



# ENVIRONMENTAL MANAGEMENT PLAN (EMPLAN)

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## 1045: ENVIRONMENTAL MANAGEMENT PLAN (EMPLAN)

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## Table of Contents

<b>1. REGULATION 52 (2): DESCRIPTION OF THE ENVIRONMENT LIKELY TO BE AFFECTED BY THE PROPOSED PROSPECTING OPERATION .....</b>	<b>1</b>
1.1. THE ENVIRONMENT ON SITE RELATIVE TO THE ENVIRONMENT IN THE SURROUNDING AREA .....	1
1.1.1. GEOLOGY AND SOILS .....	1
1.1.2. TOPOGRAPHY .....	1
1.1.3. HYDROLOGY .....	1
1.1.4. FLORA .....	2
1.1.5. FAUNA .....	2
1.1.6. CULTURAL & HERITAGE .....	2
1.1.7. LAND USE .....	3
1.1.8. INFRASTRUCTURE .....	3
1.1.9. SENSITIVE RECEPTORS .....	4
1.2. THE SPECIFIC ENVIRONMENTAL FEATURES ON THE SITE APPLIED FOR WHICH MAY REQUIRE PROTECTION, REMEDIATION, MANAGEMENT OR AVOIDANCE .....	4
1.3. MAPS SHOWING THE SPATIAL LOCALITY OF ALL ENVIRONMENTAL FEATURES IDENTIFIED ON SITE ....	5
1.4. CONFIRMATION THAT THE DESCRIPTION OF THE ENVIRONMENT HAS BEEN COMPILED WITH THE PARTICIPATION OF INTERESTED AND AFFECTED PARTIES .....	12
<b>2. REGULATION 52(2)(B): ASSESSMENT OF THE POTENTIAL IMPACTS OF THE PROPOSED PROSPECTING OPERATION ON THE ENVIRONMENT INCLUDING SOCIO-ECONOMIC CONDITIONS AND CULTURAL/HERITAGE ENVIRONMENTS .....</b>	<b>13</b>
2.1. DESCRIPTION OF THE PROPOSED PROSPECTING OPERATION .....	13
2.1.1. THE MAIN PROSPECTING ACTIVITIES TO BE UNDERTAKEN.....	13
2.1.2. PLAN OF THE MAIN ACTIVITIES WITH DIMENSIONS.....	15
2.1.3. A DESCRIPTION OF THE CONSTRUCTION, OPERATIONAL AND DECOMMISSIONING PHASES .....	15
2.1.4. LISTED ACTIVITIES TRIGGERED IN TERMS OF THE NEMA EIA REGULATIONS .....	16
2.1.5. LIST OF WATER USES TRIGGERED IN TERMS OF SECTION 21 OF THE NWA .....	17
2.1.6. PROTECTION OF WETLANDS IN TERMS OF GN704 .....	19
2.2. IDENTIFICATION OF POTENTIAL IMPACTS .....	19
2.2.1. POTENTIAL IMPACTS PER ACTIVITY AND LISTED ACTIVITIES .....	19
2.2.2. POTENTIAL CUMULATIVE IMPACTS.....	20
2.2.3. POTENTIAL IMPACTS ON HERITAGE RESOURCES.....	21
2.2.4. POTENTIAL IMPACTS ON COMMUNITIES, INDIVIDUALS OR COMPETING LAND USES IN CLOSE PROXIMITY ....	21
2.2.5. CONFIRMATION THAT THE LIST OF POTENTIAL IMPACTS HAVE BEEN COMPILED WITH THE PARTICIPATION OF I&AP'S	22
2.2.6. CONFIRMATION OF SPECIALIST REPORT/S APPENDED.....	23
<b>3. REGULATION 52(2)(C): SUMMARY OF THE ASSESSMENT OF THE POTENTIAL IMPACTS AND PROPOSED MITIGATION MEASURES TO MINIMISE ADVERSE IMPACTS .....</b>	<b>23</b>
3.1. ASSESSMENT OF THE SIGNIFICANCE OF POTENTIAL IMPACTS.....	23

3.1.1.	CRITERIA OF ASSIGNING SIGNIFICANCE TO POTENTIAL IMPACTS.....	23
3.1.2.	POTENTIAL IMPACT OF MAIN ACTIVITIES IN EACH PHASE AND CORRESPONDING SIGNIFICANCE ASSESSMENT 29	
3.1.3.	ASSESSMENT OF POTENTIAL CUMULATIVE IMPACTS.....	35
3.2.	PROPOSED MITIGATION MEASURES TO MINIMISE ADVERSE IMPACTS .....	35
3.2.1.	LIST OF ACTIONS, ACTIVITIES OR PROCESSES THAT HAVE SUFFICIENTLY SIGNIFICANT IMPACTS TO REQUIRE MITIGATION.....	36
3.2.2.	A CONCOMITANT LIST OF APPROPRIATE TECHNICAL OR MANAGEMENT OPTIONS .....	37
3.2.3.	REVIEW THE SIGNIFICANCE OF THE IDENTIFIED IMPACTS .....	46
<b>4.</b>	<b>REGULATION 52(2)(D): FINANCIAL PROVISION.....</b>	<b>47</b>
4.1.	PLANS FOR QUANTUM CALCULATIONS .....	47
4.2.	ALIGNMENT OF REHABILITATION WITH CLOSURE OBJECTIVES .....	47
4.3.	QUANTUM CALCULATIONS .....	48
4.4.	UNDERTAKING TO PROVIDE FINANCIAL PROVISION .....	49
<b>5.</b>	<b>REGULATION 52(2)(E): PLANNED MONITORING AND PERFORMANCE ASSESSMENT OF THE ENVIRONMENTAL MANAGEMENT PLAN .....</b>	<b>50</b>
5.1.	LIST OF IDENTIFIED IMPACTS REQUIRING MONITORING PROGRAMMES.....	50
5.2.	FUNCTIONAL REQUIREMENTS OF MONITORING PROGRAMMES.....	51
5.2.1.	METHOD OF MONITORING THE IDENTIFIED IMPACTS .....	52
5.3.	ROLES AND RESPONSIBILITIES FOR THE EXECUTION OF MONITORING PROGRAMMES .....	59
5.4.	COMMITTED TIME FRAMES FOR MONITORING AND REPORTING .....	60
<b>6.</b>	<b>REGULATION 52(2)(F): CLOSURE AND ENVIRONMENTAL OBJECTIVES .....</b>	<b>60</b>
6.1.	REHABILITATION PLAN.....	61
6.1.1.	PHASE 1 – MAKING SAFE .....	61
6.1.2.	PHASE 2 – LANDFORM DESIGN, EROSION CONTROL AND RE-VEGETATION .....	61
6.1.3.	PHASE 3 – MONITORING, MAINTENANCE AND RELINQUISHMENT .....	62
6.2.	CLOSURE OBJECTIVES AND THEIR EXTENT OF ALIGNMENT TO THE PRE-MINING ENVIRONMENT .....	63
6.3.	CONFIRMATION OF CONSULTATION .....	64
<b>7.</b>	<b>REGULATION 52(2)(G): RECORD OF PUBLIC PARTICIPATION AND THE RESULTS THEREOF .....</b>	<b>64</b>
7.1.	IDENTIFICATION OF I&AP'S .....	64
7.2.	DETAILS OF THE ENGAGEMENT PROCESS .....	65
7.2.1.	DESCRIPTION OF THE INFORMATION PROVIDED TO THE COMMUNITY, LANDOWNERS, AND INTERESTED AND AFFECTED PARTIES.....	65
7.2.2.	LIST OF WHICH PARTIES IDENTIFIED IN 7.1 ABOVE THAT WERE IN FACT CONSULTED, AND WHICH WERE NOT CONSULTED.....	66
7.2.3.	LIST OF VIEWS RAISED BY CONSULTED PARTIES REGARDING THE EXISTING CULTURAL, SOCIO-ECONOMIC OR BIOPHYSICAL ENVIRONMENT .....	66
7.2.4.	LIST OF VIEWS RAISED BY CONSULTED PARTIES ON HOW THEIR EXISTING CULTURAL, SOCIO-ECONOMIC OR BIOPHYSICAL ENVIRONMENT POTENTIALLY WILL BE IMPACTED ON BY THE PROPOSED PROSPECTING OPERATION .....	67

7.2.5.	OTHER CONCERNS RAISED BY THE AFORESAID PARTIES .....	67
7.2.6.	CONFIRMATION THAT MINUTES AND RECORDS OF THE CONSULTATION ARE APPENDED .....	67
7.2.7.	INFORMATION REGARDING OBJECTIONS RECEIVED.....	67
7.3.	THE MANNER IN WHICH THE ISSUES RAISED WERE ADDRESSED .....	67
<b>8.</b>	<b>SECTION 39(3)(C) OF THE MPRDA: ENVIRONMENTAL AWARENESS PLAN .....</b>	<b>69</b>
8.1.	EMPLOYEE COMMUNICATION PROCESS .....	69
8.2.	DESCRIPTION OF SOLUTION TO RISKS .....	69
8.3.	ENVIRONMENTAL AWARENESS TRAINING .....	69
<b>9.</b>	<b>SECTION 39(4)(III) OF THE ACT: CAPACITY TO REHABILITATE AND MANAGE NEGATIVE IMPACTS ON THE ENVIRONMENT .....</b>	<b>70</b>
9.1.	THE ANNUAL AMOUNT REQUIRED TO MANAGE AND REHABILITATE THE ENVIRONMENT .....	70
9.2.	CONFIRMATION THAT THE STATED AMOUNT IS CORRECTLY REFLECTED AS PER THE PROSPECTING WORKS PROGRAMME .....	70
<b>10.</b>	<b>REGULATION 52(2)(H): UNDERTAKING TO EXECUTE THE ENVIRONMENTAL MANAGEMENT PLAN .</b>	<b>70</b>

## List of Figures

<b>FIGURE 1:</b> LOCALITY MAP WITH PROPOSED INVASIVE PROSPECTING DRILL AND TRENCHING LOCATIONS.....	6
<b>FIGURE 2:</b> SURFACE HYDROLOGY FOR THE PROSPECTING AREA AND THE SURROUNDING AREAS.....	7
<b>FIGURE 3:</b> SOIL AGRICULTURAL POTENTIAL FOR THE PROSPECTING AREA. ....	8
<b>FIGURE 4:</b> VEGETATION UNIT FOR THE PROPOSED PROSPECTING AREA (VERIFIED BY MUCINA AND RUTHERFORD, 2006)..	9
<b>FIGURE 5:</b> CBA WITHIN THE PROPOSED PROSPECTING APPLICATION AREA AND THE SURROUNDINGS. ....	10
<b>FIGURE 6:</b> NEMBA AREAS ASSOCIATED WITH THE PROSPECTING APPLICATION AREAS .....	11

## List of Tables

<b>TABLE 1: A DESCRIPTION OF THE PROJECT PHASES .....</b>	<b>15</b>
<b>TABLE 2: LIST OF THE POTENTIAL NEMA LISTED ACTIVITIES.....</b>	<b>16</b>
<b>TABLE 3: SECTION 21 WATER USES AND RELEVANCE TO THE PROPOSED PROJECT .....</b>	<b>17</b>
<b>TABLE 4: LIST OF POTENTIAL IMPACTS PER ACTIVITY .....</b>	<b>19</b>
<b>TABLE 5: CRITERIA FOR DETERMINING IMPACT CONSEQUENCE .....</b>	<b>24</b>
<b>TABLE 6: PROBABILITY SCORING .....</b>	<b>25</b>
<b>TABLE 7: DETERMINATION OF ENVIRONMENTAL RISK .....</b>	<b>25</b>
<b>TABLE 8: SIGNIFICANCE CLASSES .....</b>	<b>25</b>
<b>TABLE 9: CRITERIA FOR DETERMINING PRIORITISATION .....</b>	<b>26</b>
<b>TABLE 10: DETERMINATION OF PRIORITISATION FACTOR .....</b>	<b>27</b>
<b>TABLE 11: FINAL ENVIRONMENTAL SIGNIFICANCE RATING .....</b>	<b>28</b>
<b>TABLE 12: CONCOMITANT LIST OF APPROPRIATE TECHNICAL OR MANAGEMENT OPTIONS.....</b>	<b>37</b>
<b>TABLE 13: IMPACT SIGNIFICANCE TABLE .....</b>	<b>46</b>
<b>TABLE 14: ASSIGNS A METHOD OF MONITORING THE IDENTIFIED IMPACTS .....</b>	<b>52</b>
<b>TABLE 15: ROLES AND RESPONSIBILITIES EACH PARTY MUST ADHERE TO .....</b>	<b>59</b>
<b>TABLE 16: ISSUES AND RESPONSE TABLE .....</b>	<b>68</b>



# 1. REGULATION 52 (2): DESCRIPTION OF THE ENVIRONMENT LIKELY TO BE AFFECTED BY THE PROPOSED PROSPECTING OPERATION

## 1.1. THE ENVIRONMENT ON SITE RELATIVE TO THE ENVIRONMENT IN THE SURROUNDING AREA

### 1.1.1. GEOLOGY AND SOILS

The proposed project area is located within the Madzaringwe Formation (Karoo Supergroup). The dominant geological formations found on portion 18 of the farm Uitkomst 292 occur in the Rooiberg Group. The soils that are associated with this geology are red to yellow sandy soils of the Ba and Bb soil types on shales and sandstones.

The agricultural potential map (refer Figure 33, page 8) indicates that most of the area is either suitable for conservation or has no dominant class. The prospecting areas agricultural potential has been classified as poor suitability for arable agriculture. The surrounding areas however are either highly suited to agriculture or have soils that hold intermediate suitability.

### 1.1.2. TOPOGRAPHY

The proposed project area is best described as slightly to moderately undulating plains, including some low hills and pan depressions throughout. The area is approximately 1520 -1780 meters above sea level (masl) and is consistent with irregular plains.

### 1.1.3. HYDROLOGY

The application area receives summer rainfall with a mean annual precipitation (MAP) of 650-900 mm, with a very dry winter. A cool temperate climate is experienced within the application area with high extremes between maximum summer and winter temperatures. Average daytime temperatures are 20° C in winter and 26°C in summer with night time temperatures in winter dropping to approximately 0.5 °C. The area is also prone to frost and large thermic diurnal differences especially at higher elevations.

The proposed Prospecting Right Application falls within Vaal Quaternary Catchment C11B (refer Figure 22, page 77). The Humanspruit River flows through the application area and joins up with the Rietspruit off site. Other surface water features identified via Google Earth and a site visit include two (2) man-made dams and a potentially extensive wetland system.

#### 1.1.4. FLORA

According to Mucina and Rutherford (2006) the application area consists of short dense grassland which is dominated by a Highveld grassland composition namely (*Aristida*, *Digitaria*, *Eragrostis*, *Themeda*, *Themeda*, *Tristachya* etc.). Scattered rocky outcrops with wiry grasses and some woody species (*Acacia caffra*, *Celtis Africana*, *Diospyros lycioides subsp. lycioides*, *Parinari capensis*, *Protea caffra*, *P. welwitschii* and *Rhus magalismsontanum*) are also present in the vegetation unit.

Important taxa include Graminoids (*Aristida aequiglumis* (d), *A. congesta* (d), *A. junciformis subsp. galpinii* (d), *Cynodon dactylon* (d), *E. plana* (d), *E. gummiflua*; Herbs *Haplocarpha scaposa*, *Justicia anagalloides*, *Dicoma anomala*; Geophytic Herbs; *Gladiolus crassifolius*, *Haemanthus humilis subsp. hirsutus*, *Ledebouria ovatifolia*; Succulent Herb; *Aloe ecklonis*; Low Shrubs; *Anthospermum rigidum subsp. pumilum stoebe plumosa*).

As a vegetation unit Eastern Highveld Grassland is classified as **Endangered**. There are only a few areas which are statutorily conserved or privately conserved such as the Nooitgedacht Dam and Jericho Dam Nature Reserves that fall within this vegetation unit. This vegetation unit is subjected to transformation by agriculture, mining and the building of road infrastructure. (refer Figure 6, page 11) according to the NEMBA.

Parts of the application area are identified as Critical Biodiversity Areas (CBA) and other areas within the application area are also identified as modified areas (refer Figure 55, page 100). According to the Prospecting Works Programme the invasive prospecting areas are located outside of the CBA areas. Regardless, mitigation measures will stipulate avoidance of these areas and a buffer of 100 m will also be stipulated.

#### 1.1.5. FAUNA

A desktop search for protected or threatened fauna species was conducted using a quarter degree search on the SANBI SIBIS Database. There are no species of concern that fall within the Application area according to the SIBIS search.

An alternative search for sensitive species for the application 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.

#### 1.1.6. CULTURAL & HERITAGE

No cultural or heritage features have been identified within the proposed Prospecting Right 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).

