Gauteng Department of Rural Development and land Reform;
- Gauteng Department of Water and Sanitation;
- National Department of Agriculture;
- National Department of Agriculture, Forestry and Fisheries;
- National Department of Environmental Affairs ;
- National Department of Land Affairs;
- National Department of Mineral Resources;
- National Department of Provincial and Local Government ;
- National Department of Rural Development and Land Reform;
- SANRAL; and
- Social Services and Population Development.

6.2.3.2. LIST OF KEY STAKEHOLDERS IDENTIFIED AND NOTIFIED

The following key stakeholders have been identified and notified of the proposed Modderfontein Prospecting Right Application:

- Gold Plat;
- Afrimix Ready Mixed Concrete;
- Elematic SA (Pty) Ltd;
- The Soil King;
- South African Rail Commuter Corporation;
- Federation for a Sustainable Development;
- WESSA – National;
- WESSA North - Gauteng Province;
- Gauteng Wetland Forum;
- South African Heritage Resources Agency;
- SANBI – National;
- SANBI - Gauteng Province;
- National African Farmers Union (NAFU);
- Earthlife Africa;
- SECCP of Earthlife Africa;
- Eskom;
- South African Civil Aviation Authority;
- South African Tourism ;
- Birdlife South Africa ;
- SANRAL – National;
- SANRAL - Gauteng Province;
- Transnet ;
- Chamber of Mines of South Africa ; and
- Endangered Wildlife Trust.

6.2.3.3. LIST OF SURROUNDING SURFACE RIGHTS HOLDERS/LAND OWNERS IDENTIFIED AND NOTIFIED

The following surrounding surface rights holders/landowners of the area under application have been identified and notified of the proposed Modderfontein Prospecting Right application:

- Soundprops 1273 Inv (Pty) Ltd (Portion 61 of the Farm Vlakfontein 69);
- Fishprops (Pty) Ltd (Portion 63 of the Farm Vlakfontein 69);
- Diesel Performance Truck & Bus CC (Portion 50 of the Farm Benoni 77);
- Blue Moonlight Prop 270 (Pty) Ltd (Portion 12 of the Farm Modderfontein 77);
- Africa's Best 269 Ltd (Portion 16 of the Farm Modderfontein 76);
- Ela Till Family Trust (Portion 31 of the Farm Modderfontein 76);
- Quarry Cats Modderfontein Farm (Pty) Ltd (Portion 43 of the Farm Modderfontein 76);
- National Department of Rural Development and Land Reform (Portion 67 of the Farm Modderfontein 76);
- Benoni Municipality (Portion 70 of the Farm Modderfontein 76);
- Aratio (Pty) Ltd (Portion 77 of the Farm Modderfontein 76);
- South African Rail Commuter Corp Ltd (Portion 78 of the Farm Modderfontein 76); and
- Elamatic Hollow Core Slabs (Pty) Ltd (Portion 123 of the Farm Modderfontein 76).

6.2.3.4. LIST OF SURFACE RIGHTS/LAND OWNERS IDENTIFIED AND NOTIFIED

The following surface rights/landowners of the area under application have been identified and notified of the proposed Modderfontein Prospecting Right Application:

- New Modder Township (Pty) Ltd.

6.2.4. NOTIFICATION OF I&AP'S

All I&AP's were notified of the proposed Prospecting Right Application via the following methods:

- 1) Registered letters, emails and faxes;
- 2) Background Information Document;
- 3) Questionnaires;
- 4) Placement of eight (8) A2 Correx Site Notices in various locations on the site;
- 5) Placement of a newspaper advert in The Ekurhuleni News on the 28th of January 2016.

The I&AP database is included in Appendix B. Please also refer to Appendix B for proof of notification sent to I&APs and for proof of correspondence with I&APs.

Description of the Information Provided to the Community, Landowners and I&AP's

Notification documents sent to all pre-identified I&AP's included the following information:

- The site plan;
- List of activities to be authorised;

- Scale and extent of activities to be authorised;
- Typical impacts of activities to be authorised;
- The duration of the activity;
- Sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land);
- The purpose of the proposed project;
- The prospecting methods to be used;
- Details of the affected properties (including parent farm and portion);
- Details of the MPRDA and NEMA Regulations that must be adhered to;
- The minerals being prospected for;
- Date by which comment, concerns and objections must be forwarded through to EIMS; and
- Contact details of the Environmental Assessment Practitioner (EAP).

In addition, a questionnaire was included in the registered letters, emails and facsimiles sent and requested the following information from I&AP's:

- To provide information on how they consider that the proposed activities will impact on them or their socio-economic conditions;
- To provide written responses stating their suggestions to mitigate the anticipated impacts of each activity;
- To provide information on current land uses and their location within the area under consideration;
- To provide information on the location of environmental features on site, to make written proposals as to how and to what standard the impacts on site can be remedied.
- To mitigate the potential impacts on their socio economic conditions to make proposals as to how the potential impacts on their infrastructure can be managed, avoided or remedied;
- Details of the landowner and information on lawful occupiers;
- Details of any communities existing within the area;
- Details of any Tribal Authorities within the area;
- Details of any other I&AP's that need to be notified;
- Details on any land developments proposed;

- Details of any perceived impacts to the environment that should be considered in the BAR; and
- Any specific comments, concerns or objections to the proposed prospecting operation.

I&AP's were provided a period of 14 days, from the 28th of January 2016 to the 11th of February 2016, to register as I&AP's for the proposed project. All registered I&AP's were further notified of the availability of the BAR for review and comment. The BAR will be available for 30 days from the 18th of February 2016 to the 19th of March 2016, for review and comment.

Comments obtained during the initial notification period have been included in the summary table below, which will be continuously updated throughout the BAR consultation period, and will be submitted together with the Final BAR to the relevant competent authorities.

6.2.5. PUBLIC PARTICIPATION OPEN DAYS/MEETINGS

Based on the previous consultation undertaken it was identified that a public meeting should be held, in particular to address concerns raised by residents of the Rynsoord community. As such a Public Meeting has been scheduled for the 9th March 2016. I&AP's have been notified of the date, time and venue for the meeting.

6.2.6. ISSUES AND RESPONSES

The PPP was initiated on 28th January 2016 with a period of 14 days for initial registration. Registered I&AP's have been informed of the availability of the BAR from 18th February 2016 to 19th March 2016, a period of 30 days, for review and comment. All comments or issues received from I&AP's thus far have been included in the summary table below.

6.3. SUMMARY OF ISSUES RAISED BY I&AP'S

Any comments received during the PPP will be included in this report and summarised in Table 6 below for submission to the DMR.

TABLE 6: SUMMARY OF ISSUES RAISED BY I&AP'S

Interested and Affected Parties	Consulted	Date	Issue	Response	Report Reference
Key Stakeholders					
Landowner					
James Stuart (New Modder Township (Pty) Ltd	X	2016-01-27	No comment received to date.	N/A	Appendix B
Adjacent landowners					
Soundprops 1273 Inv (Pty) Ltd	X	2016-01-27	No comment received to date.	N/A	Appendix B
Fishprops (Pty) Ltd	X	2016-01-27	No comment received to date.	N/A	Appendix B
Diesel Performance Truck & Bus CC	X	2016-01-27	No comment received to date.	N/A	Appendix B
Solette and Bart Jonck (Blue Moonlight Prop 270 (Pty) Ltd)	X	2016-01-27	Solette and Bart are shareholders of Blue Moonlight Prop 270 (Pty) Ltd and are in the process of developing the	The comment was noted by EIMS and Solette and Bart Jonck were informed that their comment would be included in	Appendix B

			property with 501 affordable homes. Specific concerns raised by Solette and Bart Jonck in respect of the prospecting right application include dust, noise, etc. from the applicant after approval.	the Comments and Responses Report (CRR) that will be submitted to the Department of Mineral Resources (DMR), together with the Basic Assessment Report (BAR).	
Africa's Best 269 Ltd	X	2016-01-27	No comment received to date.	N/A	Appendix B
Ela Till Family Trust	X	2016-01-27	No comment received to date.	N/A	Appendix B
Quarry Cats Modderfontein Farm (Pty) Ltd	X	2016-01-27	No comment received to date.	N/A	Appendix B
Dr. Vela Mngwengwe (National Department of Rural Development and Land Reform)	X	2016-01-27	No comment received to date.	N/A	Appendix B
Benoni Municipality	X	2016-01-27	No comment received to date.	N/A	Appendix B
Aratio (Pty) Ltd	X	2016-01-27	No comment received to date.	N/A	Appendix B
South African Rail Commuter Corp Ltd	X	2016-01-27	No comment received to date.	N/A	Appendix B
Elamatic Hollow Core Slabs (Pty)	X	2016-01-27	No comment received to date.	N/A	Appendix B

Ltd					
Newshelf 1186 (Pty) Ltd	X	2016-01-27	No comment received to date.	N/A	Appendix B
Vandafin (Pty) Ltd	X	2016-01-27	No comment received to date.	N/A	Appendix B
FIL Stone Projects cc	X	2016-01-27	No comment received to date.	N/A	Appendix B
Goliath Gold	X	2016-01-27	No comment received to date.	N/A	Appendix B
Manhattan Operations Africa (Pty) Ltd	X	2016-01-27	Requested a KML file of the proposed site.	EIMS sent the KML file, as per request.	Appendix B
Charlotte Ann Venter - The Soil King	X	2016-01-27	Soil King is a legal land occupier and screens material and soils. Ms. Charlotte Ann Venter from The Soil Kind is worried that blast and mining, and etc. might encroach on their business. Soil King is directly next door to the proposed site.	EIMS thanked Ms. Venter, for responding to the initial notification for the Atoll Modderfontein Prospecting Right Application, and for completing the Interested and Affected Parties (I&APs) Registration Form. EIMS informed Mr. Venter that her comments are noted and will be included in the Comments and Responses Report (CRR) that will be submitted to the Department of Mineral	Appendix B

							Resources (DMR), together with the Basic Assessment Report (BAR). EIMS noted that Soil King has been added to the I&AP Database for this project and Ms. Venter would be kept informed about this project as it progresses.
Du Plessis van Logenburg Attorneys	X	2016-01-27	No comment received to date.	N/A			Appendix B
Gold Plat	X	2016-01-27	No comment received to date.	N/A			Appendix B
Afrimix Ready Mixed Concrete	X	2016-01-27	No comment received to date.	N/A			Appendix B
Soundprops 1273 Inv (Pty) Ltd	X	2016-01-27	No comment received to date.	N/A			Appendix B
Ergo Mining (Pty) Ltd	X	2016-02-17	No comment received to date.	N/A			Appendix B
Surrounding landowners							
Ismail Mayet	X	2016-01-27	No comment received to date.	N/A			Appendix B
Jamal Omar Radu	X	2016-01-27	No comment received to date.	N/A			Appendix B
Kovilan Pillay	X	2016-01-27	No comment received to date.	N/A			Appendix B

Sinkhonoth H. Abdool	X	2016-01-27	No comment received to date.	N/A	Appendix B
Rasmsamy Yuri	X	2016-01-27	No comment received to date.	N/A	Appendix B
Pagshotam Mooljie	X	2016-01-27	No comment received to date.	N/A	Appendix B
Ishmail Lambat	X	2016-01-27	No comment received to date.	N/A	Appendix B
Moosa Mayeti	X	2016-01-27	No comment received to date.	N/A	Appendix B
Ridhwaan Moosa	X	2016-01-27	No comment received to date.	N/A	Appendix B
Essop Hajat	X	2016-01-27	No comment received to date.	N/A	Appendix B
Bilal Varachia	X	2016-01-27	No comment received to date.	N/A	Appendix B
Ahmed Essop	X	2016-01-27	No comment received to date.	N/A	Appendix B
Ishmael Seedat	X	2016-01-27	No comment received to date.	N/A	Appendix B
Shanta Vengothamsamy	X	2016-01-27	No comment received to date.	N/A	Appendix B
Fatima Bibi Khan	X	2016-01-27	No comment received to date.	N/A	Appendix B
Imtiaz Essop	X	2016-01-27	Mr. Essop is worried about Health and Housing issues.	EIMS thanked Mr. Essop for his comment and advised him that no invasive prospecting activities are planned for this project. As such, there are no	Appendix B

					predicted impacts on Health and Housing.	
Mohammed Abdool	X	2016-01-27	No comment received to date.	N/A		Appendix B
Ahmed Saeed Moola	X	2016-01-27	No comment received to date.	N/A		Appendix B
Sinaaj Hoosen	X	2016-01-27	No comment received to date.	N/A		Appendix B
Ahmed Bera	X	2016-01-27	No comment received to date.	N/A		Appendix B
Satarasing	X	2016-01-27	No comment received to date.	N/A		Appendix B
Singh	X	2016-01-27	No comment received to date.	N/A		Appendix B
Ayoob Hoosen	X	2016-01-27	No comment received to date.	N/A		Appendix B
Salim Dawood (representing the interests of residents in both Rynsoord and New Modder suburbs)	X	2016-01-27	Mr. Salim Dawood is concerned about traffic impact, noise levels, increased strain on existing infrastructure, such as water pressure. Mr Dawood objected to this application based on the following issues: <ul style="list-style-type: none"> ✎ No proper consultation with the community; ✎ Unclear about the 	EIMS thanked Mr. Salim Dawood for his comment regarding the Atoll Modderfontein Prospecting Right Application. EIMS informed Mr. Dawood that this email serves as acknowledgment of receipt of his attached registration form for this project. Further, EIMS noted Mr. Dawood's objection		Appendix B

existence of an to this project and would
Environmental respond to the contents of his
Management Plan; attached objection letter in due
course.

