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FINAL ENVIRONMENTAL IMPACT ASSESSMENT REPORT & ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT FOR:

THE PROPOSED PROSPECTING RIGHT APPLICATION TO PROSPECT FOR DIAMONDS (ALLUVIAL), DIAMONDS (GENERAL) & DIAMONDS (DIA), INCLUDING ASSOCIATED INFRASTRUCTURE ON PORTION 13 (PORTION OF PORTION 6) OF THE FARM VOGELSTRUISKUIL 400, PORTION 14 (PORTION OF PORTION 2) OF THE FARM BOSCHPLAATS 149 & PORTION 24 OF THE FARM WELVERDIENT 151, REGISTRATION DIVISIONS IO & HO, NORTH WEST PROVINCE.

NAME OF APPLICANT	**Anika Deetlefs**
PREPARED BY	**Milnex CC**
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REFERENCE NUMBER:	**NW30/5/1/1/2/13707PR**

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LIST OF APPENDIXES

PROJECT INFORMATION

Project Name:	Application for an Environmental Authorisation for Prospecting Right Application to prospect for Diamonds (Alluvial), Diamonds (General) & Diamonds (DIA) including associated infrastructure, on Portion 13 (portion of portion 6) of the farm Vogelstruiskuil 400, Portion 14 (portion of portion 2) of the farm Boschplaats 149 & Portion 24 of the farm Welverdient 151, Registration Divisions IO & HO, North West Province.
Report Title:	NW30/5/1/1/2/13707PR
Prepared By:	Milnex CC
Date:	August 2023

QUALITY CONTROL:

	Report Author:	**Report Reviewer:**
Name:	Christiaan Baron Master's Degree in Environmental Management Registered EAP (EAPASA) **Reg No: 2020/2639**	N/A
Signature:		

DISCLAIMER:

The DFFE screening tool was used in compiling this document

The Public Participation Process (PPP) must follow Regulation 41 of NEMA EIA Regulations; thus, the process needs to be transparent. However, due to the Protection of Personal Information Act (POPI Act) which commenced on 01 July 2021, Stakeholders, Landowners, surrounding landowners and registered I&AP' addresses, contact details and comments will not be included in any draft report to be circulated. All this information will form part of the final report to be submitted to the Competent Authority only.

Should you be identified as a Stakeholder, Landowner, Surrounding landowner and you do not wish to receive any further communique from Milnex CC regarding the application in question, you may request in writing that your details be removed from the Milnex CC database for this application.

IMPORTANT NOTICE

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

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

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

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

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

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

(1) The environmental impact assessment process must be undertaken in line with the approved plan of study for environmental impact assessment.
(2) The environmental impacts, mitigation and closure outcomes as well as the residual risks of the proposed activity must be set out in the environmental impact assessment report.

OBJECTIVE OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

2. The objective of the environmental impact assessment process is to, through a consultative process-
(a) determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;
(b) describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
(c) identify the location of the development footprint within the preferred site based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;
(d) determine the--
(i) nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and
(ii) degree to which these impacts-
(aa) can be reversed;
(bb) may cause irreplaceable loss of resources, and
(cc) can be avoided, managed or mitigated;
(e) identify the most ideal location for the activity within the preferred site based on the lowest level of environmental sensitivity identified during the assessment;
(f) identify, assess, and rank the impacts the activity will impose on the preferred location through the life of the activity;
(g) identify suitable measures to avoid, manage or mitigate identified impacts; and
(h) identify residual risks that need to be managed and monitored.

SCOPE OF ASSESSMENT AND CONTENT OF ENVIRONMENTAL IMPACT ASSESSMENT REPORTS

A. CONTACT PERSON AND CORRESPONDENCE ADDRESS

a) Details of:

i) The EAP who prepared the report

ii) Expertise of the EAP

Name of Practitioner	Qualifications	Contact details
Christiaan Baron	Master's Degree in Environmental Management (refer to Appendix 1) Registered EAP (EAPASA) **Reg No: 2020/2639**	Tel No.: (018) 011 1925 Fax No. : (053) 963 2009 e-mail address: christiaan@milnex-sa.co.za

Contact details of other	Qualifications	Contact details
Lizanne Esterhuizen	Honours Degree in Environmental Science (refer to **Appendix 1**) Awaiting EAPASA Registration	Tel No.: (018) 011 1925 Fax No. : (053) 963 2009 e-mail address: lizanne@milnex-sa.co.za
Andile Nxumalo	Honours Degree in Environmental Science (refer to Appendix 1) Awaiting EAPASA Registration	Tel No.: (018) 011 1925 Fax No. : (053) 963 2009 e-mail address: andile.grant@milnex-sa.co.za

Summary of the EAP's past experience. (Attach the EAP's curriculum vitae as **Appendix 2**)

Milnex CC was contracted by **Me Anika Deetlefs** as the independent environmental consultant to undertake the Scoping and EIA process for a Prospecting Right Application to prospect for Diamonds (Alluvial), Diamonds (General) & Diamonds (DIA) including associated infrastructure, on Portion 13 (portion of portion 6) of the farm Vogelstruiskuil 400, Portion 14 (portion of portion 2) of the farm Boschplaats 149 & Portion 24 of the farm Welverdient 151, Registration Divisions IO & HO, North West Province. The property is located approximately 34km West of the town of Wolmaransstad in the North-West Province. Milnex CC does not have any interest in secondary developments that may arise out of the authorisation of the proposed project.

Milnex CC is a specialist environmental consultancy with extensive experience in the mining industry which provides a holistic environmental management service, including environmental assessment and planning to ensure compliance with relevant environmental legislation. Milnex CC benefits from the pooled resources, diverse skills and experience in the environmental and mining field held by its team that has been actively involved in undertaking environmental studies for a wide variety of mining related projects throughout South Africa. The Milnex CC team has considerable experience in environmental impact assessment and environmental management, especially in the mining industry.

Milnex CC has extensive consulting experience in the environmental field. Their key focus is on environmental assessment, advice and management and ensuring compliance to legislation and guidelines. They are currently involved in undertaking EIAs for several projects across the country (refer to **Appendix 2** for CV).

B. DESCRIPTION OF THE PROPERTY

Farm Name:	1. Portion 13 (portion of portion 6) of the farm Vogelstruiskuil 400 Registration Division: IO Title Deed: T10320/1980 Extent: 44.7444 hectares North-West Province 2. Portion 14 (portion of portion 2) of the farm Boschplaats 149 Registration Division: HO Title Deed: T10320/1980 Extent: 40.9088 hectares North-west Province 3. Portion 24 of the farm Welverdient 151 Registration Division: HO Title Deed: T10320/1980 Extent:107.0699 hectares North-west Province
Application area (Ha)	192.7231 hectares
Magisterial district:	Dr Kenneth Kaunda District Municipality Maquassi Hill Local Municipality
Registration division:	IO & HO
Distance and direction from nearest town	The property is located approximately 34km West of the town of Wolmaransstad in the North-West Province.
21 digit Surveyor General Code for each farm portion	T0IQ00000000009300010 T0IQ00000000009200019 T0IQ00000000009200020
Minerals applied for	Diamonds Alluvial (DA) Diamonds General (D) Diamonds (DIA)
Locality map	Attach a locality map at a **scale not smaller than 1:250000 and attach as Appendix 2**

Farm co-ordinates

Farms	Longitude	Latitude
Portion 13 (portion of portion 6) of the farm Vogelstruiskuil 400 Registration Division: IO Title Deed: T10320/1980 Extent: 44.7444 hectares North-West Province	25° 49' 55,609"" E	27° 0' 31,279"" S
	25° 49' 9,009"" E	27° 0' 13,886"" S
	25° 48' 49,533"" E	27° 0' 6,402"" S
	25° 48' 46,809"" E	27° 0' 19,476"" S
	25° 48' 41,926"" E	27° 0' 39,786"" S
	25° 49' 7,433"" E	27° 0' 58,954"" S
Portion 14 (portion of portion 2) of the farm Boschplaats 149 Registration Division: HO Title Deed: T10320/1980 Extent: 40.9088 hectares North-west Province	25° 49' 10,797"" E	27° 0' 46,996"" S
	25° 49' 40,164"" E	27° 0' 55,610"" S
	25° 49' 46,751"" E	27° 0' 43,769"" S
	25° 49' 55,795"" E	27° 0' 48,228"" S
Portion 24 of the farm Welverdient 151 Registration Division: HO Title Deed: T10320/1980 Extent:107.0699 hectares North-west Province		

C. LOCALITY MAP

(show nearest town, scale not smaller than 1:250000 attached as **Appendix 3**).

A Locality map is attached in **Appendix 3** and on figure 1 below.

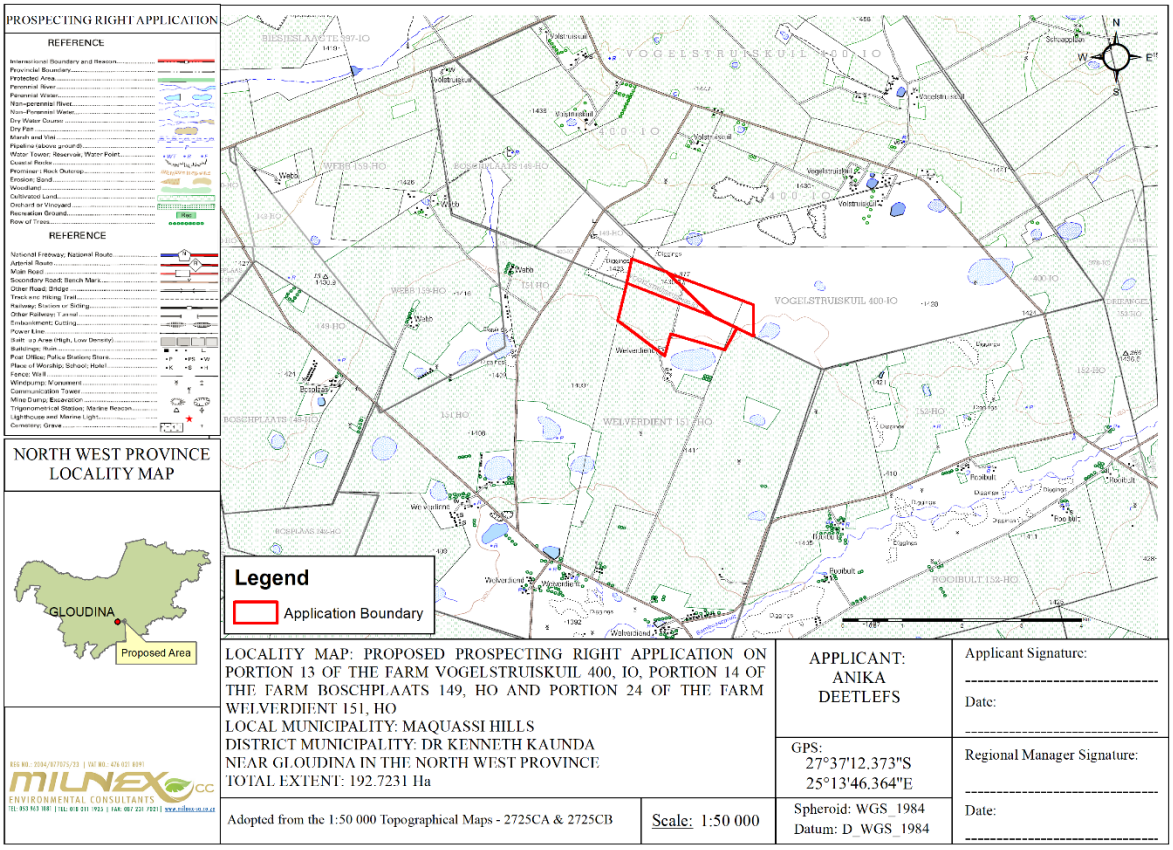

Figure 1: Locality Map

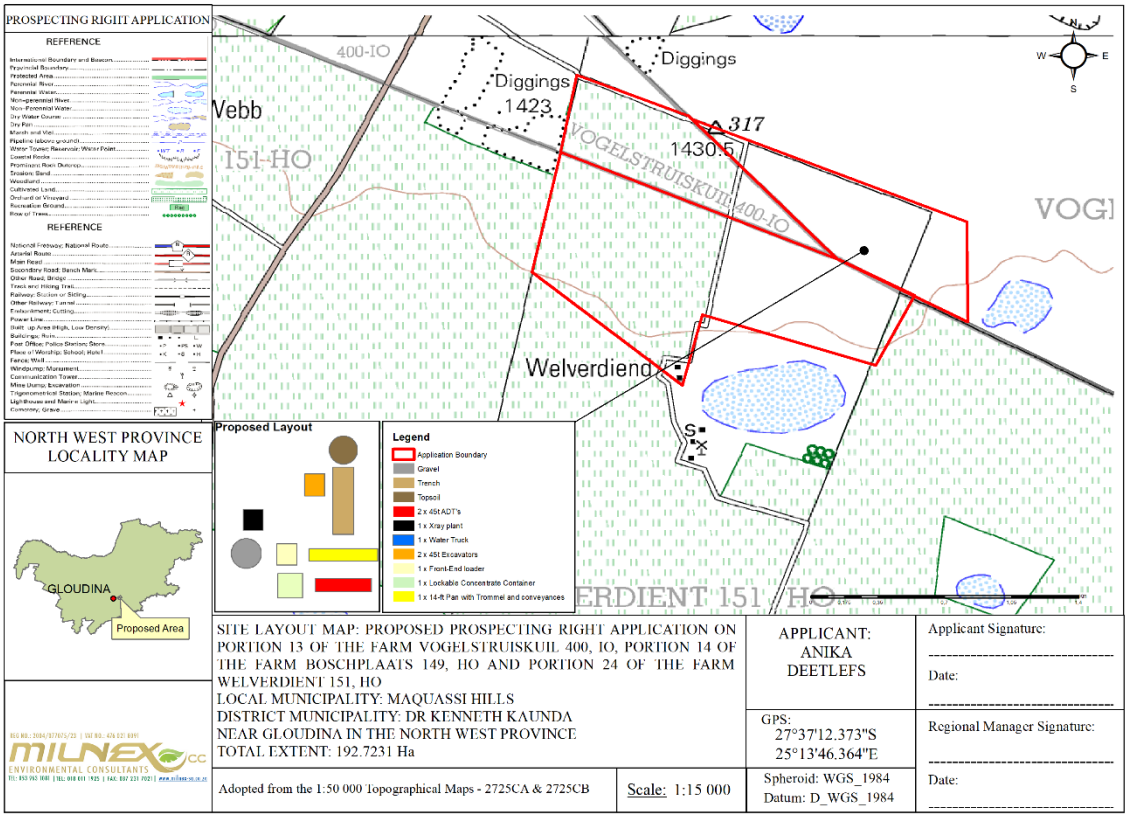

Figure 2: Site Plan

D. DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY.

i) LISTED AND SPECIFIED ACTIVITIES

Listing Notices: 2017 Regulations as amended

Description of the overall activity. (Indicate Mining Right, Mining Permit, Prospecting right, Bulk Sampling, Production Right, Exploration Right, Reconnaissance permit, Technical co-operation permit, Additional listed activity)	**1)** **Listing Notice 1: GNR 327, Activity 19:** *The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;* **2)** **Listing Notice 1, GNR 327, Activity 20 (As amended GNR 517: 2021):** *"Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice or in Listing Notice 3 of 2014, required to exercise the prospecting right"* **3)** **Listing Notice 1, GNR 327, Activity 27:** *" The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation."* **4)** **Listing Notice 2, GNR 325, Activity 19 (As amended GNR 517: 2021):** *"The removal and disposal of minerals which requires permission contemplated in terms of section 20 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice, Listing Notice 1 of 2014 or in Listing Notice 3 of 2014, required to exercise the permission.* ***5)*** **Listing Notice 3 GNR 324, Activity 4:** *The development of a road wider than 4 metres with a reserve less than 13,5 metres.* ***(h) North West (ii)*** *Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted*

	*by the competent authority; **(iv)** Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority;* ***6)*** **Listing Notice 3 GNR 324, Activity 10:** *The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres. **(h) North West (iv)** Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority; **(vi)** Areas within a watercourse or wetland, or within 100 metres from the edge of a watercourse or wetland.* ***7)*** **Listing Notice 3 GNR 324, Activity 12:** *The clearance of an area of 300 square metres or more of indigenous vegetation; **(h) North West (v)** Within critical biodiversity areas identified in systematic biodiversity plans adopted by the competent authority or **(vi)** Areas within a watercourse or wetland, or within 100 metres from the edge of a watercourse or wetland* Prospecting right with bulk samples for the prospecting of **Diamonds Alluvial (DA), Diamonds General (D) and Diamonds (DIA)** including associated infrastructure, structure and earthworks. **Please note the establishment or reclamation of residue stockpiles or residue deposits will still take place, but is now exempt from the list of Waste Management Activities (GNR 921, as amended)**

NAME OF ACTIVITY **(E.g. For prospecting -** drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route **etc…etc…etc** **E.g. for mining**,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)	**Aerial extent of the Activity** **Ha or m²**	**LISTED ACTIVITY** (Mark with an **X** where applicable or affected).	**APPLICABLE LISTING NOTICE** **(*GNR 324, GNR 325 or GNR 326)***
Prospecting Right: **<u>BULK SAMPLING: 216 000 tonnes</u>** 192.7231ha **Pits:** 50 pits with dimensions of (4m x 3m x4m) **Trenches:** 50 trenches with dimensions (40m x 30m x4m) ***Listing Notice 1, (GNR327), Activity 19:*** *The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;*	Extent of the proposed portions is 192.7231ha Concurrent backfilling will take place in order to rehabilitate.	X	Listing Notice 1: (GNR327), Activity 19
Prospecting Right: **<u>BULK SAMPLING: 216 000 tonnes</u>** 192.7231ha **Pits:** 50 pits with dimensions of (4m x 3m x4m) **Trenches:** 50 trenches with dimensions (40m x 30m x4m) **Listing Notice 1 (GNR 327), Activity 20 (Amended GNR 517: 2021): "***Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice or in Listing Notice 3 of 2014, required to exercise the prospecting right"*	Extent of the proposed portions is 192.7231ha Concurrent backfilling will take place in order to rehabilitate.	X	Listing Notice 1 (GNR 327), Activity 20 (Amended GNR 517: 2021)

Clearance of indigenous vegetation: **<u>BULK SAMPLING: 216 000 tonnes</u>** 192.7231ha **Pits:** 50 pits with dimensions of (4m x 3m x4m) **Trenches:** 50 trenches with dimensions (40m x 30m x4m) **Listing Notice 1, GNR 327, Activity 27:***"The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation."*	Extent of the proposed portions is 192.7231ha Concurrent backfilling will take place in order to rehabilitate.	X	Listing Notice 1, (GNR 327), Activity 27
Prospecting: **<u>BULK SAMPLING: 216 000 tonnes</u>** 192.7231ha **Pits:** 50 pits with dimensions of (4m x 3m x4m) **Trenches:** 50 trenches with dimensions (40m x 30m x4m) **Listing Notice 2, GNR 325, Activity 19 (As amended GNR 517: 2021):** *"The removal and disposal of minerals which requires permission contemplated in terms of section 20 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice, Listing Notice 1 of 2014 or in Listing Notice 3 of 2014, required to exercise the permission.*	Extent of the proposed portions is 192.7231ha Concurrent backfilling will take place in order to rehabilitate.	X	Listing Notice 2, GNR 325, Activity 19 (As amended GNR 517: 2021)
Clearance of indigenous vegetation: **Listing Notice 3 GNR 324, Activity 4:** *The development of a road wider than 4 metres with a reserve less than 13,5 metres.* ***(h) North West (iv)*** *Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority;*	Extent of the proposed portions is 192.7231ha Concurrent backfilling will take place in order to rehabilitate.	X	Listing Notice 3 GNR 324, Activity 4 (h)(iv)

Listing Notice 3 GNR 324, Activity 10: *The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres.* ***(h) North West (iv)*** *Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority; or* ***(vi)*** *Areas within a watercourse or wetland, or within 100 metres from the edge of a watercourse or wetland.*	Extent of the proposed portions is 192.7231ha Concurrent backfilling will take place in order to rehabilitate.	X	Listing Notice 3 GNR 324, Activity 10 (h)(iv)(vi)
Clearance of indigenous vegetation: **<u>BULK SAMPLING: 216 000 tonnes</u>** 192.7231ha **Pits:** 50 pits with dimensions of (4m x 3m x4m) **Trenches:** 50 trenches with dimensions (40m x 30m x4m) **Listing Notice 3 GNR 324, Activity 12:** *The clearance of an area of 300 square metres or more of indigenous vegetation;* ***(h) North West (iv)*** *Within critical biodiversity areas identified in systematic biodiversity plans adopted by the competent authority; or* ***(vi)*** *Areas within a watercourse or wetland, or within 100 metres from the edge of a watercourse or wetland*	Extent of the proposed portions is 192.7231ha Concurrent backfilling will take place in order to rehabilitate.	X	Listing Notice 3 GNR 324, Activity 12 (h)(iv)(vi)

ii) DESCRIPTION OF THE ASSOCIATED STRUCTURES AND INFRASTRUCTURE RELATED TO THE DEVELOPMENT
(Describe Methodology or technology to be employed, and for a linear activity, a description of the route of the activity

A DESCRIPTION OF HOW THE MINERAL RESOURCE AND MINERAL DISTRIBUTION OF THE PROSPECTING AREA WILL BE DETERMINED

DESCRIPTION OF PLANNED NON-INVASIVE ACTIVITIES:

(These activities do not disturb the land where prospecting will take place e.g. aerial photography, desktop studies, aeromagnetic surveys, etc)

Consolidation and interpretation of results data

The project geologist, Dr. Deon Vermaakt, shall monitor the program and consolidate and process the data and amend the program depending on the results received after each phase of prospecting. The DMRE shall be updated of any amendments made. This shall be a continuous process throughout the prospecting work program.

Each physical phase of prospecting shall be followed by desktop studies involving interpretation and modeling of all data gathered. These studies will determine the manner in which the work programme is to be proceeded with in terms of the activity, quantity, resources, expenditure and duration.

A GIS data base will be constructed capturing all the exploration data. All data shall be consolidated and processed to determine the diamond bearing resource on the property.

DESCRIPTION OF PLANNED INVASIVE ACTIVITIES:
(These activities result in land disturbances e.g. sampling, drilling, bulk sampling, etc)

PITTING
A trial pit / test pit or inspection pit investigation is a highly effective way of obtaining data on the sub surface soil and rock conditions which underlie a prospecting sight. It allows for the various soils and rock types to be locked, the soil to be sampled and a preliminary assessment to be made.
Pits will be dug, locked, sampled and backfilled. To dig the pits, the applicant will make use of the systems of Dr. Deon Vermaakt, the appointed project geologist.
The applicant will at the end of the pitting process have locked the pits with the following information:

- A description of the soil and rock types from ground level to the base of the pits;
- Record of rock head depth and refusal depth, a list of where the samples will be taken, a record of where ground water seepage will be recorded;
- A general note of the geologist and conditions in the vicinity of the test pit.

Calculations
It is planned that 50 pits will be dug (it may be less depending on the results) at an extent of 4m (length) x 3m (breath) x 4m (depth).