The Application area may yield heritage features, however it is unlikely. The areas identified for invasive prospecting techniques are small and will have minimal effect on the current status quo. The Prospecting Works Programme states that the Applicant proposes to drill ten (10) boreholes with a disturbance area of approximately 20 m x 20 m and two (2) trenches 10 m x 2 m x 3 m. If any features are located during prospecting, the features will be treated in accordance with regulations of the National Heritage Resources Act (NHRA, Act No 25. of 1999).

### 1.1.7. LAND USE

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

1. Vacant land;
2. N2 National Road;
3. Boreholes;
4. Fences;
5. Eskom transmission lines;
6. Secondary Roads;
7. Farm houses;
8. Old mine workings and trenching area;
9. A river (Humanspruit);
10. Wetlands; and
11. Two dams.

The following land uses can be found on the periphery of the application area or site:

1. A residential area (approximately 150 m from the application area);
2. Old mine working area (approximately 30 m from the application area);
3. Camdon Power Station (approximately 1.8 km from the application area); and
4. Tailings operations (approximately 90 m from the application area).

The existing status of the socio-economic environment within the proposed Prospecting Right Application area includes both vacant land and some grazing. A locality map is provided in Section 1.3 indicating the prospecting area boundary together with the current land uses within it and the proposed location of invasive prospecting (refer Figure 1, page 6).

### 1.1.8. INFRASTRUCTURE

One national road, the N2 falls within the proposed Prospecting Right Application area. Secondary roads found around the Uitkomst Application area may be used to access the site. Existing unpaved roads are found in the interior of the Application area, are presumably used for

farming operations within the site. The most notable infrastructure features on site includes the following:

- The national road;
- Boreholes;
- Fences;
- Eskom transmission lines;
- Two dams; and
- Farm house.

It must be noted that no prospecting activities, should the right be granted by the DMR, will be undertaken within 100 m of any sensitive receptor including infrastructure without prior written consent from the applicable landowner.

#### **1.1.9. SENSITIVE RECEPTORS**

Several sensitive receptors have been identified within the proposed Prospecting Right Application area and include the following:

- Infrastructure (Farm houses);
- Eskom Transmission lines;
- Flora (the potential for Eastern Highveld Grassland to occur on site) and
- Rivers, wetlands and dams.

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.

### **1.2. THE SPECIFIC ENVIRONMENTAL FEATURES ON THE SITE APPLIED FOR WHICH MAY REQUIRE PROTECTION, REMEDIATION, MANAGEMENT OR AVOIDANCE**

The specific environmental features identified on site which may require protection, remediation, management or avoidance includes the following identified sensitive receptors:

- Infrastructure such as the small holdings onsite,
- The national road (N2);
- Eskom Transmission lines;

- Flora (the potential for Eastern Highveld Grassland to occur on site); and
- River, wetlands and dams.

The existing infrastructure, rivers and wetlands located within the application area are considered sensitive. Mitigation measures will stipulate avoidance with a (100 m) buffer unless otherwise stipulated by the landowner in the case of infrastructure.

### 1.3. MAPS SHOWING THE SPATIAL LOCALITY OF ALL ENVIRONMENTAL FEATURES IDENTIFIED ON SITE

Section 1.3 provides a series of maps indicating the proposed prospecting area together with the areas of relevance with regard to environmental features identified on site.

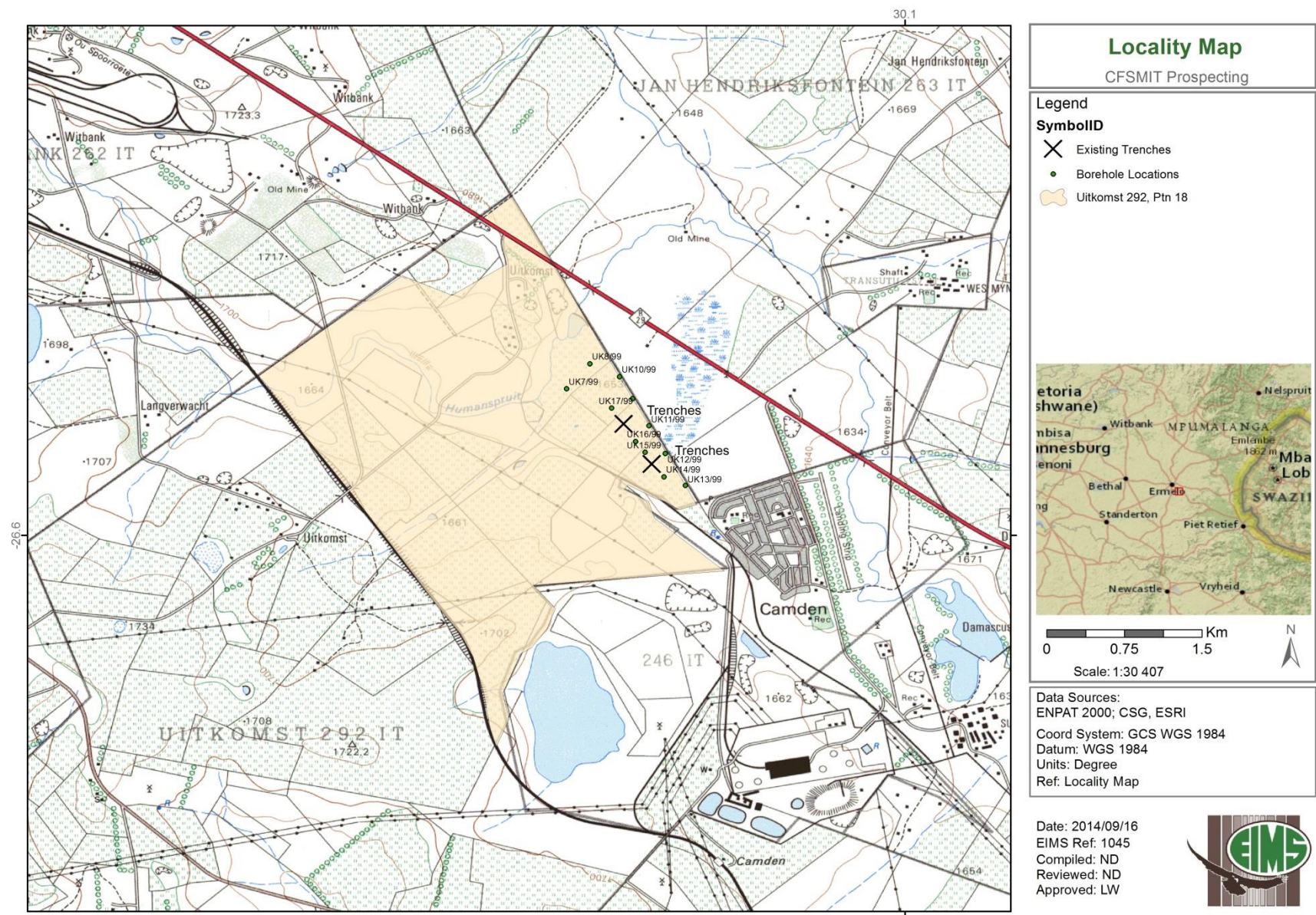
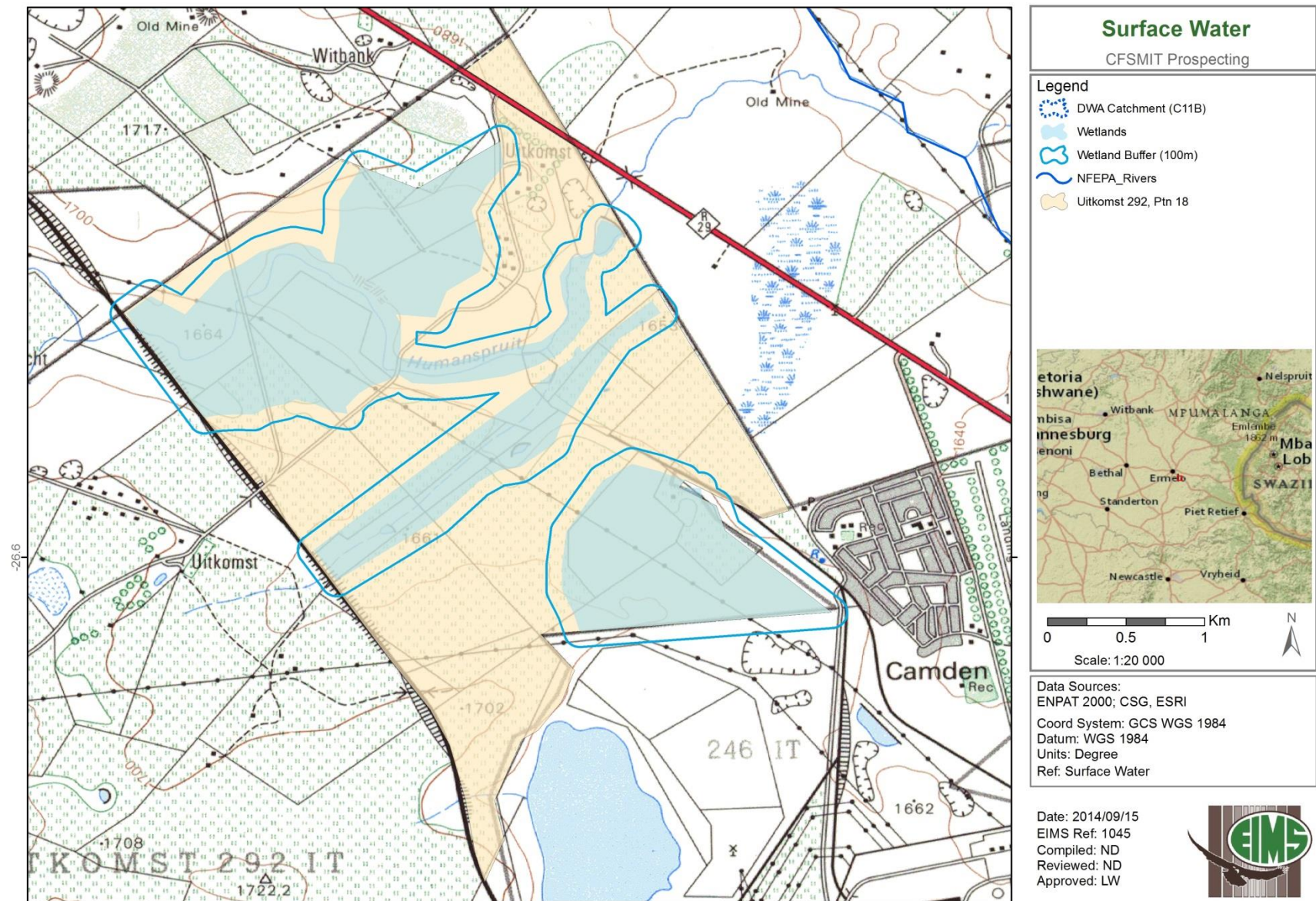


Figure 1: Locality map with proposed invasive prospecting drill and trenching locations.



**Figure 2:** Surface hydrology for the prospecting area and the surrounding areas.

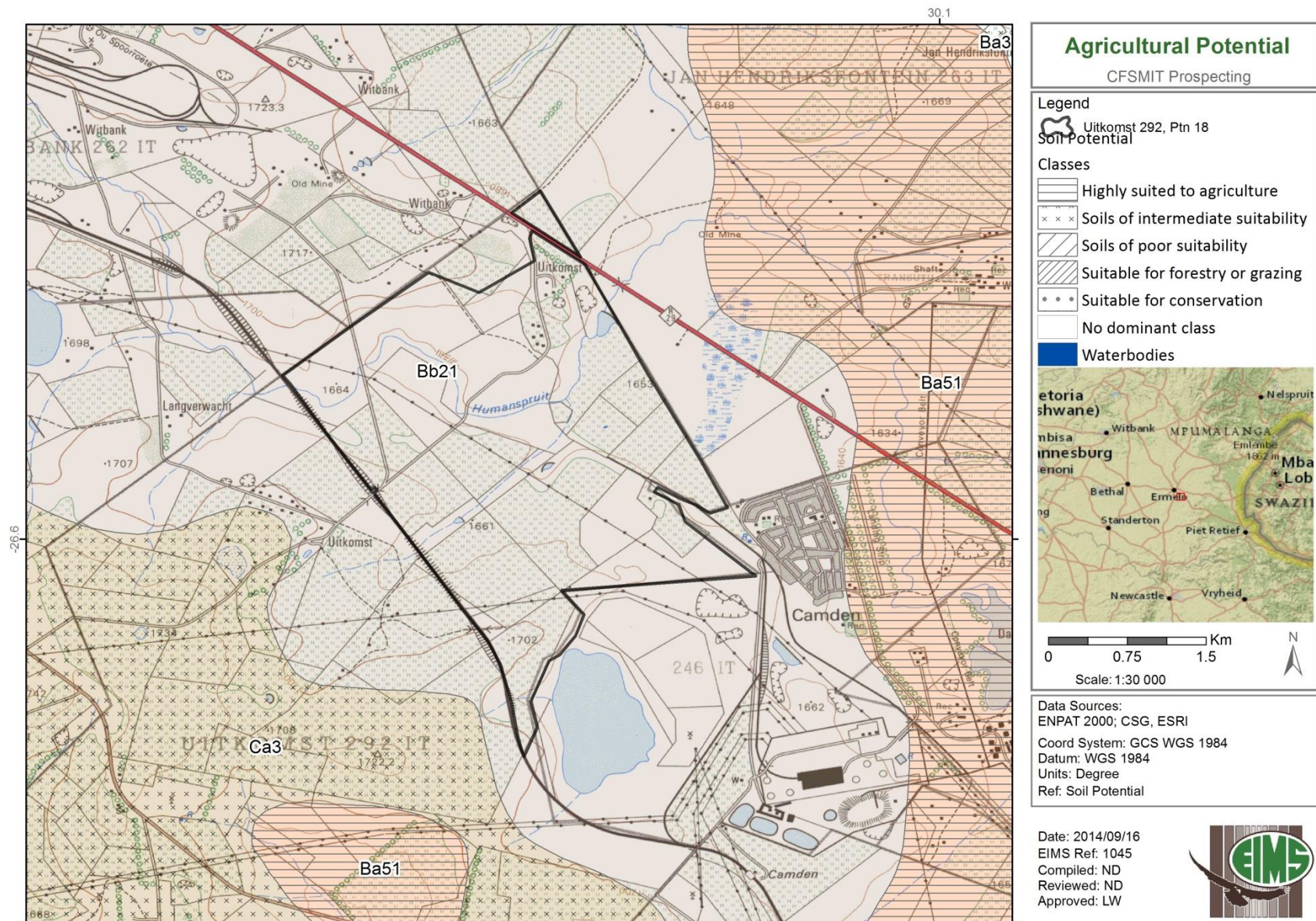
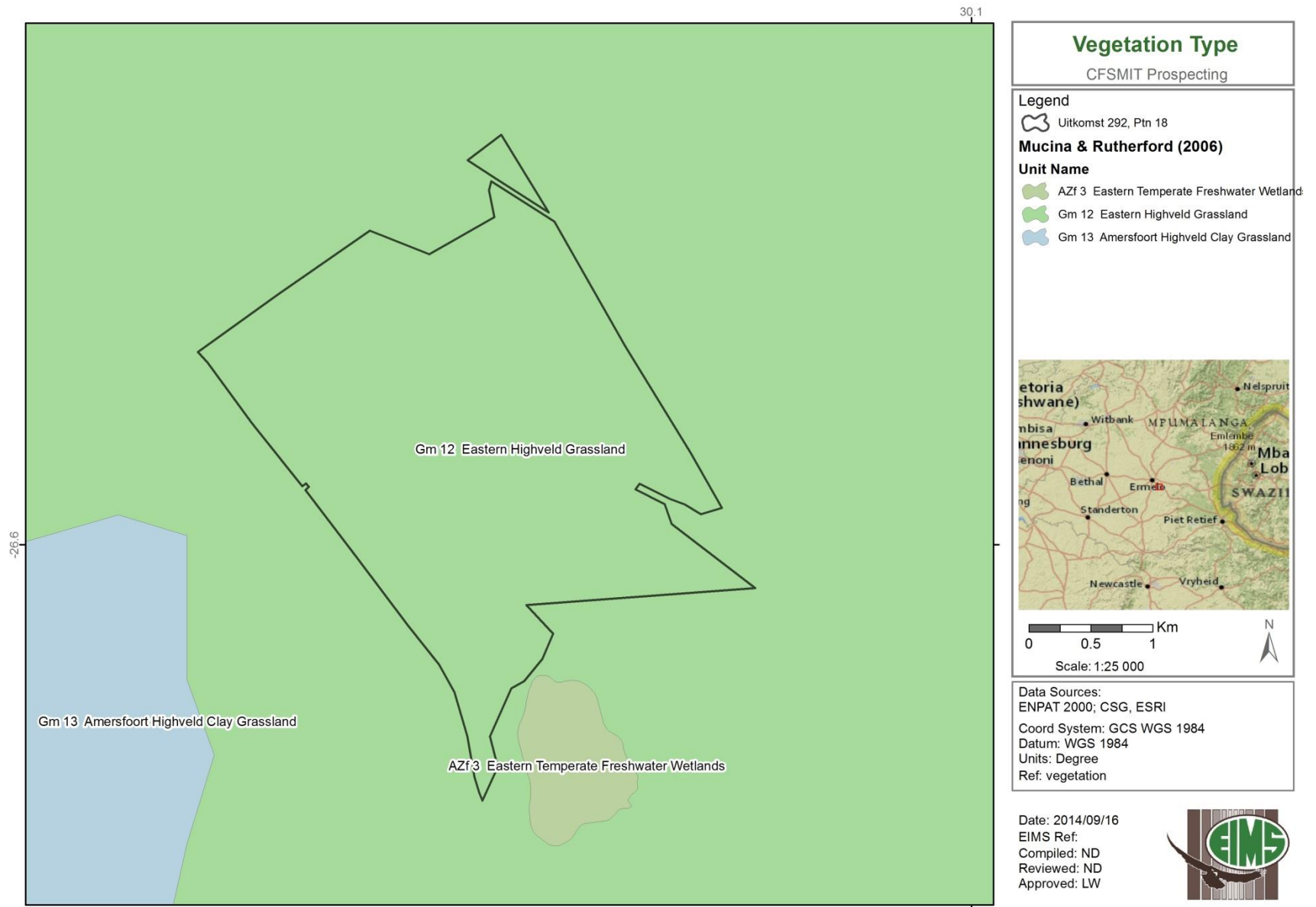
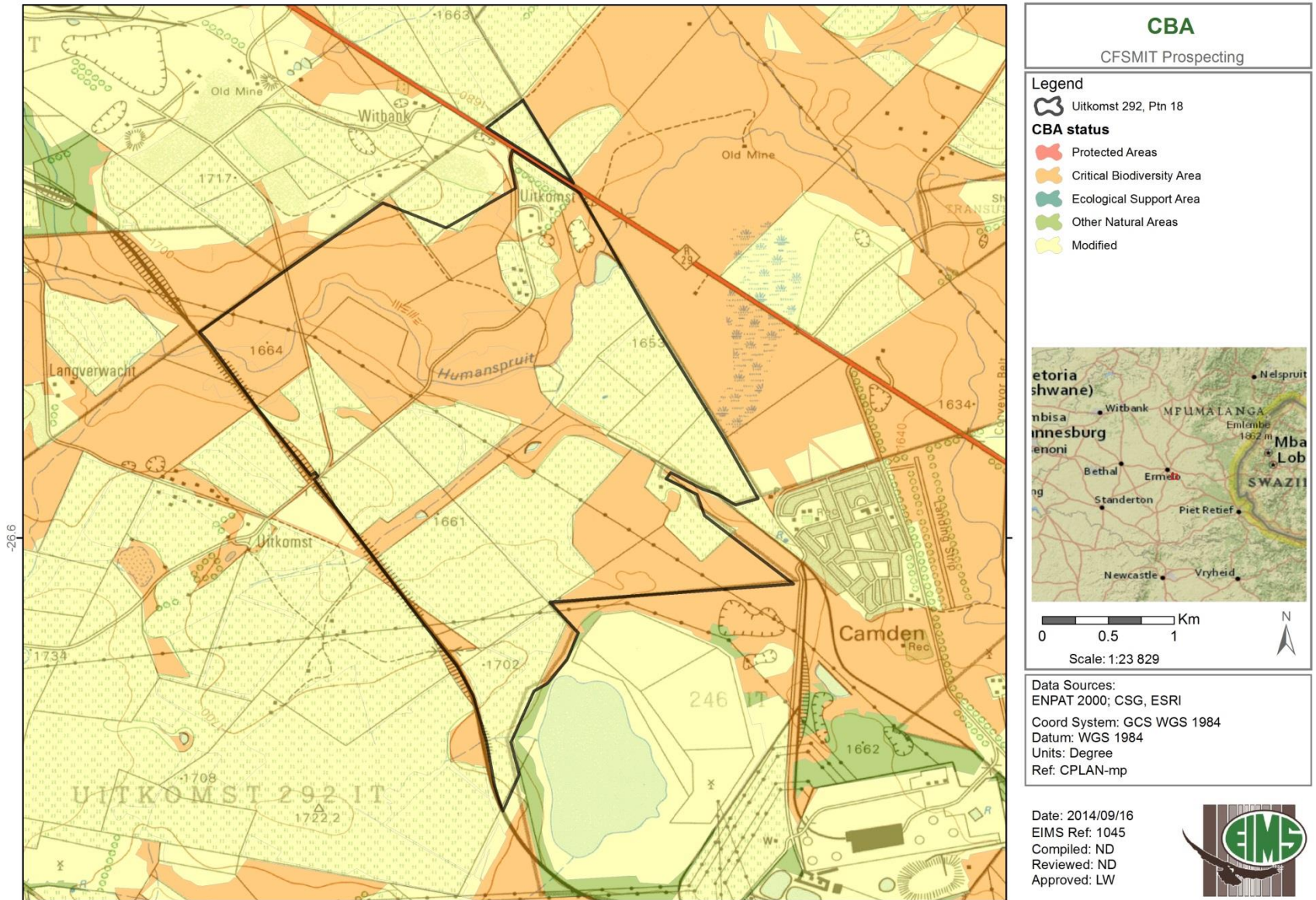