- ✎ Unclear about details of prospecting activity;
- ✎ Proposed development of New Modder extension 4 located next to the proposed area of prospecting;
- ✎ Blasting;
- ✎ Lack of consultation with community regarding changes in Ownership of mine;
- ✎ Labour not sourced from local community;
- ✎ Influx of Trucks;
- ✎ Security concerns;
- ✎ Noise from mine operation;
- ✎ Emission of radioactive gas from mine;
- ✎ Further exacerbation of extent of slimes dam;
- ✎ Acid mine drainage; and

<p style="text-align: center;">✎ Lack of availability of EIA Report.</p>							
Peter Botha		X	2016-01-27	There are approved residential developments on portions 12, 15 and 75 of the farm Modderfontein 76 IR.	The comment was noted by EIMS and Mr. Botha was informed that his comment would be included in the Comments and Responses Report (CRR) that will be submitted to the Department of Mineral Resources (DMR), together with the Basic Assessment Report (BAR). EIMS let Mr. Botha know that if he has any further issues and/or concerns in this regard, he must not hesitate to contact us.	Appendix B	
Ward councillor							
Samuel Ngobese (Ward 17 Ekurhuleni Municipality)	Metropolitan Municipality	X	2016-01-27	No comment received to date.	N/A	Appendix B	
Metropolitan Municipality							

Khaya Ngema (Municipal Manager, Ekurhuleni Metropolitan Municipality)	X	2016-01-27	No comment received to date.	N/A	Appendix B
Mondi Gungubele (Executive Mayor, Ekurhuleni Metropolitan Municipality)	X	2016-01-27	No comment received to date.		
Patricia Khumalo (Speaker, Ekurhuleni Metropolitan Municipality)	X	2016-01-27	No comment received to date.	N/A	Appendix B
Organs of State					
Eskom					
John Geeringh (Senior Environmental Advisor Eskom GC - Land Development)	X	2016-01-27	Mr. John Geeringh requested copies of all documentation on a CD via registered post. Mr. Geeringh stated that it seems that Eskom is not impacted in any way, however he would have to make sure. He asked for a KMZ file of the affected area.	EIMS thanked Mr. Geeringh for his response in respect of the Atoll Modderfontein Prospecting Right Application and advised him that due to the fact that no invasive prospecting activities are planned, the only activity on site would be topographical and/or geotechnical surveys which would be undertaken on	Appendix B

				<p>foot. As such, there are no predicted impacts on service infrastructure. EIMS attached a google earth kml of the application area as per Mr. Geeringh's request.</p> <p>EIMS asked Mr. Geeringh to notify them should he still wish to be sent a copy of the available documentation on a CD and EIMS would gladly do so.</p>	
Lungile Motsisi (Servitude and Investigations Department)	X	2016-01-27	No comment received to date.	N/A	Appendix B
Dedre Herbest (Senior Environmental Manager – Generation)	X	2016-01-27	No comment received to date.	N/A	Appendix B
Ayanda Noah (Group Executive – Distribution)	X	2016-01-27	No comment received to date.	N/A	Appendix B
Transnet					
Eddie Seaton (Senior Manager –	X	2016-01-27	No comment received to date.	N/A	Appendix B

CRE Transnet Property						
Chris Wells (Acting Group Chief Executive)	X	2016-01-27	No comment received to date.	N/A		Appendix B
South African National Roads Agency Ltd (SANRAL)						
Mpathi Mokoena (National)	X	2016-01-27	No comment received to date.	N/A		Appendix B
Agriba Sibanyoni (Gauteng Province)	X	2016-01-27	No comment received to date.	N/A		Appendix B
South African Heritage Resources Agency						
Phillip Hine	X	2016-01-27	No comment received to date.	N/A		Appendix B
South African Civil Aviation Authority						
Lizelle Stroh	X	2016-01-27	No comment received to date.	N/A		Appendix B
National Government Departments						
National Department of Provincial and Local Government						
Radithoana Selepe	X	2016-01-27	No comment received to date.	N/A		Appendix B
Elroy Africa	X	2016-01-27	No comment received to date.	N/A		Appendix B
Sfiso Ngcobo	X	2016-01-27	No comment received to date.	N/A		Appendix B

National Department of Water and Sanitation							
Trevor T.I Balzer (Director-General)	X	2016-01-27	No comment received to date.	N/A			Appendix B
National Department of Agriculture, Forestry and Fisheries							
Annette Stoltz (Northern Region)	X	2016-01-27	The application was received and send to our registry. You will receive a reference number shortly.	This was noted by EIMS.			Appendix B
Thoko Buthelezi (Director - Land Use & Soil Management)	X	2016-01-27	No comment received to date.	N/A			Appendix B
National Department of Rural Development and Land Reform							
Gugile Nkwinti (Minister)	X	2016-01-27	No comment received to date.	N/A			Appendix B
Vela Mngwengwe (Chief Director: State Land Administration)	X	2016-01-27	No comment received to date.	N/A			Appendix B
Tele Maphoto (Chief Land Claims Commissioner)	X	2016-01-27	No comment received to date.	N/A			Appendix B
Lengane Bogatsu (Chief Director - Land Restitution Support)	X	2016-01-27	No comment received to date.	N/A			Appendix B

National Department of Land Affairs						
Lucky Legodi	X	2016-01-27	No comment received to date.	N/A		Appendix B
National Department of Environmental Affairs						
Ashwin A Syme (Head of Department)	X	2016-01-27	No comment received to date.	N/A		Appendix B
National Department of Mineral Resources						
Susan Shabangu	X	2016-01-27	No comment received to date.	N/A		Appendix B
Provincial Government Departments						
Gauteng Department of Department of Infrastructure Development						
Bethuel Netshiswinzhe (Head of Department: Infrastructure Development)	X	2016-01-27	No comment received to date.	N/A		Appendix B
Gauteng Department of Agriculture and Social Development						
Smangele Sekgobela (Head of Department)	X	2016-01-27	No comment received to date.	N/A		Appendix B
Gauteng Department of Economic Development						

Khulu Radebe (Head of Department: Economic Development and Planning)	X	2016-01-27	No comment received to date.	N/A	Appendix B
Gauteng Department of Health and Social Development					
Kamy Chetty (Head of Department: Health and Social Development)	X	2016-01-27	No comment received to date.	N/A	Appendix B
Gauteng Department of Local Government					
Mongezi Mnyani (Head of Department: Local Government)	X	2016-01-27	No comment received to date.	N/A	Appendix B
Gauteng Department of Roads and Public Transport					
Mavela Dlamini (Head of Department: Roads and Public Transport)	X	2016-01-27	No comment received to date.	N/A	Appendix B
Gauteng Department of Mineral Resources					
Mashudu Maduka (Regional Manager)	X	2016-01-27	No comment received to date.	N/A	Appendix B
Gauteng Department of Agriculture and Rural Development					
Andile Gumede (Head of Department)	X	2016-01-27	No comment received to date.	N/A	Appendix B

Department)						
Nkosinathi Giyose	X	2016-01-27	No comment received to date.	N/A		Appendix B
Other Interested and Affected Parties						
Wildlife and Environment Society South Africa (WESSA)						
Chris Galliers (National)	X	2016-01-27	No comment received to date.	N/A		Appendix B
Garth Barnes (Gauteng Province)	X	2016-01-27	No comment received to date.	N/A		Appendix B
Federation for a Sustainable Development						
Mariette Liefferink (Chief Executive Officer)	X	2016-01-27	No comment received to date.	N/A		Appendix B
Koos Pretorius (Director)	X	2016-01-27	No comment received to date.	N/A		Appendix B
Gauteng Wetland Forum						
Vuyokazi Ndlophu	X	2016-01-27	No comment received to date.	N/A		Appendix B
Earthlife Africa						
Mabule Mokhine (Branch Coordinator)	X	2016-01-27	No comment received to date.	N/A		Appendix B
Makoma Lekalakala (Senior	X	2016-01-27	No comment received to date.	N/A		Appendix B

Programme Officer)						
Birdlife South Africa						
Martin Taylor	X	2016-01-27	No comment received to date.	N/A		Appendix B
Hanneline Smit	X	2016-01-27	No comment received to date.	N/A		Appendix B
Daniel Marnewick	X	2016-01-27	No comment received to date.	N/A		Appendix B
Endangered Wildlife Trust						
Constant Hoogstad	X	2016-01-27	No comment received to date.	N/A		Appendix B
South African National Biodiversity Institute (SANBI)						
Kirstal Maze	X	2016-01-27	No comment received to date.	N/A		Appendix B
Thilivhali Nyambeni	X	2016-01-27	No comment received to date.	N/A		Appendix B
Chamber of Mines of South Africa						
Matome Makwela	X	2016-01-27	No comment received to date.	N/A		Appendix B
National African Farmers Union (NAFU)						
Motsepe Matlala	X	2016-01-27	No comment received to date.	N/A		Appendix B
South African Tourism						

Thulani Nzima	X	2016-01-27	No comment received to date.	N/A	Appendix B
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6.4. THE ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE ALTERNATIVES

6.4.1. THE BASELINE ENVIRONMENT

Historical mining and prospecting activities have taken place within the study area and as such the area is heavily disturbed.



FIGURE 3: EXAMPLE OF DUMPING AND INVASION OF ALIEN INVASIVE VEGETATION



FIGURE 4: EXAMPLE OF DISTURBANCE FROM HISTORICAL MINING IN THE STUDY AREA



FIGURE 5: GOOGLE EARTH IMAGE OF THE PROSPECTING RIGHT AREA (SEPTEMBER 2015)

The current land use within the study area is a mixture of vacant land and both legal and illegal mining activities. Please refer to Figure 5 which shows the most recent google earth satellite imagery of the area and indicates the current levels of disturbance within the application area.

Descriptions of the baseline receiving are provided in the sections that follow and are based on available desktop data together with information gained from a site visit. It is important to note that much of the desktop data is not ground truthed (e.g. NFEPA data) and therefore it is important to note that many of the vegetation communities that would have previously occurred in this area have now been replaced by mining infrastructure (mine dumps etc) and alien vegetation.

6.4.1.1. TYPE OF ENVIRONMENT AFFECTED BY THE PROPOSED ACTIVITY

6.4.1.1.1. GEOLOGY AND SOILS

The application area is underlain by sedimentary rocks of the Vryheid Formation of the Ecca Group, which is underlain by diamictite of the Dwyka Group. The Vryheid Formation and Dwyka Group form part of the lower sedimentary rocks of the Karoo Supergroup. The Karoo Supergroup is underlain by the Witwatersrand Supergroup. The Witwatersrand Supergroup, in the application area, comprises of quartzite and conglomerate of the Turffontein Group, which is underlain by quartzite and conglomerate of the Johannesburg Group, please refer to Figure 3.

The soil forms commonly associated with these sedimentary rocks are deep reddish on flat plains and are typically Ea, Ba and Bb land types. Much of the proposed prospecting area is considered disturbed and of very low-low potential for agricultural purposes, refer Figure 6. The areas of mHu6 and dHu2 soil forms are considered to have a high agricultural potential.

6.4.1.1.2. TOPOGRAPHY

The application area is associated with gentle to moderately undulating landscape on the Highveld plateau. The grassland unit may be found in undisturbed areas where only scattered small wetlands, narrow stream alluvia, pans and occasional ridges or rocky outcrops interrupt the continuous grassland cover.

6.4.1.1.3. HYDROLOGY

The application area receives summer rainfall with a mean annual precipitation (MAP) of 662 mm. The mean annual temperature (MAT) of 14.8 degrees Celsius indicates a cool to warm temperature climate. The area is characterised by great temperature differences between summer and winter. Daily maximum temperatures in the Brakpan region reach 15 degrees Celsius in winter and 27 degrees Celsius in summer months. The application area falls within Vaal Quaternary Catchment C21D (Figure 5).

6.4.1.1.4. FLORA

The study area is severely disturbed and the following information indicates broadly which floral communities should occur in the area. It must be noted however that the area is currently highly disturbed and includes waste rock dumps, trenches, and other human disturbances which in turn means significantly lower biodiversity.

The application area falls within one (1) vegetation type according to Mucina and Rutherford (2006) (Figure 4). The study area consists of Soweto Highveld Grassland (Gm 8). The vegetation type is discussed in more detail below.