Timeframe: 10 months (month 0-10)		
Pits	50 pits	
Total area disturbed for 10 months	50 pits x (4m x 3m) / 10 000 =	0.06 Ha disturbed

TRENCHES
The plant/ bulk sampling technique will be that of a typical South African alluvial diamond mining operation. The method is a strip mining process with oversize material and tailings recovered from the plant will be used as backfill material prior to final rehabilitation. Gravels are excavated, loaded and transported to the treatment facility using dump trucks.

The bulk sampling operation will be conducted using a fleet of conventional open pit mining equipment compromising of dump trucks supported by appropriate excavators and front-end- loaders. All equipment is planned to be diesel driven.

Before excavation commences vegetation will be cleared from the proposed bulk sampling block. These will be done as per environmental regulations. Top soil will then be removed and stored separately for later used for rehabilitation. The bulk samples will be made in the form of box cuts whereby the dimensions of these individual box cuts on average are to be 40 m long x 30 m wide x 4m deep.

Gravel will be removed by excavators and will be loaded directly into dump trucks. Ore will be hauled to the screening plant. The material will be screened where after the screened material will be moved to the processing plant where the gravel will be processed. Concentrate will be moved to the sorting plant were the concentrate will be sorted. It is estimated that the bulk sampling will take approximately 24 months consisting of about 50 trenches to be excavated.

Calculations

It is planned that 50 trenches will be dug at an extent of 40m (length) x 30m (width) x 4m (depth).

Timeframe: 24 months (month 10-34)		
Trenches	50 trenches	
Total area disturbed for 24 months	50 trenches x (40m x 30m) / 10 000 =	6 Ha disturbed

Prospecting activities and phases

Please find the Prospecting Work Programme attached as **Appendix 9**.

Water uses:

Water uses under section 21 a-k of the NWA may be triggered, thus a Water Use Licence Application (WULA) will needed in cases there will be encroachment. If needed a WULA will be lodged with the department of Water & Sanitation (DWS).

Table 1: Water Use Pan Size specifications for Alluvial Diamond Mining (DWS NC & FS, 2001).

Pan size	Water/hour (m^3)	Water/day(m^3)	Gravel/hour (tons)	Gravel/day (ton)
16	17	170	60	600

Since 2 x 16 feet washing pan will be used, the amount of water for the pans will be 10 000 L/hour from which 30% is re-used.

Dust suppression

Unacceptable levels of dust fallout can be determined by implementing dust management by monitoring compliance with the requirements of the National Dust Control Regulations for an activity, in terms of nuisance or disturbance.

The National Framework for Air Quality Management in the Republic of South Africa (the National Framework), as published under Government Notice No. 1144 of 26 October 2018, underpins NEM:AQA by providing national norms and standards for air quality management to ensure compliance with legislation. The National Framework serves as the country's AQMP.

Section 32 of the NEM:AQA makes provision for the Minister or the MEC to prescribe measures for the control of dust in specific places or areas, or by specified machinery or in specific instances. While dust generally does not pose a health risk, it may be regarded as a nuisance. It is the responsibility of the owner of the dust generating activity to take reasonable measures to limit the nuisance factor.

With respect to this, the Minister has published in the gazette the regulations for the control of dust in 2013 (Notice 827, Government Gazette No. 36974). These regulations provide requirements for measures for the control of dust, which includes the requirements for monitoring, dust management plan development and implementation and reporting.

According to dust levels set out by the National Dust Control Regulations 2013 (GNR. 827). The limits have the following threshold Section 3. Dustfall standard.

Table 2. Acceptable dust fall rates

Restriction Areas	***Dustfall rate (D) (mg/m2/day, 30-day average)***	***Permitted frequency of exceeding dust fall rate***

Residential Area	*D < 600*	*Two within a year, not sequential months*
Non-residential Area	*600 < D < 1200*	*Two within a year, not sequential months*

Ablution

Chemical toilets shall be used, no french drains and pits shall be permitted.

Storage of dangerous goods

During the prospecting activities, limited quantities of diesel and fuel, oil and lubricants if any will be stored on site. These goods should be placed in a bunded area one and a half times the volume of the total amount of goods to be stored.

List of equipment's & infrastructure

List of equipment
2 x 16 feet washing pans, Conveyor & Screen
2 x 30ton dumper trucks
3 x Excavators
2 x Front End Loader
1 x 3 ton truck (transport people)
2 x Sludge pumps
2 x Water pumps
1 x Welder
1 x Grinder
1 x drilling machine
1 x 200KVA Generator

E. POLICY AND LEGISLATIVE CONTEXT

(a description of the policy and legislative context within which the development is located and an explanation of how the proposed development complies with and responds to the legislation and policy context;)

Title of legislation, policy or guideline:	Administering authority:	Promulgation Date:
National Environmental Management Act No. 107 of 1998 as amended.	Department of Environmental Affairs	27 November 1998
Constitution of South Africa Act 108 of 1996	National	18 December 1996
The National Heritage Resources Act (Act No. 25 of 1999)	SAHRA	1999
Mineral and Petroleum Resources Development Act (Act No. 28 of 2002)	Department of Mineral Resources & Energy (DMRE)	2002
Mineral and Petroleum Resources Development Regulations, 2014.	Department of Mineral Resources & Energy (DMRE)	
National Infrastructure Plan	National	
National Environmental Management: Biodiversity Act No. 10 of 2004	Department of Environmental Affairs	7 June 2004
National Environmental Management Waste Act, 2008 (Act No. 59 of 2008)	National & Provincial	1 July 2009
National Environmental Management: Waste Act, 2008 (Act No. 59 Of 2008). Regulations regarding the Planning & Management of Residue Stockpiles & Residue Deposits from a Prospecting, Mining, Exploration or Production Operation		
EIA regulations under NEMA	Department of Environmental Affairs	14 December 2014
Conservation of Agricultural Resources Act,1983 (Act No. 43 of 1983)	Department of Agriculture Forestry and Fisheries	1 June 1984

National Environmental Management Air Quality Act, 2004 (Act No. 39 of 2004).	National and Provincial	11 September 2004
National Water Act, 1998 (Act No. 36 of 1998).	National	20 August 1998
National Forest Act (Act 84 of 1998) (NFA)	National	30 October 1998
National Veld & Forest Fires Act (Act 101 of 1998)	National	27 November 1998
National Environmental Management: Protected Areas Act 57 of 2003		
Hazardous Substances Act (No. 15 of 1979)		
Subdivision of Agricultural Land Act (No. 70 of 1970)		
Occupational Health and Safety Act (No. 85 of 1993)		
Mine Health and Safety Act (No. 29 of 1996)		
Government Notice Regulation 704 of 1999		
Dr Kenneth Kaunda District Municipality Integrated Development Plan (IDP)	Municipal	
Mqquassi Hills Local Municipality Integrated Development Plan (IDP)	Municipal	

Policy and Legislative Context

Title of legislation, policy or guideline:	Reference where applied	How does this development comply with and respond to the legislation and policy context.
Constitution of South Africa Act 108 of 1996	Section 24	The Constitution is the supreme law of the Republic and all law and conduct must be consistent with the Constitution. The Chapter on the Bill of Rights contains a number of provisions, which are relevant to securing the protection of the environment. Section 24 of the Constitution of the Republic of South Africa (Act 108 of 1996) states the following: *"Everyone has the right –* *(a) to an environment that is not harmful to their health or well-being; and* *(b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that –* *i) prevent pollution and ecological degradation;* *ii) promote conservation; and* iii) *secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development."* The Constitution therefore, compels government to give effect to the people's environmental right and places government under a legal duty to act as a responsible custodian of the countries environment. It compels government to pass legislation and use other measures to protect the environment, to prevent pollution and ecological degradation, promote conservation and secure sustainable development.
National Environmental Management Act No. 107 of 1998 as amended.	S24(1) of NEMA S28(1) of NEMA	NEMA provides for co-operative governance by establishing principles and procedures for decision-makers on matters affecting the environment. An important function of the Act is to serve as an enabling Act for the promulgation of legislation to effectively address integrated environmental management. Some of the principles in the Act are accountability; affordability; cradle to grave management; equity; integration; open information; polluter pays; subsidiary; waste avoidance and minimisation; co-operative governance; sustainable development; and environmental protection and justice. The mandate for EIA lays with the National Environmental Management Act (107 of 1998) and the EIA Regulations No. 326, 327, 325, and 324, as amended promulgated in terms of Section 24 of NEMA. The EIA Regulations determine that an Environmental Authorisation is required for certain listed activities, which might have a detrimental effect on the environment.
EIA regulations as amended under NEMA	Listing notice 1 Listing notice 2 Listing Notice 3	The National Environmental Management Act107 of 1998 (NEMA), as amended, makes provision for the identification and assessment of activities that are potentially detrimental to the environment. These activities are detailed in Listing Notice 1 (as amended by GNR 327 of 7 April 2017), Listing Notice 2 (as amended by GNR325 of 7 April 2017) and Listing Notice 3 (as amended by GNR324 of 7 April 2017). Undertaking activities specified in the Listing Notices are only allowed once Environmental Authorisation has been obtained from the competent authority. Such Environmental Authorisation will only be considered once there has been compliance with the EIA Regulations, 2014. The Environmental Authorisation which may be granted subject to conditions.
Mineral and Petroleum Resources Development Act (Act No. 28 of 2002)	Section 10, 16, 22, 27 and 48	The Minerals and Petroleum Resources Development Act identifies the state as the official custodian of South Africa's Mineral and Petroleum Resources. Therefore, all activities relating to the reconnaissance, prospecting rights, mining rights, mining permits and retention permits are regulated by the State. One of the objectives of the Act is to give effect to section 24 of the Constitution by ensuring that the nation's mineral and petroleum resources are developed in an orderly and ecologically sustainable manner while promoting justifiable social and economic development.

Mineral and Petroleum Resources Development Regulations, 2014.	Regulations 3, 5, 10 and 14	MPRDA Regulations prescribe how an application for a permit or right must be lodged.
The National Heritage Resources Act (Act No. 25 of 1999)	Section 35 Section 38	The National Heritage Resources Act (Act No 25 of 1999, Section 35) protects South Africa's unique and non-renewable archaeological and palaeontological heritage sites. These sites may not be disturbed without a permit from the relevant heritage resources authority. Section 38 of the NHRA provides guidelines for Cultural Resources Management and proposed developments:
National Environmental Management Waste Act, 2008 (Act No. 59 of 2008)	Category A Category B Category C	Section 24S of NEMA deals with the management of residue stockpiles and residue deposits and provides that Residue stockpiles and residue deposits must be deposited and managed in accordance with the provisions of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), on any site demarcated for that purpose in the environmental management plan or environmental management programme in question. The management of residue stockpiles and residue deposits must be done in accordance with any conditions set out and any identified measures in the environmental authorisation issued in terms of NEMA, an environmental management programme and a waste management licence issued in terms of NEMA (Regulation 3(2)). The National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEM:WA) regulates waste management in all aspects and created a list of waste management activities that have, or are likely to have, a detrimental effect on the environment, which requires an impact assessment and licensing process. Activities listed in Category A require a Basic Assessment process, activities listed in Category B require a Scoping and EIA process and activities under Category C must comply with the relevant requirements or standards, in order for competent authorities to consider an application in terms of NEM:WA.
National Environmental Management: Biodiversity Act No. 10 of 2004	Chapter 4 Chapter 5	The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA) is part of a suite of legislation falling under NEMA. The Act provides for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; the protection of species and ecosystems that warrant protection; the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources; the establishment and functions of a South African National Biodiversity Institute; and for matters connected therewith (SANBI). Chapter 4 of NEMBA deals with threatened and protected ecosystems and species to ensure the maintenance of their ecological integrity, their survival in the wild, the utilisation of biodiversity is managed in an ecologically sustainable way and to regulate international trade in specimens of endangered species. Chapter 5 of NEMA deals with species and organisms posing potential threats to biodiversity. The purpose of this chapter is to prevent the introduction and spread of alien species and invasive species, also to manage, control and eradicate alien species and invasive species

National Environmental Management Air Quality Act, 2004 (Act No. 39 of 2004).	Section 21	The object of this Act is to protect the environment by providing reasonable measures for the protection and enhancement of the quality of air in the Republic; the prevention of air pollution and ecological degradation; and securing ecologically sustainable development while promoting justifiable economic and social development. Regulations No. R248 (of 31 March 2010) promulgated in terms of Section 21(1) (a) of the National Environmental Management Act: Air Quality Act (39 of 2004) determine that an Atmospheric Emission License (AEL) is required for certain listed activities, which result in atmospheric emissions which have or may have a detrimental effect on the environment. The Regulation also sets out the minimum emission standards for the listed activities. It is not envisaged that an Atmospheric Emission License will be required for the proposed development.
National Water Act, 1998 (Act No. 36 of 1998).	Section 21	Sustainability and equity are identified as central guiding principles in the protection, use, development, conservation, management and control of water resources. The intention of the Act is to promote the equitable access to water and the sustainable use of water, redress past racial and gender discrimination, and facilitate economic and social development. The Act provides the rights of access to basic water supply and sanitation, and environmentally, it provides for the protection of aquatic and associated ecosystems, the reduction and prevention of pollution and degradation of water resources. As this Act is founded on the principle that National Government has overall responsibility for and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest, a person can only be entitled to use water if the use is permissible under the Act. Chapter 4 of the Act lays the basis for regulating water use.
National Forest Act (Act 84 of 1998) (NFA)	Regulation 7	The protection, sustainable management and use of forests and trees within South Africa are provided for under the National Forests Act (Act 84 of 1998). Regulation 7 from the Act states the following: **Prohibition on destruction of trees in natural forests.** (1) No person may - (a) cut, disturb, damage or destroy any indigenous tree in a natural forest; or (b) possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any tree, or any forest product derived from a tree contemplated in paragraph (a), except in terms of- (i) a licence issued under subsection (4) or section 23; or (ii) an exemption from the provisions of this subsection published by the Minister in the Gazette on the advice of the Council.
National Veld & Forest Fires Act (Act 101 of 1998)	Regulation 13 Chapter 5	The purpose of the Act is to prevent and combat veld, forest and mountain fires throughout the Republic and provides for a variety of institutions, methods and practices for achieving the purpose. Regulations 13 provides the requirement for firebreaks. Chapter 5 places a duty on all owners to acquire equipment and have available personnel to fight fires.

Conservation of Agricultural Resources Act (Act No. 85 of 1983)		The purpose of the Act is to provide for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith. The objects of this Act are to provide for the conservation of the natural agricultural resources of the Republic by the maintenance of the production potential of land, by the combating and prevention of erosion and weakening or destruction of the water sources, and by the protection of the vegetation and the combating of weeds and invader plants.
National Infrastructure Plan		The National Government adopted a National Infrastructure Plan in 2012. With the plan they aim to transform the South African economic landscape while simultaneously creating significant numbers of new jobs, and strengthening the delivery of basic services. Government will over the three years from 2013/14 invest R827 billion in building and upgrading existing infrastructure. These investments will improve access by South Africans to healthcare facilities, schools, water, sanitation, housing and electrification. On the other hand, investments in the construction of ports, roads, railway systems, electricity plants, hospitals, schools and dams will contribute to faster economic growth. This mining activity will indirectly contribute to the growing of the South African economy by supplying SANRAL with material to build and upgrade road infrastructure.
District Municipality Integrated Development Plan (IDP)		The IDP and SDFs of the relevant municipalities was examined and relevant information was included in the EIA report.
Local Municipality Integrated Development Plan (IDP)		The IDP and SDFs of the relevant municipalities was examined and relevant information was included in the EIA report.
National Environmental Management: Protected Areas Act 57 of 2003		This Act provides for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes. It also seeks to provide for the sustainable utilization of protected areas and to promote participation of local communities in the management of protected areas.
National Environmental Management: Waste Act, 2008 (Act No. 59 Of 2008) Regulations regarding the Planning & Management of Residue Stockpiles & Residue Deposits from a Prospecting, Mining, Exploration or Production Operation		The purpose of these Regulations is to regulate the planning and management of residue stockpiles and residue deposits from a prospecting, mining, exploration or production operation.
Hazardous Substances Act (No. 15 of 1979)		The object of the Act is inter alia to 'provide for the control of substances which may cause injury or ill health to, or death of, human beings by reason of their toxic, corrosive, irritant, strongly sensitising or flammable nature or the generation of pressure thereby in certain circumstances; for the control of electronic products; for the division of such substances or products into groups in relation to the degree of danger; for the prohibition and control of such substances.'

		In terms of the Act, substances are divided into schedules, based on their relative degree of toxicity, and the Act provides for the control of importation, manufacture, sale, use, operation, application, modification, disposal and dumping of substances in each schedule.
Subdivision of Agricultural Land Act (No. 70 of 1970)		This Act regulates the subdivision of agricultural land and its use for purposes other than agriculture. The Directorate of Resource Conservation is responsible for the enforcement thereof. Investigations are done by the Provincial Department in support of the execution of the Act. The Act also deals with aspects associated with rezoning land.
Occupational Health and Safety Act (No. 85 of 1993)		The Occupational Health and Safety Act (No. 85 of 1993) (OHSA) provides a legislative framework for the provision of reasonably healthy and safe conditions in the workplace. It also places extensive legal duties on employees and users of machinery and makes major inroads on employers' and employees' common law rights. The OHSA is applicable and states that any person involved with construction, upgrades or developments for use at work or on any premises shall ensure as far as reasonably practicable that nothing about the manner in which it is installed, erected or constructed makes it unsafe or creates a risk to health when properly used
Mine Health and Safety Act (No. 29 of 1996)		The Mine Health and Safety Act (No. 29 of 1996) (MHSA) aims to protect and promote the health and safety of employees and persons that may be affected by the activities at a mine and outlines both the rights and responsibilities of an employer, as well as the obligations of employees working thereat. The following principles are considered applicable to the Proposed Project and are detailed below: • The primary responsibility for ensuring a health and safe working environment in the mining site is placed on the mine owner. The Act sets out in detail the steps that employers must take to identify, assess records and control health and safety hazards in the mine; • The right of workers to participate in health and safety decisions, the right to receive health and safety information, the right to training and the right to withdraw from the workplace in face of danger; • The Act requires the establishment of institutions to promote a culture of health and safety and develop policy, legislation and regulations; and • The responsibility for enforcing MHSA lies with the Mine Health and Safety Inspectorate. The Inspectorate's powers are recast and include the power to impose administrative fines upon employers who contravene the MHSA. The Act also contains innovative approaches to the investigation of accidents, diseases and other occurrences that threaten health and safety.
Government Notice Regulation 704 of 1999		GNR.704 of 1999 under the NWA provides regulations on the use of water for mining and related activities aimed at the protection of water resources (requirements for clean and dirty water separation). GNR.704 requires inter alia the following: • Separation of clean (unpolluted) water from dirty water; • Collection and confinement of the water arising within any dirty area into a dirty water system; • Design, construction, maintenance and operation of the clean water and dirty water management systems so that it is not likely for either system to spill into the other more than once in 50 years; • Design, construction, maintenance and operation of any dam that forms part of a dirty water system to have a minimum freeboard of 0.8m above full supply level, unless otherwise specified in terms of Chapter 12 of the Act; and • Design, construction, and maintenance of all water systems in such a manner as to guarantee the serviceability of such conveyances for flows up to and including those arising as a result of the maximum flood with an average period of recurrence of once in 50 years.

		GNR.704 also stipulates that no person in control of a mine or activity may: Locate or place any residue deposit, dam, reservoir, together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 m from any watercourse or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked; Place or dispose of any residue or substance which causes or is likely to cause pollution of a water resource, in the workings of any underground or opencast mine excavation, prospecting diggings, pit or any other excavation; or Use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any watercourse or estuary.

F. NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES.

(a motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred [location] development footprint within the approved site as contemplated in the accepted scoping report;).

Economic activity in modern-day South Africa has been cantered on mining activities, their ancillary services and supplies. The country's stock exchange in Johannesburg was established in 1887, a decade after the first diamonds were discovered on the banks of the Orange River, and almost simultaneously with the gold rush on the world-famous Witwatersrand.

In many ways, South Africa's political, social and economic landscape has been dominated by mining, given that, for so many years, the sector has been the mainstay of the South African economy. Although gold, diamonds, platinum and coal are the most well-known among the minerals and metals mined, South Africa also hosts chrome, vanadium, titanium and a number of other lesser minerals.

In 2018 the mining sector contributed R351 billion to the South African gross domestic product (GDP). A total of 456,438 people were employed in the mining sector in 2018. Each person employed in the mining sector has up to nine indirect dependents. The mining sector has, for many years, attracted valuable foreign direct investment to South Africa. (Mineral Council, 2021)

Diamonds, arguably the ultimate luxury mineral, comprise an intricate lattice of carbon atoms, a crystalline structure that makes them harder than any other form in nature. This characteristic makes diamonds not only popular in jewellery, but also desirable in high-tech cutting, grinding and polishing tools (Chamber of Mines, South Africa, 12:2016).

According to the Chamber of Mines the country's diamond sector is far from reaching the end of its life even though diamond mining has been taking place in South Africa for almost a century and a half. The primary sources of all of South Africa's diamonds are kimberlites in ancient, vertically dipping volcanic pipes most of which were located in the vicinity of the city of Kimberley and which were initially amenable to open-cast.

Economic growth - South Africa's total reserves remain some of the world's most valuable, with an estimated worth of R20.3-trillion. Overall, the country is estimated to have the world's fifth-largest mining sector in terms of GDP value.

With South Africa's economy built on gold and diamond mining, the sector is an important foreign exchange earner, with gold accounting for more than one-third of exports. In 2009, the country's diamond industry was the fourth largest in the world.

Mining is a cornerstone of the economy, making a significant contribution to economic activity, job creation and foreign exchange earnings. Mining and its related industries are critical to South Africa's socio-economic development.

G. A MOTIVATION FOR THE PREFERRED DEVELOPMENT FOOTPRINT

(-within the approved site as contemplated in the accepted scoping report;)

NB!! – This section is about the determination of the specific site layout and the location of infrastructure and activities on site, having taken into consideration the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout.

Location of the site

The location of the site is preferred due to the possibility of shallow diamonds. There are remnants of previous mining activities on the proposed areas with certain areas being unrehabilitated. In house information exist which substantiate the reasons for this application.

Based on outcomes of previous studies in the vicinity of the proposed site, the possibility to encounter high volumes of Diamonds (Alluvial), Diamonds (General) & Diamonds (DIA), on Portion 13 (portion of portion 6) of the farm Vogelstruiskuil

400, Portion 14 (portion of portion 2) of the farm Boschplaats 149 & Portion 24 of the farm Welverdient 151, Registration Divisions IO & HO, North West Province were identified.

The location of the activities will be determined based on the location of the prospecting activities, which will only be determined during phase 1 and 2 of the Prospecting Work Programme (see **Appendix 9** for the Programme).

According to the map (Figure 34 and Figure 35), the proposed area is covered with crops on the western side and is covered with fallow lands & old fields as well as previous mining activities. Please note that Anika Deetlefs will not be held accountable for any historical mining/prospecting activities that had occurred in the past

The disturbance of previous prospecting activities can be seen on the google earth image (figure 36).

If applicable a Water Use License Application will be launched for conducting prospecting operations.

Preferred activity

The prospecting of Diamonds Alluvial (DA), Diamonds General (D) & Diamonds (DIA) is the optimum preferred activity for the site. The shallow diamond deposits make the site ideal for alluvial diamond mining. There are remnants of previous mining activities on the proposed area with certain areas being unrehabilitated. In house information exist which substantiate the reasons for this application.