Figure 3: Soil agricultural potential for the prospecting area.





**Figure 4:** Vegetation unit for the proposed prospecting area (verified by Mucina and Rutherford, 2006).



**Figure 5:** CBA within the proposed prospecting application area and the surroundings.

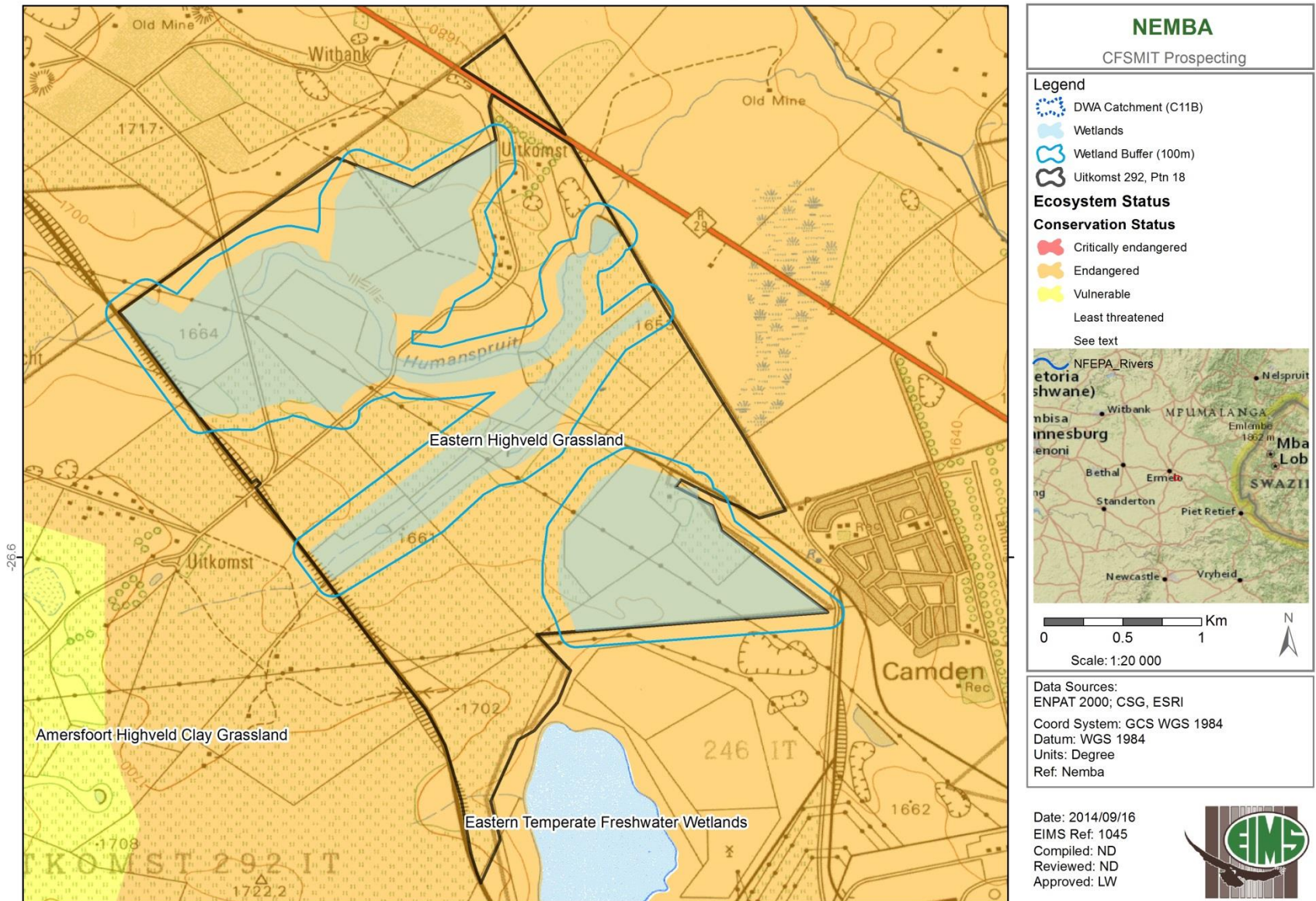


Figure 6: NEMBA areas associated with the prospecting application areas

## 1.4. CONFIRMATION THAT THE DESCRIPTION OF THE ENVIRONMENT HAS BEEN COMPILED WITH THE PARTICIPATION OF INTERESTED AND AFFECTED PARTIES

Interested and Affected Parties (I&AP's) were notified of the proposed prospecting right application via emails and/or registered letters sent out on the 1<sup>st</sup> of September 2014. A site visit was undertaken on the 2<sup>nd</sup> of September 2014 during which 10 A2 site notices (5 English and 5 Afrikaans) were placed in and around the proposed Prospecting Right Application area. In addition, a newspaper advertisement was placed in the Highveld Tribune on 9<sup>th</sup> of September 2014.

The information contained in the notification documents included:

- 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 Regulations that must be adhered to;
- The minerals being prospected for;
- Date by which comment, concerns and objections must be forwarded through to both EIMS and the DMR respectively;
- Contact details of the Environmental Assessment Practitioner (EAP);
- Contact details of the DMR and name of the relevant DMR official; and
- A map of the proposed area.

In addition a questionnaire was included in the registered letters; emails and facsimiles sent and requested the following information from I&AP's in order to obtain baseline environmental data and identify potential impacts:

- 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;
- A description of the existing environment including land uses, topography, fauna, flora and sensitive features such as those related to heritage;

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

Where I&APs have provided information regarding the baseline receiving environment, this information has been included in this report. As such, the description of the baseline receiving environment was compiled in conjunction and consultation with information provided to EIMS by the identified I&AP's.

## 2. REGULATION 52(2)(B): ASSESSMENT OF THE POTENTIAL IMPACTS OF THE PROPOSED PROSPECTING OPERATION ON THE ENVIRONMENT INCLUDING SOCIO-ECONOMIC CONDITIONS AND CULTURAL/HERITAGE ENVIRONMENTS

### 2.1. DESCRIPTION OF THE PROPOSED PROSPECTING OPERATION

#### 2.1.1. THE MAIN PROSPECTING ACTIVITIES TO BE UNDERTAKEN

The main prospecting activities have been obtained from the Prospecting Works Programme (PWP) already submitted to the Department of Mineral Resources (DMR) Mpumalanga. The PWP includes non-invasive and invasive prospecting techniques to determine the viability and suitability of mineral deposits within the proposed Prospecting Right Application area. It is important to note that the success of a previous phase is required before initiating the next successive phase as detailed information is accrued incrementally. The PWP is comprised of four (4) main Phases for prospecting which are described below and coupled with timeframes

##### **Phase 1: Non-invasive prospecting**

A proton magnetometer will be used in phase 1 to undertake the geophysical survey. Readings will be taken every 20 meters along 6 traverse lines of 1.5 km. A base station will record any changes found in the earth's magnetic field during the survey. No trees will be removed during the survey. The survey is expected to take 1 month to complete.

##### **Phase 1: Invasive prospecting including Drilling**

Phase 1 will include the diamond drilling of 10 boreholes to establish the extent of the reserve area. The proposed boreholes are to be drilled within the Application area and to the base of the Ecca seam (100 m deep). The cores from the boreholes will then be logged and the coal seam analysed to determine the calorific value, ash content, fixed carbon, volatile content and sulphur content. The drilling is expected to take 11 months to complete.

#### **Phase 2: Additional borehole drilling**

Should the initial phase warrant further exploration, Phase 2 of the proposed PWP will focus on the drilling of a further 20 borehole (location to be determined by Phase 1 results) to fill in where geological information from Phase 1 was not adequate and to target specific areas showing promising results from phase 1. All boreholes will be surveyed and plotted on a plan. The coal resources will then be calculated using a modelling package by Surfer 2000. The modelling will use 1000 x 1000 m grids and use the Kringing principle to interpolate between the borehole information. The coal measures will then be classified according to the South African Mineral Reporting Exploration Results (SAMREC) code. Additional drilling is expected to take 12 months to complete.

#### **Phase 3: Additional borehole drilling**

Phase 3 will follow the same procedure as indicated in Phase 2. Phase 3's operations are expected to take 12 months to complete.

#### **Phase 4: Bulk sampling**

Phase 4 will consist of trenching for bulk sampling and metallurgical testing to determine the washing characteristics of the coal. During Phase 4, geotechnical testing will be conducted for roof and floor conditions. Ground magnetic surveys will also be conducted to determine the presence of dolerite dykes and sills. The bulk sampling operations are expected to take 4 months to complete.

The equipment to be used during the proposed prospecting operation includes:

- Truck, trailer or skid mounted drill rigs;
- Excavator;
- Dozer;
- Grader
- Water cart;
- Private vehicle for transport of geologist and labourers; and
- Chemical toilets

Existing access tracks will be utilised as far as is practically possible. It is not envisaged that the proposed prospecting operations will require new access tracks. In the event that new access tracks are required they will be done with the permission of the relevant landowner and involve an amendment to the EMPlan prior to their construction.

Water in the form of domestic drinking water and chemical toilets will also be required. It is not envisaged that the use of any groundwater boreholes on site will be required as water for the operation, specifically the uses listed above, will be sourced offsite. Water will be stored in temporary storage facilities on site such as small water tanks and in the event that water must be abstracted from boreholes located within the Prospecting Right Application area, it will be done in consultation with the relevant landowner prior to use by the applicant and in accordance with the relevant legal provisions of the National Water Act (NWA, Act No. 36 of 1998) Section 21 water use provisions. Water from drilling purposes will not exceed 10 000 litres per day.

### 2.1.2. PLAN OF THE MAIN ACTIVITIES WITH DIMENSIONS

The invasive prospecting techniques to be employed during the operation activities include drilling and trenching. Previous prospecting has been completed by the Applicant in the same project area. As such, the prospecting activities scheduled to re-commence are as a result of a lapsed Prospecting Right. Please refer to Section 1.3 (Figure 1) for the map of the site indicating proposed Prospecting activities locations.

### 2.1.3. A DESCRIPTION OF THE CONSTRUCTION, OPERATIONAL AND DECOMMISSIONING PHASES

The description of the proposed prospecting operation phases are provided below. The proposed prospecting operation will consist of a planning and preparation phase, followed by a construction phase, an operation and then the decommissioning phase. Main activities to be undertaken during each phase are described and phase durations provided.

**Table 1: A Description of the Project Phases**

Phase	Phase Description and Activity	Duration
<b>Planning and Preparation</b>	Granting of Prospecting Right Application by DMR	<b>1 month</b>
	Notification of landowners of granting	
	Geophysical Survey	
<b>Operation: Drilling and Trenching</b>	Notification of landowner of planned invasive prospecting techniques to be undertaken	<b>39 Months</b>
	Environmental screening (by ECO) and site selection process (wetland delineation)	
	Site preparation and vegetation clearance	
	Drilling of boreholes	

Phase	Phase Description and Activity	Duration
	Trenching for bulk sampling	
<b>Decommissioning: Rehabilitation and Closure</b>	Confirmation that landowners are satisfied with rehabilitation	<b>6 – 12 months</b>
	Monitor rehabilitation efforts	
	ECO to determine adequacy of rehabilitation	
	Apply for Closure/Renewal/Mining Right Application	

#### 2.1.4. LISTED ACTIVITIES TRIGGERED IN TERMS OF THE NEMA EIA REGULATIONS

Potential National Environmental Management Act (NEMA, Act No. 107 of 1998) listed activities that may be triggered are provided below. It is important to note that the below list of potential triggered activities is based on the description of proposed prospecting activities only. Any change or alteration to the proposed project and associated activities will require a revision of the activities likely to be triggered.