The Soweto Highveld Grassland (Gm 8) can be found in Mpumalanga, Gauteng, the Free State and the North West provinces. The vegetation type can be found at an altitude of 1420-1760 metres above sea level (masl). The Soweto Highveld Grassland unit supports short to medium-high, dense, tufted grassland which is dominated by the following species; *Themeda triandra* and accompanied by a variety of other grasses such as *Elionurus muticus*, *Eragrostis racemosa*, *Heteropogon contortus* and *Tristachya leucothris*.

Important taxa include:

Graminoids

Dominant species: *Andropogon appendiculatus*, *Brachiaria serrata*, *Cymbopogon pospischilii*, *Cynodon dactylon*, *Elionurus muticus*, *Eragrostis capensis*, *E. racemosa*, *Heteropogon contortus*, *Hyparrhenia hirta*, *Setaria nigrostris*, *S. sphacelata*, *Themeda triandra* and *Tristachya leucothrix*.

Subordinate species: *Andropogon schirensis*, *Aristida adscensionis*, *A. bipartita*, *A. congesta*, *A. junciformis* subsp. *Galpinii*, *Cymbopogon caesius*, *Digitaria diagonalis*, *Diheteropogon amplectens*, *Eragrostis micrantha*, *E. superba*, *Harporchloa flax*, *Microchloa caffra* and *Paspalum dilatatum*.

Herbs

Dominant species: *Hermannia depressa*.

Subordinate species: *Acalypha angustata*, *Berkheya setifera*, *Dicoma anomala*, *Euryoops gilfillanii*, *Geigeria asprea* var. *aspera*, *Graderia subintegra*, *Haplocarpha scaposa*, *Helichrysum miconiifolium*, *H. nudifolium* var. *nudifolium*, *H. rugulosum*, *Hibiscus pusillus*, *Justicia anagalloides*, *Lippia scaberrima*, *Rhynchosia effusa*, *Schistostephium crataegifolium*, *Selago densiflora*, *Senecio coronatus*, *Vernonia oligocephala* and *Wahlenbergia undulata*.

Geophytic Herbs

Subordinate species: *Haemannthus humilis* subsp. *Hirsutus*, *H. montanus*.

Herbaceous Climber

Subordinate species: *Rhynchosia totta*.

Low Shrubs

Subordinate species: *Anthospermum hispidulum*, *A rigidum* subsp. *Pumilum*, *Berkheya annectens*, *Felicia muricat* and *Ziziphus zeyheriana*.

Soweto Highveld Grassland type is considered Endangered. Only a few patches are statutorily conserved or privately conserved (Figure 9). These conserved areas are; Tweefontein, Nikolaas and Avalon Nature Reserve and Heidelberg Natural Heritage Site. A loss in the vegetation type is

generally associated with cultivation, urban sprawl, mining and the building of road infrastructure, please refer to Figure 8 for the critical biodiversity areas.

6.4.1.1.5. FAUNA

The study area is severely disturbed and the following information indicates broadly which faunal species should occur in the area. It must be noted however that the area is now littered with waste rock dumps, trenches, and other human disturbances which in turn means significantly lower biodiversity.

A desktop search for protected or threatened fauna species was conducted using a quarter degree search on the South African National Biodiversity Institute (SANBI) Integrated Biodiversity Information System (SIBIS) Database. There are no species of concern that fall within the study area according to the SIBIS search.

An alternative search for sensitive species for the study area was run through the Animal Demography Unit – Virtual Museum (VM). The VM database contains information on species ranges and catalogues data regarding where and when a species was seen. No species were identified through this search either

6.4.1.1.6. CULTURAL AND HERITAGE

No cultural or heritage features have been identified within the proposed application area. Notice of the proposed Prospecting Right Application was uploaded onto the South African Heritage Resources Agency's (SAHRA) website, South African Heritage Information System (SAHRIS). To date, no comment has been received from SAHRA.

6.4.1.1.7. SENSITIVE RECEPTORS

Several sensitive receptors have been identified along the periphery of the proposed Prospecting Right Application, these include:

- Wetlands;
- Infrastructure (residential houses and businesses); and
- Power lines and telephone lines.

Each of these sensitive receptors is considered in the formulation of the technical management options/mitigation measures employed to minimise, reduce, and mitigate against potential impacts.

6.4.1.1.8. ENVIRONMENTAL ASPECTS WHICH MAY REQUIRE PROTECTION AND/OR REMEDIATION

The study area is severely disturbed and it must be noted that the area is now littered with waste rock dumps, trenches, and other human disturbances which in turn means significantly fewer sensitive environmental aspects and features. Specific environmental features and infrastructure on site include unpaved roads. These features will be verified and updated during the PPP.