According to the map (Figure 34 and Figure 35), the proposed area is covered with crops on the western side and is covered with fallow lands & old fields as well as previous mining activities. Please note that Anika Deetlefs will not be held accountable for any historical mining/prospecting activities that had occurred in the past

The disturbance of previous prospecting activities can be seen on the google earth image (figure 36).

If applicable a Water Use License Application will be launched for conducting prospecting operations.

Technology

In terms of the technologies proposed, these have been chosen based on the long term success of their prospecting history. The prospecting activities proposed in the Prospecting Works Programme (**Appendix 9**) is dependent on the preceding phase as previously discussed, therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques.

H. A FULL DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED DEVELOPMENT FOOTPRINT

(-within the approved site as contemplated in the accepted scoping report, including:)

i) Details of the development footprint alternatives considered;

- **Consideration of alternatives**

The DEAT 2006 guidelines on 'assessment of alternatives and impacts' proposes the consideration of four types of alternatives namely, the no-go, site, activity, and technology alternatives. It is however, important to note that the regulation and guidelines specifically state that only 'feasible' and 'reasonable' alternatives should be explored. It also recognizes that the consideration of alternatives is an iterative process of feedback between the developer, the EAP and Interested and affected parties, which in some instances culminates in a single preferred project proposal. The following sections explore each type of alternative in relation to the proposed activity.

- **Location alternatives**

This alternative asks the question, if there is not, from an environmental perspective, a more suitable location for the proposed activity. It is expected that the Diamonds Alluvial (DA), Diamonds General (D) & Diamonds (DIA) been deposited on this farm and therefore the applicant would like to commence with their prospecting activities. There are remnants of previous mining

activities on the proposed area with certain areas being unrehabilitated. In house information exist which substantiate the reasons for this application.

According to the map (Figure 34 and Figure 35), the proposed area is covered with crops on the western side and is covered with fallow lands & old fields as well as previous mining activities. Please note that Anika Deetlefs will not be held accountable for any historical mining/prospecting activities that had occurred in the past

The disturbance of previous prospecting activities can be seen on the google earth image (figure 36).

If applicable a Water Use License Application will be launched for conducting prospecting operations.

Land capability

According to an article on the Grain SA website by Garry Paterson from ARC-Institute for Soil, Climate and Water on the Grain SA website, agriculture rests on three pillars where natural resources are concerned. These are the soil (comprising the growth medium for the plant), the climate conditions (which supply the plant with sufficient water and heat) and the terrain (enabling the crop to be physically planted, to grow and to be harvested sustainably).

The concept of land capability combines the three natural resource elements or factors listed above (soil, climate and terrain) and uses set parameters to determine a specific class for a given area. The basis of the land capability assessment in South Africa is the well-known Land Type Survey, which is a country-wide inventory of natural resources, i.e. soil pattern, macroclimate and terrain type, carried out between 1972 and 2002 by the ARC-Institute for Soil, Climate and Water.

Each unique land type is allocated to one of eight land capability classes. These classes are based on the original USDA land capability system, whereby Classes I and II comprise areas with little or no limitations to rainfed agriculture, Classes III and IV comprise those areas which are still considered arable, but with moderate to severe restrictions. Classes V to VIII comprise non-arable land with increasingly serious restrictions, either in terms of restricted soil, steep terrain, rockiness and/or an unfavourable climatic regime. (Garry Paterson, ARC-Institute for Soil, Climate and Water, November 2014.)

The proposed area falls within Land in Class 4 (refer to Land capability map on **figure 9** and attached as **Appendix 5**).

- **Activity alternatives**

The environmental impact assessment process also needs to consider if the development of a mine would be the most appropriate land use for the particular site.

According to the map (Figure 34 and Figure 35), the proposed area is covered with crops on the western side and is covered with fallow lands & old fields as well as previous mining activities. Please note that Anika Deetlefs will not be held accountable for any historical mining/prospecting activities that had occurred in the past

The disturbance of previous prospecting activities can be seen on the google earth image (figure 36).

If applicable a Water Use License Application will be launched for conducting prospecting operations.

If applicable a Water Use License Application will be launched for conducting prospecting operations. All infrastructure will be temporary and/or mobile.

If applicable a Water Use License Application will be launched for conducting prospecting operations. All infrastructure will be temporary and/or mobile.

- **Design and layout alternatives**

The location of the activities will be determined based on the location of the prospecting activities, which will only be determined during phase 1 of the Prospecting Work Programme (see **Appendix 9** for the PWP).

The layout follows the limitations of the site and aspects such as, roads, site offices and workshop area.

- **Operational alternatives**

Due to the nature of the prospecting activities, no permanent services in terms of water supply, electricity, or sewerage services are required.

Pits will be dug by an excavator for the purpose of soil sampling. If gravel is found, the applicant will determine the composition and quality of the gravel.

The applicant will proceed with this way of prospecting by means of the pitting/trenching method, simultaneously or after pitting depending on the information obtained from the earlier work done. The trenches will be dug to remove and process the gravel. Gravel will be removed by excavators and will be loaded directly into dump trucks. Ore will be hauled to the screening plant. The material will be screened where after the screened material will be moved to the processing plant where the gravel will be processed. Concentrate will be moved to the sorting plant where the concentrate will be sorted.

All data will be consolidated and processed to determine the diamond bearing resources on the property. This will be a continuous process throughout the prospecting work programme.

No feasible alternatives to the pitting and trenching method currently exists. Impacts associated with the prospecting operations will be managed through the implementation of a management plan, developed as part of the application for authorisation.

- **No-go alternative**

This alternative considers the option of 'do nothing' and maintaining the status quo. The description provided in section H of this report could be considered the baseline conditions (status quo) to persist should the no-go alternative be preferred.. Should the proposed activity not proceed, the site will remain unchanged.

- **Technology alternatives**

In terms of the technologies proposed, these have been chosen based on the long-term success of their prospecting history. The prospecting activities proposed in the Prospecting Works Programme (**Appendix 9**) is dependent on the preceding phase as previously discussed, therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques.

The preferred technology for the proposed mining activity, will be to do pitting and trenching, remove the diamond bearing gravel with an excavator, depositing it in the 2 x 16 feet rotary pan to be washed and sorted. Please find the Prospecting Work Programme attached as **Appendix 9**.

Dense Media Separation (DMS)

Pros & Cons of the alternative **Dense Media Separation (DMS)**

Advantages	Disadvantages
DMS plants is used mostly for kimberlite deposits	10 times more expensive than Rotary pan
	Water consumption is high
	Operating costs are expensive

In a Dense Media Separation (DMS) plant, powdered ferrosilicon (an alloy of iron and silicone) is suspended in water to form a fluid near the density of diamond (3.52 g/cm3), to which the diamond bearing material is added to begin the separation process of the heavier minerals from the lighter material. Additional separation of the denser material occurs by centrifuge in "cyclones" that swirl the mixture at low and high speeds, forcing the diamonds and other dense minerals to the walls and then out the bottom of the cyclone. Waste water rises at the center of the cyclones and is sucked out and screened to remove

waste particles. The DMS process results in a concentrate that generally weighs less than one percent of the original material fed into the plant at the beginning of the process.

Rotary Pan Plants

Pros & Cons of the alternative **Rotary Pan Plants**

Advantages	Disadvantages
More cost effective	The industry perception that Rotary Pan Plants yield poorer diamond recoveries
Readily available	
Generate more work opportunities	
Consume less water	
Rotary Pan Plants are most often used when mining alluvial deposits	

In a Rotary Pan plant, crushed ore, when mining kimberlite, or alluvial gravel and soil is mixed with water to create a liquid slurry called “puddle” which has a density in the 1.3 to 1.5 g/cm3 range. The mix is stirred in the pan by angled rotating “teeth”. The heavier minerals, or “concentrate”, settle to the bottom and are pushed toward an extraction point, while lighter waste remains suspended and overflows out of the centre of the pan as a separate stream of material. The concentrate, representing just a small percentage of the original kimberlite ore or alluvial gravels, is drawn off for final recovery of the diamonds.

Both methods are in actual fact used for bulk material reduction and require a further process for the final diamond recovery however, for this project the Rotary Pan will be used.

Dust Suppression

When it comes to dust suppression two main methods were considered, namely molasses stillage and the wetting (water) of roads. The table below provides a short summary of the advantages and disadvantages of each.

Water	Molasses stillage
More cost effective	Much more expensive
Could lead to the depleting of water resources	Requires less water
No damage (only if used excessively)	The product may be toxic to aquatic organisms. (As this product could have physical effects on aquatic organisms for e.g. floating, osmotic damage)
No harm to humans or animals (Only a high quantity will have harm to humans or animals)	Not Hazardous or toxic. Could cause irritation to eyes, skin or when ingested and inhaled.
Non-flammable	Non-flammable
Eye-wash fountains not needed	Eye-wash fountains in the work place are strongly recommended
	Working procedures should be designed to minimize worker exposure to this product.
Basic storing methods	Storing methods are a bit more complicated. Should be stored in a plastic, plastic lined or stainless steel, tight closed containers between 5 and 40 degrees Centigrade.

Considering the above mentioned information, water will be used for dust suppression purposes.

ii) Details of the Public Participation Process Followed

Describe the process undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings.

(Information to be provided to affected parties must include sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land.

The Public Participation Process (PPP) must follow Regulation 41 of NEMA EIA Regulations; thus, the process needs to be transparent. However, due to the Protection of Personal Information Act (POPI Act) which commenced on 01 July 2021, Stakeholders, Landowners, surrounding landowners and registered I&AP' addresses, contact details and comments will not be included in any draft report to be circulated. All this information will form part of the final report to be submitted to the Competent Authority only.

Should you be identified as a Stakeholder, Landowner, Surrounding landowner and you do not wish to receive any further communique from Milnex CC regarding the application in question, you may request in writing that your details be removed from the Milnex CC database for this application.

Newspaper advertisement

An advertisement was placed in English in the local newspaper **(Stellalander)** (see **Appendix 6**) notifying the public of the EIA process and requesting Interested and Affected Parties (I&APs) to register with, and submit their comments to Milnex CC. I&APs were given the opportunity to raise comments within 30 days of the advertisement.

Site notices

Site notices were placed (as anticipated on the coordinates below) on site in English to inform surrounding communities and immediately adjacent landowners of the proposed development. I&APs will be given the opportunity to raise comments. Photographic evidence of the site notices will be included in **Appendix 6**. Below are the coordinates where the site notices will placed.

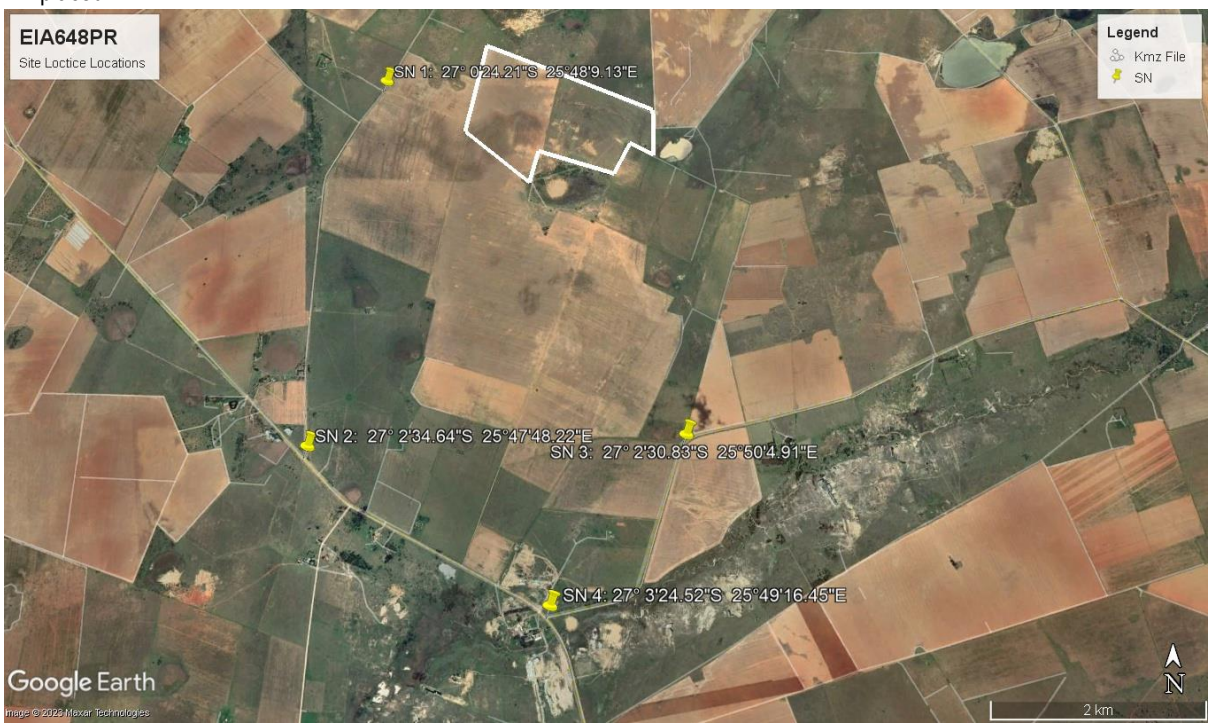

Figure 3: Site notice co-ordinates

Direct notification and circulation of Scoping Report to identified I&APs (stakeholder, landowners, surrounding landowners, and occupiers)

Identified I&APs, including key stakeholders representing various sectors, are directly informed of the proposed development and the availability of the Scoping Report via registered post on **22 March 2023** and were requested to submit comments by **25 April 2023 (30 days).**

A copy of the report is also available at the Milnex offices in Schweizer-Reneke, 4 Botha Street, Schweizer-Reneke and Potchefstroom (Waterberry Street, Waterberry Square, 1st floor, Office 5B, Potchefstroom), between 7:30AM and 5PM, Monday to Friday. For a complete list of stakeholder details and for proof of registered post see **Appendix 6.** The consultees included:

Table 3: List of Stakeholders, Landowners, & surrounding landowners

Stakeholders
Department: Mineral Resources and Energy (DMRE)
Department: Agriculture and Rural Development (DARD)
Department: Community Safety and Transport Management (DCSTM)
Department: Cooperative Governance and Traditional Affairs (CGTA)
Department: Economic Development, Environment, Conservation and Tourism (DEDECT)
Department: Public Works and Roads (DPWR)
Department: Human Settlements
Provincial Heritage Resources Authority (PHRA)
Department of Rural Development and Land reform: Land Claims Commission
Department: Water and Sanitation (DWS) Lower Vaal
WESSA
Dr Kenneth Kaunda District Municipality
Maquassi Hills Local Municipality Ward 8 Councillor
Maquassi Local Municipality: Municipal Manager
Landowner
Matthys Johannes Janse van Vuren (Thys)
Surrounding landowners
Matthys Johannes Janse van Vuuren
Johannes Petrus Koekemoer
Willem Carstens
Zetlo (Pty) Ltd
Thys van Vuren Familie Trust

Direct notification and circulation of EIR & EMPr to identified I&APs (stakeholder, landowners, surrounding landowners, occupiers & I&APs)

Identified I&APs, including key stakeholders representing various sectors, are directly informed of the proposed development and the availability of the EIR & EMPr via registered post on **20 July 2023** and were requested to submit comments by **20 August 2023** (30 days).

A copy of the report is also available at the Milnex offices in Schweizer-Reneke, 4 Botha Street, Schweizer-Reneke and Potchefstroom (Waterberry Street, Waterberry Square, 1st floor, Office 5B, Potchefstroom), between 7:30AM and 5PM, Monday to Friday. For a complete list of stakeholder details and for proof of registered post see **Appendix 6**.

Table 3: List of Stakeholders, Landowners, & surrounding landowners

Stakeholders
Department: Mineral Resources and Energy (DMRE)
Department: Agriculture and Rural Development (DARD)
Department: Community Safety and Transport Management (DCSTM)
Department: Cooperative Governance and Traditional Affairs (CGTA)
Department: Economic Development, Environment, Conservation and Tourism (DEDECT)
Department: Public Works and Roads (DPWR)
Department: Human Settlements

Provincial Heritage Resources Authority (PHRA)
Department of Rural Development and Land reform: Land Claims Commission
Department: Water and Sanitation (DWS) Lower Vaal
WESSA
Dr Kenneth Kaunda District Municipality
Maquassi Hills Local Municipality Ward 8 Councillor
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Matthys Johannes Janse van Vuren (Thys)
Surrounding landowners
Matthys Johannes Janse van Vuuren
Johannes Petrus Koekemoer
Willem Carstens
Zetlo (Pty) Ltd
Thys van Vuren Familie Trust

Public meeting

Please note that the Stakeholders & Interested and Affected Parties (I&APs) were informed about the proposed project with the use of press advertisement, registered letters and site notices. Any meetings will be conducted in person or virtually via Zoom or Microsoft Teams upon request by the I&APs.

No meeting was requested by stakeholders and/or I&APs.

Issues Raised by Interested and Affected Parties

Comments received during this period are attached as comment & response report as well as populated in the table of summary of issues raised.

iii) Summary of Issues Raised by I&APs

(Complete the table summarising comments and issues raised, and reaction to those responses)

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.		Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issue and or response where incorporated
Organisation	**Contact person**			
Welverdient 151/24 Boschplaats 149/14 Vogelstruiskuil 400/13	Matthys Johannes Janse van Vuren (Thys)	Landowner's consent was signed and is attached in appendix 6.		
Surrounding Landowners				
Welverdient 151/11	Matthys Johannes Janse van Vuuren	No comments received		
Boschplaats 149/2 Vogelstruiskuil 400/6	Johannes Petrus Koekemoer	No comments received		
Vogelstruiskuil 400/0	Willem Carstens	No comments received		
Welverdient 151/1	**Zetlo (Pty) Ltd** Anita Steyn	No comments received		
Welverdient 151/27	Thys van Vuren Familie Trust	No comments received		
The Municipality in which jurisdiction the development is located				
Maquassi Hills Local Municipality	Municipal Manager: Mr V.E Zikalala	No comments received		
Municipal councilor of the ward in which the site is located				
Maquassi Hills Local Municipality	Ward 8 Councillor	No comments received		
Organs of state having jurisdiction				
Department of Economic Development, Environment, Conservation & Tourism (DEDECT)	Ouma Skosana	No comments received		

The Department of Water & Sanitation (DWS)	Mr. V. Blaire	No comments received		
Department of Agriculture, Forestry & Fisheries (DAFF)	Mr. Maurice Vukeya & Mrs Mpho Gumula	No comments received		
Provincial Heritage Resources Agency (PHRA) North West	Mr. Motlhabane Mosiane	No comments received		
Department of Public Works and Roads (DPWR)	To whom it may concern	No comments received		
Department of Mineral Resources & Energy (DMRE)	J Matloa	Email received on 16/03/23 - We hereby confirm that your application has been accepted - In light of the minimum requirements as stipulated in Regulation 16(1) and 16(2) of the EIA Regulations, your application for an Environmental Authorization was incomplete as it was not accompanied by this acceptance letter. You are hereby required o submit the documents as stipulated in Regulation 19(1) to 19(8) of the EIA Regulations or Regulation 21. Please ignore the submissions of this report in case you have already submitted. All timeframes are effective from the date of this letter. - Kindly note that you are required to consult with the Department of Land Affairs if the land is state owned and in the event that the land is subject to land restitution, to consult the office of the Commission on Restitution of Land Right and submit online and hard copy to this Regional office the results of such consultation or before the 26th of April 2023 (30 days). - You are hereby requested in terms of section 17(4) of the act to give effect to the objects referred to in section 2 (d) of the Act (BEE). In this regard you are required to submit online and hard copy to this Regional office by not later than 13th of April 2023(60 days), the following documents:		

		- Duly signed shareholders agreement - Share certificates and shareholder's registers - Details relating to funding (all relevant agreements); and - Any other agreement or documents relating to the agreement. - Acceptance of your application does not grant you the right to commence with activities. Your application will be evaluated/processed and a recommendation on the granting/refusal of the right will be forwarded to the Minister or her delegate. - Take note that failure to submit the documents as requested and failure to adhere to the timeframes as stipulated above amounts to non compliance with the provision of the Act and will therefore lead to your application being recommended for refusal without further notification to you.		
	Desmond Makamu Chris Tshisevhe	Email received on 23/03/23 - We confirm having received your application for EA - Your application is currently being considered, however, for this office to efficiently consider your application you are hereby requested to address and submit the following • POP of the application fee • An undertaking under oath or affirmation that all the information submitted or to be submitted for this application is true and correct as prescribed in terms of regulation 16 (1)(b)(iv) of the NEMA Regulations • A plan which locates the proposed activity or activities applied for at a appropriate scale	**RESPONSE TO COMMENTS FOR THE PROPOSED PROSPECTING RIGHT APPLICATION ON PORTION 13 (PORTION OF PORTION 6) OF THE FARM VOGELSTRUISKUIL 400 IO, PORTION 14 (PORTION OF PORTION 2) OF THE FARM BOSCHPLAATS 149 HO AND PORTION 24 OF THE FARM WELVERDIENT 151 HO; NORTH WEST PROVINCE** We act on behalf of **Anika Deetlefs**. This letter is written in response to comments stated in paragraph 2 of your	

		• A locality map at scale not smaller than 1:250 000, which indicates the location of the proposed activity as prescribed on item 4 of your application form - The information requested on paragraph 2 above must be addressed and incorporated into the revised application form which must be submitted to this office within 30 days from the date of signing of this letter. - Kindly also note that your applications are listed under Listing Notice 2 of the NEMA EIA regulations 2014, and will therefore follow this S&EIR process - Kindly also note that Regulation 21(1) of the NEMA: EIA Regulations 2014, states that if a SEIR must be applied to an application the applicant must within 44 days of receipt of the application by the CA, submit a SR. - Kindly note that your timeframes for th submission of the SR shall be considered applicable in case your PR application is accepted. Further note that if your PR application is rejected, your application for EA will be refused considering it has been triggered by the PR Application which would have been rejected. - In case your PR is accepted you will be required to consult with every organ of state that administers a law relating to a matter affecting the environment relevant to this application (SR) as required in terms of Regulation 7(2) of the EIA Regulations, 2014. The organs of state which must be consulted included but not limited to the Local and District Municipalities, National Department of Agricultural Development, DWS, SAHRA and or PHRA NW. Any public participation process must be conducted for a period of at least 30 days as per Chapter 2, Regulations 3 (8) of the EIA Regulations, 2014. - In case the land in question is owned by the community you are required to consult with such community and submit a resolution to this office. - Kindly also note the acknowledgement of your application does not grant you the right to commence with prospecting operations.	acknowledgement letter dated 20 March 2023. **Comment 2 (a):** • Kindly receive the proof of payment for the application fee attached to this letter as appendix 1 **Comment 2 (b)**: • Kindly find attached Appendix 2: Signed attachment from the commissioner of oath as affirmation that all the information submitted for this application is true and correct as prescribed in terms of regulation 16 (1) (b) (iv) of the NEMA: EIA Regulations, 2014. **Comment 2(c):** • Please kindly find attached Appendix 3: A plan which locates the proposed activity applied for at an appropriate scale as prescribed in terms of regulation 16 (1) (b) (vii) of the NEMA: EIA Regulations, 2014. **Comment 2(d):** • Please kindly find attached Appendix 4: A locality map for the proposed activity as prescribed on item 4 of the application form.	