**Table 2: List of the Potential NEMA Listed Activities**

NEMA Listing	Description
<b>Regulation 544 Activity 19</b>	Any activity which requires a prospecting right or renewal thereof in terms of Section 16 and 18 respectively of the Mineral and Petroleum Resources Development Act (MPRDA, Act No. 28 of 2002).
<i>Activity 19 is not yet in effect and is due to be put into effect 18 months after the amendment to the MPRDA is promulgated (7 June 2013)</i>	
NEMA	Description
<b>Regulation 546 Activity 12 (a)</b>	The clearance of an area of 300 square meters or more of vegetation where 75% or more of the vegetation cover constitutes indigenous vegetation (NEMA, Act No 107 of 1998)

In the event that a NEMA listed activity is triggered then the necessary authorisation must be obtained prior to the commencement of that particular activity. The onus is on the applicant to familiarise themselves with the NEMA listing and the thresholds which will trigger certain activities. The above list of potentially identified triggered NEMA listed activities are an opinion and do not constitute a formal legal opinion.



### 2.1.5. LIST OF WATER USES TRIGGERED IN TERMS OF SECTION 21 OF THE NWA

It is important to note that the proposed prospecting operation is not the same as mining and does not include any mineral processing on the site or other mining related activities which would require large amounts of water or which would be expected to trigger the requirement for a Water Use Licence.

The following activities which require water will be undertaken on site:

- Diamond drilling;
- Chemical toilets (water provided by the service provider);
- Potable water for drinking (bottled water will be utilised);
- Dust suppression (if required).

In the event that water is required for diamond drilling or dust suppression, this shall be obtained from a registered borehole in consultation with the landowners. Due to the limited extent and duration of the prospecting activity, it is anticipated that the amount of water required would fall below the threshold for licensing under Section 21 water uses and would amount to approximately 10 000 litres of water/day. The table below lists the Section 21 water uses and includes comments regarding the potential to trigger the requirement for licensing in terms of the National Water Act for this proposed Prospecting Right Application.

**Table 3: Section 21 Water Uses and relevance to the proposed project**

Section 21 Water Uses	Comments and Relevance
(a) taking water from a water resource;	<p>No water abstraction is planned due to the limited extent and duration of the activities.</p> <p>However in the event that water is required for drilling or dust suppression, the applicant would be required to obtain the water from a registered and legal source. It is our understanding that DWA may allow the Applicant to utilise a portion of the registered water user's allocation, subject to the necessary approval from DWA and a written agreement with the registered water user from a registered borehole. Due to the limited</p>

	extent and duration of the prospecting activity, it is anticipated that the amount of water required would fall below the threshold for licensing under Section 21 water uses.
(b) storing water;	No water storage which could trigger this activity is planned.
(c) impeding or diverting the flow of water in a watercourse;	GN1199 (2009) requires a Water Use License Application for Section 21 (c). There is a flowing watercourses, wetlands and dams present within the application area; however avoidance of these sensitive features during the invasive prospecting work will be stipulated to reduce the possibility of impacting on them.
(d) engaging in a stream flow reduction activity contemplated in section 36;	No stream flow reduction activity as contemplated in section 36 is planned.
(e) engaging in a controlled activity identified as such in section 37 (1) or declared under section 38 (1);	No controlled activities are planned.
(f) discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;	None of the prospecting activities are expected to generate waste water. No discharge of waste or water containing waste is planned.
(g) disposing of waste in a manner which may detrimentally impact on a water resource;	None of the prospecting activities are expected to generate waste water. As such no discharge of waste water is planned.
(h) disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process;	None of the prospecting activities are expected to generate waste water. No disposal of waste water is planned.
(i) altering the bed, banks, course or characteristics of a watercourse;	None of the scheduled activities for prospecting will alter the characteristics of the surface water

	present on site and the water is nominal.
(j) removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and	Due to the nature of the activities during prospecting the removal of water will not be required.
(k) using water for recreational purposes.	No recreational water uses will take place.

Desktop data indicates that the Uitkomst Application area has a number of surface hydrology features. Systems such as a river (Humanspruit), wetlands and dams are located on the application area. No invasive prospecting is to occur within the wetland systems and water use is calculated at 10 000 litres per day. Therefore, it is highly unlikely that any of the Section 21 water uses addressed above will apply to the proposed Prospecting activities scheduled to occur. In the unlikely event one of the Section 21 listed activities are to be undertaken or triggered a water use licence must be applied for before further work is undertaken.

#### 2.1.6. PROTECTION OF WETLANDS IN TERMS OF GN704

Prospecting or any other activity is prohibited within the 1:50 year flood-line or within a horizontal distance of 100 m from any watercourse, whichever is greater, terms of Section 4 of GN704. There are wetlands present on site according to Google Earth imagery and the site visit undertaken; the wetlands may be permanent or intermittently filled during the rainy season. As such, mitigation measures will stipulate an avoidance of 100 m from these identified areas of surface hydrology. Due to the extent of surface hydrology features found on site during the study however, it is suggested that a full wetland delineation is undertaken by the Applicant to ascertain the extent of the wetland systems so that no invasive prospecting takes place within these sensitive features. In the event that the applicant wishes to undertake any activities within the 1:50 year floodline, or a within a horizontal distance of 100 m from any watercourse, exemption from the relevant provisions of GN704 would be required in accordance with Section 3 of the notice.

## 2.2. IDENTIFICATION OF POTENTIAL IMPACTS

### 2.2.1. POTENTIAL IMPACTS PER ACTIVITY AND LISTED ACTIVITIES

**Table 4** lists the potential impacts related to each of the significant activities related to the proposed prospecting operation.

**Table 4: List of Potential Impacts per Activity**

Activity	Potential Impacts
<b>Planning &amp; Preparation</b>	<i>Safety and security risks to landowners and lawful occupiers</i>
	<i>Interference with existing land uses</i>
<b>Operation: Drilling and Trenching</b>	<i>Deterioration and damage to existing access roads and tracks</i>
	<i>Safety and security risks to landowners and lawful occupiers</i>
	<i>Interference with existing land uses</i>
	<i>Damage to third party infrastructure</i>
	<i>Loss of natural vegetation</i>
	<i>Displacement, injury, and death of local fauna</i>
	<i>Soil erosion</i>
	<i>Disturbance to the soil profile</i>
	<i>Altered topography</i>
	<i>Soil pollution and contamination</i>
	<i>Water pollution and contamination</i>
	<i>Reduction in water availability</i>
	<i>Ponding in trenches</i>
	<i>Disturbance, damage, and destruction of heritage features</i>
	<i>Dust nuisance</i>
	<i>Noise nuisance</i>
<i>Generation and disposal of waste</i>	
<i>Risk of fires</i>	
<i>Employment of unskilled labourers</i>	
<i>Environmental awareness training</i>	
<b>Rehabilitation</b>	<i>Interference with existing land uses</i>
	<i>Safety and security risks to landowners and lawful occupiers</i>

### 2.2.2. POTENTIAL CUMULATIVE IMPACTS

Due to the small scale and limited activities that are associated with the proposed project it is not anticipated that there will be significant cumulative impacts. The identified impacts can become cumulative, particularly if other projects commence within the surrounding area and those projects have impacts similar in nature to those of the proposed prospecting operation. An increase in similar activities within the nearby surrounding area would increase the number of similar potential impacts identified in this EMPlan thereby increasing the potential cumulative

nature of the identified impacts. Regardless, the impact assessment methodology used in this EMPlan specifically includes criteria for the assessment of the cumulative nature of potential impacts.

### 2.2.3. POTENTIAL IMPACTS ON HERITAGE RESOURCES

One (1) potential impact on the existing heritage environment has been identified and assessed in the EMPlan. The potential impact on the heritage environment includes:

- Disturbance, damage and destruction of potential heritage features on site from proposed prospecting techniques specifically drilling and trenching activities.

The prospecting activities are concentrated on the north eastern side of the Application area. The entire prospecting area is relatively small and is expected to result in a surface disturbance of 20 m x 20 m for each of the drilling activities and 10 m x 2 m x 3 m for each of the trenching activities.

It is however, highly unlikely that there will be any heritage features located within the application area and specifically those areas identified for invasive prospecting techniques. If any features are located during prospecting, the features will be treated in accordance with regulations of the National Heritage Resources Act (NHRA, Act No 25. of 1999). Please refer to Appendix C for proof of correspondence from SAHRA.

### 2.2.4. POTENTIAL IMPACTS ON COMMUNITIES, INDIVIDUALS OR COMPETING LAND USES IN CLOSE PROXIMITY

There are a few small holdings in the north of the Application area and a residential area outside of the Application area to the south east, the rest of the Application area is dominated by open area suitable for conservation but currently used for agriculture as is the surrounding area.

Five (5) potential impacts on the existing socio-economic environment have been identified and assessed in the EMPlan. The impacts on the socio-economic environment include:

- Safety and security risks to landowners and lawful occupiers due to required access to properties by the applicant;
- Risk of fires due to prospecting operations;
- Noise and dust nuisance from prospecting techniques most notably drilling and trenching;
- Increased use of existing access roads; and
- Damage to and disturbance of existing infrastructure by the prospecting operation.

Two (2) potential positive impacts on the socio-economic environment have been identified and assessed in the EMPlan. The positive impacts on the socio-economic environment include:

- Employment of unskilled labourers to assist with the proposed prospecting operation; and
- Training and awareness of HIV/AIDS and Environmental Awareness of the unskilled labourers which is likely to be filtered down to the communities and areas from which they will be sourced.

#### **2.2.5. CONFIRMATION THAT THE LIST OF POTENTIAL IMPACTS HAVE BEEN COMPILED WITH THE PARTICIPATION OF I&AP'S**

Interested and Affected Parties (I&AP's) were notified of the proposed prospecting right application via registered letters and/or emails sent out on the 1<sup>st</sup> September 2014. A site visit was undertaken on the 2<sup>nd</sup> September 2014 during which 10 A2 site notices (5 English and 5 Afrikaans) were placed in and around the proposed Prospecting Right Application area. In addition, a newspaper advertisement was placed in the Highveld Tribute on the 9<sup>th</sup> September 2014.

The information contained in the notification documents included:

- 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 Regulations that must be adhered to;
- The minerals being prospected for;
- Date by which comment, concerns and objections must be forwarded through to both EIMS and the DMR respectively;
- Contact details of the Environmental Assessment Practitioner (EAP);
- Contact details of the DMR and name of the relevant DMR official; and
- A map of the proposed area.

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

- 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;
- A description of the existing environment including land uses, topography, fauna, flora and sensitive features such as those related to heritage;
- Details on any land developments proposed;
- Details of any perceived impacts to the environment that should be considered in the EMPlan; and
- Any specific comments, concerns or objections to the proposed prospecting operation.

Where I&APs have provided information regarding the baseline receiving environment, this information has been included in this report. Mitigation measures have been developed for appropriate sensitive features and impacts identified by I&AP's during the consultation period. As such, the description of the baseline receiving environment was compiled in conjunction and consultation with information provided to EIMS by the identified I&AP's.

#### **2.2.6. CONFIRMATION OF SPECIALIST REPORT/S APPENDED**

Due to the limited scope and scale of the proposed prospecting operation no specialist studies were deemed necessary or undertaken.

### **3. REGULATION 52(2)(C): SUMMARY OF THE ASSESSMENT OF THE POTENTIAL IMPACTS AND PROPOSED MITIGATION MEASURES TO MINIMISE ADVERSE IMPACTS**

#### **3.1. ASSESSMENT OF THE SIGNIFICANCE OF POTENTIAL IMPACTS**

##### **3.1.1. CRITERIA OF ASSIGNING SIGNIFICANCE TO POTENTIAL IMPACTS**

###### Method of Assessing Impacts:

The impact assessment methodology 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). Please note that the impact assessment must apply to the identified Sub Station alternatives as well as the identified Transmission line routes.

Determination of Environmental Risk:

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:

$$C = \frac{(E+D+M+R)}{4} \times N$$

Each individual aspect in the determination of the consequence is represented by a rating scale as defined in **Table 5**.

**Table 5: Criteria for Determining 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



Aspect	Score	Definition
	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 (refer to Table 6). Probability is rated/scored as per **Table 6**.

**Table 6: Probability Scoring**

Probability	Score	Definition
	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 7: 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	1	2	3	4	5
		1	2	3	4	5
<b>Probability</b>						

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 8**.

**Table 8: Significance Classes**

Environmental Risk Score	
Value	Description

< 9	Low (i.e. where this impact is unlikely to be a significant environmental risk),
≥9; <17	Medium (i.e. where the impact could have a significant environmental risk),
≥ 17	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.

Impact Prioritisation:

In accordance with the requirements of Regulation 31 (2)(l) of the EIA Regulations (GNR 543), and further to the assessment criteria presented in the Section 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 9: Criteria for Determining Prioritisation**

<b>Public response (PR)</b>	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.
<b>Cumulative Impact (CI)</b>	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.
<b>Irreplaceable loss of resources (LR)</b>	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 9**. 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 10**).

**Table 10: Determination of Prioritisation Factor**

Priority	Ranking	Prioritisation Factor
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 11: Final Environmental Significance Rating**

Environmental Significance Rating	
Value	Description
< 10	Low (i.e. where this impact would not have a direct influence on the decision to develop in the area),
≥10 <20	Medium (i.e. where the impact could influence the decision to develop in the area),
≥ 20	High (i.e. where the impact must have an influence on the decision process to develop in the area).

### 3.1.2. POTENTIAL IMPACT OF MAIN ACTIVITIES IN EACH PHASE AND CORRESPONDING SIGNIFICANCE ASSESSMENT

#### 3.1.2.1. PLANNING AND PREPARATION – GEOTECHNICAL STUDIES

AN influx of workers to the area for the prospecting activities will occur. This impact will be minimal during the planning phase as the people on site will be limited to the Applicant, contractor and geologists.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Safety and security risks to landowners and lawful occupiers	-9	-7.5	-7.5

Access to the application area will be required in the planning phase which may interrupt the existing land uses in the area. However, this impact will be minimal during the planning phase as no equipment or trucks will be brought on site.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Interference with existing land uses	-8.25	-5	-5.833333

#### 3.1.2.1. OPERATION –DRILLING AND TRENCHING

The operation phase will see an increase in the use of access tracks by trucks and drill rigs being hauled on and off site. The access roads may over time and continuous use become damaged or deteriorated.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Deterioration and damage to existing access roads and tracks	-9.75	-8.25	-8.25

During the operational phase, the site will have labourers present working on the prospecting areas, the influx of workers to the area commissioned to assist on the prospecting right may potentially impact on the surrounding communities' safety or perceptions of safety.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Safety and security risks to landowners and lawful occupiers	-10.5	-6	-6

The surrounding landuses are consistent with agricultural activities. The increased use of the access tracks and surrounding areas for the prospecting activities may interfere with the general day to day activities within the surrounding area.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Interference with existing land uses	-11	-7.5	-7.5

During the operational phase, equipment and vehicles will be brought on site to facilitate prospecting activities. The equipment and activities have the potential to damage the current structures located on site if prospecting does not put in place avoidance mechanisms.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Damage to third party infrastructure	-8.25	-4	-4

Prospecting activities will require the clearance of vegetation in order to prospect. This will result in the loss of natural vegetation in the immediate area.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Loss of natural vegetation	-4.5	-4	-4

During the operational phase, the potential exists for fauna to become injured, killed or displaced as a result of trucks/equipment moving around on site. Fauna may also be impacted on by the noise of the operations and increased site activity thereby displacing local fauna to other unfamiliar surrounding areas.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Displacement, injury, and death of local fauna	-6.5	-5.5	-5.5

Due to the invasive nature of the prospecting activities, the potential for erosion to occur in areas that have been disturbed by the prospecting activities exists as a result of disturbance to the soil profile, vegetation clearance and increased surface water runoff.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Soil erosion	-9.75	-5	-5

During the excavation of the soils namely trenching activities, the potential exists for the soil profile to be impacted upon as soil material will be removed from its original position. It is difficult to return the soil profile back to its original state after bulk sampling has occurred.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Disturbance to the soil profile	-8.25	-5	-5

Invasive prospecting such as trenching is the removal of stratigraphic layers of material which can potentially alter the original topography on site.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Altered topography	-6.75	-4	-4

The equipment on site that is required for invasive prospecting namely the vehicles and drill rigs have the potential to pollute or contaminate the immediate soil resources if not correctly mitigated. Contamination and pollution occur as a result of hydrocarbons, oils and lubricants leaking or spilling on site from unmaintained equipment and vehicles.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Soil pollution and contamination	-6.75	-4	-4

The equipment (drill rigs) and vehicles on site both have the potential to pollute or contaminate the immediate water resources (surface hydrology) if not correctly mitigated. The pollution or contamination can occur through spills of hydrocarbons, oils and/or lubricants that may come into contact with the surface hydrology.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Water pollution and contamination	-7.5	-3.5	-3.5

If water is required from the application areas to facilitate prospecting operations this can affect the allocation of water to the landowner, therefore impacting on the potential activities occurring on the application area.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Reduction in water availability	-13	-4.5	-4.5



Ponding of the trenches on site may occur as a result of rainfall and surface water runoff. The filling of these trenches can result in a potential safety hazard to people and fauna.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Ponding in trenches	-8.25	-4.5	-4.5

The potential exists for the damage, destruction, or disturbance of heritage features within the prospecting footprint. Heritage features are irreplaceable but if mitigation measures are applied, damage to any potential features located on site can be avoided.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Disturbance, damage, and destruction of heritage features	-9.75	-6	-6

Both drilling and trenching prospecting activities and associated equipment have the potential to cause nuisance dust which may affect surrounding communities.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Dust nuisance	-8.25	-6.75	-6.75

Both drilling and trenching prospecting activities and associated equipment have the potential to cause nuisance noise which may affect surrounding communities.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Noise nuisance	-8.25	-4	-4

The prospecting activities will generate general waste during the operational phase. If the waste is not stored on site or correctly it can impact on the surrounding environments communities and fauna. However if mitigated correctly this impact will be limited.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Generation and disposal of waste	-9	-5	-5

With the increased number of labourers on site and the use of drilling and trenching equipment the potential exists for a fire to occur. However if mitigated correctly this impact can be prevented.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Risk of fires	-9.75	-4	-4

The employment of unskilled labours in the operational phase is a positive impact whereby, 5 unskilled labourers will be upskilled and provided with a job for the duration of the operational phase.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Employment of unskilled labourers	-5.25	13.75	13.75

All labourers will be required to attend an environmental awareness training course. This course will provide invaluable life skills that will stay with the labourer even after the operational phase ends and the employment ceases for the prospecting operations.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Environmental awareness training	-5.25	16.25	16.25

### 3.1.2.2. DECOMMISSIONING AND CLOSURE – REHABILITATION

During the decommissioning and closure the removal off site of infrastructure and equipment will be required. During the closure phase and the rehabilitation phase, the land will become temporarily unavailable until it is fully rehabilitated. Once this occurs the land will become an available landuse again.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Interference with existing land uses	-9	-7.5	-7.5

Labourers will be mandated to assist with the decommissioning and closure phase on site. The additional labourers in the area may potentially affect the safety of the landowners and surrounding communities.