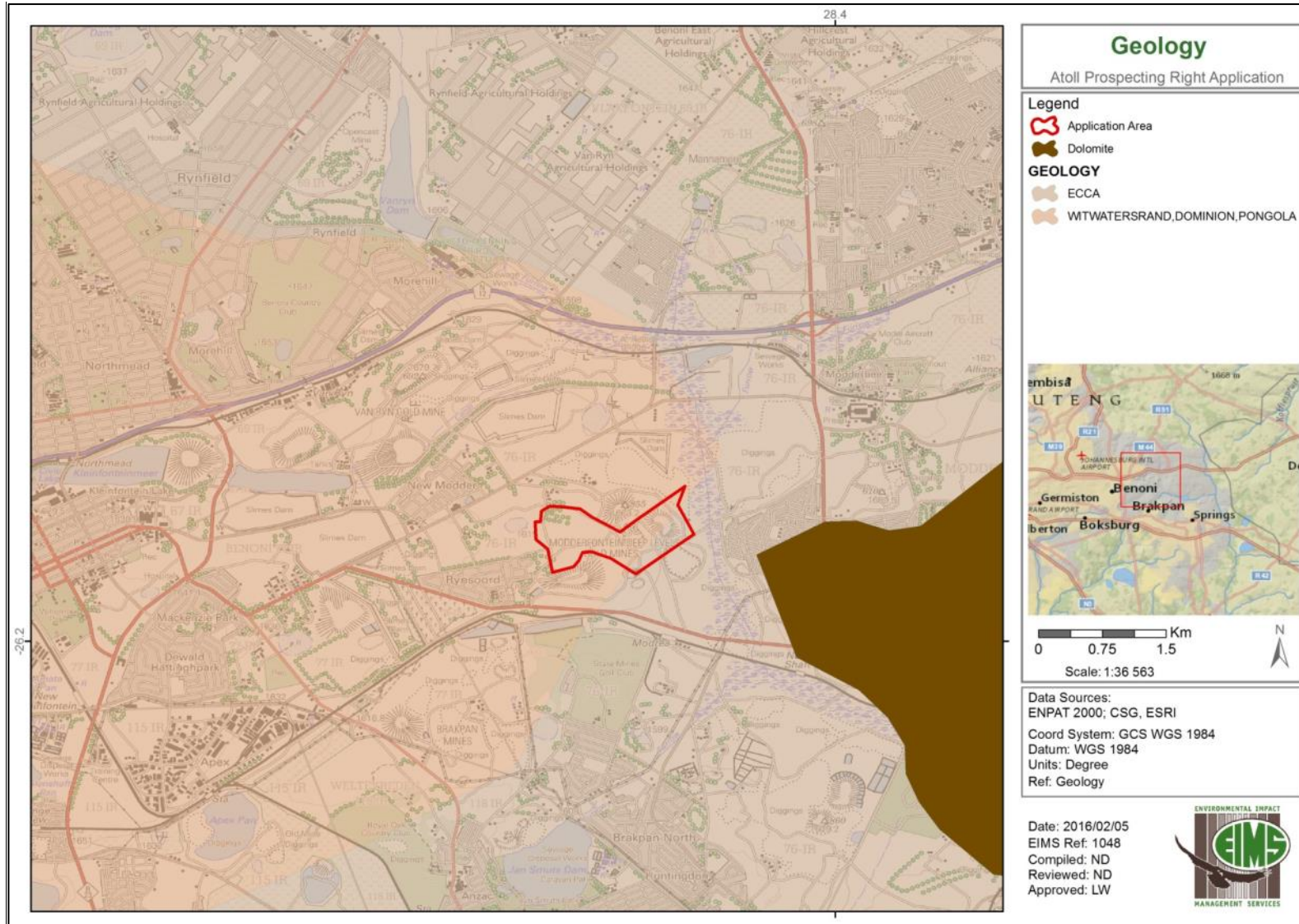


FIGURE 6: GEOLOGY OF THE APPLICATION AREA

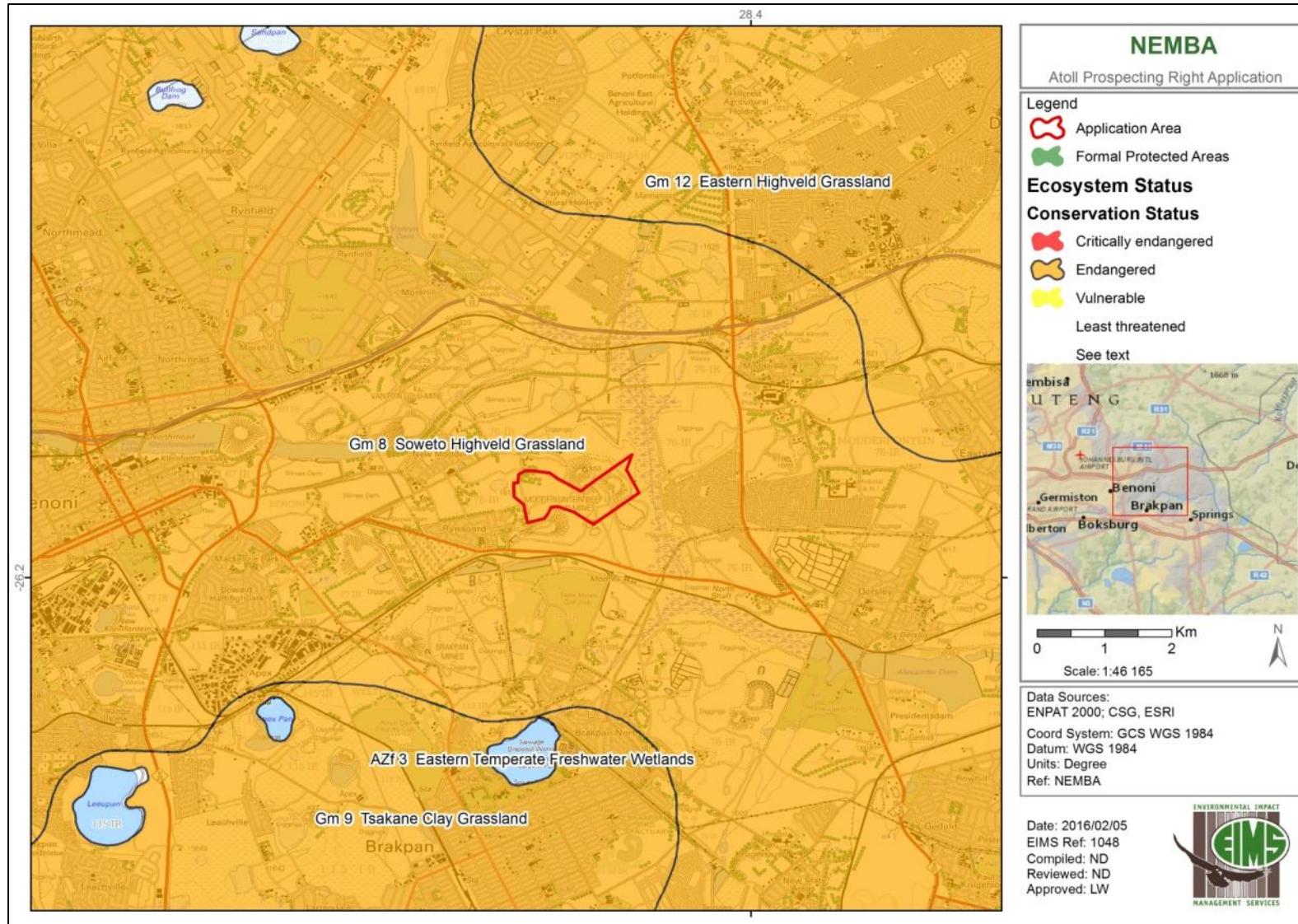


FIGURE 7: VEGETATION OF THE APPLICATION AREA

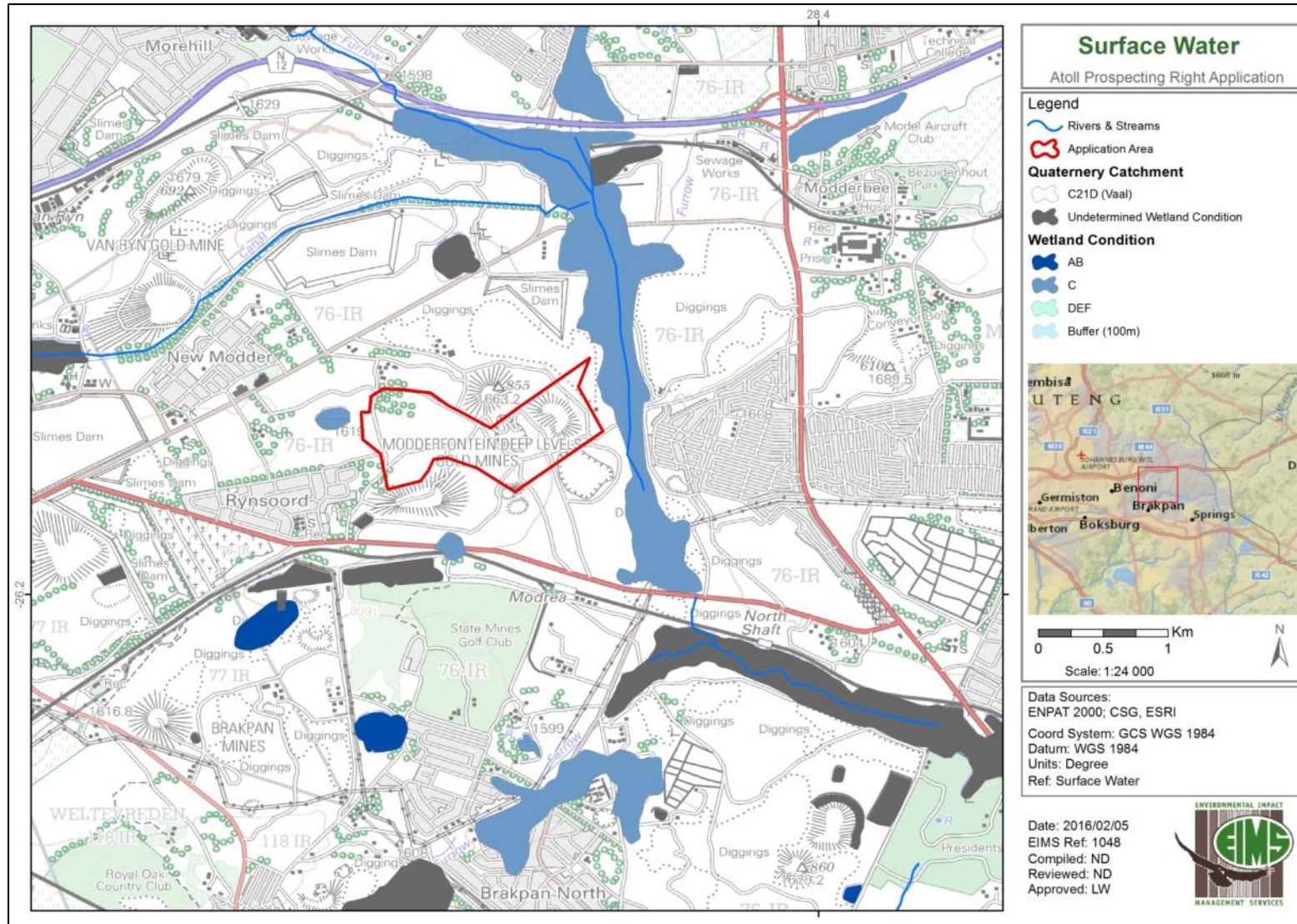


FIGURE 8: SURFACE HYDROLOGY OF THE APPLICATION AREA

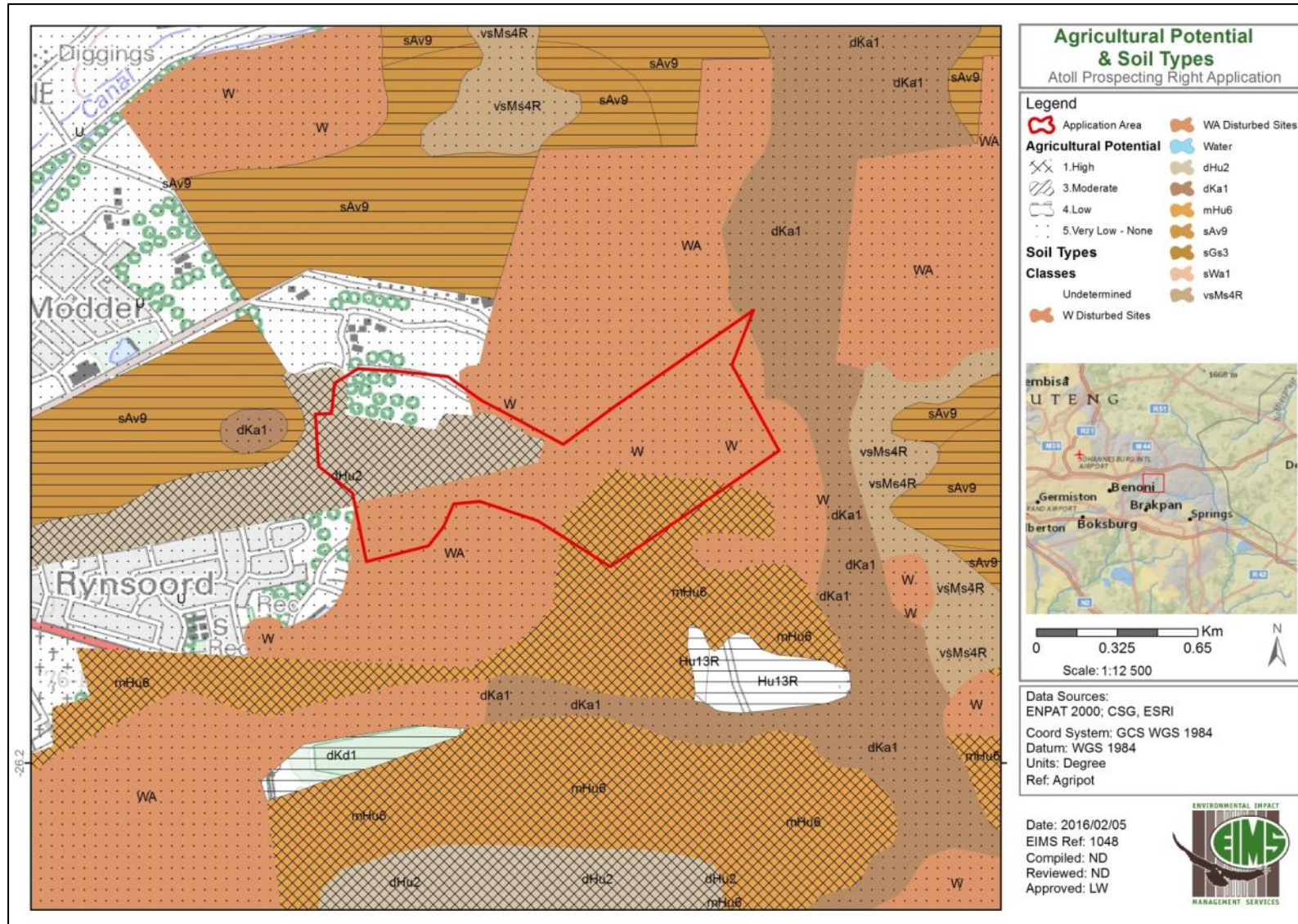


FIGURE 9: SOIL TYPE AND AGRICULTURAL POTENTIAL OF THE APPLICATION AREA

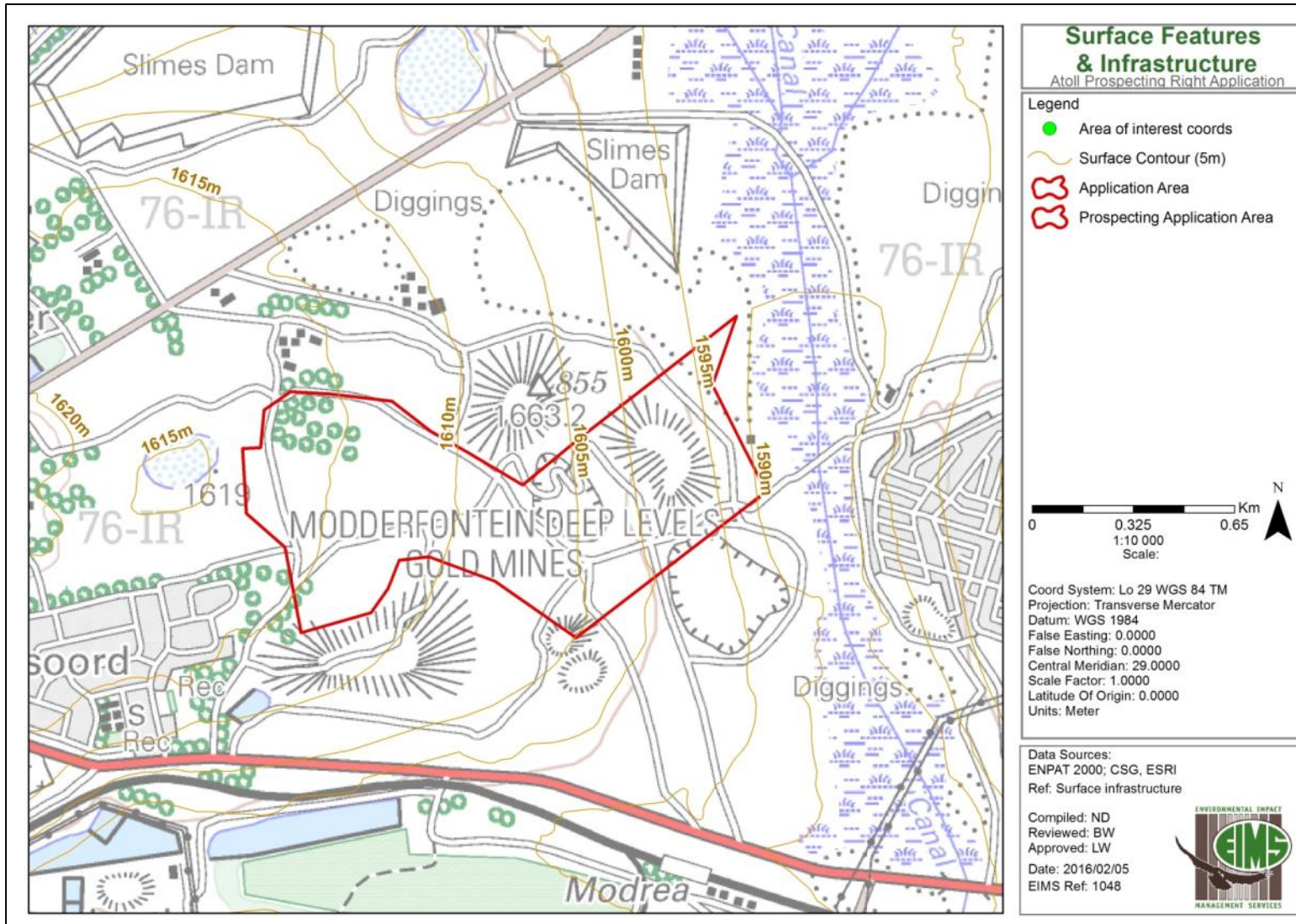


FIGURE 10: SURFACE INFRASTRUCTURE

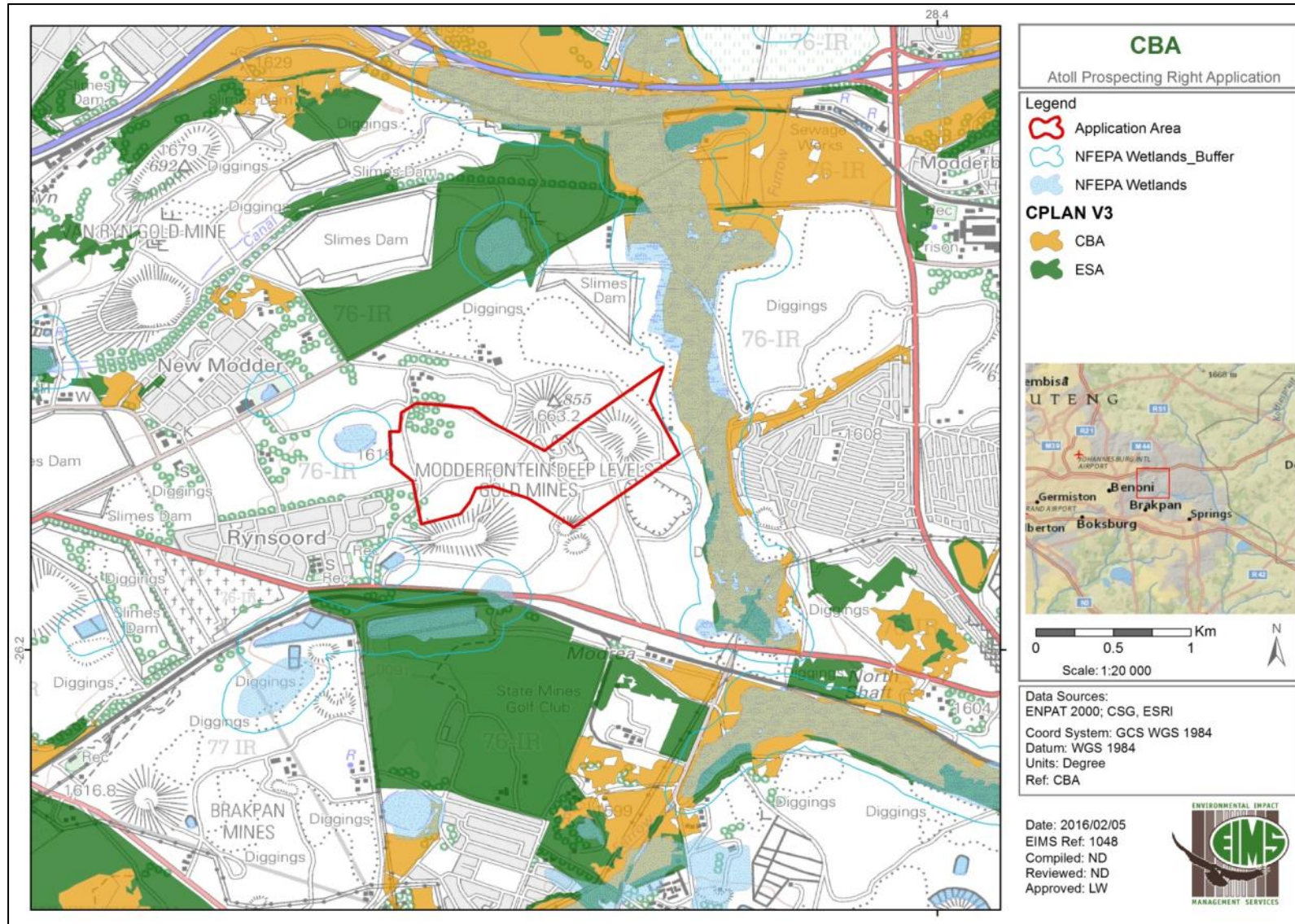


FIGURE 11: CRITICAL BIODIVERSITY AREAS

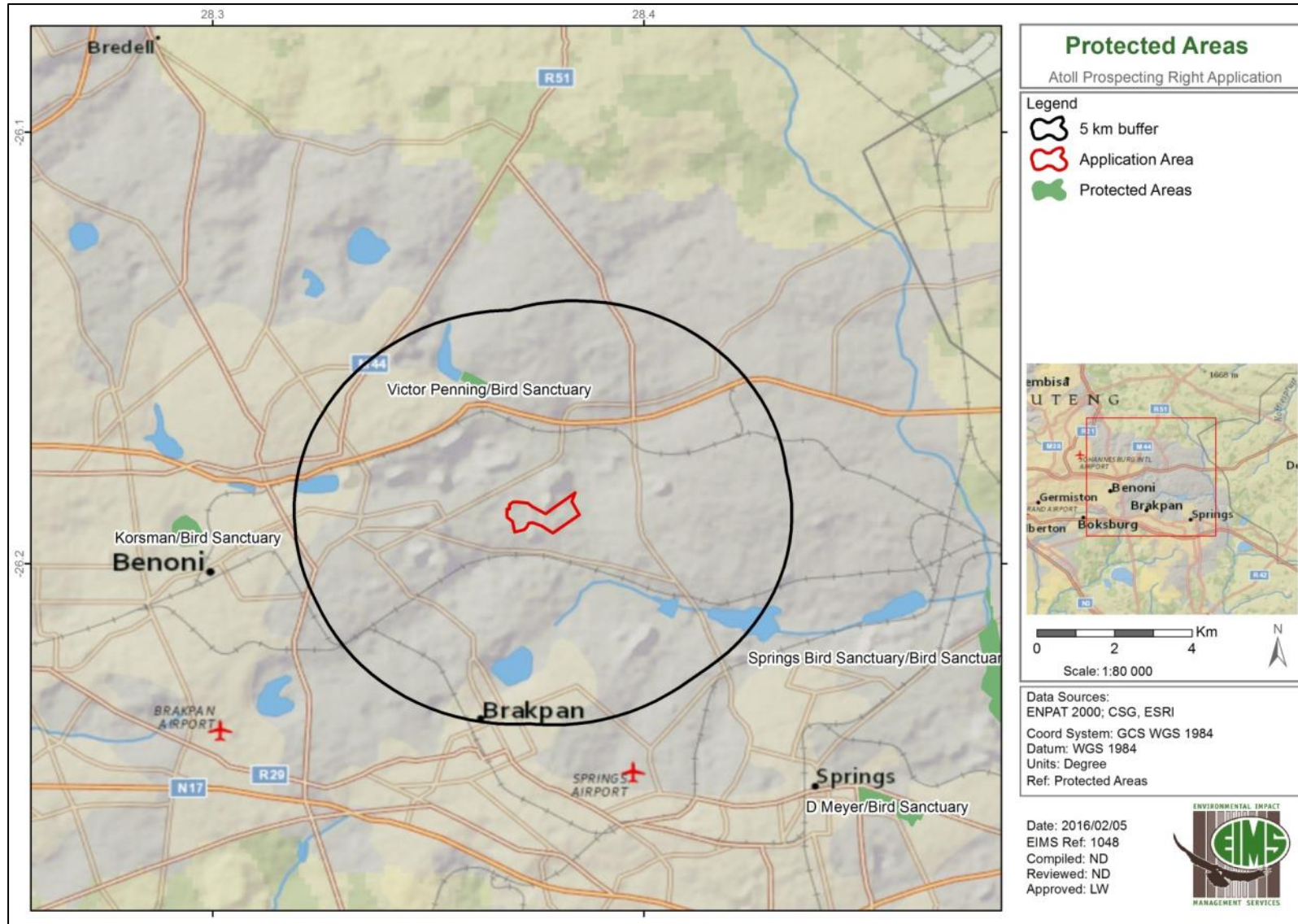


FIGURE 12: PROTECTED AREAS

6.4.2. DESCRIPTION OF CURRENT LAND USES

The existing land uses within the proposed Prospecting Right Application area include:

1. Both legal and illegal mining; and
2. Vacant land.

The existing status of the socio-economic environment within the proposed Prospecting Right Application area includes mining activities, businesses and vacant land. The locality map (Figure 1) indicates the proposed prospecting area boundary and Figure 10 indicates the current land uses within it and the proposed location of invasive prospecting locations.

6.4.3. DESCRIPTION OF SPECIFIC ENVIRONMENTAL FEATURES AND INFRASTRUCTURE ON SITE

One regional road runs close to the proposed Prospecting Right Application area. Existing unpaved roads are found in the interior of the Application area and have been constructed by the surrounding mines to gain access to the mineral deposits and to allow for easy abstraction. The most notable infrastructure features on site includes the following:

- Old mine workings;
- Fences; and
- Telephone lines.

It must be noted that no prospecting activities, should the right be granted by the DMR, will be undertaken within 200 m of any sensitive receptor including infrastructure without prior written consent from the applicable landowner or authority, where applicable (Figure 7).

6.4.4. ENVIRONMENTAL AND CURRENT LAND USE MAPS

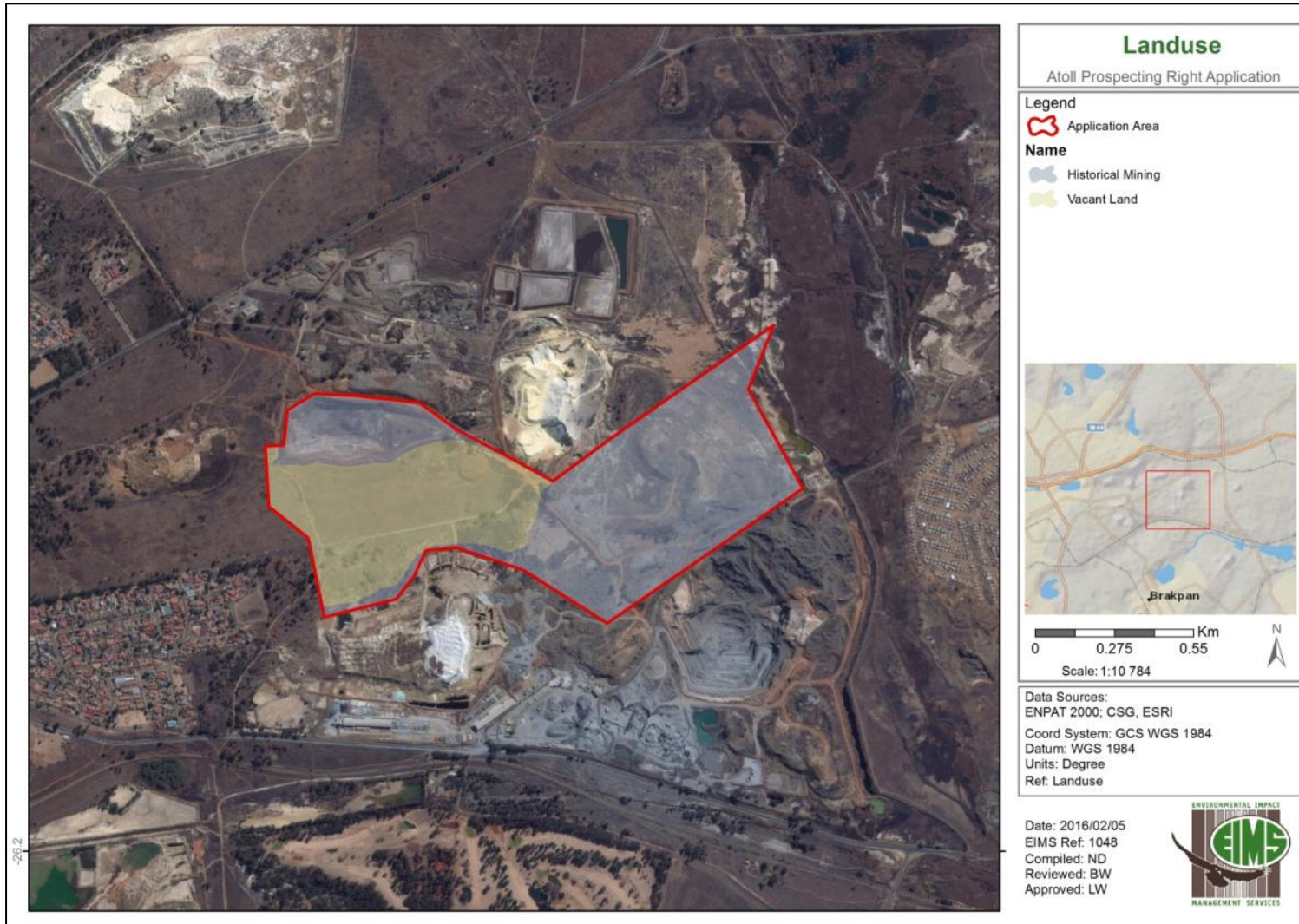