		- Your attention is also brought to regulation 45 of the EIA regulations 2014 which states that an application ito these regulations lapses, and a CA will deem the application as having lapsed, if the applicant fails to meet any of the timeframes prescribed ito of these regulations, unless extension has been granted in terms of regulation 3(7).	We trust that you find the above in order and await your offices response herein as soon as possible. Yours Sincerely Milnex CC Per: Deshney Mapoko	
		Email with attachment received on 09/05/23. We confirm receipt of your Scoping Report. Your Scoping Report has been accepted, however the following information should be addressed in the EIA Phase - A DEIR must be submitted to all I&Aps and comments should be included in the FEIR - Your maps should be of A3 size, have a legend, north point and be printed in colour. Your Locality map should show the location of the proposed activities in relation to the nearest town together with infrastructure within and around the proposed project area. - An EMPR for the construction and operational phase must be developed to identified and mitigate impacts. - Consult with DWS - Conduct a biodiversity specialist study or submit an opinion from the relevant specialist clarifying as to whether it is necessary to undertake such study or not. - Undertake any studies which may be found to be relevant for this application during impact assessment You are also also requested to address the comments below in support of your Scoping Report		

		- Provide proof/record of consultation with SAHRA/NWPHRA - Provide clear and visible copy of site notice which was placed on site - Submit the newspaper advert You may proceed with undertaking the EIA. You are also reminded the that EIA must contain the information that is necessary for the CA to consider and come to a decision on the application as prescribed in Appendix 3 of the EIA regulations. Further note that the EMPR must contain all info set out in Appendix 4 regulation 1 of the above mentioned Regulation. Further note that if you fail to meet any of the timeframes prescribed in terms of these regulations, this Department will deem your application as having lapsed. It must be stressed to the applicant that no activities may commence on site until all necessary EA including PR are obtained.		
Department of Agriculture & Rural Development (DARD)	Head of Department	No comments received		
Department of Environment, Forestry & Fisheries (DEFF)	To whom it may concern	No comments received		
Department of Cooperative Governance and Traditional Affairs (DCGTA)	Head of Department: Acting: Ms. M Lehoko	No comments received		
Department of Human Settlements (DHS)	Head of Department: Acting: Mr Keatlegile James Mashego	No comments received		
Department of Community Safety and Transport Management (DCSTM)	Head of Department: Acting: Mr Molefi Morule	No comments received		

Department of Rural Development and Land reform: **Land Claims Commission**	Land Claims Office: Keabetswe Mothupi		Email sent on 20/03/23 Dear Kea I trust all is well with you. Response letter: Maquassi Hill Local Municipality May your office kindly assist us with the land claim enquiries on the following properties: Portion 13 (portion of portion 60 of the Farm Vogelstruiskuil 400; Reg Div: IO; Title Deed: T10320/1980 Portion 14 (portion 2 of 2) of the farm Boschplaats 149; Reg Div: IO; Title Deed: T10320/1980 Portion 24 of the farm Welverdient 151; Reg Div: HO; Title Deed: T10320/1980 Please find Title Deeds attached. Kind regards	
		Email received on 18/04/23 Good Day Hereto please find the attached response letter/s. Regards Kgomotso **Portion 14 of the Farm Boschplaats 149IO** We confirm that as at the date of this letter no land claims appears on our database in respect of the above properties. This includes for claims lodged by 31 December 1998; and those lodged between 1 July 2014 and 27 July 2016 ito the Restitution of Land Rights Amendment Act, 2014. **Portion 13 of the Farm Vogelstruiskuil 400IO**		

		We confirm that there is an existing land claim against the farm Vogelstruiskuil. The claim was lodged under Maquassi Hill LM within the DR KK District. The information reflects on the database of claims lodged between 1 July 2014 and 27 Julry 2016 ito of the Restitution of Land Rights Amendment Act of 2014. Portion 24 of the Farm Welverdient 151HO We confirm that there is an existing land claim against the farm Welverdient. The claim was lodged under Maquassi Hill LM within the DR KK District. The information reflects on the database of claims lodged between 1 July 2014 and 27 Julry 2016 ito of the Restitution of Land Rights Amendment Act of 2014. Full letters attached in appendix 6		
Other–				
Dr Kenneth Kaunda District Municipality	Municipal Manager: Ms Matlakala Matthews	No comments received		
WESSA	John Wesson	No comments received		

iv) the environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;

BASELINE ENVIRONMENT

The baseline environment is described with specific reference to geotechnical conditions, ecological habitat and landscape features, Soil, land capability and agricultural potential, climate and the visual landscape.

DFFE Screening Report

Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity

Agriculture Theme		X		
Animal Species Theme				X
Aquatic Biodiversity Theme				X
Archaeological and Cultural Heritage Theme				X
Civil Aviation Theme				X
Defence Theme				X
Paleontology Theme			X	
Plant Species Theme				X
Terrestrial Biodiversity Theme	X			

(a) Type of environment affected by the proposed activity.
(its current geographical, physical, biological, socio- economic, and cultural character).

GEOLOGY AND SOILS

Geological formation

Ra –Tholelitic and calc – alkaline basalt and andesite; tuff and pyroclastic breccia

Rb – Quartzite, grit, conglomerate; pyroclastic breccia, tuffaceous sediments, cherty or calcareous in places.

- Classification

The allanridge formation underlies the Bothaville Formation conformably but where the latter pinches out the Allanridge verstemps into diverse older lithologies.

The formation consist mainly of two types of lava i.e. a dark-green amygdaloidal lava and light green-grey porphyritic lava.

- Mineralogy

The dark-green lava, which is by far the most prominent unit in the Allanridge formation, also constitutes the greater part of Ventersdorp supergroup in the area. The lava is fine to medium grained in texture and the plagioclase and augite in it have been replaced by secondary minerals, such as chlorite, eqidote, calcite sericites and uralite. The amygdales in the lava consist of quart, chalcedony, calcite, chlorite or eqidote, or any combination of these minerals. Where more than one mineral makes up an amygdale, the minerals commonly form concentric zones.

- Sedimentary Rocks

The sedimentary rocks of the Allanridge formation consist of a mixture of tuff, agglomerate and volcanic breccia occur interbedded with the lava towards the top of the formation.

According to the Council of Geoscience study "The diamondiferous gravels are distributed predominantly in three major areas, namely the area underlain by dolomite from the east of Ventersdorp towards Lichtenburg and Bakerville and beyond (VLB), the Lichtenburg–Delareyville–Bloemhof–Klerksdorp–Lichtenburg area (LDBKL), which is mostly underlain by Ventersdorp Supergroup basalt and Dwyka Group tillite and the area associated with the Vaal River terraces and gravels.

Diamondiferous gravels are concentrated along straight and meandering runs, sinkholes and dolines in the VLB area. In the LDBKL area, the diamonds are present in ancient and current river channels, terraces or banks and as elluvial and colluvial deposits. Along the Vaal River, the diamonds occur along the gravels of the current river and along the older gravels present along ancient terraces."

Up to 1984, the total alluvial diamond from secondary deposits in the North-West Province was about 14.4 million carats however the Small scale production persists today. The deposits lie within three geographical areas: The Lichtenburg field (67.8% of total production); the Ventersdorp field (18.6%) and the Schweizer-Reneke- Wolmaransstad-Bloemhof field (13.6%).

There are various operational alluvial diamond mines adjacent to these properties on which applications for prospecting rights have been lodged. In house information exist which substantiate the reasons for this application.

ECOLOGICAL HABITAT AND LANDSCAPE FEATURES

The result obtained by plotting the coordinates are as follow:

The proposed area falls within vegetation unit Gh 14, known as the Western Highveld Sandy Grassland

Western Highveld Sandy Grassland

Distribution North-West Province: From Mafikeng to Schweizer-Reneke in the south and from Broedersput and Kameel in the west to Lichtenburg and Ottosdal in the east. Altitude 1 280–1 520 m, main area at 1 340–1 380 m.

Vegetation & Landscape Features Flat to gently undulating plains with short, dry grassland, with some woody species occurring in bush clumps.

Geology & Soils Basaltic lavas of the Klipriviersberg Group and andesitic lavas of the Allanridge Formation (both Ventersdorp Supergroup) covered by aeolian sand (western part of the area) or calcrete, with the eutrophic plinthic soils, which are mainly yellow apedals (Avalon and Pinedene) and rarely red apedals (Hutton) or Clovelly in bottomlands. Bd land type dominant.

Climate Warm-temperate, summer-rainfall region, with overall MAP of 520 mm. Summer temperatures are high. Severe frequent frost occurs in winter. See also climate diagram for Gh 14 Western Highveld Sandy Grassland.

Important Taxa Graminoids: *Anthephora pubescens* (d), *Aristida congesta* (d), *A. diffusa* (d), *Cymbopogon pospischilii* (d), *Cynodon dactylon* (d), *Eragrostis lehmanniana* (d), *E. trichophora* (d), *Panicum coloratum* (d), *Pogonarthria squarrosa* (d), *Setaria sphacelata* (d), *Sporobolus africanus* (d), *Themeda triandra* (d), *Aristida adscensionis*, *A. canescens*, *A. stipitata* subsp. *graciliflora*, *Brachiaria serrata*, *Digitaria argyrograpta*, *D. eriantha*, *Diheteropogon amplectens*, *Elionurus muticus*, *Eragrostis chloromelas*, *E. curvula*, *E. gummiflua*, *E. racemosa*, *Eustachys paspaloides*, *Heteropogon contortus*, *Melinis nerviglumis*, *Sporobolus discosporus*, *S. fimbriatus*, *Trichoneura grandiglumis*, *Triraphis andropogonoides*. Herbs: *Gazania krebsiana* subsp. *krebsiana* (d), *Stachys spathulata* (d), *Barleria macrostegia*, *Berkheya onopordifolia* var. *onopordifolia*, *Chamaecrista mimosoides*, *Chamaesyce inaequilatera*, *Dicoma anomala*, *D. macrocephala*, *Helichrysum callicomum*, *Hermannia depressa*, *H. tomentosa*, *Kyphocarpa angustifolia*, *Lippia scaberrima*, *Monsonia burkeana*, *Nolletia ciliaris*, *Osteospermum muricatum* subsp. *longiradiatum*, *Pollichia campestris*, *Rhynchosia adenodes*, *Sebaea grandis*, *Trichodesma angustifolium* subsp. *angustifolium*, *Vernonia oligocephala*. Geophytic Herb: *Boophone disticha*. Low Shrubs: *Anthospermum rigidum* subsp. *pumilum* (d), *Aptosimum elongatum*, *Felicia muricata*, *Gnidia capitata*, *Helichrysum paronychioides*, *Indigofera comosa*, *Leucas capensis*, *Polygala hottentotta*, *Sida dregei*, *Solanum panduriforme, Stoebe plumosa*. Tall Shrubs: *Acacia hebeclada*, *Diospyros lycioides* subsp. *lycioides*.

Conservation Endangered. Target 24%. Only a very small portion statutorily conserved (Barberspan Nature Reserve). More than 60% has been ploughed. Nonarable parts are on shallow aeolian soils which become easily overutilised through grazing. Erosion is very low. About 95% of this land is suitable for cultivation, but the low rainfall makes it a high-risk area for agriculture. Therefore the natural vegetation is often restricted to nonarable bush clumps, shallow soils, aeolian sands and pans.

Remarks Many endorheic pans (AZi 10 Highveld Salt Pans; see the chapter on Inland Azonal Vegetation in this book) are embedded within this grassland, especially in the north.

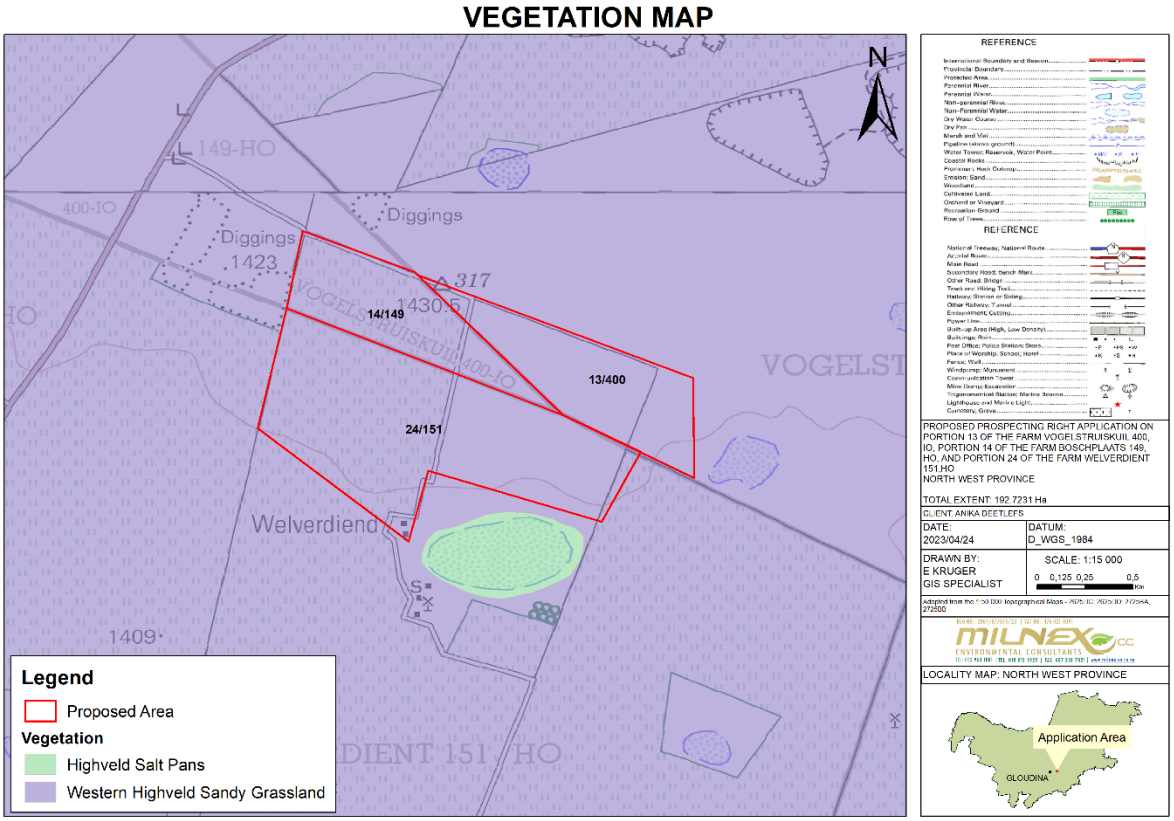

Figure 4: Vegetation Unit Map

A terrestrial biodiversity & wetland assessment was conducted on the 3rd and 4th of July 2023. The study focused on 2 applications, namely **NW30/5/1/1/2/13707PR,** on Portion 21 (portion of portion 6) of the farm Vogelstruiskuil 400, Portion 14 (portion of portion 2) of the farm Boschplaats 149 & Portion 24 of the farm Wleverdient 151(Right side on relevant maps) & on the application lodged under DMRE Ref: **NW30/5/1/1/2/13820PR** on the Remaining Extent of Portion 1 of the Farm Boschplaats 149 (Left side on relevant maps). Both applications were submitted to the Department of Mineral Resources & Energy (DMRE). For the purpose of this application, this document will only focus on the assessment done for this application (**NW30/5/1/1/2/13707PR,** on Portion 21 (portion of portion 6) of the farm Vogelstruiskuil 400, Portion 14 (portion of portion 2) of the farm Boschplaats 149 & Portion 24 of the farm Wleverdient 151).

Vegetation units

The majority of the study site has been converted to agricultural fields, resulting in no natural vegetation occurring in these areas. A large section of the study site show evidence of historic prospecting and / or mining activities. During the site visit vegetation / land use units were identified based on land use, wetness regime and vegetation structure. Due to data being collected during the winter season, many graminoids and forbs have lost inflorescences and flowers, making positive identification challenging. The study area can be divided into the following vegetation / land use units (*Seriphium plumosum*– *Aristida* spp. Grassland, Cultivated fields & Wetlands).

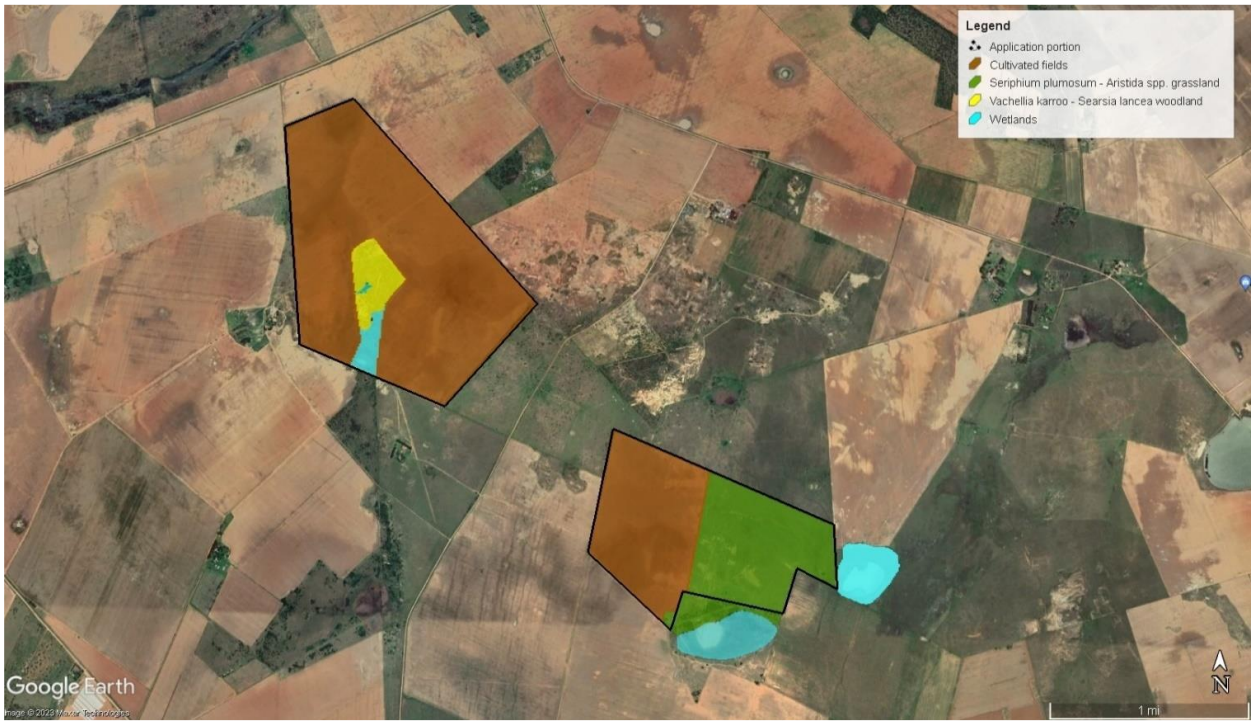

Figure 5: Vegetation units identified on site.

<u>*Seriphium plumosum* – *Aristida* spp. grassland</u>

This vegetation unit is disturbed due to historic prospecting / mining activities. *Seriphium plumosum* is dominant throughout, with higher densities around disturbed areas. Dominant grass species include *Aristida* spp., *Cymbopogon pospischilii* and *Eragrostis* spp. Tree density increased towards the wetland, most likely due to soil disturbances as a result of historic prospecting / mining. Species observed in this area include *Vachellia karroo* and the shrub, *Asparagus* spp. *Vachellia erioloba* trees were observed towards the South-eastern corner of the vegetation unit. The soil is red and sandy throughout. Gravel patches were observed where historic prospecting / mining occurred. The unit is classified as having a Medium – Low sensitivity, due to historic disturbances and many unrehabilitated prospecting / mining trenches. Despite this, the unit showed some species diversity and overlaps with a CBA1 area. The protected tree species (DFFE), *Vachellia erioloba*, were observed within the unit. No red data species (NEMBA) were observed within the vegetation unit. The state of the vegetation unit is indicated in Figure 6.

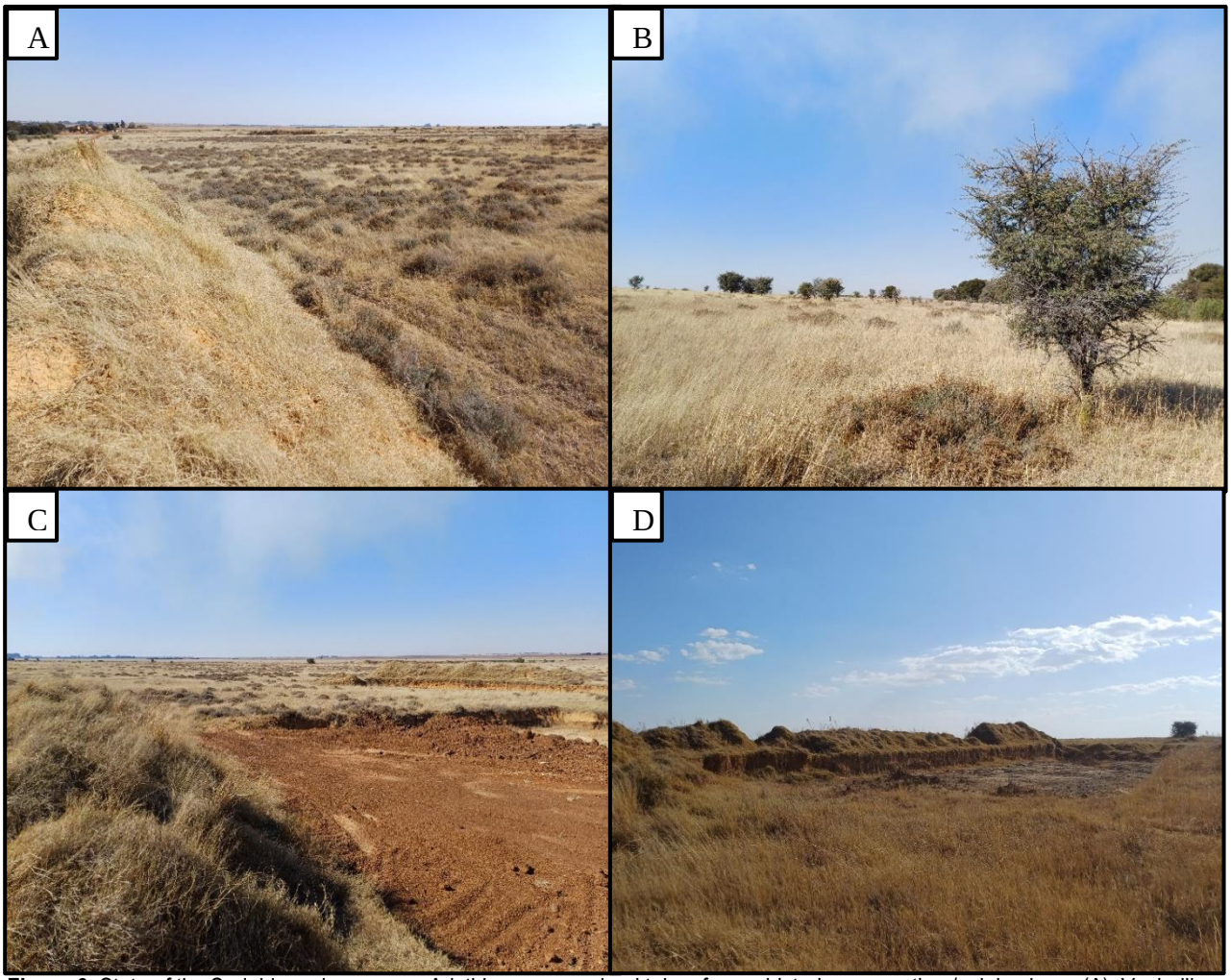

Figure 6: State of the Seriphium plumosum – Aristida spp. grassland taken from a historic prospecting / mining berm (A). Vachellia erioloba within unit (B). Disturbance from historic prospecting / mining activities (C & D).