Impact	Pre-Mitigation Score	Post-Mitigation Score	Final Significance
Safety and security risks to landowners and lawful occupiers	-8.25	-5	-5.833333

### 3.1.3. ASSESSMENT OF POTENTIAL CUMULATIVE IMPACTS

Due to the small scale and limited activities that are associated with the proposed project it is not anticipated that there will be significant cumulative impacts. The identified impacts can become cumulative, particularly if other projects commence within the surrounding area and those projects have impacts similar in nature to those of the proposed prospecting operation. An increase in similar activities within the nearby surrounding area would increase the number of similar potential impacts identified in this EMPlan thereby increasing the potential cumulative nature of the identified impacts. Regardless, the impact assessment methodology used in this EMPlan specifically includes criteria for the assessment of the cumulative nature of potential impacts.

## 3.2. PROPOSED MITIGATION MEASURES TO MINIMISE ADVERSE IMPACTS

The proposed technical management options/mitigation measures to minimise adverse impacts are included in Section 3.2.2.

### **3.2.1. LIST OF ACTIONS, ACTIVITIES OR PROCESSES THAT HAVE SUFFICIENTLY SIGNIFICANT IMPACTS TO REQUIRE MITIGATION**

Through the use of the impact assessment methodology described in Section 3.1.1 it has been determined that the final significance of impacts, once mitigation measures have been applied, are all low. Regardless of the significance of the impacts, all activities identified in Section 2.2.1 have impacts that require mitigation measures. These impacts and associated mitigation measures are described in Section 3.2.2 below.

### 3.2.2. A CONCOMITANT LIST OF APPROPRIATE TECHNICAL OR MANAGEMENT OPTIONS

**Table 12: Concomitant List of Appropriate Technical or Management Options**

Identified Impact	Technical Management Option/Mitigation Measures	Timeframe	Responsible Party	Monitoring Frequency	Monitoring Tool
<b>Planning and Preparation Phase</b>					
<b>Safety and Security Risks to Landowners/lawful occupiers</b>	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.	Pre-commencement	Applicant & Contractor	As required	Landowner notification and consent
	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.	Pre-commencement	Applicant & Contractor	As required	Landowner notifications
	An agreement between the landowner, applicant and contractor outlining access to the site, compensation (if required) and other landowner specific considerations between the parties must be drawn up and agreed upon prior to gaining access to the site.	Pre-commencement	Applicant, Contractor and landowner	As required	Landowner notification, consent and access agreement
<b>Interference with Existing Land uses</b>	Consideration must be taken by the applicant and/or contractors when on site not to interfere with the existing land uses and practices.	Pre-commencement	Applicant & contractor	As required	Landowner notification, consent and access agreement
<b>Operational Phase (Drilling and Trenching activities)</b>					
<b>Safety and Security Risks to Landowners/lawful occupiers</b>	Landowners/lawful occupiers must be notified prior to accessing properties. A date and time that is suitable to landowners/lawful occupiers and reasonable to the applicant should be negotiated and agreed upon.	Pre-commencement	Applicant & Contractor	As required	Landowner notification and consent
	The number, identity of workers, work location and work to be done must be provided to the landowner/lawful occupier.	Pre-commencement	Applicant & Contractor	As required	Landowner notifications
	Any un-skilled workers to be employed must be South African citizens and pass criminal checks prior to employment.	Pre-commencement	Applicant & Contractor	As required	Employment contracts/Criminal Checks
	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	On-going	Applicant & Contractor	Daily	Visual inspection
	No employee will be allowed to sleep overnight with the proposed prospecting right application area unless given permission by the landowner/lawful occupier.	On-going	Applicant & Contractor	Daily	Visual inspection
	Workers may not receive visitors whilst they are working within the prospecting right application area.	On-going	Applicant & Contractor	Daily	Visual inspection
	Workers are not allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares or otherwise dangerous objects on site, or to enter the proposed prospecting area while under the influence of alcohol or drugs	On-going	Applicant & Contractor	Daily	Visual inspection

Identified Impact	Technical Management Option/Mitigation Measures	Timeframe	Responsible Party	Monitoring Frequency	Monitoring Tool
	Workers must be restricted to existing access roads and Drilling/trenching sites and will not be allowed to wander off into the rest of the property or surrounding area during work hours.	On-going	Applicant & Contractor	Daily	Visual inspection
	All access gates should be kept closed unless otherwise directed by landowners/lawful occupiers.	On-going	Applicant & Contractor	Daily	Visual inspection
	A complaints register should be maintained to log complaints by landowners, occupants and other Interested and Affected Parties, and response to such complaints. The complaints register should be provided to DMR on an annual basis and at any point in time if requested by the DMR.	On-going	Applicant & Contractor	Daily	Complaints register
<b>Deterioration and Damage to Existing Access Roads and Tracks</b>	The applicant shall notify the landowner/lawful occupier of where and when existing access tracks and roads will be utilised.	On-going	Applicant & Contractor	Daily	Visual inspection
	Existing access roads and tracks will be utilised as far as is practically possible.	Pre-commencement	Applicant & Contractor	Daily	Visual inspection
	Should new access roads or tracks be required they should be planned in consultation with the relevant landowner/lawful occupier.	On-going	Applicant & contractor	As required	Landowner notifications
	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.	On-going	Applicant & contractor	As required	Visual inspection
	Where no option exists to construct access roads/tracks wider than 4 m and longer than 1 km then provincial departments (DEA and DMR) must be consulted, the activity applied for and environmental authorisation obtained prior to commencement.	On-going	Applicant & contractor	As required	Authority notifications and approvals
	The location of work and siting of invasive activities must be done in consultation with the landowner and lawful occupier.	On-going	Applicant & contractor	As required	Landowner notifications
	The applicant and landowner/lawful occupier must negotiate access to the property and compensation (if necessary and required) prior to undertaking any invasive prospecting activities.	On-going	Applicant & contractor	As required	Landowner notifications
<b>Interference with Existing Land Uses</b>	The location of work and siting of invasive prospecting techniques must be done in consultation with the landowner/lawful occupier.	On-going	Applicant & contractor	As required	Landowner notifications
	Prospecting work to be carried out must be undertaken in a manner that accommodates existing land uses such as the agricultural activities and residents within the immediate surrounding area.	On-going	Applicant & contractor	As required	Landowner notifications
	All invasive prospecting activities cannot be undertaken within 100 m of any existing infrastructure such residential developments and Eskom infrastructure. Prospecting may take place closer than 100 m but only with expressed consent of the relevant infrastructure owner.	On-going	Applicant & contractor	As required	Landowner notifications
	The identification of invasive prospecting activities such as drilling trenching will be determined in consultation with the affected landowner/s once the preliminary investigations area complete and the target areas have been identified.	On-going	Applicant & contractor	As required	Landowner notifications

Identified Impact	Technical Management Option/Mitigation Measures	Timeframe	Responsible Party	Monitoring Frequency	Monitoring Tool
<b>Damage to Third Party Infrastructure</b>	Where possible a distance of at least 100 m will be provided between the prospecting operations and infrastructure or land use unless written approval is obtained from the affected landowners/lawful occupier.	On-going	Applicant & contractor	As required	Landowner approval
	A landowners/lawful occupier agreement must be drawn up prior to prospecting activities taking place. Compensation for any damages must be negotiated together with any access agreements for prospecting activities	Pre-commencement	Applicant & contractor	As required	Landowner agreement
	Vehicular movement must as far as practically possible be restricted to the existing access roads/tracks so as to prevent unnecessary damage or disturbance to existing vegetation.	On-going	Applicant & contractor	As required	Visual inspection
	The footprint of the area prepared and cleared for prospecting activities must be kept as small as possible.	On-going	Applicant & contractor	As required	Visual inspection
<b>Loss of Natural Vegetation</b>	No indigenous medium or large shrubs/trees must be disturbed, pruned or removed.	On-going	Applicant & contractor	As required	Visual inspection
	No removal of trees or collection of firewood is allowed.	On-going	Applicant & contractor	As required	Visual inspection
	The site must regularly be cleared of any alien and invasive floral species prior to their establishment on site.	On-going	Applicant & contractor	Monthly	Visual inspection
	Alien and invasive flora must be removed from ALL prospecting disturbed areas and subsequently rehabilitated areas, with the objective being to return the site to the pre-prospecting condition or better where practically possible.	On-going	Applicant & contractor	As required	Visual inspection
	Workers boots and clothing, vehicles, equipment and other machinery should be cleaned of mud, dust and other possible sources of seed/propagules prior to moving to the next site in order to prevent the spread of alien invasive species.	On-going	Applicant & contractor	As required	Visual inspection
	The growth of weed species on the stockpile of topsoil and on site will be controlled to prevent the establishment of a seed bank or accumulation of other propagules of alien invasive plants.	On-going	Applicant & contractor	As required	Visual inspection
	A suitably qualified ECO or specialist must be consulted prior to invasive prospecting activities to establish if there is an endangered vegetative unit such as Eastern Highveld Grassland occurring within the area earmarked for invasive prospecting activity area.	Pre-commencement	ECO & Specialist	Once-off	Report and visual inspection
	No prospecting must take place on steep slopes (gradient greater than 1:10) or within the 1:50 year floodline or within 100 m of any water course or resource (including wetland areas). In the event that this cannot be complied with a site and activity specific survey must be undertaken by a suitable qualified professional prior to commencement as well as apply for the relevant licences or exemptions where applicable.	On-going	Applicant & contractor	As required	Visual inspection
<b>Displacement, Injury and Death of Local Fauna</b>	All prospecting activities must be demarcated/fenced (possibly with snow-netting) to stop people and wildlife from wandering into the area and potentially injuring themselves.	On-going	Applicant & contractor	As required	Visual inspection

Identified Impact	Technical Management Option/Mitigation Measures	Timeframe	Responsible Party	Monitoring Frequency	Monitoring Tool
	No hunting is permitted to take place on site.	On-going	Applicant & contractor	As required	Visual inspection
	No worker may disturb, hunt set traps/snares, utilise dead or alive fauna/livestock/wildlife/fish, collect or remove firewood or medicinal plants or other plants/crops/fruits.	On-going	Applicant & contractor	As required	Visual inspection
	Where reasonably possible, direct impacts on small fauna (e.g. invertebrates, reptiles) must be prevented.	On-going	Applicant & contractor	As required	Visual inspection
	The siting of any prospecting equipment or activities must, where reasonably possible, avoid or at least minimise the physical disturbance to existing faunal residences.	On-going	Applicant & contractor	As required	Visual inspection
	Any fauna located within the site planned for invasive prospecting activity must be caught and relocated by a suitably qualified specialist no more than 500 m away from the invasive activity site.	On-going	Applicant & contractor	As required	Visual inspection
<b>Topsoil and soil profile disturbance</b>	Topsoil will be stripped to its full depth (including the "O" and "A" horizons but excluding the "B" and "C" horizons) from all areas where significant soil compaction or pollution is likely to occur due to prospecting related disturbances.	On-going	Applicant & contractor	As required	Visual inspection



Identified Impact	Technical Management Option/Mitigation Measures	Timeframe	Responsible Party	Monitoring Frequency	Monitoring Tool
	<p>Care must be taken not to mix topsoil and subsoil during stripping. After the topsoil has been stripped, it will be stored separate from subsoil, in the following manner:</p> <ul style="list-style-type: none"> <li>○ To prevent the development of anoxic conditions, soil compaction and loss of soil biota, stripped topsoil will be placed/stored on temporary stockpiled not exceeding 1.5 meter in height, and storage will be for the shortest period possible (not longer than 6 months);</li> <li>○ To prevent compaction and loss of soil structure, no vehicles or machines will be allowed to drive over or park on the topsoil stockpiles;</li> <li>○ To prevent erosion of topsoil, the stockpile will not be placed within the 1:100 year floodline of a water course, and will not be placed within the path of a storm water channel, and if necessary, will be provided with a silt fence around the perimeter of the foot of the stockpile;</li> <li>○ To prevent the establishment of a seed bank or accumulation of other propagules of alien invasive plants within/on the topsoil stockpile, the growth of weed species on the stockpile will be controlled; and</li> <li>○ Areas prone to erosion and stability issues must be avoided for stockpiles.</li> </ul> <p><b>The following general topsoil management strategies will be adopted:</b></p> <ul style="list-style-type: none"> <li>• The biological, chemical and physical properties of the topsoil must not be changed by introducing detrimental foreign material, gravel, rock, rubble or mine residue to such soil (MPRDA Regulation 70(7)) and</li> <li>• Should any topsoil become polluted, the polluted soil should be managed as a spill as described in the EMPlan.</li> </ul> <p><b>After prospecting related disturbances cease:</b></p> <ul style="list-style-type: none"> <li>• The disturbed area will be reinstated. If subsoil was removed the subsoil will be placed back first. Before topsoil is spread, the compacted area will be deep-ripped to a depth of at least 30cm where soil depth permits.</li> <li>• The access tracks and other areas where significant compaction has occurred must be deep ripped to allow for re-establishment of vegetation.</li> </ul> <p>All erosion control mechanisms need to be regularly maintained</p>				

Identified Impact	Technical Management Option/Mitigation Measures	Timeframe	Responsible Party	Monitoring Frequency	Monitoring Tool
<b>Altered Topography</b>	The Applicant is to ensure that drilling and trenching activities do not exceed their PWP requirements. During the rehabilitation of the prospecting activities the Applicant and contractors are to ensure that the invasive areas is rehabilitated to a state that resembles that of the surrounding topography, most notably undulating plains.	On-going	Applicant/ contractor	Weekly	Visual inspection
<b>Soil Erosion</b>	<ul style="list-style-type: none"> <li>The disturbed area will be reinstated. If subsoil was removed the subsoil will be placed back first. Before topsoil is spread, the compacted area will be deep-ripped to a depth of 1 m where soil depth permits;</li> <li>The access tracks and other areas where significant compaction has occurred must be deep ripped to allow for re-establishment of vegetation; and</li> <li>All erosion control mechanisms need to be regularly maintained.</li> </ul>	On-going	Applicant/ contractor	Weekly	Visual inspection
<b>Soil Pollution and Contamination</b>	During drilling and trenching an impermeable lining/tray must be placed under any equipment which may leak hazardous substances. All spilled hazardous substances/hydrocarbons must be collected and adequately disposed of at a suitably licensed facility.	On-going	Applicant/ contractor	Weekly	Visual inspection
	All equipment including excavators and vehicles must be serviced regularly and kept in good working conditions.	On-going	Applicant/ contractor	Weekly	Visual inspection/Service Records
	After the placement of equipment on site, all equipment must be provided with impermeable lining or drip pan/trays to prevent pollution of the soils from hydrocarbons, oils, lubricants and fluids.	On-going	Applicant/ contractor	Weekly	Visual inspection
	In the event of a spill, the soil (to a depth of 30 cm) must be excavated and if required, temporarily stored for disposal at a license waste management facility.	On-going	Applicant/ contractor	Weekly	Visual inspection/Waste Disposal Slips
	It is recommended that the identification of proposed prospecting sites be determined in consultation with the affected landowner/s once the preliminary investigations are complete and the target areas have been identified.	Pre-commencement	Applicant/ contractor	Once - off	Landowner consultation
	No prospecting activities will be undertaken within 100 m of a physical structure (including residential dwellings) unless written consent from the relevant landowner is obtained.	On-going	Applicant/ contractor	Weekly	Visual inspection
<b>Water Pollution and Contamination</b>	No prospecting activities will be undertaken within 100 m hydrological features.	On-going	Applicant/ contractor	Weekly	Visual inspection
	During drilling and trenching an impermeable lining/tray must be placed under any equipment which may leak hazardous substances. All spilled hazardous substances/hydrocarbons must be collected and adequately disposed of at a suitably licensed facility.	On-going	Applicant/ contractor	As required	Visual inspection
	After the placement of equipment on site, all equipment must be provided with impermeable lining or drip pan/trays to prevent pollution of the soils from hydrocarbons, oils, lubricants and fluids.	On-going	Applicant/ contractor	Weekly	Visual inspection
	Should an oil and/or hydrocarbon spill occur and make its way into a wetland or river system the Applicant must be notified immediately	On-going	Applicant/ contractor	As required	Visual inspection