FIGURE 13: LAND USE OF THE APPLICATION AREA

6.5. IMPACTS AND RISKS IDENTIFIED

In order to calculate the significance of an impact, probability, duration, extent and magnitude will be used. The pre and post mitigation scores will provide an indication of the extent to which an impact can be mitigated.

Due to the availability of historical geological data, only non-invasive prospecting techniques will be utilized. The only activity that will require site access is the topographical and geophysical survey however this will be limited to existing access roads.

Potential impacts that may occur as a result of the proposed prospecting activities are:

- Deterioration and damage to existing access roads and tracks;
- Safety and security risks to landowners and lawful occupiers;
- Interference with existing land uses; and
- Generation and disposal of waste.

6.6. THE IMPACT ASSESSMENT METHODOLOGY

The impact significance rating methodology, as provided by EIMS, is guided by the requirements of the NEMA EIA Regulations (2010). The broad approach to the significance rating methodology is to determine the environmental risk (ER) by considering the consequence (C) of each impact (comprising Nature, Extent, Duration, Magnitude, and Reversibility) and relate this to the probability/likelihood (P) of the impact occurring. This determines the environmental risk. In addition other factors, including cumulative impacts, public concern, and potential for irreplaceable loss of resources, are used to determine a prioritisation factor (PF) which is applied to the ER to determine the overall significance (S).

The significance (S) of an impact is determined by applying a prioritisation factor (PF) to the environmental risk (ER).

The environmental risk is dependent on the consequence (C) of the particular impact and the probability (P) of the impact occurring. Consequence is determined through the consideration of the Nature (N), Extent (E), Duration (D), Magnitude (M), and reversibility (R) applicable to the specific impact.