Wetlands

Two (2) wetlands were identified during the site visit. The site visit confirmed the assessed wetlands to be two (2) Depression wetlands.

Cultivated fields

Most of the study site has been converted for dry-land maize cultivation. There is very little to no indigenous vegetation left in these fields. This sensitivity of this area is very low (Figure 7).

Figure 7: Cultivated fields.

According to the DFFE Screening Report the Plant Species theme sensitivity of the proposed areas falls in a low sensitivity. Please see **Appendix 7** for the colour map.

Figure 8: Plant Species Sensitivity

The dominant plant species for the study site is listed below. The exotic category and status of each species is according to the NEMBA Alien Species List (2020), NEMBA Listed Species (2005) and SANBI Red List of South African Plants.

Table 4: Dominant plant species observed within the study area.

Trees and Shrubs			
Scientific Name	**Common Name**	**Exotic**	**Status**
Agave americana	American Agave	Yes	Not evaluated
Asparagus laricinus	Wild asparagus	No	Least concern
Asparagus suaveolens	Wild asparagus	No	Least concern
Diospyros lycioides	Bluebush	No	Least concern
Eucalyptus camaldulensis	Red river gum	Yes	Declared invader 2
Searsia lancea	Karree	No	Least concern
Searsia pyroides	Firethorn rhus	No	Least concern
Vachellia erioloba	Camel thorn	No	Protected
Vachellia karroo	Sweet thorn	No	Least concern
Ziziphus mucronata	Buffalo-thorn	No	Least concern
Grasses and Sedges			
Scientific Name	**Common Name**	**Exotic**	**Status**
Aristida congesta	Tassel three-awn	No	Least concern
Aristida diffusa	Iron grass	No	Least concern
Chloris virgata	Feather-top chloris	No	Least concern
Cymbopogon pospischilli	Turpentine grass	No	Least concern
Cynodon dactylon	Couch Grass	No	Least concern
Cyperus sp.		No	Least concern
Digitaria sp.	Finger grass	No	Least concern
Eragrostis rigidior	Curly leaf	No	Least concern
Eragrostis superba	Saw-tooth love grass	No	Least concern
Eragrostis trichophora	Hairy love grass	No	Least concern
Eragrotis lehmanniana	Lehmann's love grass	No	Least concern
Juncus sp.		No	Least concern
Melinis repens	Natal red top	No	Least concern
Pogonarthria squarrosa	Herringbone grass	No	Least concern
Setaria verticillata	Bur bristle grass	No	Least concern
Themeda triandra	Red grass	No	Least concern
Typha capensis	Bulrush	No	Least concern
Forbs and Herbs			
Scientific Name	**Common Name**	**Exotic**	**Status**
Alternanthera sessilis	Sessile Joyweed	Yes	Not evaluated
Bidens pilosa	Common blackjack	Yes	Not evaluated
Conyza sp.	Fleabane	Yes	Not evaluated
Gomphocarpus fruticosus	Milkweed	No	Least concern
Helichrysum sp.		No	Least concern
Persicaria sp		Yes	Not evaluated
Seriphium plumosum	Slangbos	No	Least concern
Solanum sp.	Bitter apple	No	Least concern
Tagetes minuta	Tall khaki weed	Yes	Not evaluated
Verbena bonariensis	Purple top	Yes	Declared invader 1b

The proposed area falls within Land capability Class 4 (refer to Land capability map in **figure 9** and attached as **Appendix 5**).

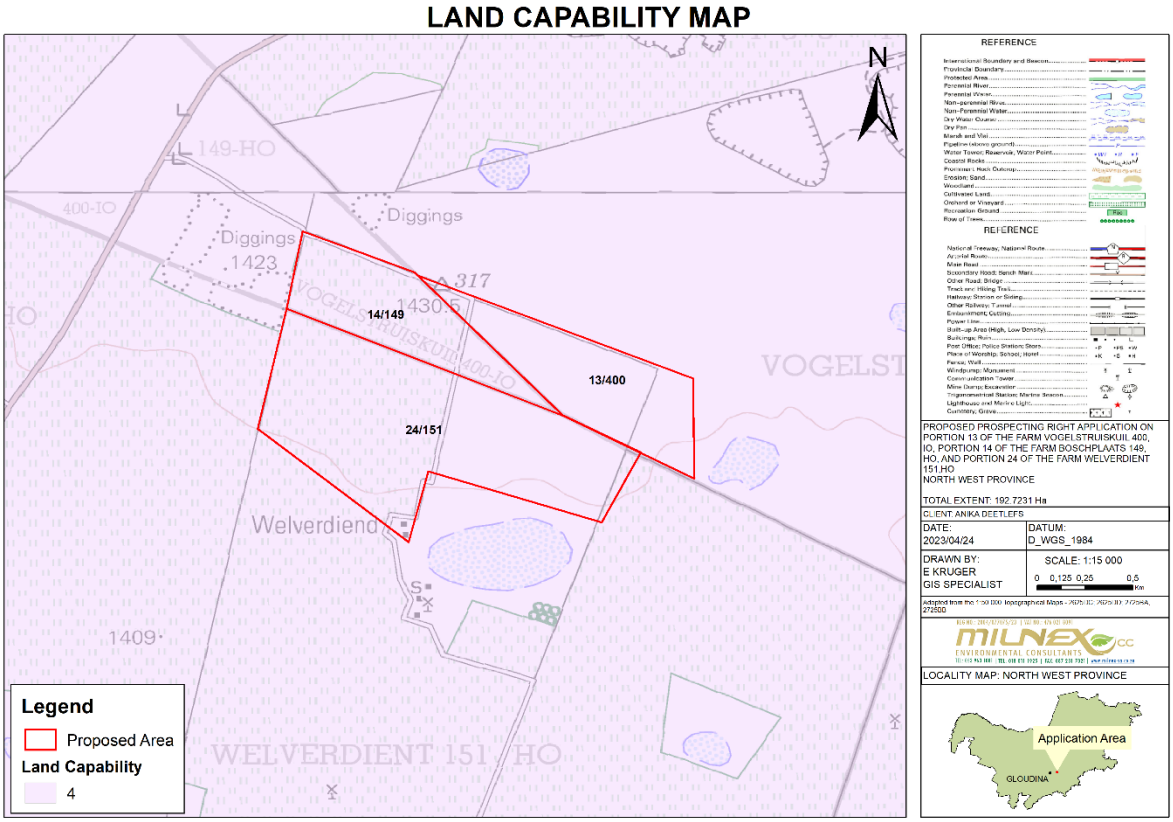

Figure 9: Land capability

According to the DFFE Screening Report the Agriculture theme sensitivity of the proposed area fall mostly within high sensitivity followed by some patches of medium sensitivity.

Please see **Appendix 7** for the colour map.

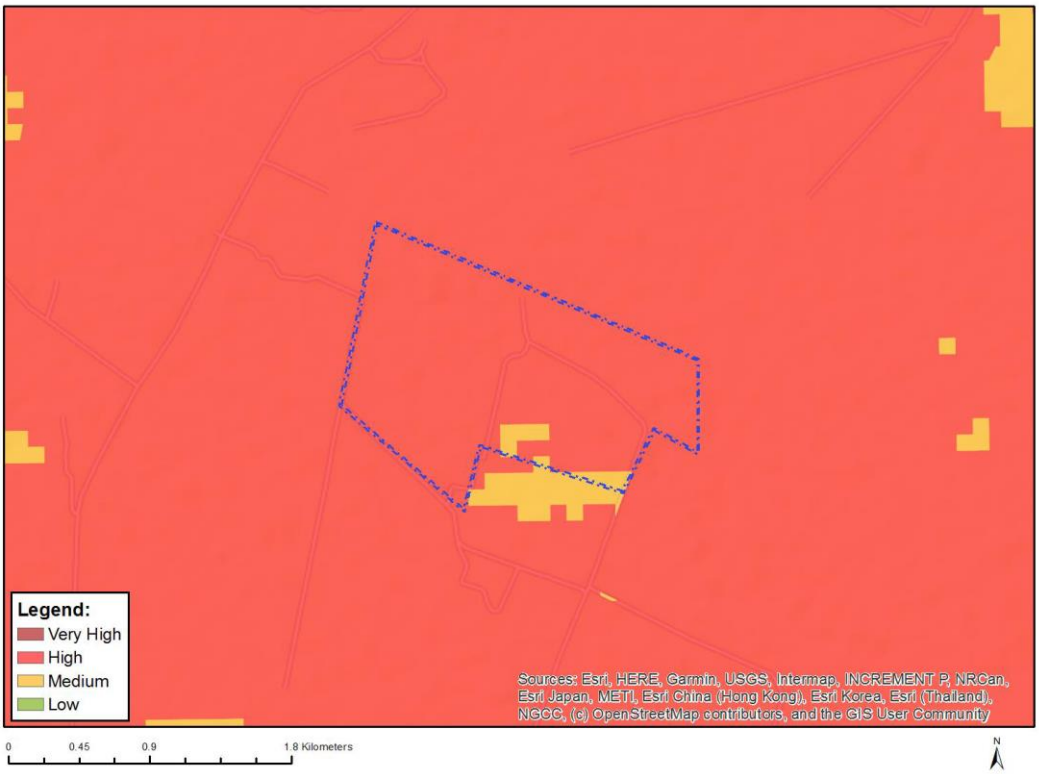

Figure 10: Agriculture Combined Sensitivity

THREATENED ECOSYSTEMS

Ecosystem threat status outlines the degree to which ecosystems are still intact or alternatively losing vital aspects of their structure, function and composition, on which their ability to provide ecosystem services ultimately depends (Driver *et al*. 2011). Datasets have been developed by SANBI (2016) in order to outline threatened ecosystems, with the primary objective of limiting the rate of ecosystem extinctions. Four established categories group these ecosystems namely: Critically Endangered (CR), Endangered (EN), Vulnerable (VU) and Protected.

The proposed portion does fall within the Western Highveld Sandy Grassland which is classified as a threatened ecosystem according to **Figure 11**.

PROTECTED AREAS

According to the data for protected areas (**Figure 11)**, the proposed area does not fall within a formally protected area.

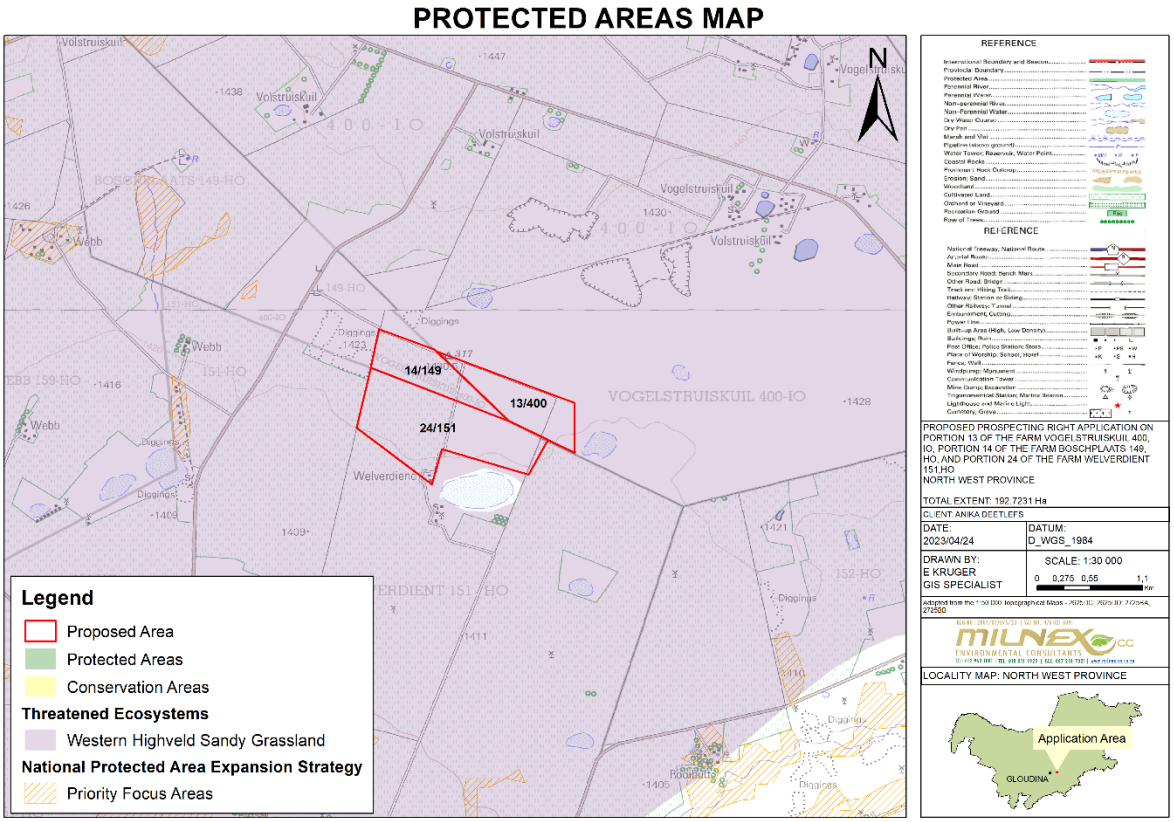

Figure 11: Threatened and Protected Areas Map

CRITICAL BIODIVERSITY AREA

Critical Biodiversity Areas (CBAs) are terrestrial and aquatic areas of high biodiversity value that need to be conserved and maintained in a natural or near-natural state to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services (MTPA, 2014). According to the National Environmental Management Act (NEMA) (Act no. 107 of 1998) certain activities have strict guidelines or are prohibited within CBAs and ESAs. Refer to the listed activities under the NEMA: Environmental Impact Assessment Regulations of 2014 (GNR 982) as promulgated in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA) [as amended] for a comprehensive breakdown. The following terms are used to categorise the various land used types according to their biodiversity and environmental importance:

- Critical Biodiversity Area One (CBA1);
- Critical Biodiversity Area Two (CBA2);
- Ecological Support Area (ESA);
- Other Natural Areas (ONA); and
- Protected Area (PA).

Based on the desktop information (Figure 12), the proposed area falls mostly outside of any CBA's, ESA's. It can be seen on the maps that only a small area falls within a CBA 1 area.

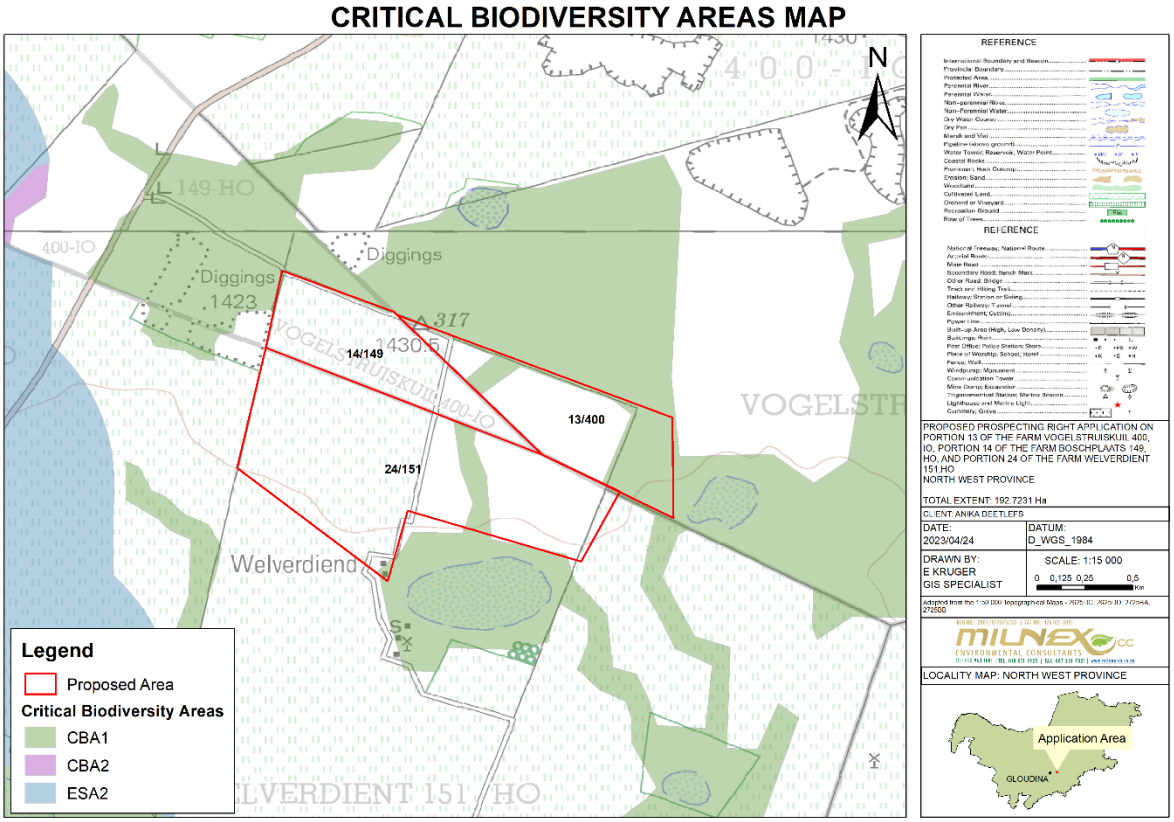

Figure 12: Critical Biodiversity Areas Map.

According to the DFFE Screening Report most of the proposed area falls mostly within a low Aquatic Biodiversity sensitivity.

Please see **Appendix 7** for the colour map.

Figure 13: Aquatic Biodiversity Combined Sensitivity

According to the DEA Screening Report the proposed area falls within a very high Terrestrial Biodiversity theme sensitivity. It must however be noted that the western side of the has been used as cultivated fields, and the eastern side can be observed having some open trenches/pits. Please refer to **figure 34, 35 & 36** for ease of reference. Please see **Appendix 7** for the colour map.

Figure 14: Terrestrial Biodiversity Combined Sensitivity

According to the DEA Screening Report the proposed portions fall within a low Animal Species sensitivity. Please see **Appendix 7** for the colour map.

Figure 15: Animal Species theme sensitivity

A terrestrial biodiversity & wetland assessment was conducted on the 3rd and 4th of July 2023. The study focused on 2 applications, namely **NW30/5/1/1/2/13707PR,** on Portion 21 (portion of portion 6) of the farm Vogelstruiskuil 400, Portion 14 (portion of portion 2) of the farm Boschplaats 149 & Portion 24 of the farm Wleverdient 151(Right side on relevant maps) & on the application lodged under DMRE Ref: **NW30/5/1/1/2/13820PR** on the Remaining Extent of Portion 1 of the Farm Boschplaats 149 (Left side on relevant maps). Both applications were submitted to the Department of Mineral Resources & Energy (DMRE). For the purpose of this application, this document will only focus on the assessment done for this application (**NW30/5/1/1/2/13707PR,** on Portion 21 (portion of portion 6) of the farm Vogelstruiskuil 400, Portion 14 (portion of portion 2) of the farm Boschplaats 149 & Portion 24 of the farm Wleverdient 151).

Faunal Assessment

Avifauna

Many avifaunal species are adaptable as they are habitat generalists and can therefore accommodate a certain degree of habitat degradation and transformation (Harrison *et al*., 1997). Other species are extremely habitat specific and have to rely on certain habitat units for breeding, hunting or foraging and roosting. It is the survival of these species that become threatened as they cannot adapt to habitat changes. Habitat-specific species are sensitive to environmental change, with destruction of habitat being the leading cause of species decline worldwide (Barnes, 2000). It is widely accepted that vegetation structure, rather than the actual plant species, influences bird species' distribution and abundance (Harrison *et al*., 1997). Therefore, the vegetation description used in the Bird Atlas does not focus on lists of plant species, but rather on factors which are relevant to bird distribution. No bird Species of Conservation Concern (SCC) were flagged by the DFFE screening report.

The study area has been affected by historic mining and agricultural activities. Despite the modification of the landscape, various species were observed while on site (Table 4). Birds which potentially occur in the study area (SABAP2) and enjoy conservation

status in the IUCN Red List and protected under the Threatened or Protected Species (TOPS) List (NEMBA, 10 of 2004) (Table 4) below.

Table 4: List of observed birds on site (highlighted green) and birds with conservation status possibly occurring on site (IUCN, 2021)

Scientific Name	Common Name	IUCN Red List	TOPS	Likelihood of Occurrence
Afrotis afraoides	Northern Black Korhaan	LC		High
Alopochen aegyptiaca	Egyptian Goose	LC		High
Anas capensis	Cape Teal	LC		High
Anas undulata	Yellow-billed Duck	LC		High
Anthropoides paradiseus	Blue Crane	VU	Protected	High
Aquila rapax	Tawny Eagle	VU	Protected	Low
Ardea cinerea	Grey Heron	LC		High
Ardeotis kori	Kori Bustard	NT	Protected	Medium
Calandrella cinerea	Red-capped Lark	LC		High
Calidris ferruginea	Curlew Sandpiper	NT		Medium
Charadrius tricollaris	Three-banded Plover	LC		High
Circus maurus	Black Harrier	EN		High
Colius colius	White-backed Mousebird	LC		High
Corythornis cristatus	Malachite Kingfisher	LC		High
Dendrocygna viduata	White-faced Whistling Duck	LC		High
Egretta garzetta	Little Egret	LC		High
Elanus axillaris	Black-shouldered Kite	LC		High
Falco vespertinus	Red-footed Falcon	NT		Low
Fulica cristata	Red-knobbed Coot	LC		High
Glareola nordmanni	Black-winged Pratincole	NT		Medium
Granatina granatina	Violet-eared Waxbill	LC		High
Gyps africanus	White-backed Vulture	CR	Protected	Medium
Gyps coprotheres	Cape Vulture	EN	Protected	Low
Melaenornis silens	Fiscal Flycatcher	LC		High
Myrmecocichla formicivora	Ant-eating Chat	LC		High
Numenius arquata	Eurasian Curlew	NT		Low
Oxyura maccoa	Maccoa Duck	EN		Low
Philetairus socius	Sociable Weaver	LC		High
Plectropterus gambensis	Spur-winged Goose	LC		High
Plocepasser mahali	White-browed Sparrow-weaver	LC		High
Polemaetus bellicosus	Martial Eagle	EN	Protected	High
Pycnonotus nigricans	Red-eyed Bulbul	LC		High

Sporopipes squamifrons	Scaly-feathered Weaver	LC		High
Torgos tracheliotos	Lappet-faced Vulture	EN	Protected	Low
Tricholaema leucomelas	Acacia Pied Barbet	LC		High
Upupa africana	African Hoopoe	LC		High
Uraeginthus angolensis	Blue Waxbill	LC		High
Vanellus armatus	Blacksmith Lapwing	LC		High
Vanellus coronatus	Crowned Lapwing	LC		High

Mammals

The DFFE screening tool report did not flag any mammal Species of Conservation Concern (SCC).