Identified Impact	Technical Management Option/Mitigation Measures	Timeframe	Responsible Party	Monitoring Frequency	Monitoring Tool
<b>Reduction in available water</b>	Water is not to be abstracted from a borehole located on site or in the surrounding area without permission from the relevant owner.	On-going	Applicant/ contractor	Weekly	Visual inspection
	Should water be required for the prospecting operations water must be obtained from an existing legal source and the DWA informed.	On-going	Applicant/ contractor	As required	Visual inspection
<b>Ponding in trenches</b>	Water must be directed away with berms dug to avoid ponding	On-going	Applicant/ contractor	As required	Visual inspection
	The trenches must be fenced off and danger signs should be placed on the fence.	On-going	Applicant/ contractor	Weekly	Visual inspection
	If ponding occurs, the water should be pumped out immediately to avoid oxidisation with any potential coal sediments located within the trench.	On-going	Applicant/ contractor	As required	Visual inspection
	No discharge of water from the trenches may occur over land or into a water course. Water is to be re-used where applicable	On-going	Applicant/ contractor	As required	Visual inspection
	Backfilling of the trench should occur as soon as practically possible.	On-going	Applicant/ contractor	As required	Visual inspection
<b>Disturbance, Damage and Destruction of Heritage Features</b>	No prospecting activities will be undertaken within 100 m of any heritage features, artefacts and/or buildings older than 60 years.	On-going	Applicant/ contractor	Weekly	Visual inspection
	If any artefact or site of heritage value or grave is uncovered during prospecting, the prospecting activities should be stopped immediately and South African Heritage Resource Agency and the local police (in case of graves or human remains) contacted immediately and consulted regarding any further requirements.	On-going	Applicant/ contractor	Weekly	Visual inspection
	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.	On-going	Applicant & Contractor	As required	Visual inspection
	Heavy vehicles should where possible use existing tarred roads and avoid unpaved roads.	On-going	Applicant & Contractor	As required	Visual inspection
<b>Generation of Nuisance Dust</b>	Vegetation within the application area must be retained as much as practically possible around work areas and reduce vegetation clearance to a minimum.	On-going	Applicant & Contractor	As required	Visual inspection
	The stipulated buffers of 100 m from existing infrastructure shall be adhered to at all times unless agreed to with the relevant landowner. Different forms of dust suppression should be investigated by the applicant in the case where dust becomes problematic.	Pre-commencement	Applicant & Contractor	Weekly	Visual inspection
	No drilling and trenching shall take place within 100 m of an existing residential dwelling without written approval from the relevant landowner/lawful occupier.	Pre-commencement	Applicant & Contractor	Once off	Visual inspection
	The applicant and contractor shall ensure that employees do not make unnecessary noise and restrict employees to the work area only. Permitted times to work on site will be 7 am – 5 pm during the weeks and on Saturdays. No activities are permitted on Sundays or public holidays.	On-going	Applicant & Contractor	Weekly	Visual inspection/Measurement
<b>Generation of Nuisance Noise</b>	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.	Pre-commencement	Applicant & Contractor	Once off	Visual inspection

Identified Impact	Technical Management Option/Mitigation Measures	Timeframe	Responsible Party	Monitoring Frequency	Monitoring Tool
	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.	On-going	Applicant & Contractor	As required	Visual inspection/Records kept
<b>Generation and Disposal of Waste</b>	The waste management system shall provide for adequate waste storage (in the form of scavenger proof bins with lids) and frequent removal of non-recyclable waste for permanent disposal at an appropriately licensed waste disposal facility.	On-going	Applicant & Contractor	As required	Landowner notification and consent
	No waste material is to be disposed of on site. Under no circumstances may there be any burial of waste on the site.	On-going	Applicant & Contractor	As required	Visual inspection/Records kept
	Environmental Awareness training shall include fire risks in order to create an awareness of the risks of fire. As such the Applicant, contractor, subcontractors and all employees on site shall be expected to be conscious of fire risks and shall take all the necessary precautions to ensure that fires are not started as a consequence of his activities on site.	On-going	Applicant	Prior to construction phase	Adequate training to sensitise labourers to risks of fire/Visual inspection of fire prevention measures.
	Smoking shall not be permitted in those areas where it is a fire hazard. Such areas shall include the fuel storage areas and any areas where the vegetation or other material is such as to make liable the rapid spread of an initial flame. It is recommended that dedicated smoking areas are created on site which are provided with fire extinguishers and adequate provision for discard of cigarette butts. No person will be allowed to discard cigarettes or cigarette butts (or any other ignition source into the environment.	Throughout operation.	Applicant	On-going	Prevent accidental fires/Visual observation that smoking areas are available.
<b>Risk of Fires</b>	Environmental Awareness training shall include fire risks in order to create an awareness of the risks of fire. As such the Applicant, contractor, subcontractors and all employees on site shall be expected to be conscious of fire risks and shall take all the necessary precautions to ensure that fires are not started as a consequence of his activities on site.	On-going	Applicant	Prior to construction phase	Adequate training to sensitise labourers to risks of fire/Visual inspection of fire prevention measures.
	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.	Pre-commencement	Applicant & Contractor	As required	Landowner notification and consent
<b>Employment of unskilled labourers</b>	The operational phase will require 5 unskilled labourers to assist with the operational phase activities. Therefore providing 5 local people temporary job opportunities.	Pre-commencement	Applicant & Contractor	As required	Employee records kept
<b>Environmental awareness training</b>	Environmental awareness training must be conducted with both the skilled and unskilled labourers prior to the employees starting work on the Application area.	Pre-commencement	Applicant, Contractor and employee	Prior to operation phase	Log book of training conducted
<b>Rehabilitation</b>					

Identified Impact	Technical Management Option/Mitigation Measures	Timeframe	Responsible Party	Monitoring Frequency	Monitoring Tool
<b>Safety and Security Risks to Landowners/lawful occupiers</b>	An agreement between the landowner, applicant and contractor outlining access to the site, compensation (if required) and other landowner specific considerations between the parties must be drawn up and agreed upon prior to gaining access to the site.	Pre-commencement	Applicant, Contractor and landowner	As required	Landowner notification, consent and access agreement
	Rehabilitation must be done in accordance with the rehabilitation plan included in this EMPlan unless another reasonable land use as is requested by the landowner.	On-going	Applicant & Contractor	As required.	EMPlan/Landowner request
	Rehabilitation efforts must be initiated as soon as all available information from prospecting has obtained and prospecting completed	On-going	Applicant & Contractor	As required	Visual inspection
<b>Interference with Existing Land Use</b>	Rehabilitation efforts must be done in accordance with the affected landowners and the relevant agreements drafted in the planning and preparation phase utilized to rehabilitate the affected portions of land in a manner agreed upon by both the land owner and applicant. Rehabilitation must be a collaborative effort between stakeholders.	On-going	Applicant & Contractor	As required	Legal agreement/Landowner request
	Rehabilitated areas must be clearly demarcated with either fencing or snow-netting and monitored to ensure that rehabilitation is successful.	On-going	Applicant & Contractor	As required	Visual inspection

### 3.2.3. REVIEW THE SIGNIFICANCE OF THE IDENTIFIED IMPACTS

The table below summarises the impact rating calculated for the impacts identified and assessed. Scores for both pre-mitigation and post mitigation are provided.

**Table 13: Impact Significance Table**

Potential Impacts	Pre – Mitigation Score	Post – Mitigation Score	Final Significance
<b>Planning Phase – Geotechnical studies</b>			
Safety and Security Risk to Landowners	-9	-7.5	-7.5
Interference with Existing Land Uses	-8.25	-5	-5.833333
<b>Operation Phase – Drilling and Trenching</b>			
Safety and Security Risks to Landowners	-9.75	-8.25	-8.25
Damage to Existing Access Tracks/Roads	-10.5	-6	-6
Interference with Existing Land Uses	-11	-7.5	-7.5
Damage to Third Party Infrastructure	-8.25	-4	-4
Loss of Natural Vegetation	-4.5	-4	-4
Displacement, Injury or Death of Local Fauna	-6.5	-5.5	-5.5
Soil Erosion	-12	-9.75	-9.75
Disturbance of the Soil Profile	-8.25	-5	-5
Altered topography	-6.75	-4	-4
Soil Pollution and Contamination	-6.75	-4	-4
Water pollution and contamination	-7.5	-3.5	-3.5
Reduction in water availability	-13	-4.5	-4.5
Ponding in trenches	-8.25	-4.5	-4.5
Disturbance, Damage & Destruction of Heritage Features	-9.75	-6	-6
Generation of Nuisance Dust	-8.25	-6.75	-6.75
Generation of Nuisance Noise	-8.25	-6.75	-6.75
Generation and Disposal of Waste	-9	-5	-5
Risk of Fires	-9.75	-4	-4
Employment of unskilled labourers	-5.25	13.75	13.75
Environmental awareness training	-5.25	16.25	16.25
<b>Rehabilitation Phase</b>			
Interference with land uses	-9	-7.5	-7.5
Safety and Security	-8.25	-5	-5.833333

## 4. REGULATION 52(2)(D): FINANCIAL PROVISION

### 4.1. PLANS FOR QUANTUM CALCULATIONS

The quantum for financial provision was 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)". The calculation is included in the EMPlan and is detailed in Section 4.3.

### 4.2. ALIGNMENT OF REHABILITATION WITH CLOSURE OBJECTIVES

Typically, the goal of a rehabilitation plan and its consequent closure objective is to re-instate landform, land use and vegetation units to the same as before prospecting operations took place. In the case of this project, invasive activities (drilling and trenching) will be undertaken in areas that have already been disturbed by previous prospecting activities and as such the preliminary closure objective will be to undertake rehabilitation with an aim to creating a safe, non-polluting environment that can be maximised for proposed future land use. As such, the proposed rehabilitation plan is presented below in stages:

#### **Making the area safe**

The applicant must backfill the trenching areas and the sumps excavated during the drilling activities. It is also recommended that the applicant cordon off/demarcate the disturbed area. No entry signs or signs indicating that dangerous activities are under way within the fenced off area should be placed on the fences surrounding the application area.

#### **Free draining landform**

The backfilling of the site is important for both safety reasons and also to allow vegetation to re-establish itself in the area. The aim must be to create a free draining landform that is not susceptible to excessive erosion and a topography commensurate with the prevailing, surrounding environment and intended future land use.

#### **Re-vegetation**

The main goal and objective of rehabilitation is to rehabilitate the area disturbed to the degree that it no longer requires much management intervention. It is important to prevent residual or latent impacts such erosion and the proliferation of alien and invader plant species. This is best achieved by re-establishing natural vegetation communities allowing for floral succession.

Areas where the soil has been compacted should be ripped to a depth of 1 m and a wild seed mix that best represents the surrounding indigenous grass species must be planted to promote the establishment of natural vegetation communities. This seed mix should consist of grass species such as *Eragrostis* and *Themidia* types. These pioneer grasses require minimal management and colonise an area relatively quickly and are commensurate with features of Eastern Highveld Grassland. Before the seed mix is laid down a sweep of the application area and particularly the disturbed areas should be completed for invasive species. If any alien vegetation is located within the site it shall be removed and disposed of in a responsible manner so as to prevent the potential for further dispersal or establishment of alien vegetation in the area.

Re-vegetation will occur naturally overtime but the seed mix will encourage quicker growth of the disturbed areas and prevent the establishment of invasive species. However, monitoring of the area will be required to ensure weed species do not establish/recolonize is important. The rehabilitation of the area should require limited monitoring (bi-annually) until such time as a closure permit is applied for and granted due to the area being deemed suitably rehabilitated

Any area where a land use is disturbed as a result of the prospecting activities, the land is required to be rehabilitated in a manner as required by the landowner and land user. An agreement prior to the operational phase must establish the landowners goals and objectives for how the affected areas are to be rehabilitated. If no stipulations are made in this regard, the onus is on the applicant to rehabilitate the affected portions to pre-prospecting conditions ensuring that areas are rehabilitated to the satisfaction of the landowner and land user.

### 4.3. QUANTUM CALCULATIONS

The calculation for the financial provision is presented below. The calculation is based on the DMR Guideline for Financial Provision (2005). The calculation is based on a surface area of 10 m long x 2 m wide and 3 m deep for two (2) trenches equalling a disturbance of 120 m<sup>2</sup> and 20 m x 20 m for ten (10) boreholes equalling a disturbance of 400m<sup>2</sup>. The total surface area to be disturbed during the prospecting activities is approximately 520 m<sup>2</sup>. The prospecting techniques mentioned above are in alignment with the PWP previously submitted to the DMR. The amount calculated for the financial provisions will be updated yearly.

Prospecting Mineral: Various		Environmental Sensitivity: Low - Medium		Level of Information Available: Limited	
Item	Description	Unit	Quantity	Rate	Amount
1	General surface rehabilitation	ha	0.500	55000	<b>R 27,500.00</b>
2	Rehabilitation of existing access roads	m	1000	11	<b>R 11,000.00</b>



Prospecting Mineral: Various		Environmental Sensitivity: Low - Medium		Level of Information Available: Limited	
3	Repairs to damages to fences	m	500	15	R 7,500.00
4	Water management ( water cart/sprinkler or bowzer)	ha	0.5	55000 x( Multiplication factor of 0.25)	R 6,875.00
5	Removal and disposal of waste	Each site	122	2,500	R 30,000.00
6	Removal of erosion controls	m <sup>3</sup>	40	150	R 6,000.00
7	Backfilling of trenches	m <sup>3</sup>	2	2000	R 4, 000.00
8	Topsoil replacement and shaping	m <sup>3</sup>	200	150	R 30,000.00
9	Re-vegetation	m <sup>3</sup>	100	150	R 15,000.00
10	Maintenance and aftercare	ha	50	500	R 25,000.00
<b>Total (Excluding V.A.T)</b>					<b>R 162,875.00</b>
<b>Total (Contingencies at 10%)</b>					<b>R 16, 587.00</b>
<b>Total (Preliminary at 12%)</b>					<b>R 19, 545.00</b>
<b>Grand Total ( Excluding VAT)</b>					<b>R 199 000.70</b>
<b>Grand Total (Including VAT at 14%)</b>					<b>R 226,861.68</b>

#### 4.4. UNDERTAKING TO PROVIDE FINANCIAL PROVISION

The applicant, C.F. Smit hereby undertakes to provide the financial provision as calculated in September 2014.

<p>Herewith I, the person whose name and identity number is stated below, confirm that I am the person authorised to act as representative of the applicant in terms of the undertaking to provide the financial provision as calculated in the EMPlan compiled in accordance with the guideline on the Departments official website and the directive in terms of sections 29 and 39 (5) of the MPRDA</p>	
Full Names and Surname	Christiaan F Smit
Identification Number	4001305012084

## 5. REGULATION 52(2)(E): PLANNED MONITORING AND PERFORMANCE ASSESSMENT OF THE ENVIRONMENTAL MANAGEMENT PLAN

### 5.1. LIST OF IDENTIFIED IMPACTS REQUIRING MONITORING PROGRAMMES

The success of the EMPlan is dependent on implementation of the technical management options/mitigation measures presented in the table above and by the stipulated responsible parties. In addition to implementation, monitoring of impacts is also required. As such the following impacts identified and assessed require monitoring programmes:

- Safety and security risks to landowners/lawful occupiers;
- Deterioration and damage to existing access roads and tracks;
- Interference with existing land uses;
- Damage to third party infrastructure;
- Loss of natural vegetation;
- Displacement, injury and death of local fauna;
- Soil erosion;
- Disturbance to the soil profile;
- Altered topography;
- Soil pollution and contamination;
- Water pollution and contamination;
- Reduction in available water;
- Potential ponding in trenches;
- Disturbance, damage and destruction of potential heritage features;
- Dust nuisance;
- Noise nuisance;
- Waste generation and disposal; and
- Risk of fires.