For the purpose of this methodology the consequence of the impact is represented by:

$$C = (E+D+M+R) \times N$$

4

Each individual aspect in the determination of the consequence is represented by a rating scale as defined in Table 7:

TABLE 7: CRITERIA FOR DETERMINATION OF IMPACT CONSEQUENCE

Aspect	Score	Definition
Nature	- 1	Likely to result in a negative/ detrimental impact
	+1	Likely to result in a positive/ beneficial impact
Extent	1	Activity (i.e. limited to the area applicable to the specific activity)
	2	Site (i.e. within the development property boundary),
	3	Local (i.e. the area within 5 km of the site),
	4	Regional (i.e. extends between 5 and 50 km from the site)
	5	Provincial / National (i.e. extends beyond 50 km from the site)
Duration	1	Immediate (<1 year)
	2	Short term (1-5 years),
	3	Medium term (6-15 years),
	4	Long term (the impact will cease after the operational life span of the project),
	5	Permanent (no mitigation measure of natural process will reduce the impact after construction).
Magnitude/ Intensity	1	Minor (where the impact affects the environment in such a way that natural, cultural and social functions and processes are not affected),
	2	Low (where the impact affects the environment in such a way that natural, cultural and social functions and processes are slightly affected),
	3	Moderate (where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way),
	4	High (where natural, cultural or social functions or processes are altered to the extent that it will temporarily cease), or
	5	Very high / don't know (where natural, cultural or social

		functions or processes are altered to the extent that it will permanently cease).
Reversibility	1	Impact is reversible without any time and cost.
	2	Impact is reversible without incurring significant time and cost.
	3	Impact is reversible only by incurring significant time and cost.
	4	Impact is reversible only by incurring prohibitively high time and cost.
	5	Irreversible Impact

Once the C has been determined the ER is determined in accordance with the standard risk assessment relationship by multiplying the C and the P. Probability is rated/scored as per Table 8.

TABLE 8: PROBABILITY SCORING

Probability	1	Improbable (the possibility of the impact materialising is very low as a result of design, historic experience, or implementation of adequate corrective actions; <25%),
	2	Low probability (there is a possibility that the impact will occur; >25% and <50%),
	3	Medium probability (the impact may occur; >50% and <75%),
	4	High probability (it is most likely that the impact will occur- > 75% probability), or
	5	Definite (the impact will occur),

The result is a qualitative representation of relative ER associated with the impact. ER is therefore calculated as follows:

$$ER = C \times P$$

TABLE 9: DETERMINATION OF ENVIRONMENTAL RISK

Consequence	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15

2	2	4	6	8	10	
	1	2	3	4	5	
		1	2	3	4	5
Probability						

The outcome of the environmental risk assessment will result in a range of scores, ranging from 1 through to 25. These ER scores are then grouped into respective classes as described in Table 10.

TABLE 10: SIGNIFICANCE CLASSES

Environmental Risk Score	
Value	Description
< 10	Low (i.e. where this impact is unlikely to be a significant environmental risk),
≥ 10; < 20	Medium (i.e. where the impact could have a significant environmental risk),
≥ 20	High (i.e. where the impact will have a significant environmental risk).

The impact ER will be determined for each impact without relevant management and mitigation measures (pre-mitigation), as well as post implementation of relevant management and mitigation measures (post-mitigation). This allows for a prediction in the degree to which the impact can be managed/ mitigated.

In accordance with the requirements of Regulation 31 (2)(l) of the EIA Regulations (GNR 543), and further to the assessment criteria presented above it is necessary to assess each potentially significant impact in terms of:

- Cumulative impacts; and
- The degree to which the impact may cause irreplaceable loss of resources.

In addition it is important that the public opinion and sentiment regarding a prospective development and consequent potential impacts is considered in the decision making process.

In an effort to ensure that these factors are considered, an impact prioritisation factor (PF) will be applied to each impact ER (post-mitigation). This prioritisation factor does not aim to detract from the risk ratings but rather to focus the attention of the decision-making authority on the higher priority / significance issues and impacts. The PF will be applied to the ER score based on the assumption that relevant suggested management/ mitigation impacts are implemented.

TABLE 11: CRITERIA FOR THE DETERMINATION OF PRIORITISATION

Public response (PR)	Low (1)	Issue not raised in public response.
	Medium (2)	Issue has received a meaningful and justifiable public response.
	High (3)	Issue has received an intense meaningful and justifiable public response.
Cumulative Impact (CI)	Low (1)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.
	Medium (2)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.
	High (3)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is highly probable/definite that the impact will result in spatial and temporal cumulative change.
Irreplaceable loss of resources (LR)	Low (1)	Where the impact is unlikely to result in irreplaceable loss of resources.
	Medium (2)	Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.
	High (3)	Where the impact may result in the irreplaceable loss of resources of high value (services and/or functions).

The value for the final impact priority is represented as a single consolidated priority, determined as the sum of each individual criteria represented in Table 11. The impact priority is therefore determined as follows:

$$\text{Priority} = \text{PR} + \text{CI} + \text{LR}$$

The result is a priority score which ranges from 3 to 9 and a consequent PF ranging from 1 to 2 (refer to Table 12).

TABLE 12: DETERMINATION OF PRIORITISATION FACTOR

Priority	Ranking	Prioritisation Factor
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3	Low	1
4	Medium	1.17
5	Medium	1.33
6	Medium	1.5
7	Medium	1.67
8	Medium	1.83
9	High	2

In order to determine the final impact significance the PF is multiplied by the ER of the post mitigation scoring. The ultimate aim of the PF is to be able to increase the post mitigation environmental risk rating by a full ranking class, if all the priority attributes are high (i.e. if an impact comes out with a medium environmental risk after the conventional impact rating, but there is significant cumulative impact potential, significant public response, and significant potential for irreplaceable loss of resources, then the net result would be to upscale the impact to a high significance).

TABLE 13: ENVIRONMENTAL SIGNIFICANCE RATING

Environmental Significance Rating	
Value	Description
< -10	Low negative (i.e. where this impact would not have a direct influence on the decision to develop in the area).
≥ -10 < -20	Medium negative (i.e. where the impact could influence the decision to develop in the area).
≥ -20	High negative (i.e. where the impact must have an influence on the decision process to develop in the area).
0	No impact
< 10	Low positive (i.e. where this impact would not have a direct influence on the decision to develop in the area).
≥ 10 < 20	Medium positive (i.e. where the impact could influence the decision to develop in the area).

≥ 20

High positive (i.e. where the impact must have an influence on the decision process to develop in the area).

6.7. THE POSITIVE AND NEGATIVE IMPACTS THAT THE PROPOSED ACTIVITY (IN TERMS OF THE INITIAL SITE LAYOUT) AND ALTERNATIVES WILL HAVE ON THE ENVIRONMENT AND THE COMMUNITY THAT MAY BE AFFECTED

The proposed prospecting activities to be undertaken are non-invasive and as such there is only one alternative worth assessing which is the initial layout and activities proposed. There will therefore be minimal physical disturbance to the application area and/or interference with landowners or communities.

It should be noted that this report will be made available to I&AP's for review and comment and their comments and concerns will be addressed in the final report to be submitted to the DMR for adjudication. Furthermore it should be noted that the impact scores themselves will include the results of the aforementioned public response and comment. The results of the public consultation will be used to update the impact scores upon completion of the public review period, where after the finalised report will be submitted to the DMR for adjudication.

Please refer to Section 6.6 for the Methodology used in determining and ranking the nature, significance, consequence, extent, duration and probability of potential environmental impacts and risks.

The following provides a description and assessment of the potential impacts identified in the impact assessment process. Please refer to Appendix D for the full impact scoring calculations.

The topographical and geophysical surveys will see an increase in the use of access tracks by vehicles driving around the site. The access roads may over time and continuous use deteriorate and become damaged.

The potential exists for a group of unfamiliar workers to enter the project area during the prospecting activities. This impact could potentially affect the local communities, however the impact will be minimal as people on site will be limited to the Applicant, contractor and geologists for the topographical and geophysical surveys.

Access to the application area for the topographical and geophysical survey will be required which may interrupt the existing land uses, such as residential developments and historical mining. However, this impact will be minimal as no heavy equipment will be brought on site and it is of short duration.

The prospecting activities will generate general waste during the operational phase. This waste must be collected during site visits to be disposed of at appropriate landfill sites.

Impact	Pre-Mitigation Score
Deterioration and damage to existing access roads and tracks	-3,5
Safety and security risks to landowners and lawful occupiers	-3
Interference with existing land uses	-3
Generation and disposal of waste	-3

6.8. THE POSSIBLE MITIGATION MEASURES THAT COULD BE APPLIED AND THE LEVEL OF RISK

The following sections provide a description and assessment of the mitigation measures for each potential impact identified in the impact assessment process. The impact scores below are reflective of the impacts post the implementation of mitigation measures. A second score indicating the final significance of each potential impact is also reflected below. This score indicates the degree of potential loss of irreplaceable resources, the cumulative nature of the impact, as well as the degree of public concern regarding the impact. It should be noted that this report will be made available to I&AP's for review and comment and their comments and concerns will be addressed in the final report to be submitted to the PASA for adjudication. Furthermore it should be noted that the impact scores themselves will include the results of the aforementioned public response and comment. The results of the public consultation will be used to update the impact scores upon completion of the public review period, where after the finalised report will be submitted to the PASA for adjudication. Please refer to Appendix D for the full impact scoring calculations.

The following mitigation types have been associated with the potential impacts identified:

- Avoid and control through implementation of EMP mitigation measures (e.g. speed limit enforcement, vehicle maintenance);
- Avoidance and control through preventative measures (e.g. site security, code of conduct);
- Remedy through application of mitigation measures in EMP;
- Avoid and control through implementation of preventative measures (e.g. monitoring, communication with landowners, emergency response procedures);
- Avoid through implementation of preventative measures (e.g. consultation and communication);
- Avoid through implementation of suitable progressive rehabilitation and soil management;
- Avoid and control through implementation of EMP mitigation measures (e.g. Spill prevention, Hydrocarbon Storage);
- Avoid through preventative measures (e.g. bunding, spill kits);

- Remedy through cleanup and waste disposal; and
- Avoid and control through implementation of preventative measures (e.g. location of toilets, spill prevention, waste management).

Impact	Post-Mitigation Score	Final Significance
Deterioration and damage to existing access roads and tracks	-2,5	-2,92
Safety and security risks to landowners and lawful occupiers	-1,25	-1,25
Interference with existing land uses	-1,25	-1,25
Generation and disposal of waste	-1,25	-1,46

6.9. MOTIVATION WHERE NO ALTERNATIVE SITES WERE CONSIDERED

According to the PWP, the proposed Application areas geological formation is consistent with quartzite and conglomerate rocks of the Witwatersrand Supergroup as well as diamictite, and sandstone rocks of the Karoo Supergroup. These geological formations are host to the mineral of interest, aggregate. Historically, the area surrounding the PRA area has been extensively mined for gold and therefore, numerous waste rock dumps occur in the area

No alternatives have been investigated as the application area has been selected as the preferred site based on the historical data and geological information available for the region, which indicates the potential for economically viable minerals to occur. Due to the availability of area specific information no invasive work is required. This is an environmental benefit of the proposed prospecting activities and preferred site.

The location within the site has been selected by the following process:

Site Visit

A site visit was undertaken prior to the drafting of the BAR. The site visit was undertaken to assess the application area and identify any sensitive features such as wetlands and/or communities.

Desktop Study

The data collected during the site visit was verified by a desktop study. The desktop study involved utilizing the latest data available from the following:

- National Freshwater Ecosystem Priority Areas (NFEPA);
- NEMBA database;

- CBA's;
- ESA's; and
- Environmental Potential Atlas (ENPAT) soil potential data.

Through these data facilities and satellite imagery sensitive areas were identified and highlighted for exclusion from the proposed prospecting area.

I&AP Consultation

The third screening method used is I&AP consultation. I&AP's were provided with a registration form and questionnaire to complete during the consultation period. Questions such as the following were asked:

- Are you aware of any communities which exist within the application area;
- Are you aware of any tribal authorities within, or affected by, the application area;
- Please can you provide us with a description of the receiving environment? (including land uses such as farming, grazing etc.; vegetation; topographical features; Infrastructure; sensitive flora/fauna);
- Are you aware of any land developments (current or proposed) within the application area that may be relevant to the proposed prospecting operation;
- Are you aware of any cultural or heritage features within the application area and surrounds, please provide detail; and
- Please describe any biophysical and/or socio-economic impacts that you believe should be considered during the study.

With this step-by-step screening approach EIMS was able to identify the preferred location and extent of the Prospecting Right Application area..

6.10. STATEMENT MOTIVATING THE ALTERNATIVE DEVELOPMENT LOCATION WITHIN THE OVERALL SITE

Due to the presence and availability of historical data information of a potential resource can be obtained without the need for invasive prospecting activities. As such, no alternative development location within the overall site has been identified as viable or is considered in this report.

7. FULL DESCRIPTION OF THE PROCESS UNDERTAKEN TO IDENTIFY, ASSESS AND RANK THE IMPACTS AND RISKS THE ACTIVITY WILL IMPOSE ON THE PREFERRED SITE (IN RESPECT OF THE FINAL SITE LAYOUT PLAN) THROUGH THE LIFE OF THE ACTIVITY

The impact assessment process may be summarised as follows:

1. Identification of proposed prospecting activities including their nature and duration;
2. Screening of activities likely to result in impacts or risks;
3. Utilisation of the above mentioned EIMS methodology to assess and score preliminary impacts and risks identified;
4. Inclusion of I&AP comment regarding impact identification and assessment;
5. Finalisation of impact identification and scoring.