Table 5 below lists the mammal species possibly occurring on the proposed site according to the Animal Demography Unit (2019) alongside the designated statuses of those species in the South African Red list of Mammals (2012) and Threatened or Protected Species (TOPS) List (NEMBA, 10 of 2004) or North West Biodiversity Management Act of 2016 (NWBMA) (Act 4 of 2016). Most of the mammals listed below have a medium likelihood of occurrence within the study area due to the presence of suitable habitat, but Low due to human encroachment and disturbances within the study area. Therefore, likelihood of occurrence is ranked Low-Medium. Highlighted species were observed on site or tracks / signs of presence were observed (Figure 16).

Table 5: List of mammals possibly occurring on site (ADU, 2019), with Red List Category (2016) and protection status.

Family	Scientific Name	Common Name	Red List Category	Status
Bathyergidae	*Cryptomys hottentotus*	Southern African Mole-rat	LC	
Bovidae	*Raphicerus campestris*	Steenbok	LC	
Bovidae	*Tragelaphus strepsiceros*	Greater Kudu	LC	
Bovidae	*Aepyceros melampus*	Impala	LC	
Bovidae	*Alcelaphus buselaphus*	Hartebeest	LC	Protected (NWBMA)
Bovidae	*Antidorcas marsupialis*	Springbok	LC	
Bovidae	*Connochaetes gnou*	Black Wildebeest	LC	Protected (TOPS)
Bovidae	*Connochaetes taurinus taurinus*	Blue Wildebeest	LC	Protected (TOPS)
Bovidae	*Damaliscus pygargus phillipsi*	Blesbok	LC	Protected (TOPS)
Bovidae	*Kobus ellipsiprymnus*	Waterbuck	LC	Protected (NWBMA)
Bovidae	*Oryx gazella*	Gemsbok	LC	Protected (NWBMA)
Bovidae	*Raphicerus campestris*	Steenbok	LC	
Bovidae	*Sylvicapra grimmia*	Common Duiker	LC	
Bovidae	*Taurotragus oryx*	Common Eland	LC	Protected (NWBMA)
Bovidae	*Tragelaphus strepsiceros*	Greater Kudu	LC	
Canidae	*Canis mesomelas*	Black-backed Jackal	LC	
Cercopithecidae	*Chlorocebus pygerythrus*	Vervet Monkey	LC	
Equidae	*Equus quagga*	Plains Zebra	NT	Protected (TOPS)
Felidae	*Caracal caracal*	Caracal	LC	
Felidae	*Leptailurus serval*	Serval	NT	Protected

				(TOPS)
Herpestidae	*Suricata suricatta*	Meerkat	LC	
Herpestidae	*Cynictis penicillata*	Yellow Mongoose	LC	
Herpestidae	*Herpestes sanguineus*	Slender Mongoose	LC	
Hyaenidae	*Hyaena brunnea*	Brown Hyena	NT	Protected (TOPS)
Hyaenidae	*Proteles cristata*	Aardwolf	LC	Protected (NWBMA)
Hystricidae	*Hystrix africaeaustralis*	Cape Porcupine	LC	
Leporidae	*Lepus capensis*	Cape Hare	LC	
Leporidae	*Lepus saxatilis*	Scrub Hare	LC	
Muridae	*Gerbilliscus brantsii*	Highveld Gerbil	LC	
Muridae	*Gerbilliscus leucogaster*	Bushveld Gerbil	LC	
Muridae	*Mastomys sp.*	Multimammate Mice	LC	
Muridae	*Aethomys namaquensis*	Namaqua Rock Mouse	LC	
Muridae	*Rhabdomys pumilio*	Xeric Four-striped Grass Rat	LC	
Mustelidae	*Mellivora capensis*	Honey Badger	LC	
Mustelidae	*Aonyx capensis*	African Clawless Otter	NT	Protected (TOPS)
Orycteropodidae	*Orycteropus afer*	Aardvark	LC	Protected (NWBMA)
Pedetidae	*Pedetes capensis*	South African Spring Hare	LC	
Sciuridae	*Xerus inauris*	South African Ground Squirrel	LC	
Suidae	*Phacochoerus africanus*	Common Warthog	LC	
Viverridae	*Genetta genetta*	Common Genet	LC	

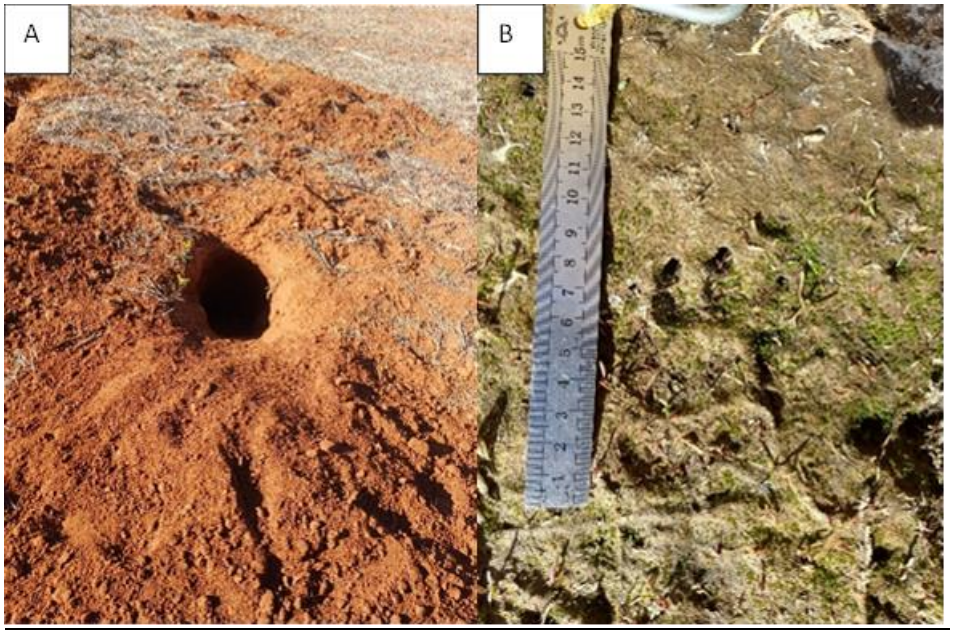

Figure 16: Aardvark burrow (A). Cape porcupine tracks (B).

Herpetofauna

The local occurrences of reptiles and amphibians (collectively known as Herpetofauna) are closely dependent on broadly defined habitat types, terrestrial, arboreal (tree-living), rupiculous (rock dwelling) and wetland-associated vegetation cover. Based on the DFFE Screening tool, no Herpetofauna SCC are expected to occur on site. Based on the Reptile Atlas of Africa and the Frog Atlas of South Africa (ADU, 2019), the Near Threatened *Pyxicephalus adspersus* (Giant Bull Frog) and Vulnerable *Psammophis leightoni* (Cape sand snake) could occur on site. It should be noted, however, that the *Psammophis leightoni* species complex is complicated with taxonomic uncertainty influencing its conservation status (Taft, 2018).

Biodiversity Priority Areas for Mining

The Mining and Biodiversity Guideline was developed in 2013 for the purpose of mainstreaming biodiversity management practices into the mining sector (DEA, DMR, Chamber of Mines, SAMBF & SANBI 2013). This Guideline provides explicit direction in terms of where mining-related impacts are legally prohibited, where biodiversity priority areas may present high risks for mining projects, and where biodiversity may limit the potential for mining. The Guideline distinguishes between four categories of biodiversity priority areas in relation to their importance from a biodiversity and ecosystem service perspective as well as the implications for mining in these areas (**Table 6**).

Table 6: Four categories of biodiversity priority areas in relation to their biodiversity importance and implications for mining.

Category	Biodiversity Priority Areas	Risks for Mining	Implications for Mining
A. Legally Protected	• Protected areas (including National Parks, Nature Reserves, World Heritage Sites, Protected Environments, Nature Reserves) • Areas declared under Section 49 of the Mineral and Petroleum Resources	**Mining Prohibited**	Mining projects cannot commence as mining is legally prohibited. Although mining is prohibited in Protected Areas, it may be allowed in Protected Environments if both the Minister of Mineral Resources and Minister of Environmental Affairs approve it. In cases where mining activities were conducted lawfully in protected areas before Section 48 of the Protected Areas Act (No. 57 of 2003) came into effect, the Minister of Environmental Affairs may, after consulting with the Minister of Mineral Resources, allow such mining

	Development Act (No. 28 of 2002)		activities to continue, subject to prescribed conditions that reduce environmental impacts.
B. Highest Biodiversity Importance	• Critically endangered and endangered ecosystems • Critical Biodiversity Areas (or equivalent areas) from provincial spatial biodiversity plans • River and wetland Freshwater Ecosystem Priority Areas (FEPAs) and a 1km buffer around these FEPAs • Ramsar Sites	**Highest Risk for Mining**	Environmental screening, environmental impact assessment (EIA) and their associated biodiversity specialist studies should focus on confirming the presence and significance of these biodiversity features, and to provide site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision-making for mining, water use licences, and environmental authorisations. If they are confirmed, the likelihood of a fatal flaw for new mining projects is very high because of the significance of the biodiversity features in these areas and the associated ecosystem services. These areas are viewed as necessary to ensure protection of biodiversity, environmental sustainability, and human well-being. An EIA should include the strategic assessment of optimum, sustainable land use for an area and will determine the significance of the impact on biodiversity. This assessment should fully consider the environmental sensitivity of the area, the overall environmental and socio-economic costs and benefits of mining, as well as the potential strategic importance of the minerals to the country. Authorisations may well not be granted. If granted, the authorisation may set limits on allowed activities and impacts and may specify biodiversity offsets that would be written into licence agreements and/or authorisations.
C. High Biodiversity Importance	• Protected area buffers (including buffers around National Parks, World Heritage Sites* and Nature Reserves) • Transfrontier Conservation Areas (remaining areas outside of formally proclaimed protected areas) • Other identified priorities from provincial spatial biodiversity plans • High water yield areas • Coastal Protection Zone • Estuarine functional zone *Note that the status of buffer areas of World Heritage Sites is subject to a current intra-governmental process	**High Risk for Mining**	These areas are important for conserving biodiversity, for supporting or buffering other biodiversity priority areas, and for maintaining important ecosystem services for communities or the country. An EIA should include an assessment of optimum, sustainable land use for an area and will determine the significance of the impact on biodiversity. Mining options may be limited in these areas, and limitations for mining projects are possible. Authorisations may set limits and specify biodiversity offsets that would be written into licence agreements and/or authorisations.

D. Moderate Biodiversity Importance	• Ecological support areas • Vulnerable ecosystems • Focus areas for protected area expansion (land-based and offshore protection)	**Moderate Risk for Mining**	These areas are of moderate biodiversity value. EIAs and their associated specialist studies should focus on confirming the presence and significance of these biodiversity features, identifying features (e.g. threatened (land-based and offshore protection) species) not included in the existing datasets, and on providing site-specific information to guide the application of the mitigation hierarchy. Authorisations may set limits and specify biodiversity offsets that would be written into licence agreements and/or authorisations.

Based on **Figure 17,** the area does overlap with category B: highest risk for mining.

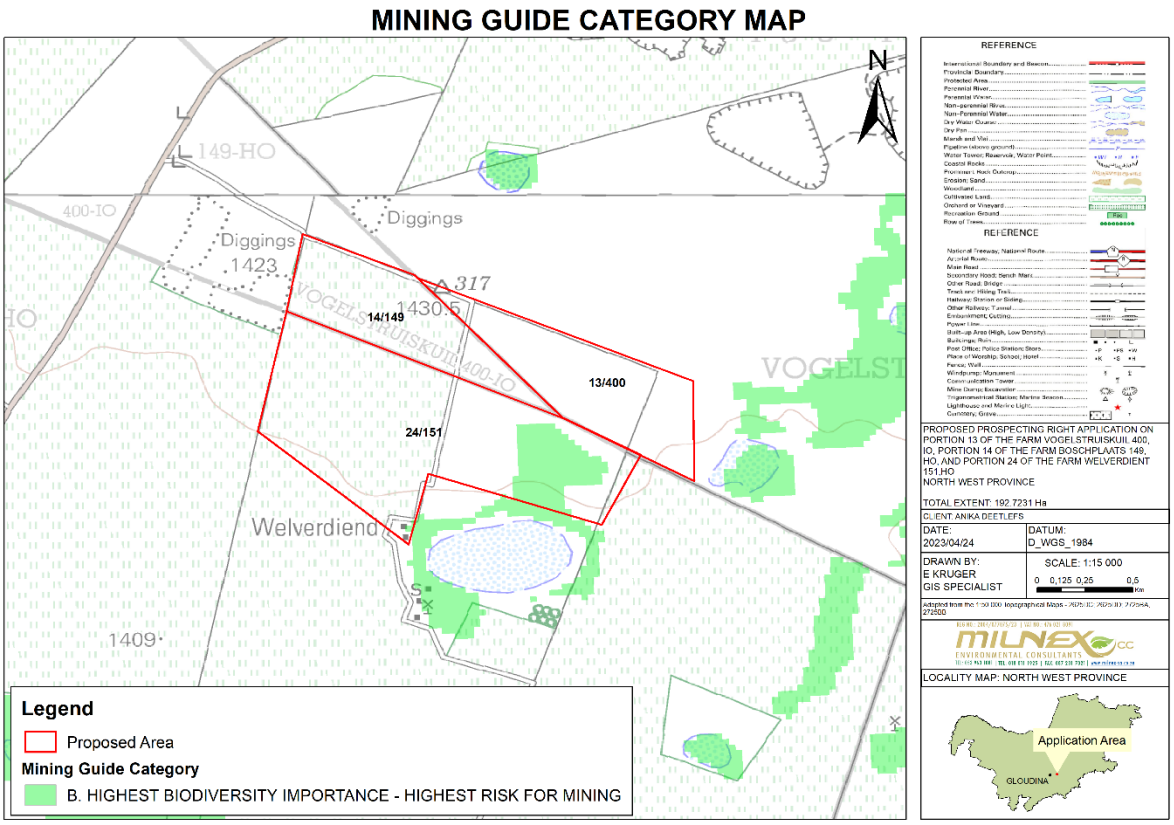

Figure 17: Biodiversity priority areas, in accordance with the Mining of Biodiversity Guidelines, associated with the study site.

WETLAND AREAS

In terms of Section 1 of the National Water Act (No. 36 of 1998) (NWA), wetlands are legally defined as: "*land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil*" (NWA 1998).

Wetlands are defined by the presence of unique soils and vegetation that do not occur in terrestrial and purely aquatic environments (Edwards *et al.* 2018). Wetland soils are referred to as hydric soils that develop under anaerobic conditions (condition where oxygen is virtually absent from the soil). Wetlands are also typically characterized by relatively large and dense stands of plants

sticking out of shallow water or wet soil. Plants adapted to such waterlogged conditions are referred to as hydrophytes. Wetlands are distinct from true aquatic ecosystems like river ecosystems, which are characterized by fast flowing water within channels, and lake ecosystems, that are flooded to great depth; both of which are not primarily characterized by the occurrence of hydric soils and hydrophytes.

A wide variety of wetland types are present in South Africa, and can be classified into six broad types, namely floodplain wetlands, unchannelled valley bottom wetlands, channelled valley bottom wetlands, seeps, depressions and wetland flats. Owing to the large variations in climate and topography across South Africa, vegetation and habitat associated with these wetland types vary tremendously from subtropical reed beds and tall swamp forests to arid salt pans, which all support unique and varied animal life.

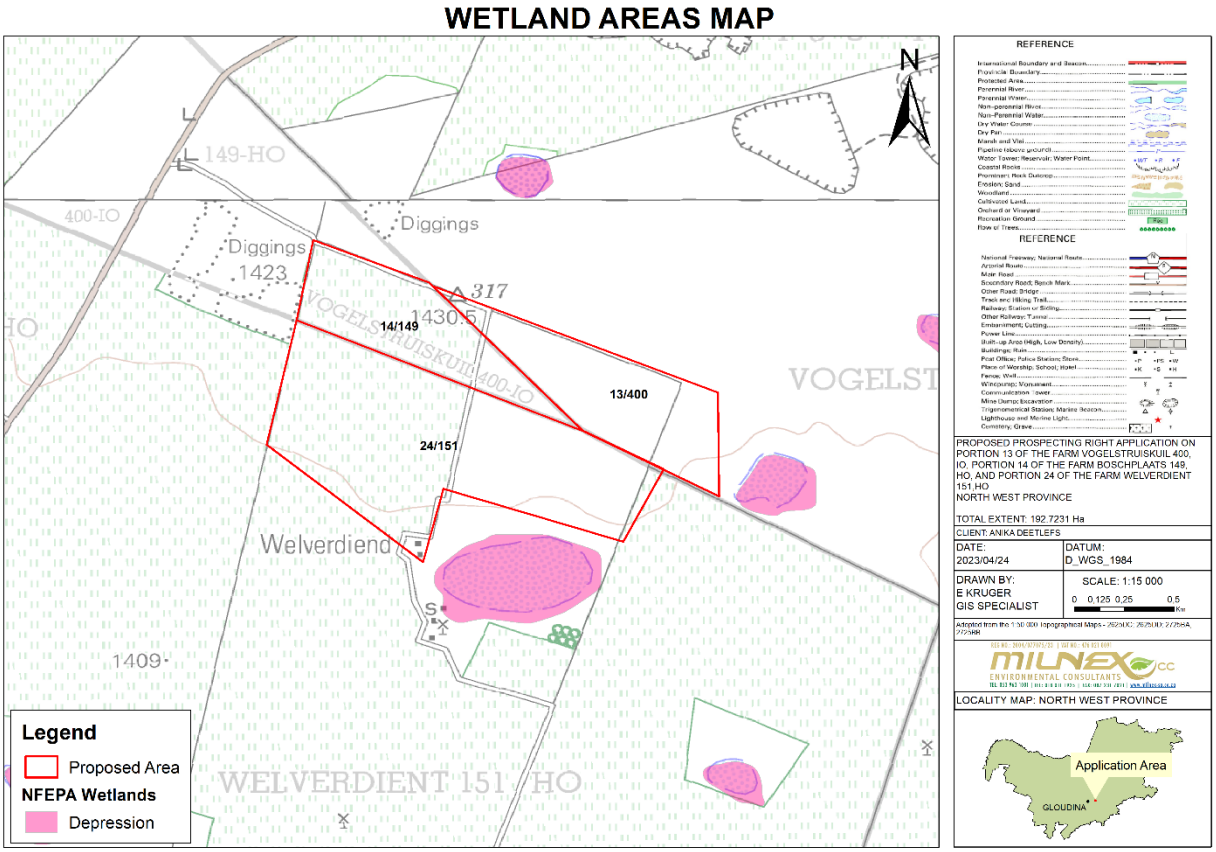

Figure 18: Wetland types expected to occur in the study area .

A terrestrial biodiversity & wetland assessment was conducted on the 3rd and 4th of July 2023. The study focused on 2 applications, namely **NW30/5/1/1/2/13707PR,** on Portion 21 (portion of portion 6) of the farm Vogelstruiskuil 400, Portion 14 (portion of portion 2) of the farm Boschplaats 149 & Portion 24 of the farm Wleverdient 151(Right side on relevant maps) & on the application lodged under DMRE Ref: **NW30/5/1/1/2/13820PR** on the Remaining Extent of Portion 1 of the Farm Boschplaats 149 (Left side on relevant maps). Both applications were submitted to the Department of Mineral Resources & Energy (DMRE). For the purpose of this application, this document will only focus on the assessment done for this application (**NW30/5/1/1/2/13707PR,** on Portion 21 (portion of portion 6) of the farm Vogelstruiskuil 400, Portion 14 (portion of portion 2) of the farm Boschplaats 149 & Portion 24 of the farm Wleverdient 151).

Wetland Habitat Description and System Characterisation

The wetland assessment was conducted from the 3rd to the 4th of July 2023, which was within the dry season. A hand-held auger and GPS phone were used to log all information in the field. The wetlands within the 500m regulated area were identified and delineated in accordance with the DWAF (2005) guidelines. A site visit was conducted to confirm the desktop findings and are discussed below. The field survey focused on the wetlands within the application portion as these are potentially most at risk.

Two (2) wetlands were identified during the site visit. The site visit confirmed the wetlands to be (2) Depression wetlands (Figure9). The assessment will aim to assess the state and importance of these wetlands, along with conserving them through consideration of the catchment area.

Figure 19: Wetlands identified on site.

DEP1 is located on the border and outside the application portion. DEP1 is modified and disturbed. Historic prospecting / mining activities occurred within close proximity to the wetland as well as in the wetland itself. At the time of the site visit, mining equipment was observed on site but nothing was in operation. The site visit confirmed that the previous prospecting / mining operations used DEP1 as the location for the sludge / tailing dam, depositing large amounts of mine waste into the wetland (Figure 20). Currently, this historic sludge / tailing dam is a large stockpile of fine sediment with *Gomphocarpus fruticosus* scattered throughout. On the edge of the depression, a pit had been dug which is being filled with water (Figure 20). During the site visit, water was observed running into the pit via a pipe. From this pit, various channels have been dug leading into the wetland (Figure 20). Surface water was present within some of the channels, but no flow was observed. Other impacts observed include grazing, livestock paths and roads through the system. The grasses within the DEP1 create a perfect habitat of the Vulnerable African grass owl (*Tyto capensis*), which prefer areas with tall grass in wetlands. Around the channels, sedges and *Typha capensis* were observed. Signs of wetness, topography and soil morphology were used as the main wetland indicators. Dark clayey soil was observed at depths of 10 cm to

20 cm, within the depression. Redoximorphic features were observed towards the edge of the depression at depths of 40 cm to 50 cm (Figure 20).