Positive impacts requiring monitoring programmes:

- Employment of unskilled labourers; and
- Environmental awareness training

## 5.2. FUNCTIONAL REQUIREMENTS OF MONITORING PROGRAMMES

The functional requirements of environmental monitoring for the proposed prospecting operation are detailed in the table below and include (but are not limited to) monitoring of compliance to the mitigation measures for each impact as detailed in Section 3.2.2. In addition, the applicant must undertake monitoring on a continuous basis and will prepare annual performance assessment reports to be submitted to the DMR for review.

The annual performance assessment report must comply with the requirements of Regulation 55 of the MPRDA regulations. This assessment will report on the compliance/non-compliance of the activities/operations against the specific requirements as provided in this EMPlan.

Whilst every reasonable effort has been made to identify and assess all likely impacts it is possible that unanticipated impacts are likely to occur. In the event that unanticipated impacts are experienced the onus is on the applicant and appointed ECO to update the EMPlan and design new mitigation measures to manage said impacts. These impacts will also be reported on in the annual performance assessment.

### 5.2.1. METHOD OF MONITORING THE IDENTIFIED IMPACTS

Table 14: Monitoring the Identified Impacts

Impact	Aspect	Method	Standard	Frequency of Monitoring	Non Compliance Procedure
<b>Safety and security risks to landowners/lawful occupiers</b>	Social	<ul style="list-style-type: none"> <li>Inform landowners in writing of intent and comply with reasonable request to reduce the impact.</li> <li>All drill and trench sites must be fenced off.</li> <li>All labourers must be South African and pass criminal check.</li> </ul>	EMPlan	<ul style="list-style-type: none"> <li>Prior to access to property</li> <li>Prior to site establishment.</li> <li>During prospecting activities</li> <li>EMP checklist will be compiled and utilised</li> </ul>	<ul style="list-style-type: none"> <li>Rectify immediately and consult with landowners/lawful occupiers.</li> <li>A record must be kept of any non-compliance, including confirmation the that the non-conformance must be dealt with</li> </ul>
<b>Deterioration and damage to existing access roads and tracks</b>	Infrastructure	<ul style="list-style-type: none"> <li>Inform landowners in writing of intent and comply with reasonable request to reduce the impact.</li> <li>Negotiate compensation for interference with landowner/lawful occupier</li> <li>Visual confirmation of rehabilitation</li> </ul>	EMPlan	<ul style="list-style-type: none"> <li>Prior to access to property</li> <li>Prior to site establishment.</li> <li>During prospecting activities</li> <li>EMP checklist will be compiled and utilised</li> </ul>	<ul style="list-style-type: none"> <li>Rectify immediately and consult with landowners/lawful occupiers.</li> <li>A record must be kept of any non-compliance, including confirmation the that the non-conformance must be dealt with</li> </ul>
<b>Interference with existing land uses</b>	Land use	<ul style="list-style-type: none"> <li>Negotiate compensation for any interference with landowner/lawful occupier</li> <li>Visual confirmation of rehabilitation</li> <li>Approval of rehabilitation by</li> </ul>	EMPlan	<ul style="list-style-type: none"> <li>Prior to access to property</li> <li>Prior to site establishment.</li> <li>During prospecting activities</li> <li>EMP checklist will be</li> </ul>	<ul style="list-style-type: none"> <li>Rectify immediately and consult with landowners/lawful occupiers</li> <li>A record must be kept of any non-compliance, including confirmation the that the non-</li> </ul>

Impact	Aspect	Method	Standard	Frequency of Monitoring	Non Compliance Procedure
		landowner/lawful occupier		compiled and utilised	conformance must be dealt with
<b>Damage to third party infrastructure</b>	Infrastructure	<ul style="list-style-type: none"> <li>Inform landowners in writing of intent and comply with reasonable request to reduce the impact.</li> <li>Negotiate compensation for interference with landowner/lawful occupier</li> </ul>	EMPlan	<ul style="list-style-type: none"> <li>Prior to access to property</li> <li>Prior to site establishment.</li> <li>During prospecting activities</li> <li>EMP checklist will be compiled and utilised</li> </ul>	<ul style="list-style-type: none"> <li>Rectify immediately and consult with landowners/lawful occupiers.</li> <li>A record must be kept of any non-compliance, including confirmation the that the non-conformance must be dealt with</li> </ul>
<b>Loss of natural vegetation</b>	Flora	<ul style="list-style-type: none"> <li>ECO to delineate any Endangered vegetation units</li> <li>Site clearance to be kept to a minimum</li> <li>No removal, disturbance or pruning of large to medium shrubs or tress</li> <li>Visual marking of sensitive species and areas</li> <li>A qualified person or wetland specialist is to assess the Application area and delineate any wetlands found on site prior to invasive prospecting.</li> <li>These wetland areas are to be excluded from any invasive</li> </ul>	EMPlan	<ul style="list-style-type: none"> <li>Prior to site establishment.</li> <li>During prospecting activities</li> <li>EMP checklist will be compiled and utilised</li> </ul>	<ul style="list-style-type: none"> <li>Minimise site clearance</li> <li>Relocate disturbed species</li> <li>Fence off prospecting site</li> <li>A record must be kept of any non-compliance, including confirmation the that the non-conformance must be dealt with</li> <li>A record must be kept of any non-compliance, including confirmation the that the non-conformance must be dealt with</li> </ul>

Impact	Aspect	Method	Standard	Frequency of Monitoring	Non Compliance Procedure
		<p>prospecting activities.</p> <ul style="list-style-type: none"> <li>A 100m buffer is to be placed around any wetland systems found onsite.</li> <li>ECO to conduct biannual audits to ensure avoidance of the wetland system occurs.</li> </ul>			
<b>Destruction, injury and disturbance to local fauna</b>	Fauna	<ul style="list-style-type: none"> <li>Visual inspection of prospecting site</li> <li>Visual inspection of operational vehicles prior to starting up to determine nothing is under the vehicles in in the path to be travelled or prospected.</li> </ul>	EMPlan	<ul style="list-style-type: none"> <li>During prospecting activities</li> </ul>	<ul style="list-style-type: none"> <li>Relocate disturbed species</li> <li>Fence off prospecting site</li> <li>A record must be kept of any non-compliance, including confirmation the that the non-conformance must be dealt with</li> </ul>
<b>Soil erosion</b>	Soil	<ul style="list-style-type: none"> <li>Visual confirmation of soil erosion controls, soil profile disturbance and topsoil management where required.</li> </ul>	EMPlan	<ul style="list-style-type: none"> <li>Prior to site establishment.</li> </ul>	<ul style="list-style-type: none"> <li>Rectify immediately and report</li> <li>A record must be kept of any non-compliance, including confirmation the that the non-conformance must be dealt with</li> </ul>
<b>Disturbance to the soil profile</b>				<ul style="list-style-type: none"> <li>During prospecting activities</li> </ul>	
<b>Soil compaction</b>				<ul style="list-style-type: none"> <li>EMP checklist will be compiled and utilised</li> </ul>	
<b>Soil contamination</b>	Soil	<ul style="list-style-type: none"> <li>Visual inspection of prospecting site</li> <li>Visual inspection of equipment and</li> </ul>	EMPlan	<ul style="list-style-type: none"> <li>During prospecting activities</li> </ul>	<ul style="list-style-type: none"> <li>Spill response kit should be utilised to mitigate accidental</li> </ul>

Impact	Aspect	Method	Standard	Frequency of Monitoring	Non Compliance Procedure
<b>and pollution</b>		vehicles <ul style="list-style-type: none"> <li>Visual inspection of drip pan/trays</li> <li>Visual inspection of sumps</li> </ul>		<ul style="list-style-type: none"> <li>EMP checklist will be compiled and utilised</li> </ul>	spills. <ul style="list-style-type: none"> <li>All spills and contamination events must be recorded and the degree of contamination or pollution noted during reporting</li> <li>A record must be kept of any non-compliance, including confirmation the that the non-conformance must be dealt with</li> </ul>
<b>Water contamination and pollution</b>	Water	<ul style="list-style-type: none"> <li>Visual inspection of sumps</li> <li>Visual inspection of drip pan/trays</li> <li>Visual inspection of prospecting site</li> <li>Visual inspection of equipment and vehicles</li> </ul>	EMPlan	<ul style="list-style-type: none"> <li>During prospecting activities</li> <li>EMP checklist will be compiled and utilised</li> </ul>	<ul style="list-style-type: none"> <li>All spills and contamination events must be recorded and the degree of contamination or pollution noted during reporting</li> <li>A record must be kept of any non-compliance, including confirmation the that the non-conformance must be dealt with</li> </ul>
<b>Ponding in trenches</b>	Water	<ul style="list-style-type: none"> <li>Visual inspection to make sure the trench does not fill with rain water</li> </ul>	EMPlan	<ul style="list-style-type: none"> <li>During prospecting activities (operation and closure phase)</li> <li>EMP checklist will be compiled and utilised</li> </ul>	<ul style="list-style-type: none"> <li>Rectify immediately and report</li> <li>Fence off prospecting site</li> <li>A record must be kept of any non-compliance, including confirmation the that the non-conformance must be dealt with</li> </ul>
<b>Disturbance, damage and</b>	Heritage	<ul style="list-style-type: none"> <li>Visual inspection of prospecting site</li> <li>Specialist consultant required if any</li> </ul>	EMPlan	<ul style="list-style-type: none"> <li>Prior to site establishment.</li> <li>During prospecting</li> </ul>	<ul style="list-style-type: none"> <li>Prospecting activity must be halted if any heritage features</li> </ul>

Impact	Aspect	Method	Standard	Frequency of Monitoring	Non Compliance Procedure
<b>destruction of potential heritage features</b>		heritage features are discovered and impacted by prospecting operations		activities <ul style="list-style-type: none"> <li>• EMP checklist will be compiled and utilised</li> <li>• During prospecting</li> </ul>	are discovered <ul style="list-style-type: none"> <li>• Heritage features discovered must be reported to SAHRA</li> <li>• Applicant must await correspondence from SAHRA prior to re-commencement on site impacted upon</li> <li>• A record must be kept of any non-compliance, including confirmation the that the non-conformance must be dealt with</li> </ul>
<b>Noise Nuisance</b>	Noise	<ul style="list-style-type: none"> <li>• Complaints register and actual noise measurements if need be at both source and receptor.</li> </ul>	EMPlan	<ul style="list-style-type: none"> <li>• EMP checklist will be compiled and utilised</li> </ul>	<ul style="list-style-type: none"> <li>• Prospecting operation must be halted if they are found to be commencing on a Sunday, public holiday or after normal working hours during the week.</li> <li>• A record must be kept of any non-compliance, including confirmation the that the non-conformance must be dealt with</li> </ul>
<b>Dust Nuisance</b>	Dust	<ul style="list-style-type: none"> <li>• Complaints register and visual inspection</li> </ul>	EMPlan	<ul style="list-style-type: none"> <li>• EMP checklist will be compiled and utilised</li> <li>• Throughout the prospecting process</li> </ul>	<ul style="list-style-type: none"> <li>• Dust suppression methods discussed prior to prospecting should be immediately implemented and monitored weekly by the contractor to</li> </ul>



Impact	Aspect	Method	Standard	Frequency of Monitoring	Non Compliance Procedure
					<p>reduce the particulate matter.</p> <ul style="list-style-type: none"> <li>A record must be kept of any non-compliance, including confirmation the that the non-conformance must be dealt with</li> </ul>
<b>Waste generation and disposal</b>	Waste	<ul style="list-style-type: none"> <li>Visual inspection that waste does not accumulate inside or outside the drilling and trenching site.</li> <li>Waste must be placed in scavenger proof bins</li> <li>All waste such as oil spills must be stored separately and disposed of at a registered facility</li> <li>Proof of disposal must be kept on site.</li> </ul>	EMPlan	<ul style="list-style-type: none"> <li>Prior to site establishment.</li> <li>During prospecting activities</li> <li>EMP checklist will be compiled and utilised</li> </ul>	<ul style="list-style-type: none"> <li>Prospecting operation must be halted until waste is removed and disposed of correctly</li> <li>A record must be kept of any non-compliance, including confirmation the that the non-conformance must be dealt with</li> </ul>
<b>Risk of fires</b>	Fires	<ul style="list-style-type: none"> <li>Frequent inspections on site.</li> <li>Fire extinguishers</li> <li>Requirements of the Occupational Health and Safety Act</li> <li>Inspection of the prevention measures</li> </ul>	EMPlan	<ul style="list-style-type: none"> <li>During prospecting activities</li> </ul>	<ul style="list-style-type: none"> <li>Identify source and nature of the fire.</li> <li>For a small fire, fire may be extinguished utilising appropriate material according to type of fire</li> <li>For a large fire, inform the supervisor/contractor and applicant immediately.</li> <li>A record must be kept of any non-compliance, including confirmation the that the non-</li> </ul>

Impact	Aspect	Method	Standard	Frequency of Monitoring	Non Compliance Procedure
					conformance must be dealt with
<b>Employment of unskilled labourers</b>	Employment	<ul style="list-style-type: none"> <li>An employment plan of unskilled labour must outline who will be employed, for what duties , for how long and how much remuneration will be received.</li> </ul>	EMPlan	<ul style="list-style-type: none"> <li>Prior to operational phase</li> </ul>	<ul style="list-style-type: none"> <li>Breach of labour laws by both the employee and employer should be reported to the DMR.</li> <li>A record must be kept of any non-compliance, including confirmation the that the non-conformance must be dealt with</li> </ul>
<b>Environmental awareness control</b>	Training	<ul style="list-style-type: none"> <li>Training must be conducted for all employees.</li> <li>Training log book and attendance register must be kept by the Applicant to confirm that training took place.</li> </ul>	EMPlan	<ul style="list-style-type: none"> <li>Prior to site access</li> </ul>	<ul style="list-style-type: none"> <li>The Applicant would be in safety requirements to undertake such activities by endangering the employees.</li> <li>A record must be kept of any non-compliance, including confirmation the that the non-conformance must be dealt with</li> </ul>

### 5.3. ROLES AND RESPONSIBILITIES FOR THE EXECUTION OF MONITORING PROGRAMMES

The successful application of environmental monitoring as detailed in Section 5 requires the delineation of clear roles and responsibilities. According to Regulation 55 of the MPDRA regulations compliance with the EMPlan must be monitored on a continuous basis. A performance assessment report will be submitted to DMR after each year of prospecting operations and a final performance assessment report will be submitted before the application for closure. The holder of the prospecting right may appoint an independent qualified person for the monitoring and to compile a report, but the responsibilities remain the holder's.

The applicant is responsible for undertaking continuous environmental monitoring on the aspects identified above in Section 5.1. It is recommended that the applicant appoint a suitably qualified individual to undertake monthly compliance audits and environmental monitoring. In the event that unanticipated impacts are experienced all reasonable measures must be taken to avoid, minimise and mitigate these impacts. Roles and responsibilities are indicated below:

**Table 15: Roles and Responsibilities**

Responsible Party	Roles/Responsibilities
<b>Applicant</b>	Appointment of ECO
	Appointment of Wetland specialist or suitably qualified person
	Provision of EMPlan to Contractor and ECO
	Enforcement of technical management options/mitigation measures
	Annual update of financial provisions and revision of EMPlan
	Submission of EMPlan performance assessment
<b>Contractor</b>	Review of EMPlan technical management options/mitigation measures
	Implementation of technical management options/mitigation measures
	Enforcement of technical management options/mitigation measures
	Reporting of unanticipated impacts
<b>ECO</b>	Environmental compliance monitoring
	Technical evaluation of EMPlan
	Reporting of unanticipated impacts
	Revision of EMPlan
	Compilation of EMPlan performance assessments

## 5.4. COMMITTED TIME FRAMES FOR MONITORING AND REPORTING

The result of environmental monitoring and compliance to the approved EMPlan will be undertaken yearly 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 EMP;
- Evaluation criteria used during the assessment;
- Results of the assessment are to be discussed and mention must be made of any gaps in the EMP 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.

## 6. REGULATION 52(2)(F): CLOSURE AND ENVIRONMENTAL OBJECTIVES

Invasive prospecting activities will take place in an area that has already highly modified and as such the closure objective will include the rehabilitation of these impacted areas to a condition equivalent to what would have been present prior to any prospecting having taken place. Specifically surface areas disturbed by drilling and trenching operations unless a separate agreement/land use is requested by the landowner on which the activities took place. In such cases, the relevant provisions of other applicable legislation must be considered prior to development, implementation, and monitoring of the rehabilitation plan prior to application.

The intended end use for the disturbed prospecting areas and the closure objectives must be defined in consultation with the legal land owner. Proof of such consultation and landowner/lawful occupier confirmation that the rehabilitation is satisfactory must be submitted together with the Application for Closure Certificate. If no special agreements have been made with the landowner and approved of by the DMR, all areas affected or disturbed by prospecting and associated activities will be rehabilitated to as close as is practically possible to undulating plains type

topography that supports indigenous grasses and naturally establishing floral communities. As such, the rehabilitation plan described below is aligned to the closure objective stated above.