8. IMPACT ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK

TABLE 14: IMPACT ASSESSMENT SUMMARY

Name of Activity	Potential Impact	Aspects Affected	Phase	Significance If not mitigated	Mitigation Type	Significance If mitigated
Topographical and geophysical survey	Deterioration and damage to existing access roads and tracks	Transportation, Infrastructure and Traffic	Operation	-3,5	Avoid and control through implementation of EMP mitigation measures (e.g. speed limit enforcement, vehicle maintenance)	-2,5
	Safety and security risks to landowners and lawful occupiers	Socio-economic	Operation	-3	Avoidance and control through preventative measures (e.g. communication with landowners, site access control) Remedy through application of mitigation measures in EMP	-1,25
	Interference with existing land uses	Socio-economic	Operation	-3	Avoid through implementation of EMP mitigation measures (e.g. communication with landowners) Control through implementation of ESMS	-1,25

	<p>Generation and Environmental disposal of waste Pollution</p> <p>Operation</p>	<p>-3</p>	<p>Remedy through cleanup and waste disposal</p> <p>Avoid and control through implementation of preventative measures</p>	<p>-1,25</p>
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9. SUMMARY OF SPECIALIST REPORTS

Owing to the limited scope and short duration of the proposed Modderfontein Prospecting Right which will include non-invasive activities only, specialist studies have not been undertaken.

10. ENVIRONMENTAL IMPACT STATEMENT

10.1. SUMMARY OF KEY FINDINGS

A summary of the key findings of the environmental impact assessment is outlined below.

Key findings for the Biophysical environment

- The application area is located within an endangered vegetation unit, Soweto Highveld Grassland.

Key findings for the socio-economic environment

- There are existing operations and related infrastructure located on the application area.
- The previous assessment identified the Rynsoord community as an I&AP, the majority of their concerns were dust and safety related.
- The Rynsoord community previously raised concerns regarding the illegal mining that is currently being undertaken and are concerned with the potential increases in crime within the area as a result in more mineral prospecting within the area.
- As a result of the previous consultation period, illegal mining within the application area has been raised as an issue that may affect the applicant and contractors and associated equipment found on site should the prospecting right be granted.

10.2. FINAL SITE MAP

Please refer to the composite map included in Appendix C.

10.3. SUMMARY OF POSITIVE AND NEGATIVE IMPLICATIONS AND RISKS

The positive implication of the Modderfontein Prospecting Right is the discovery of an economically viable mineral resource. Due to the non-invasive nature of the proposed prospecting activities, the negative implications and risks of the project are minimal and as such the positive outcomes for the project would far outweigh the negative. The only negative impacts are as follows:

- Deterioration and damage to existing access roads and tracks;
- Safety and security risks to landowners and lawful occupiers;
- Interference with existing land uses; and
- Generation and disposal of waste.

The EMPR has identified appropriate mechanisms for avoidance and mitigation of these negative impacts.

11. PROPOSED IMPACT MANAGEMENT OBJECTIVES AND OUTCOMES

The management objective is to minimise the socio-economic impact of the proposed Modderfontein Prospecting Right in terms of the socio-economic perceptions and expectations of I&AP's. The outcome to be achieved is to lessen the impact through the following measures:

- Adhere to an open and transparent communication procedure with stakeholders at all times;
- Ensure that accurate information regarding the prospecting activities to be undertaken and the resultant lack of requirements for site access and labour is communicated to I&APs;
- Ensure that information is communicated in a manner which is understandable and accessible to I&APs;
- Enhance project benefits and minimise negative impacts through consultation with stakeholders;
- To limit interference with existing land uses as far as possible during prospecting;
- To avoid damage to road infrastructure; and
- To maintain safety to pedestrians and motorists.

12. ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION

Please refer to Section 14.2 for the commitments which should be included as conditions in the authorisation.

13. DESCRIPTION OF ANY ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE

The following assumptions, uncertainties, and gaps in knowledge are applicable to this BAR:

- The baseline environment was compiled through desktop studies only, and is subject to change based on the results of the public participation process. The possibility exists that the desktop data is outdated or incomplete. A limited duration site visit will be undertaken during the PPP in order to verify the desktop data utilised. Furthermore, the description of the baseline environment will be further informed by the results of the public participation process.
- The faunal searches are based on incomplete datasets and are not conclusive. As such there is still the chance that threatened or protected species can occur on site

and this can only be confirmed with a more detailed study. However due to the fact that no invasive work will be undertaken, there was no need for such a study.

- There will be no invasive work undertaken for the proposed Modderfontein Prospecting Right. This report only considers non-invasive prospecting activities and as such is not adequate to mitigate any invasive activities. Should the Applicant determine at a later stage that invasive work is required, this will require an amendment of the PWP and EMPR. Furthermore the revised EMPR may require specialist studies depending on the planned activities.
- In interpreting the NFEPA data, it must always be remembered that the NFEPA database is incomplete. The NFEPA Implementation Manual, Driver *et al.* (2011) states “not all wetlands have been mapped and there are substantial gaps”. Furthermore, “rivers and wetlands that are not FEPAs... still require a biodiversity assessment because knowledge of special ecological features or species of special concern is incomplete.

14. REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED

14.1. REASONS WHY THE ACTIVITY SHOULD BE AUTHORISED OR NOT

No invasive work will be undertaken for the proposed Modderfontein Prospecting Right. There will therefore be only limited impacts on the biophysical and cultural environments. The impacts on the environment can be mitigated through open communication with the landowners, implementation of a waste management plan, and limiting site access requirements. It is therefore the opinion of the EAP that the proposed activity should be authorised.

14.2. CONDITIONS THAT MUST BE INCLUDED IN THE AUTHORISATION

Stakeholder Engagement will continue throughout the prospecting activities to ensure landowners are kept informed and allowed to raise issues. These issues will then be addressed through a grievance mechanism.

15. PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

The Environmental Authorisation is required for five (5) years.

16. UNDERTAKING

It is confirmed that the undertaking required to meet the requirements of this section is provided at the end of the EMPR and is applicable to both the BAR and the EMPR.

17. FINANCIAL PROVISION

No invasive work will be undertaken for the proposed Modderfontein Prospecting Right. As such a quantum for financial provision has not been calculated at this stage.

17.1. EXPLAIN HOW THE AFORESAID AMOUNT WAS DERIVED

Due to the absence of provisions in the guideline document titled “Guideline Document for the Evaluation of the Quantum of Closure-Related Financial Provision Provided by a Mine (2005)” and the Master Rates of 2015 for non-invasive activities, the financial provision cannot be calculated or costed. As such the amount to be provided in the financial provision is **R0.00**.

17.2. CONFIRM THAT THIS AMOUNT CAN BE PROVIDED FOR FROM OPERATING EXPENDITURE

No invasive work will be undertaken for the proposed Modderfontein Prospecting Right. As such the amount to be provided for is **R0.00**.

18. SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

No additional information has been requested from the competent authority.

18.1. COMPLIANCE WITH THE PROVISIONS OF SECTIONS 24(4)(A) AND (B) READ WITH SECTION 24(3)(A) AND (7) OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT (ACT 107 OF 1998) THE BAR REPORT MUST INCLUDE THE:

18.1.1. IMPACT ON THE SOCIO-ECONOMIC CONDITIONS OF ANY DIRECTLY AFFECTED PERSON

The potential impacts on the socio-economic conditions have the potential to include:

- Safety and security risks to landowners and lawful occupiers

The potential exists for a group of unfamiliar workers to enter the project area during the prospecting activities. This impact could potentially affect the local communities, however the impact will be minimal as people on site will be limited to the Applicant, contractor and geologists for the topographical and geophysical surveys.

- Interference with existing land uses

Access to the application area for the topographical and geophysical survey will be required which may interrupt the existing land uses, such as residential developments and historical mining. However, this impact will be minimal as no heavy equipment will be brought on site and it is of short duration.

The consultation process will allow directly affected parties to raise their concerns. Further to this, it must be noted that I&AP's, including directly affected parties such as landowners, have the opportunity to review and comment on this report. The results of the public consultation shall be included in the final report submitted to the department for adjudication.

18.1.2. IMPACT ON ANY NATIONAL ESTATE REFERRED TO IN SECTION 3(2) OF THE NATIONAL HERITAGE RESOURCES ACT

No invasive work will be undertaken for the proposed Modderfontein Prospecting Right. As such no national estates as defined in the NHRA will be affected by the proposed prospecting activities.

19. OTHER MATTERS REQUIRED IN TERMS OF SECTIONS 24(4)(A) AND (B) OF THE ACT

No invasive work will be undertaken for the proposed Modderfontein Prospecting Right. As such no alternatives are assessed in this report.

PART B: ENVIRONMENTAL MANAGEMENT PROGRAMME

20. INTRODUCTION

20.1. DETAILS OF THE EAP

The details and expertise of the EAP are detailed in Sections 1.2 and 1.3 above as required.

20.2. DESCRIPTION OF THE ASPECTS OF THE ACTIVITY

A description of the aspects of the activity covered by the EMPR below is included in Section 2 above.

20.3. COMPOSITE MAP

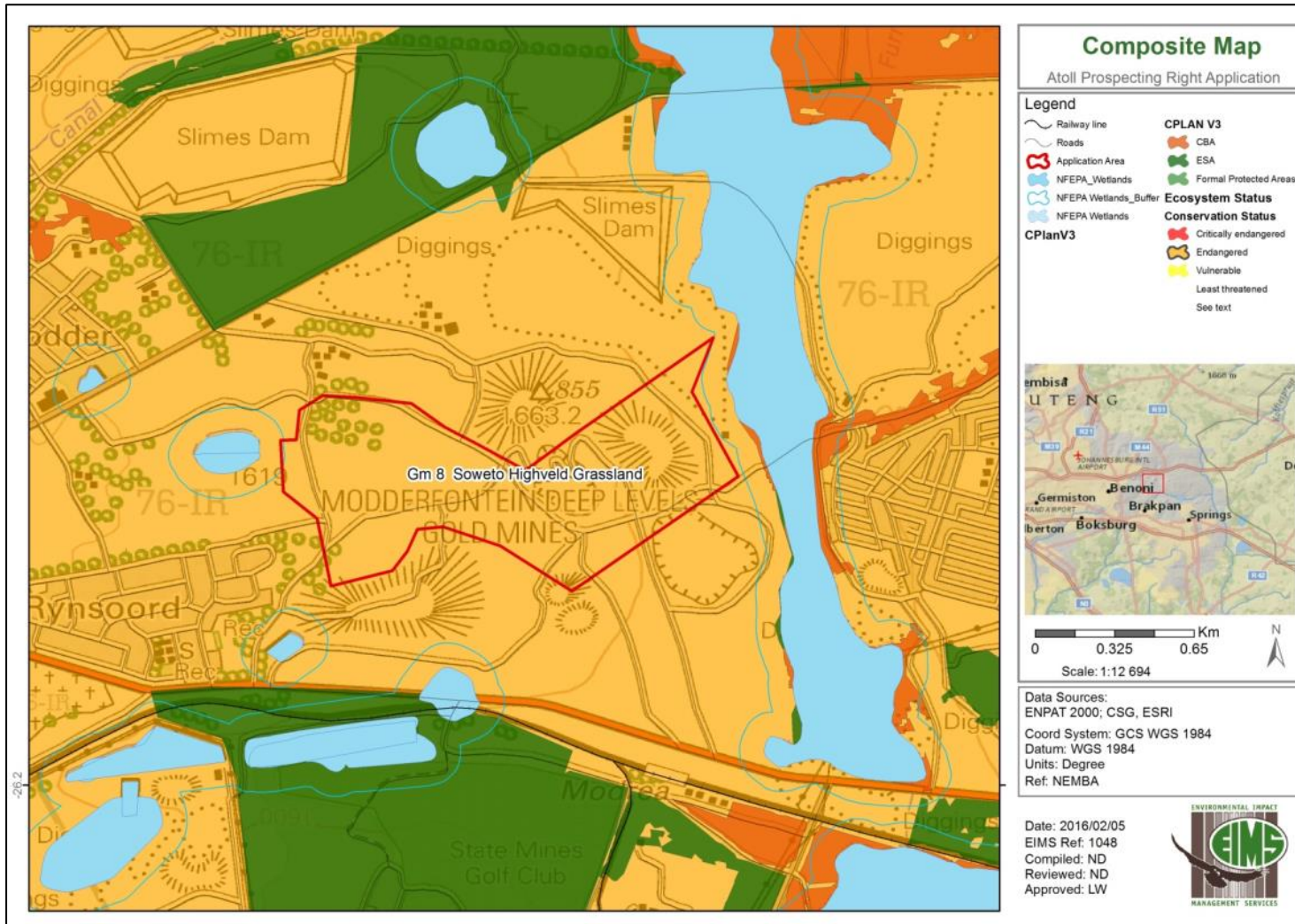


FIGURE 14: COMPOSITE MAP OF THE APPLICATION AREA

21. DESCRIPTION OF IMPACT MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS

21.1. DETERMINATION OF CLOSURE OBJECTIVES

No invasive work will be undertaken. As such no closure objectives are required. The site shall remain in its current condition.

21.2. VOLUMES AND RATE OF WATER USE REQUIRED FOR THE OPERATION

No invasive work will be undertaken. As such no water will be required.