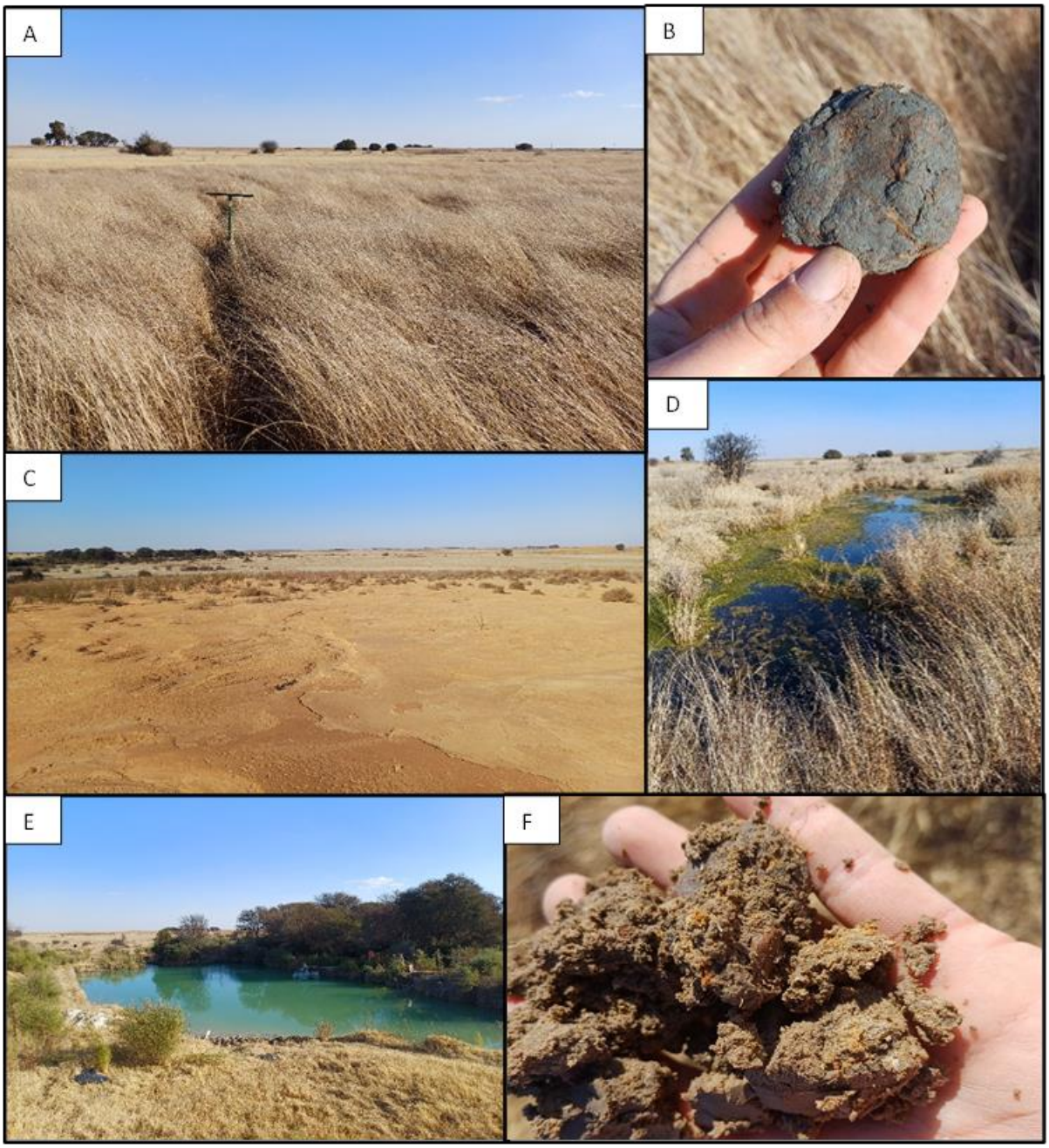

Figure 20: Grass dominated (A). Dark clay soil within system (B). Historic sludge / tailing dam (C). Channels (D). Pit with water (E). Redoximorphic features (mottling) (F).

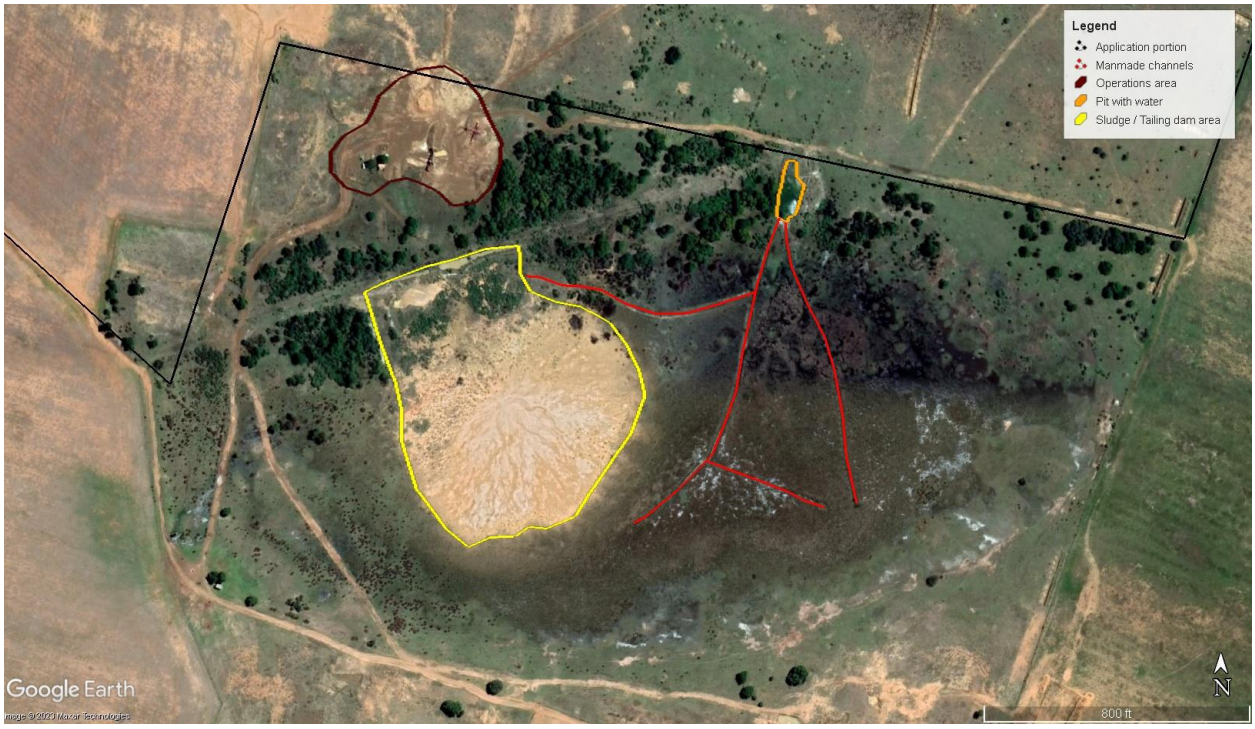

Figure 21: Layout map of DEP1 indicating impacts of historic prospecting / mining activities.

DEP2 is located on the border and outside of the application portion. DEP2 seem to be in a near-natural state, with no impacts apart from livestock grazing, livestock paths and roads, observed while on site. Surface water was observed within the depression, with *Persicaria* sp. being dominant. The edges and surrounding area of the wetland is dominated by grasses. Bird activity and diversity was high within this system. Signs of wetness, topography and soil morphology were used as the main wetland indicators. Redoximorphic features were observed towards the edge of the depression at depths of 40 cm to 50 cm (Figure 22).

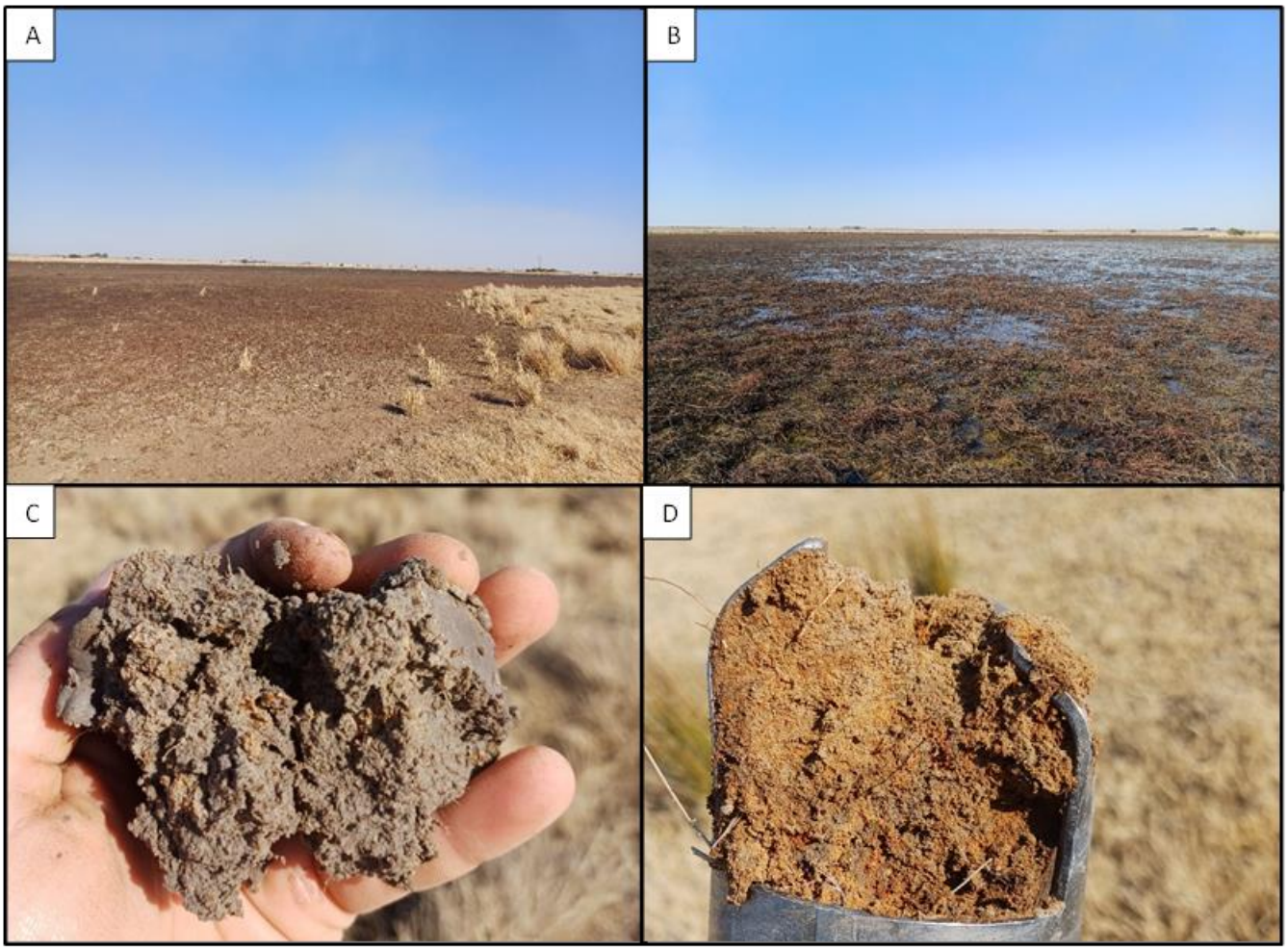

Figure 22: DEP2 (A). Surface water in DEP2 (B). Redoximorphic features (mottling) (C & D).

Wetland Habitat and System Characterisation

Assessment of the wetlands

The study focused on features located within and around the affected area (Table 7). The potential impacts of activities such as farming, drought, erosion and clearing of natural vegetation within the greater catchment were taken into consideration during the assessment.

Table 7: Summary of results of the WET-Health assessment conducted for the three (3) depression wetlands (DEP1, DEP2)

Feature	DEP1	DEP2
Catchment Features and Current Impacts	The catchment area of this wetland is endorheic, meaning there is no outflow and surface water drains from the catchment towards the lowest part of the Depression. At the time of the field survey, surface water was observed within the manmade channels within the wetland. Major impacts in the catchment area consists of livestock farming and grazing and access roads within the farms.	The catchment area of this wetland is endorheic, meaning there is no outflow and surface water drains from the catchment towards the lowest part of the Depression. At the time of the field survey, surface water was observed in the assessed wetland. Major impacts in the catchment area consists of livestock farming and grazing and access roads within the farms.
Wetland Type	Depression (Grass)	Depression

Downstream Features	None - endorheic system.	None - endorheic system.
Vegetation Characteristics	Vegetation is dominated by grasses.	Vegetation is dominated by grasses and *Persicaria* sp. within the wet areas.
Algae Presence	Yes	Yes
Aquatic Faunal Impacts	Major impacts would be on macroinvertebrate assemblage as a result of livestock movement within the system. If mining/prospecting occurs within the system major impacts would be substrate disturbance and habitat loss impacting macroinvertebrate assemblage.	Major impacts would be on macroinvertebrate assemblage as a result of livestock movement within the system. If mining/prospecting occurs within the system major impacts would be substrate disturbance and habitat loss impacting macroinvertebrate assemblage as well as aquatic avifauna.
Depth Characteristics	Depth of manmade channels were not assessed.	Depth was not assessed.
Flow Conditions	No flow was observed within manmade channels.	No flow was observed.
Water Clarity	Clear	Clear
Water Odour	No odour	No odour
Erosion Impacts	Low erosion potential as the wetland vegetation is very dense.	Low erosion potential as the wetland vegetation is very dense.
Soil characteristics	Soil within the wetland was dark and clayey. Redoximorphic features such as mottling were present at the border.	Soil within the wetland was dark and clayey. Redoximorphic features such as mottling were present at the border.

WET-Health Assessment

Four modules, namely hydrology, water quality, geomorphology and vegetation, were assessed as a single unit for the HGM Units and subsequently an area weighted score was obtained for the HGM Units. The potential impacts of activities such as agriculture, prospecting, mining, altered hydrological functions and clearing of natural vegetation within the greater catchment were taken into consideration during the assessment. The WET-Health assessment was conducted for each of the wetlands assessed during the site visit. The results of each wetland assessed are summarised in Table 8.

Table 8: Summary of results of the WET-Health assessment conducted for the three (3) depression wetlands (DEP1, DEP2)

Wetland	Hydrology Module		Geomorphology Module		Water Quality Module		Vegetation Module		Overall PES Score
	Impact Score	Trajectory of Change	Impact Score	Trajectory of Change	Impact Score	Trajectory of Change	Impact Score	Trajectory of Change	
DEP1	E	→	D	↓	B	→	C	↓	**D**
DEP2	A	→	B	→	A	→	B	→	**B**

The overall PES Categories ranged between a D and B (Table 9). The PES of DEP1 was determined to be a D. This indicates that the system is largely modified, with a large change in ecosystem processes and loss of natural habitat and biota. This score is mostly a result of the historic prospecting / mining activities that took place within DEP1. The large sludge / tailing dam located within the wetland contributes to sedimentation within the system. Milkweed (Gomphocarpus fruticosus) is also scattered throughout this bare sediment deposit. The results of the WET-Health assessments for DEP1 indicate that the degree of anticipated change within the systems will remain the same for Hydrology and Water Quality. Geomorphology and Vegetation trajectory of change will most likely deteriorate slightly, due to increase of sedimentation in the system and spread of Milkweed (Gomphocarpus fruticosus) across system. The PES score of DEP2 was determined to be a B. This indicates a slight change in ecosystem processes is discernible and a small loss of natural habitats and biota may have taken place. Some disturbances such as road crossings, livestock paths and grazing and instream dams were observed within the systems. Results of the WET-Health assessments for DEP2 indicate that the degree of anticipated change within the systems will remain the same. For the Seep wetland, a slight deterioration is expected within the Hydrology and Vegetation modules due to presence of Eucalyptus camaldulensis within the system, which are known as fast-growing trees with high water requirements.

Ecosystem Services

Physical and hydrological features allow hydro-geomorphic units to perform specific ecosystems services. A Wet-EcoService evaluation was conducted for the wetland area assessed on site to determine the services as described in the methodology. The degree of disturbance and modification of wetland areas results in a decrease in the ability to which they can perform these ecosystem services. The findings of the Wet-Ecoservice evaluation conducted are provided in Figure 23 below.

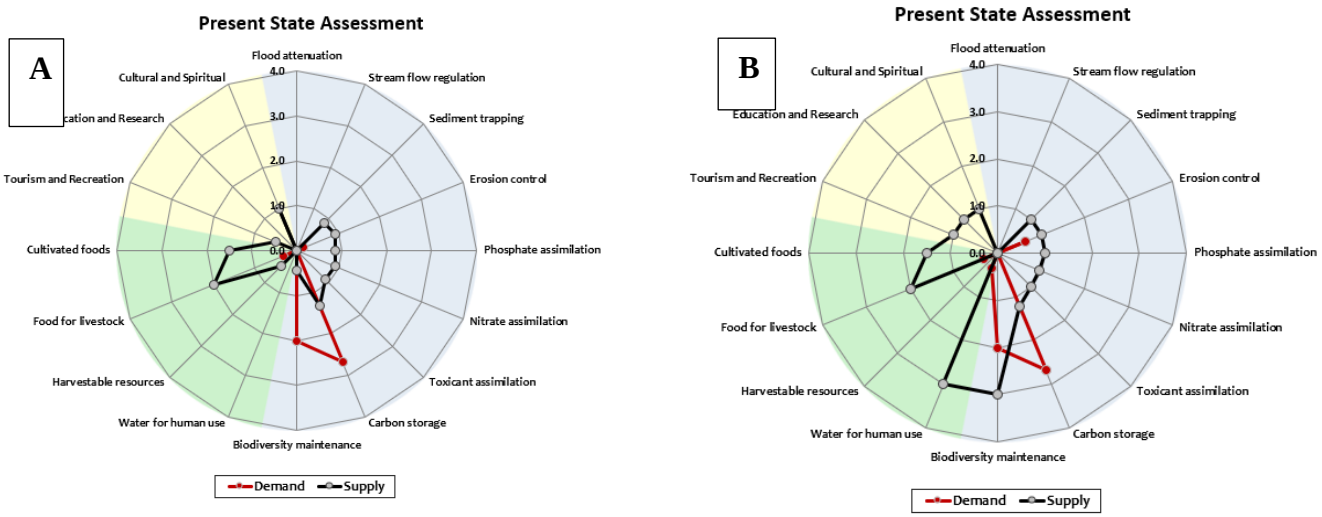

Figure 23: DEP1 (A). DEP2 (B)

Ecological Importance and Sensitivity

The EIS assessment was applied to the wetland features within the study area in order to ascertain the levels of sensitivity and ecological importance of the features, as well as to assist in informing a suitable REC for each. The results of these assessments are summarised in the table below.

Table 9: EIS scores obtained for DEP1 & DEP2(DWAF, 1999).

Wetland Importance and Sensitivity	DEP1		DEP2	
	Importance	Confidence	Importance	Confidence
Biodiversity Maintenance	0.6	2.0	0.7	1.5
Regulating and Supporting Services	0.9	2.0	2.1	2.5
Cultural and Provisioning Services	0.8	2.0	1.3	2.5
Overall Score	**0.9**		**2.1**	

These results indicate that DEP1 falls within the EIS Category D – Low Marginal. DEP1 is largely modified and disturbed with a large sediment deposit (historic sludge / tailing dam) and manmade channels within the system. It does however still supply some ecological services, since the undisturbed areas are in a near natural state. The remaining system, DEP2, wetland, fall within the EIS Category B - High. Despite some modifications or disturbances, mostly in the form of dirt roads, livestock grazing, instream dams and patches of *Eucalyptus camaldulensis,* they supply important ecological services. These systems are largely in a natural state. The biodiversity of these systems may be sensitive to habitat modifications as a result of human activities.

Recommended Ecological Category

The Recommended Ecological Category (REC) for the features of the wetland area was determined from the results of the functionality and EIS assessments. These assessments indicated that all wetland features within the site, had to an extent, underwent transformation as a result of historical and current impacts. Nevertheless, despite the altered ecological integrity of the systems, it is considered to provide some important ecological services at specific areas. The REC estimated appropriate for the wetland area features is presented in Table 10 below.

Table 10: Summary of the REC categories assigned to all wetland features

Features	REC Category
DEP1	D Maintain
DEP2	A/B Improve

Delineation and Buffer Zone Determination

The buffer zones (Figure 24) for the wetlands were calculated using the Site-Based Tool: Determination of buffer zone requirements for wetland ecosystems (Macfarlane *et al.,* 2010). The recommended/exclusion buffer zone for the DEP1 is **55 m** from the delineated area. The recommended/exclusion buffer zone for DEP2 is **60 m**. The buffer calculation was based on the proposed prospecting operations, and assuming that no mitigation measures will be implemented (Table 11).

Table 11: Summary of the results

Classification	Scientific Buffer	PES	EIS	REC
DEP1	55 m	D	D – Low Marginal	D Maintain
DEP2	60 m	B	B – High	A/B Improve

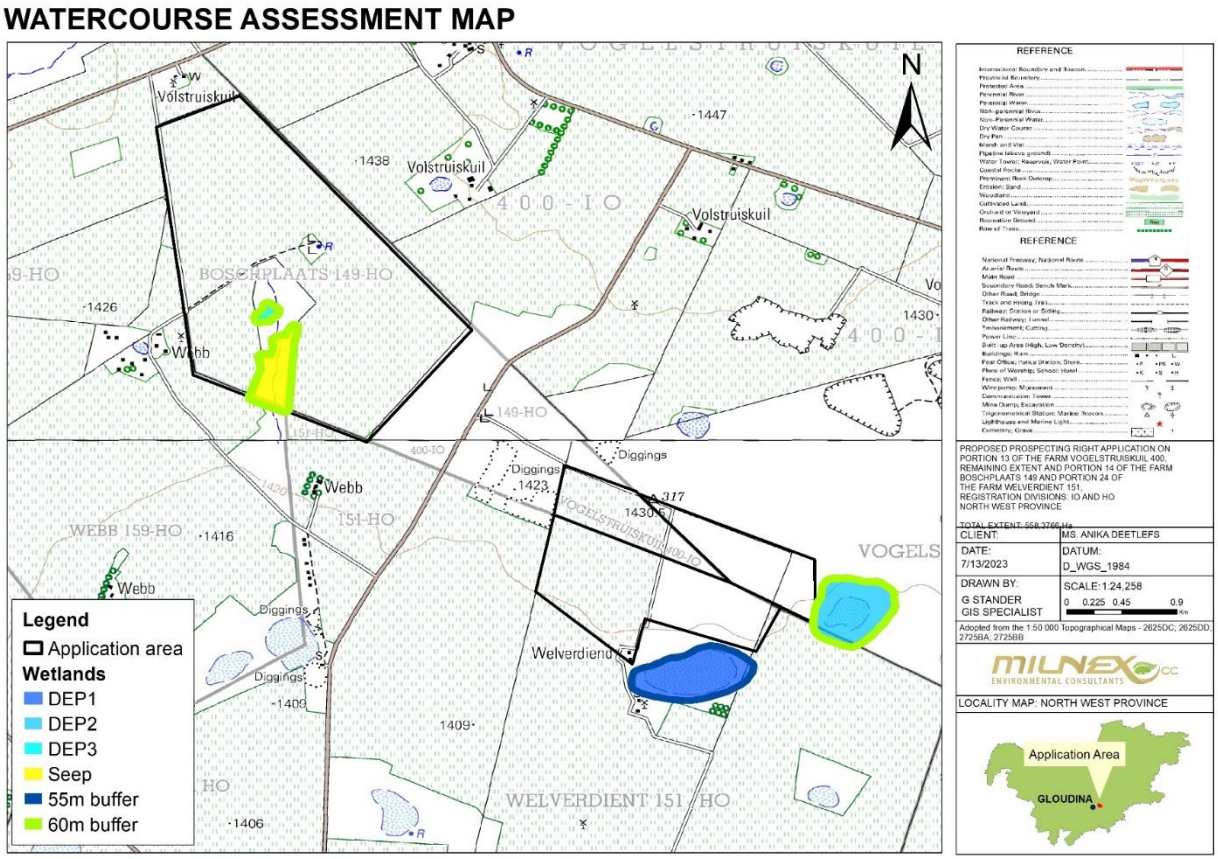

Figure 24: Wetland Assessment and Delineation of the resources associated with the study site

When looking at the map above, please take the below statement into consideration.

A terrestrial biodiversity & wetland assessment was conducted on the 3rd and 4th of July 2023. The study focused on 2 applications, namely **NW30/5/1/1/2/13707PR,** on Portion 21 (portion of portion 6) of the farm Vogelstruiskuil 400, Portion 14 (portion of portion 2) of the farm Boschplaats 149 & Portion 24 of the farm Wleverdient 151(Right side on relevant maps) & on the application lodged under DMRE Ref: **NW30/5/1/1/2/13820PR** on the Remaining Extent of Portion 1 of the Farm Boschplaats 149 (Left side on relevant maps). Both applications were submitted to the Department of Mineral Resources & Energy (DMRE). For the purpose of this application, this document will only focus on the assessment done for this application (**NW30/5/1/1/2/13707PR,** on Portion 21 (portion of portion 6) of the farm Vogelstruiskuil 400, Portion 14 (portion of portion 2) of the farm Boschplaats 149 & Portion 24 of the farm Wleverdient 151).