## 6.1. REHABILITATION PLAN

The proposed invasive prospecting sites are located within a modified landscape. The invasive prospecting techniques used will however be rehabilitated to the satisfaction of the landowner and lawful occupier and in consultation with DMR.

The goal of the rehabilitation will involve the reshaping and creating a free draining landform out of the disturbed areas. The area must also be made safe for people and animals that may utilize the area. The re-vegetation of the disturbed areas is key during rehabilitation. The rehabilitation plan is designed in such a way that minimal assistance will be required. It is important to note that the rehabilitation plan and associated financial provisions do not account for previously disturbed areas, but only for the proposed prospecting activities applied for under this application.

The rehabilitation plan for the proposed prospecting operation will be to return the disturbed areas to a landform characterised by the surrounding area unless a specific, reasonable alternate land use is requested by the landowner or lawful occupier. The pre-prospecting condition in the immediate area is best described as modified open areas with grasses, in the surrounding areas mining and agricultural activities occur. In order to achieve this, the rehabilitation plan is comprised of (3) three broad phases described below:

### 6.1.1. PHASE 1 – MAKING SAFE

Following decommissioning, the prospecting area will be cleaned as per the EMPlan conditions and sections to be rehabilitated made safe. This involves undertaking and completing the following tasks:

- Removal of all rubbish and debris for final disposal at an appropriately registered waste facility;
- Backfill all drilling site sump areas and trenches created by the excavations by back filling with the soil in reverse order that they were excavated to create a similar topography of the surrounding land; and
- Restrict and prevent public access to site with the use of fences around the disturbed site and no entry signs placed on the fence to warn people.

### 6.1.2. PHASE 2 – LANDFORM DESIGN, EROSION CONTROL AND RE-VEGETATION

Once phase 1 is complete the rehabilitation effort can be directed toward final landform design, erosion controls which will allow for natural plant succession and re-vegetation. The re-shaping and re-grading of an impacted site is essential for rehabilitation and closure to take place. Unless slopes and surfaces have been stabilised the effectiveness of subsequent rehabilitation and re-vegetation is greatly reduced and maintenance will be prolonged. Final landform design will consider the following factors:

- Erosion potential of materials on site;
- Recognition of the adjacent undisturbed environment;
- Alignment with existing topographical features;
- Where possible, rainfall infiltration will be encouraged.

Rehabilitation is aimed at establishing adequate cover of non-erodible materials or vegetation. In doing so the site becomes stable and it is unlikely that unnatural erosion will occur. Wherever natural vegetation has already established a cover of a density and diversity comparable to the surrounding landscape, no further re-vegetation or erosion control will be implemented. Wherever non-erosive rock material is available as cover it will be used. Alternatively, the re-vegetation of drilling and trench sites will be done using a seed mix of indigenous grasses. The seed mix must utilize grasses like *Themeda triandra*, *Elionurus muticus*, *Trachypogon spicatus*, *Dicoma anomala* and *Senecio coronatus* in order to conform to the naturally occurring vegetation within the area. The seed mix must offer a variety of different pioneer species both fast and slow growing in order to cover the ground effectively and reduce the chance of invasive species occupying the area as well as be appropriate for rehabilitation purposes.

All areas where topsoil or vegetation has been removed and/or where soils have been compacted or covered will be ripped or ploughed to 1 m deep. All areas otherwise disturbed or impacted will also be ripped or ploughed. Once all disturbed areas have been prepared and shaped, the natural establishment of vegetation can proceed.

If deemed necessary, berms are to be placed around the prospecting site to decrease the amount of water that would normally flow into the area. The excess water will be redirected to the vacant land within and around the proposed application area. Berms offer a flexible and cost effective way to manage the potential for erosion on site. The berms will be constructed at 1 m in height as to not detract from the end land form design which will be relatively flat with slight undulations throughout the application area.

### **6.1.3. PHASE 3 – MONITORING, MAINTENANCE AND RELINQUISHMENT**

Once the final landform design has been established and stabilized the prospecting sites will require a period of monitoring to verify the success or otherwise of the rehabilitation program, in

particular the natural re-vegetation of the previously disturbed area. The length of the monitoring period will be determined in consultation with the appropriate landowners and/or lawful occupiers and would take the form of periodic inspections by the ECO (bi-annually), but is generally assumed to last for at least 2 years. The parameters that may be monitored after rehabilitation should subject to agreement with the landowner and/or lawful occupier include the following:

- The continued safety of the site;
- The establishment and growth of vegetation and floral communities;
- The percentage of ground cover and species composition; and
- Evidence of land erosion or land degradation.

Maintenance that may be required in addition to rehabilitating any failed areas includes:

- Fencing to control access by surrounding communities utilizing the application area as a thorough fair onto rehabilitated areas; and
- Invasive species control

Where reworking becomes necessary as a result of rehabilitation not performing adequately, this work will be undertaken in consultation with the landowners and/or lawful occupiers. Components of the success criteria of the rehabilitation plan include:

- Physical (stability, resistance to erosion, re-establishment of drainage);
- Biological (species richness, plant diversity, seed production,);
- Land use options (other natural area or potential ESA's); and
- Public safety issues .

Once monitoring and maintenance has determined that rehabilitation is successful the relevant landowner/lawful occupier must be informed and allowed to inspect the rehabilitated area. If satisfied, the relevant landowner/lawful occupier must then provide the applicant with a form describing their satisfaction with the rehabilitation undertaken and concluded. This form, in conjunction with the requirements for a Closure Application must then be compiled and submitted to the DMR. If dissatisfied, rehabilitation must then be undertaken and monitored as per the conditions stipulated by the relevant landowner/lawful occupier until such a time that the area is deemed satisfactorily rehabilitated.

## 6.2. CLOSURE OBJECTIVES AND THEIR EXTENT OF ALIGNMENT TO THE PRE-MINING ENVIRONMENT

The closure objectives of the rehabilitation plan, detailed in Section 6 are aimed at to re-instating the landform, land use and vegetation units to the same as before prospecting operations took place. The goal of the rehabilitation plan is to re-institute historically occurring grasses to the disturbed areas as well as make the area safe for the surrounding residents. The rehabilitation will involve reshaping of the disturbed areas to make the area safe for people and animals, limit the occurrence of erosion and institute vegetation growth on barren areas. Minimal assistance will be required with the re-vegetation of the disturbed area as the area will be subsequently allowed to re-vegetate naturally.

The rehabilitation plan for the proposed prospecting operation will be to return the disturbed areas to a landform characterised by the surrounding area unless a specific, reasonable alternate land use is requested by the landowner. The pre-prospecting condition in the immediate area is best described as modified open areas with grasses, in the surrounding areas old mining and agricultural activities exist.

As such, the intended end use for the disturbed prospecting areas and the closure objectives will be defined in consultation with the relevant landowner. Proof of such consultation will be submitted together with the Application for Closure Certificate.

However, if no special agreements have been made with landowners and approved by DMR, all areas affected or disturbed by prospecting and associated activities will be rehabilitated as described in the EMP (refer to Section 6.1), so that the land can be improved to a condition better than before prospecting occurred.

### 6.3. CONFIRMATION OF CONSULTATION

All I&AP's were notified of the proposed Prospecting Right Application during the public participation process. No concerns were raised regarding the closure or rehabilitation of the project. All identified I&AP's received a notification document informing them of the proposed prospecting application by either email or registered mail. A site visit was also undertaken as part of the public participation process. During the site visit on the 2<sup>nd</sup> September 2014, no communities, other than the lawful landowners and occupiers were identified on Portions 18 of Uitkomst 292 IT. The majority of the comments received from I&AP's were related to Eskom infrastructure already located within the applied for portions. These comments and/or concerns have been dealt with by means of email correspondence.

## 7. REGULATION 52(2)(G): RECORD OF PUBLIC PARTICIPATION AND THE RESULTS THEREOF

### 7.1. IDENTIFICATION OF I&AP'S



A Windeed search and contact with the listed landowner confirmed that the listed legal land owner is in fact the lawful occupier of the properties within the proposed Prospecting Right Application area. The legal landowner of Portions 18 of Uitkomst 292 IT was sent a notification via email on the 1<sup>st</sup> September 2014. I&AP's have been provided until the 14<sup>th</sup> October 2014 to register and provide comment which will be forwarded to the DMR.

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

1. Registered letters and emails;
2. Questionnaires;
3. Placement of 10 A2 Corex Site Notices;
4. Placement of a Newspaper advert in Highveld Tribute on the 9<sup>th</sup> September 2014.

The IAP database is included in Appendix A. Please also refer to Appendix B for proof of notification sent to IAPs and Appendix C for proof of correspondence with IAPs.

## 7.2. DETAILS OF THE ENGAGEMENT PROCESS

### 7.2.1. DESCRIPTION OF THE INFORMATION PROVIDED TO THE COMMUNITY, LANDOWNERS, AND INTERESTED AND AFFECTED PARTIES.

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

1. Registered letters and emails;
2. Questionnaires;
3. Placement of 10 A2 Corex Site Notices; and
4. Placement of a Newspaper advert in the Highveld Tribune on the 9<sup>th</sup> September 2014.

The information contained in the notification documents included:

- 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 Regulations that must be adhered to;
- The minerals being prospected for;
- Date by which comment, concerns and objections must be forwarded through to both EIMS and the DMR respectively;

- Contact details of the Environmental Assessment Practitioner (EAP);
- Contact details of the DMR and name of the relevant DMR official; and
- A map of the proposed area.

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

- 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;
- A description of the existing environment including land uses, topography, fauna, flora and sensitive features such as those related to heritage;
- Details on any land developments proposed;
- Details of any perceived impacts to the environment that should be considered in the EMPlan; and
- Any specific comments, concerns or objections to the proposed prospecting operation.

I&AP's were given 45 days with which to comment on the prospecting application and provide EIMS with comment and concerns Please also refer to Appendix B for proof of notification sent to IAPs.

#### **7.2.2. LIST OF WHICH PARTIES IDENTIFIED IN 7.1 ABOVE THAT WERE IN FACT CONSULTED, AND WHICH WERE NOT CONSULTED**

All interested and affected parties that were identified were consulted with. Part of the consultation included notification, obtaining comment , concerns and any information from interested and affected parties which has been used to draft this document. Please also refer to Appendix B for proof of notification sent to IAPs and Appendix C for proof of correspondence with IAPs.

#### **7.2.3. LIST OF VIEWS RAISED BY CONSULTED PARTIES REGARDING THE EXISTING CULTURAL, SOCIO-ECONOMIC OR BIOPHYSICAL ENVIRONMENT**

To date, no I&AP's have provided comments or concerns with regard to the proposed projects potential effects on the existing cultural , socio-economic or biophysical environment.

#### **7.2.4. LIST OF VIEWS RAISED BY CONSULTED PARTIES ON HOW THEIR EXISTING CULTURAL, SOCIO-ECONOMIC OR BIOPHYSICAL ENVIRONMENT POTENTIALLY WILL BE IMPACTED ON BY THE PROPOSED PROSPECTING OPERATION**

- Eskom raised concerns which related to their transmission lines located on the Application area. No objection by Eskom was provided as long as the Applicant and contractor do not damage the infrastructure. The EMPlan is designed in such a way that any infrastructure found on site is regarded as sensitive and must be avoided unless otherwise stipulated by the relevant owner.

#### **7.2.5. OTHER CONCERNS RAISED BY THE AFORESAID PARTIES**

No other concerns have been raised by I&AP's to date.

#### **7.2.6. CONFIRMATION THAT MINUTES AND RECORDS OF THE CONSULTATION ARE APPENDED**

The records and proof of public participation are contained in the Appendices. The IAP database is included in Appendix A. Please refer to Appendix B for proof of notification sent to IAPs and Appendix C for proof of correspondence with IAPs.

#### **7.2.7. INFORMATION REGARDING OBJECTIONS RECEIVED**

To date no objections have been received for this prospecting application (refer 7.2.3).

### **7.3. THE MANNER IN WHICH THE ISSUES RAISED WERE ADDRESSED**

Table 16 below is a summary of the comments made by I&AP's. The table also indicates how the issues were addressed. For the full correspondence, see Appendix C. The main concerns identified were; damage to third party infrastructure onsite.

**Table 16: Issues and Response Table**

Name	Organisation	Aspect	Method	Date	Comment	Response	How issue is addressed
Lungile Motsisi	Eskom	Infrastructure	Email	17/09/2014	1. Ms Motsisi provided EIMS with details regarding the Eskom infrastructure located on the Application area (Eskoms Tx's Duvhu-kusile, Duvha Apollo and the Duvha Kendal powerlines). Ms Motsisi stated that Eskom will not raise an objection to the project so long as Eskoms infrastructure is not affected.	1. Ms Motsisi was thanked by EIMS for her comment provided for the project. EIMS noted that Eskom's infrastructure would not be impacted on as the proposed prospecting is to take place away from any transmission lines. The EMPLan will also institute mitigation measures with total avoidance of third party infrastructure.	Ms Motsisi's concerns have been addressed by instituting mitigation measures to avoid disturbing or damaging any Eskom transmission line.

## 8. SECTION 39(3)(C) OF THE MPRDA: ENVIRONMENTAL AWARENESS PLAN

### 8.1. EMPLOYEE COMMUNICATION PROCESS

Bi-monthly Health and Safety meetings will be held where relevant issues regarding health, safety and environment are discussed and feedback is given. Environmental awareness training will be incorporated into a compulsory 'Tool box talks' that include training and awareness of health and safety issues as well.

### 8.2. DESCRIPTION OF SOLUTION TO RISKS

The provisions stipulated in the EMPlan coupled with the “Tool box talks” will adequately mitigate most environmental risks likely to be experienced by the proposed prospecting operation. It is however important to note that the EMPlan and the conditions stipulated herein are part of a “living document” that through the process of yearly performance assessments will be revised and updated as required. This will include the addition of more discussion topics and information provision in terms of environmental as well as health and safety awareness.

### 8.3. ENVIRONMENTAL AWARENESS TRAINING

Environmental awareness training needs should be identified before the project commences, based on the available and existing capacity of site and project personnel (including the applicant and Contractors) to undertake the required EMPlan 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 among the general workforce to encourage the implementation of environmentally sound practices.

This ensures that environmental accidents are minimized and environmental compliance maximized. Environmental awareness could be fostered by induction course for all workers on site, before commencing work on site, as well as during regular “toolbox talks”. Workers should also be alerted to particular environmental concerns associated with their tasks for the area/habitat in which they are working. Courses must be given by suitably qualified personnel and in a language and medium understood by workers/employees. The environmental awareness training programme will include the following:

1. Occupational Health and Safety Training (OHS) ;
2. Personal Protection Equipment Training (PPE) ; and
3. Environmental Awareness Training EMPlan management actions

Environmental awareness training will focus on the following specific aspects and be undertaken monthly in 2 – 4 hour “Tool box talk “topics:

1. Site preparation and vegetation clearance;
2. Local flora and fauna;
3. Soil and its importance;
4. Soil contamination/pollution and remediation;
5. Water contamination/pollution and remediation
6. Dust nuisance;
7. Noise nuisance; and
8. EMPlan management options and application

## 9. SECTION 39(4)(III) OF THE ACT: CAPACITY TO REHABILITATE AND MANAGE NEGATIVE IMPACTS ON THE ENVIRONMENT

### 9.1. THE ANNUAL AMOUNT REQUIRED TO MANAGE AND REHABILITATE THE ENVIRONMENT

The annual amount required to manage and rehabilitate the environment is estimated below. The amount is based on the work to be done, as per the PWP and divided by the number of years for which prospecting has been applied for. It is likely that the amount per year may vary, but that the total quantum calculated for the financial provision will remain set and re-evaluated on a yearly basis. As such, the amount to manage and rehabilitate the environment is:

$$\mathbf{R\ 226,861.68\ \% 5\ (years) = R45\ 372.33\ per\ year\ +\ ECO\ Auditing\ Costs}$$

### 9.2. CONFIRMATION THAT THE STATED AMOUNT IS CORRECTLY REFLECTED AS PER THE PROSPECTING WORKS PROGRAMME

The amount stated to rehabilitate and manage the negative impacts on the environment has been calculated using the DMR’s preferred methodology and takes into account the prospecting techniques to be employed, surface area disturbed, pollution remediation, re-vegetation and various contingencies.

## 10. REGULATION 52(2)(H): UNDERTAKING TO EXECUTE THE ENVIRONMENTAL MANAGEMENT PLAN

Herewith I, the person whose name and identity number is stated below, confirm that I am the person authorised to act as representative of the applicant in terms of the resolution submitted with the application, and confirm that the above report comprises EIA and EMP compiled in accordance with the guideline on the Departments official website and the directive in terms of sections 29 and 39 (5) in that regard, and the applicant undertakes to execute the Environmental management plan as proposed.

Full Names and Surname	ChristiaanSmit
Identification Number	4001305012084