21.3. HAS A WATER USE LICENCE BEEN APPLIED FOR?

No invasive work will be undertaken and no Section 21 water uses will be required or triggered, therefore there is no requirement to apply for a Water Use Licence.

21.4. IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

TABLE 15: IMPACTS TO BE MITIGATED

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
Topographical and Geophysical Survey	Operation	86.55 ha	All employees and visitors to the site must undergo a site induction which shall include basic environmental awareness and site specific environmental requirements (e.g. site sensitivities and relevant protocols/procedures). This induction should be presented or otherwise facilitated by the Contractors EO/Mine EO wherever possible.	NEMA	Throughout prospecting
Topographical and Geophysical Survey	Operation	86.55 ha	Landowners/lawful occupiers must be notified prior to accessing properties. A date and time that is suitable to landowners/lawful occupiers and is reasonable to the applicant should be negotiated and agreed upon.	NEMA OHS and MHSA	Throughout prospecting
Topographical and Geophysical Survey	Operation	86.55 ha	The number, identity of workers, work location and work to be done must be provided to the landowner/lawful occupier prior to going on site.	NEMA OHS and MHSA	Throughout prospecting
Topographical and Geophysical Survey	Operation	86.55 ha	Consideration must be taken by the applicant and/or contractors when on site not to interfere with the existing land uses and practices.	OHS and MHSA	Throughout prospecting

Topographical and Geophysical Survey	Operation	86.55 ha	All access gates should be kept closed unless otherwise directed by landowners/lawful occupiers.	OHS and MHSA	Throughout prospecting
Topographical and Geophysical Survey	Operation	86.55 ha	Workers must be easily identifiable by clothing and ID badges. Workers should carry with them, at all times a letter from the applicant stating their employment, title, role and manager contact details	OHS and MHSA	Throughout prospecting
Topographical and Geophysical Survey	Operation	86.55 ha	The applicant shall notify the landowner/lawful occupier of where and when existing access tracks and roads will be utilised.	NEMA OHS and MHSA	Throughout prospecting
Topographical and Geophysical Survey	Operation	86.55 ha	On-site vehicles must be limited to approved access routes and areas (including turning circles and parking) on the site so as to minimise excessive environmental disturbance to the soil and vegetation off site, and to minimise disruption of traffic.	OHS and MHSA	Throughout prospecting
Topographical and Geophysical Survey	Operation	86.55 ha	Existing access roads and tracks will be used only.	OHS and MHSA	Throughout prospecting
Topographical and Geophysical Survey	Operation	86.55 ha	Damage done to existing access roads and access tracks shall be repaired or reinstated as per the pre-prospecting condition or the requirements of the landowner.	National Road Traffic Act OHS and MHSA	Throughout prospecting

Topographical and Geophysical Survey	Operation	86.55 ha	Prospecting work to be carried out must be undertaken in a manner that accommodates existing land uses such as the residents within the immediate surrounding area.	NEMA OHS and MHSA	Throughout prospecting
Topographical and Geophysical Survey	Operation	86.55 ha	Speed limits of 40 km per hour shall be adhered to within the prospecting area and the unpaved access roads that will be used for the prospecting activities at all times. When travelling on a paved road the legal speed limit of that road must apply.	OHS and MHSA	Throughout prospecting
Topographical and Geophysical Survey	Operation	86.55 ha	The Applicant and/or Contractor(s) shall implement a refuse control and removal system that prevents the spread of refuse within and beyond the site.	NEMWA	Throughout prospecting
Topographical and Geophysical Survey	Operation	86.55 ha	Refuse refers to all solid waste, including debris (cement bags, wrapping material, cans, wire, nails, etc.), waste and surplus food, food packaging, organic waste etc.	NEMWA	Throughout prospecting
Topographical and Geophysical Survey	Operation	86.55 ha	No waste material is to be disposed of on site. Under no circumstances may there be any burial of waste on the site.	NEMWA	Throughout prospecting

21.5. IMPACT MANAGEMENT OUTCOMES

TABLE 16: IMPACT MANAGEMENT OUTCOMES

Activity	Potential Impact	Aspects Affected	Phase	Mitigation Type	Standard to be Achieved
Topographical and Geophysical Survey	Deterioration and damage to existing access roads and tracks	Transportation, Infrastructure and Traffic	Operation	Avoid and control through implementation of EMP mitigation measures (e.g. speed limit enforcement, vehicle maintenance)	National Road Traffic Act OHSA MHSA
Topographical and Geophysical Survey	Safety and security risks to landowners and lawful occupiers	Socio-economic	Operation	Avoidance and control through preventative measures (e.g. communication with landowners, site access control) Remedy through application of mitigation measures in EMP	Stakeholder Engagement Plan Grievance Mechanism
Topographical and Geophysical Survey	Interference with	Socio-economic	Operation	Avoid through	Stakeholder

Geophysical Survey	existing land uses				implementation of EMP mitigation measures (e.g. communication with landowners)	Engagement Plan Grievance Mechanism
Topographical and Geophysical Survey	Generation and disposal of waste	and Environmental Pollution	Operation		Remedy through cleanup and waste disposal Avoid and control through implementation of preventative measures	OHSA MHSA NEMA Duty of Care NEMA Polluter Pays Principle NEMWA DWAF minimum standards for waste disposal

21.6. IMPACT MANAGEMENT ACTIONS

TABLE 17: IMPACT MANAGEMENT ACTIONS

Activity	Potential Impact	Mitigation Type	Time	Period	for Compliance	with
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		Implementation	Standards
Topographical and Geophysical Survey	Deterioration and damage to existing access roads and tracks	Avoid and control through implementation of EMP mitigation measures (e.g. speed limit enforcement, vehicle maintenance)	As required throughout prospecting National Road Traffic Act OHSA MHSA
Topographical and Geophysical Survey	Safety and security risks to landowners and lawful occupiers	Avoidance and control through preventative measures (e.g. communication with landowners, site access control) Remedy through application of mitigation measures in EMP	As required throughout prospecting Stakeholder Engagement Plan Grievance Mechanism
Topographical and Geophysical Survey	Interference with existing land uses	Avoid through implementation of EMP mitigation measures (e.g. communication with landowners) Control through implementation of ESMS	As required throughout prospecting Stakeholder Engagement Plan Grievance Mechanism

Topographical and Geophysical Survey	Generation and disposal of waste	Remedy through cleanup and waste disposal	Throughout prospecting	OHSA
		Avoid and control through implementation of preventative measures		MHSA
				NEMA Duty of Care
				NEMA Polluter Pays Principle
				NEMWA
				DWAF minimum standards for waste disposal

22. FINANCIAL PROVISION

Due to the absence of provisions in the guideline document titled “Guideline Document for the Evaluation of the Quantum of Closure-Related Financial Provision Provided by a Mine (2005)” and the Master Rates of 2015 for non-invasive activities, the financial provision cannot be calculated or costed. As such the amount to be provided in the financial provision is **R0.00**.

22.1. DESCRIBE THE CLOSURE OBJECTIVES AND THE EXTENT TO WHICH THEY HAVE BEEN ALIGNED TO THE BASELINE ENVIRONMENT DESCRIBED UNDER THE REGULATION

The proposed Modderfontein Prospecting Right excludes invasive prospecting activities. As such no closure objectives are required. The site shall remain in its current condition.

22.2. CONFIRM SPECIFICALLY THAT THE ENVIRONMENTAL OBJECTIVES IN RELATION TO CLOSURE HAVE BEEN CONSULTED WITH LANDOWNER AND INTERESTED AND AFFECTED PARTIES

No invasive work will be undertaken for the Moddefontein Prospecting Right Application. As such no closure objectives are required. The questionnaire provided to I&AP's includes questions about the existing land uses and the social and biophysical environment as well as a description how these may be affected by the proposed activity. Further, I&AP's, including directly affected parties such as landowners, have the opportunity to review and comment on this report. The results of the public consultation shall be included in the final report submitted to the department for adjudication.

22.3. REHABILITATION PLAN

The PWP for the proposed Modderfontein Prospecting Right excludes invasive prospecting activities. As such, no rehabilitation plan is required.

22.4. EXPLAIN WHY IT CAN BE CONFIRMED THAT THE REHABILITATION PLAN IS COMPATIBLE WITH THE CLOSURE OBJECTIVES

No invasive work will be undertaken for the proposed Modderfontein Prospecting Right. As such no closure objectives are required. The site shall remain in its current condition.

22.5. CALCULATE AND STATE THE QUANTUM OF THE FINANCIAL PROVISION REQUIRED TO MANAGE AND REHABILITATE THE ENVIRONMENT IN ACCORDANCE WITH THE APPLICABLE GUIDELINE

No invasive work will be undertaken for the proposed Modderfontein Prospecting Right. As such a quantum for financial provision need not be calculated at this stage.

Due to the absence of provisions in the guideline document titled “Guideline Document for the Evaluation of the Quantum of Closure-Related Financial Provision Provided by a Mine (2005)” and the Master Rates of 2015 for non-invasive activities, the financial provision cannot be calculated or costed. As such the amount to be provided in the financial provision is **R0.00**.

However, in the case of the Prospecting Works Programme being amended with a Section 102 Application process to include invasive activities a rehabilitation plan and associated rehabilitation costs will be calculated using the DMR’s preferred methodology and guideline document titled “Guideline Document for the Evaluation of the Quantum of Closure-Related Financial Provision Provided by a Mine (2005)” and the applicable Master Rates.

22.6. CONFIRM THAT THE FINANCIAL PROVISION WILL BE PROVIDED AS DETERMINED

No invasive work will be undertaken for the proposed Modderfontein Prospecting Right. As such the amount to be provided for is **R0.00**.

23. MECHANISMS FOR MONITORING COMPLIANCE

TABLE 18: MECHANISMS FOR MONITORING COMPLIANCE

Source Activity	Impacts	Requiring	Functional	Requirements	Roles	and	Monitoring and Reporting
	Monitoring	Programmes	for		Responsibilities		Frequency and Time
			Monitoring				Periods for
							Implementation
Data Collection	None		None		None		None
Data Capture and Database Development	None		None		None		None
Topographical/geophysical Survey	All Impacts Identified during the EIA	Identified during	Site checklists	Inspections and	Contractors Environmental Representative		Daily inspections and checklists
Resource Modelling	None		None		None		None
Reporting and Resource Estimation	None		None		None		None

24. INDICATE THE FREQUENCY OF THE SUBMISSION OF THE PERFORMANCE ASSESSMENT/ ENVIRONMENTAL AUDIT REPORT

The result of environmental monitoring and compliance to the approved EMPR will be undertaken every second year and submitted to the DMR in the form of an environmental performance assessment. Included in the report will be the following relevant information:

- The period when the performance assessment was conducted;
- The scope of the assessment;
- The procedures used for conducting the assessment;
- Interpreted information gained from monitoring the EMPR;
- Evaluation criteria used during the assessment;
- Results of the assessment are to be discussed and mention must be made of any gaps in the EMPR and how it can be rectified; and
- Yearly updated layout plans.

Any emergency or unforeseen impacts will be reported immediately to the DMR and other relevant government departments.

25. ENVIRONMENTAL AWARENESS PLAN AND TRAINING

Environmental awareness training needs should be identified before the project commences, based on the available and existing capacity of site and project personnel to undertake the required EMPR management actions and monitoring activities. It is vital that all personnel are adequately trained to perform their designated tasks to an acceptable standard. In addition to these parties, general environmental awareness must be fostered to encourage the implementation of environmentally sound practices. This ensures that environmental accidents are minimized and environmental compliance maximized.

25.1. MANNER IN WHICH EMPLOYEES WILL BE INFORMED OF ENVIRONMENTAL RISKS

Environmental awareness could be fostered by induction course for all personnel on site, before commencing site visits. Personnel should also be alerted to particular environmental concerns associated with their tasks for the area in which they are working. Courses must be given by suitably qualified personnel and in a language and medium understood by personnel. The environmental awareness training programme will include the following:

1. Occupational Health and Safety Training (OHS); and
2. Environmental Awareness Training EMPR management actions

Environmental awareness training will focus on the following specific aspects and be undertaken in “Tool box talk” topics prior to site access:

1. Waste collection and disposal; and
2. EMPR management options and application

25.2. MANNER IN WHICH RISKS WILL BE DEALT WITH TO AVOID POLLUTION OR DEGRADATION

The broad measures to control or remedy any causes of pollution or environmental degradation as a result of the proposed prospecting activities taking place are provided below:

- Contain potential pollutants and contaminants (where possible) at source;
- Handling of potential pollutants and contaminants (where possible) must be conducted in bunded areas and on impermeable substrates;
- Ensure the timeous clean-up of any spills;
- Implement a waste management system for all waste stream present on site;
- Investigate any I&AP claims of pollution or contamination as a result of mining activities; and
- Implement the impact management objectives, outcomes and actions, as described in Section 26 above.

It is of critical importance that the broad measures to control or remedy any causes of pollution or environmental degradation are applied during onsite prospecting activities.

26. SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

No additional information was requested or is deemed necessary.

27. 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&AP's;
- (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.

28. REFERENCES

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