IMPORTANT BIRD AND BIODIVERSITY AREAS

Important Bird and Biodiversity Areas (IBAs) are a network of sites that are significant for the long-term viability of naturally occurring bird populations (Birdlife 2019). Many sites are also important for other forms of biodiversity; therefore, the conservation of Important Bird & Biodiversity Areas ensures the survival of a correspondingly large number of other animals and plants.

No IBAs were identified within the vicinity of the study site (Figure 25).

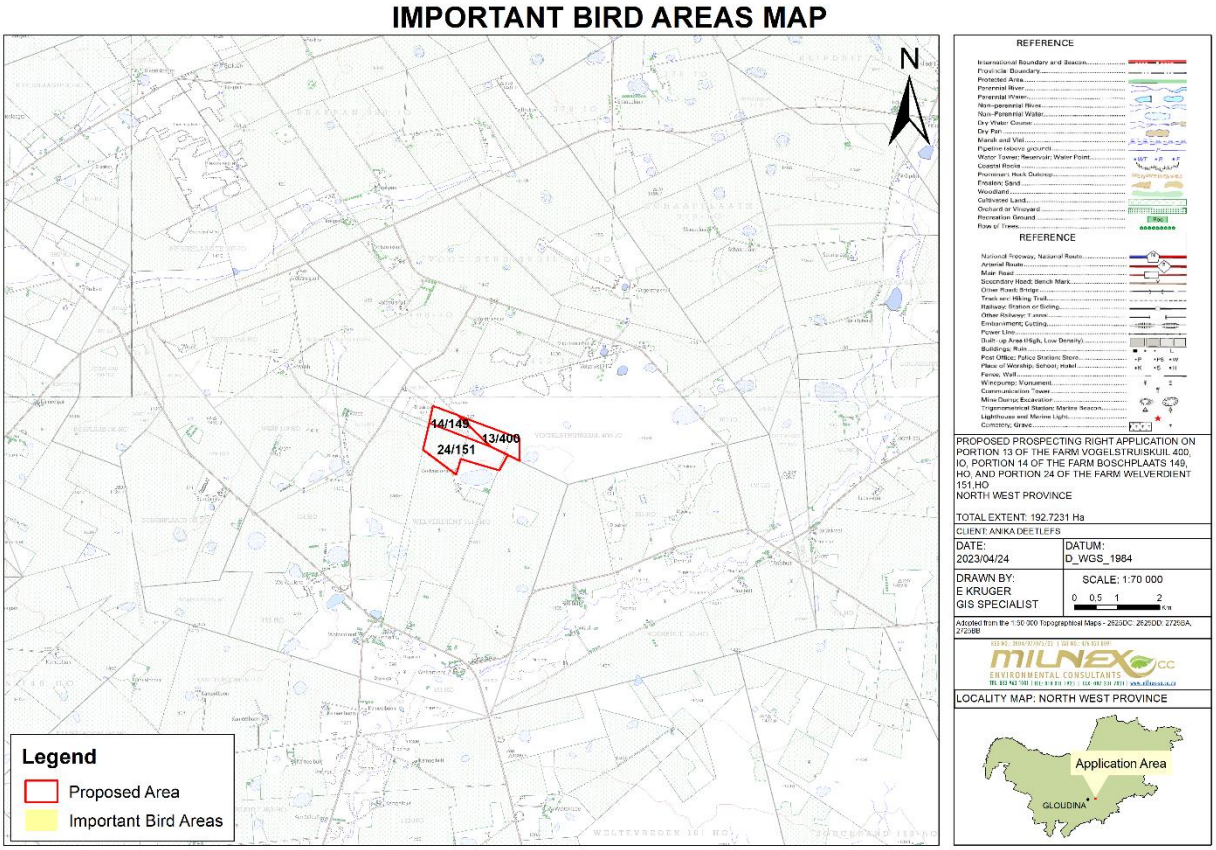

Figure 25: Important Bird and Biodiversity Areas associated with the study site.

RIVER ECOSYSTEM STATUS

According to **Figure 26**, an unnamed water course is present on the map but does not traverse any of the properties. The watercourse is classified as Class C: Moderately Modified.

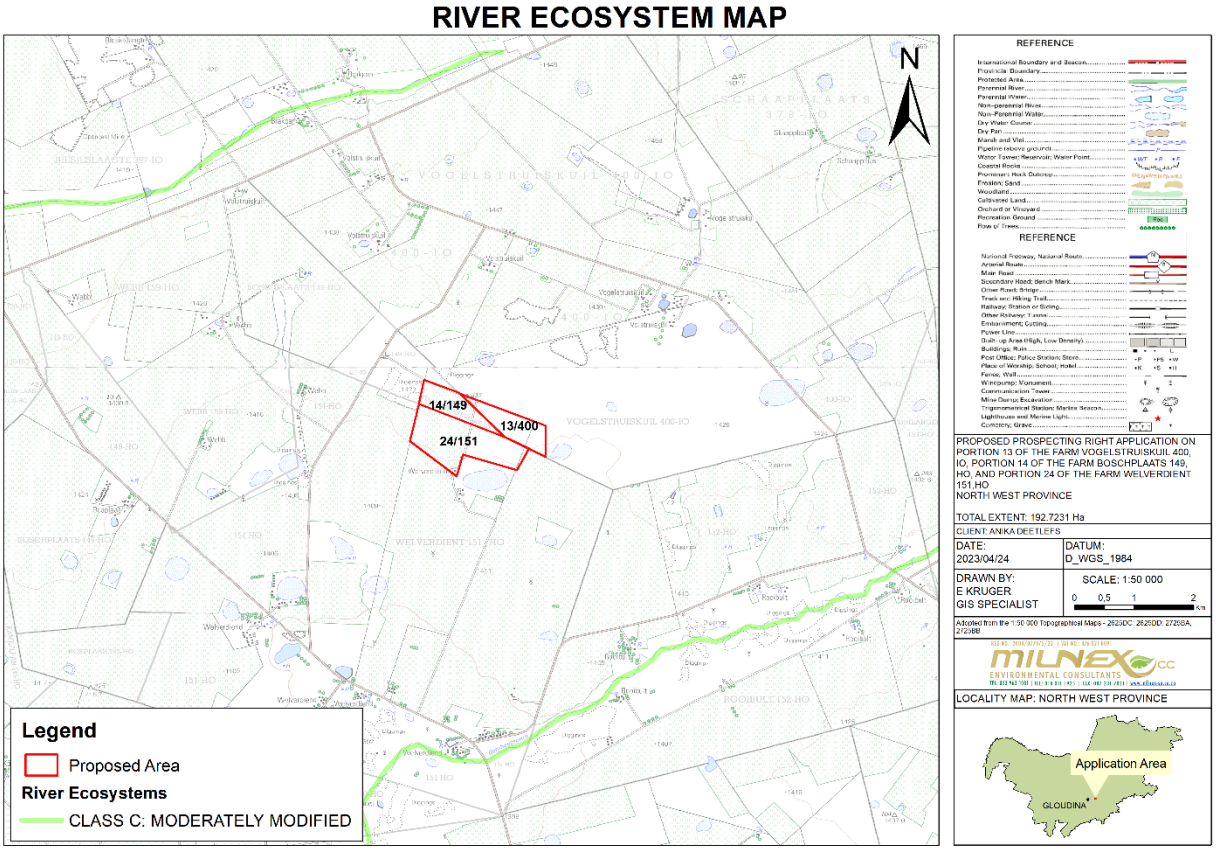

Figure 27: Ecosystem status of the rivers occurring in close proximity to the study site.

CULTURAL, HERITAGE & PALAEONTOLOGICAL ASPECTS

According to the DFFE Screening Report the proposed area falls within low Archaeological and Cultural Heritage Theme Sensitivity. Please see map colour map under **Appendix 7.**

Figure 28: Archaeological and Cultural Heritage Combined Sensitivity

A Phase 1 heritage Impact Assessment was conducted by Mr Francois P Coetzee in July 2023 and the report was received in July 2023. The findings were as follows:

Review of existing information/data

Additional information on the cultural heritage of the area was sourced from the following records:

- National Mapping Project by SAHRA (which lists heritage impact assessment reports submitted for South Africa);
- Environmental Potential Atlas (ENPAT);
- Online SAHRIS database;
- National Automated Archival Information retrieval System (NAAIRS);
- Maps and information documents supplied by the client; and
- Several heritage surveys have been conducted in the vicinity of the survey area (published and unpublished) material on the area (Kruger 2018a, 2018b; Kusel 2007; Van Schalkwyk 2017)

Although several heritage impact assessments have been completed in the general vicinity of the survey area, no heritage sites were recorded inside the survey footprint. A survey conducted in the Bloemhof Nature Reserve situated to the south of the survey footprint recorded Early, Middle and Later Stone assemblages, two cemeteries and at least ten historical farm homesteads (Kusel 2007). A survey on the farm Kameelkuil 88 HO near Bloemhof yielded one graveyard with over 100 graves (Van Schalkwyk 2017). A heritage scoping study (desktop) of the farm Ganspan 194 HO, situated to the north of the current survey footprint, was conducted and indicated a high probability of historical structures and graves in the area (Kruger 2018a). A heritage scoping study (desktop) of the farm Oersonskraal 250 HO, situated to the east of the current survey footprint, was conducted and indicated a low to medium probability of military remains, historical structures and graves in the area (Kruger 2018b). A survey of a 600 km 400 kV transmission line running through the general region of the survey footprint revealed no significant cultural heritage remains (Dreyer 2007).

According to the Surveyor General's database the farm Vogelstruiskuil 400 IO which was first surveyed in 1910, Boschplaats 149 HO which was first surveyed in 1911 and Welverdient 151 HO which was first surveyed in 1907.

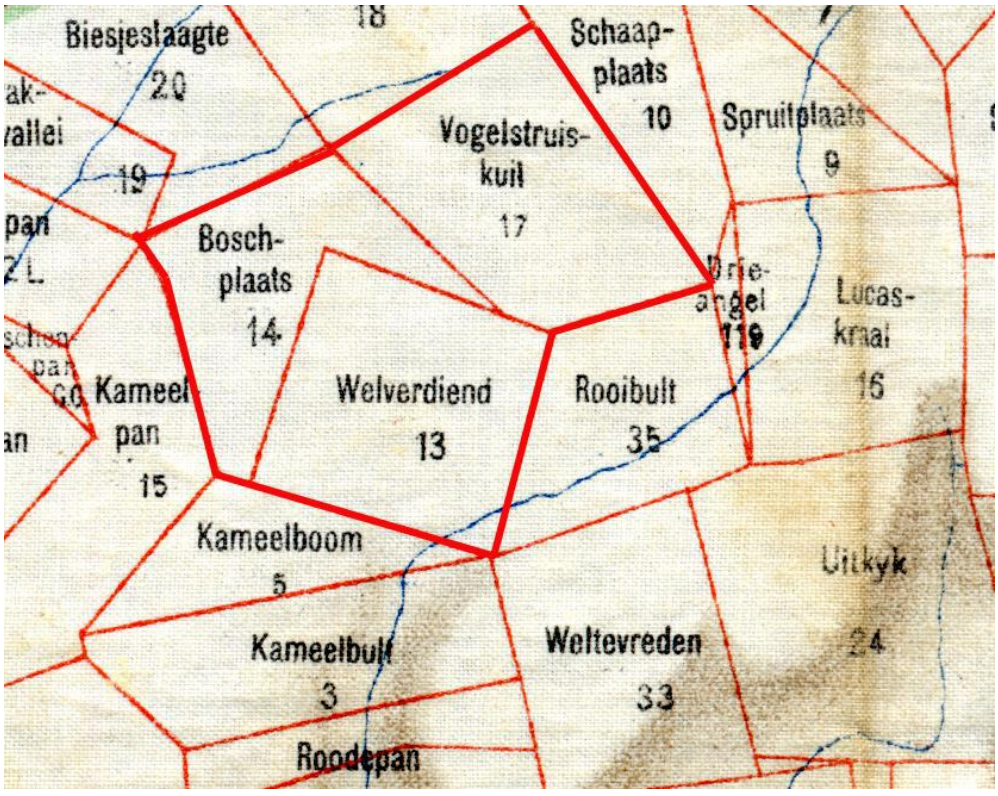

Figure 29: Jeppe's Map dating to 1899 indicates the location the farms under investigation

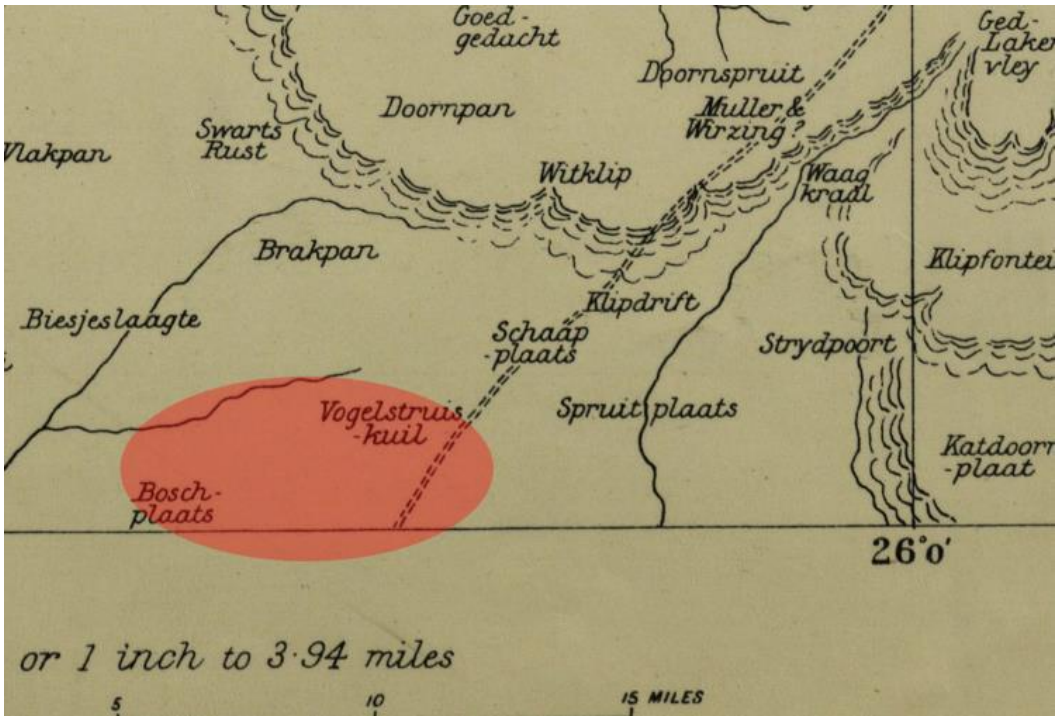

Figure 30: War Office Map indicating the location of the survey area as it was in 1899

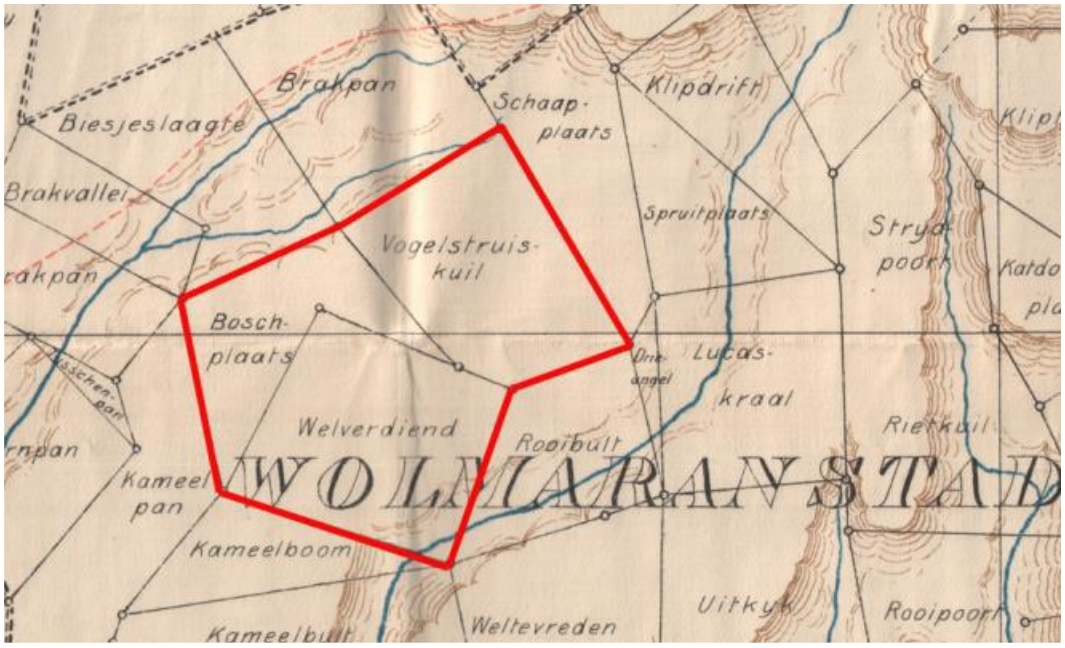

Figure 31: The farm indicated on the Field Intelligence Department Map of 1900

Note that the indications of several structures were only noted on the 1972 version of the 1:50 000 topographical map of the farm Boschplaats 149 HO that were probably occupied in the 1970s. However these structures have been removed as they do not appear on the 2001 edition of the map. These structures could not be located during the field survey as they now form part of agricultural fields and mining activities.

Note that no declared National Heritage Sites have been recorded in the Wolmaransstad region. According to the SAHRIS database no heritage sites are recorded near the survey footprint, although a number of historical buildings and graveyards are indicated in Wolmaransstad and further to the west.

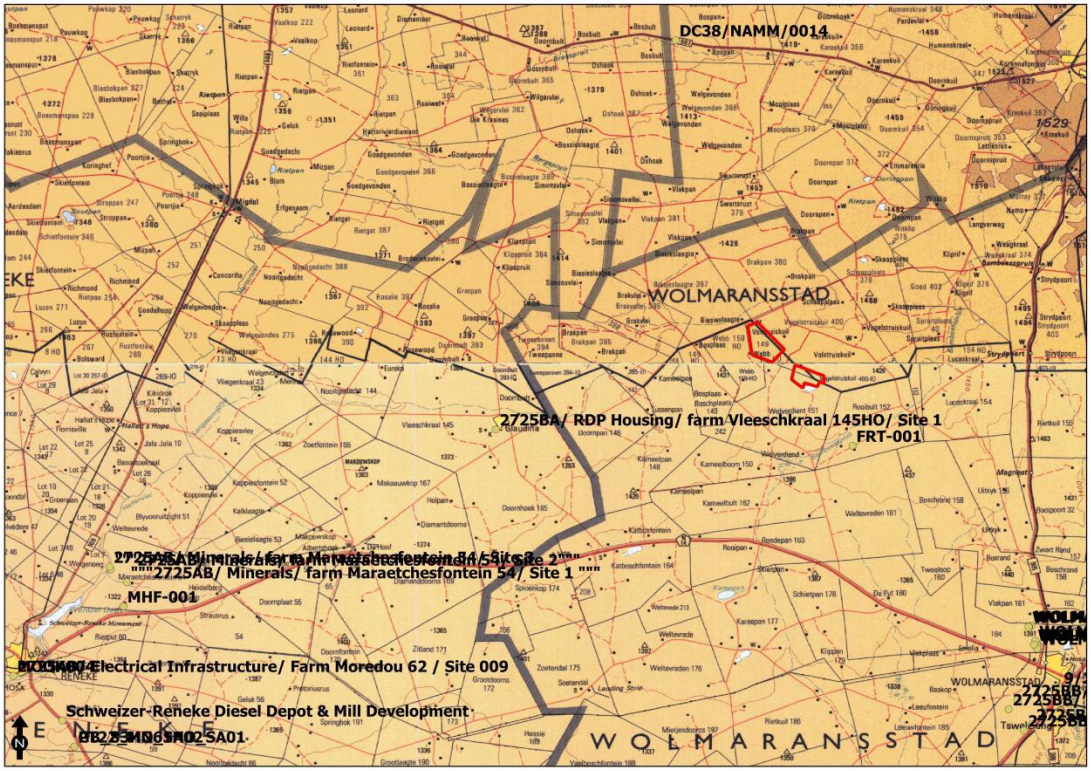

Figure 32: Recorded sites near the survey footprint (SAHRIS as at July 2023)

Site visits

The field survey was conducted on 12 July 2023.

Social interaction and current inhabitants

The local farmers and resident labourers were consulted during this survey.

Public Consultation and Stakeholder Engagement

An advertisement was placed in English in the local newspaper (Stellalander) notifying the public of the EIA process and requesting Interested and Affected Parties (I&APs) to register with, and submit their comments to Milnex CC. I&APs were given the opportunity to raise comments within 30 days of the advertisement. Site notices were placed on site in English to inform surrounding communities and immediately adjacent landowners of the proposed development. I&APs will be given the opportunity to raise comments.

Assumptions, restrictions, gaps and limitations

No physical restrictions were encountered as the survey area was accessible. As a result all areas were investigated in detail. Additional information was obtained from maps and other remote data.

<u>The Cultural Heritage Sites</u>

Isolated occurrences

Isolated occurrences are artefacts or small features recorded on the surface with no contextual information. No other associated material culture (in the form of structures or deposits) was noted that might provide any further context. This can be the result of various impacts and environmental factors such as erosion and modern developments. By contrast archaeological sites are often complex sites with evidence of archaeological deposit and various interrelated features such as complex deposits, stone walls and middens. However, these isolated occurrences are seen as remains of erstwhile complex or larger sites and they therefore provide a broad indication of possible types of sites or structures that might be expected to occur or have occurred in the survey footprint. No isolated finds were recorded during the survey.

Heritage sites

None

Locations and Evaluation of Sites

None

Management Measures
Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the proposed development can be excavated/recorded and a management plan can be developed for future action. Those sites that are not impacted on can be written into the management plan, whence they can be avoided or cared for in the future.

Objectives
- Protection of archaeological, historical and any other site or land considered being of cultural value within the project boundary against vandalism, destruction and theft.
- The preservation and appropriate management of new discoveries in accordance with the NHRA, should these be discovered during construction activities

The following shall apply:

- Known sites should be clearly marked in order that they can be avoided during construction activities.
- The contractors and workers should be notified that archaeological sites might be exposed during the construction activities.
- Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible;
- All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;
- Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and
- Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the NHRA (Act No. 25 of 1999), Section 51. (1).

Control
In order to achieve this, the following should be in place:
- A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage.
- Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above.
- In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures.

Recommendations and Conclusions
No historical or archaeological (both Stone Age and Iron Age) artefacts, assemblages, features, structures or settlements were recorded during the survey of the project footprint.

It is therefore recommended that the proposed prospecting activities, from a heritage perspective, may proceed and no further mitigation measures are required.

Also, please note:
Archaeological deposits usually occur below ground level. Should archaeological artefacts or skeletal material be revealed in the area during development activities, such activities should be halted, and a university or museum notified in order for an investigation and evaluation of the find(s) to take place ***(cf.* NHRA (Act No. 25 of 1999)**, Section 36 (6)).

According to the DFFE Screening Report the proposed area within Medium Paleontology Theme Sensitivity. Please see map colour map under **Appendix 7**.

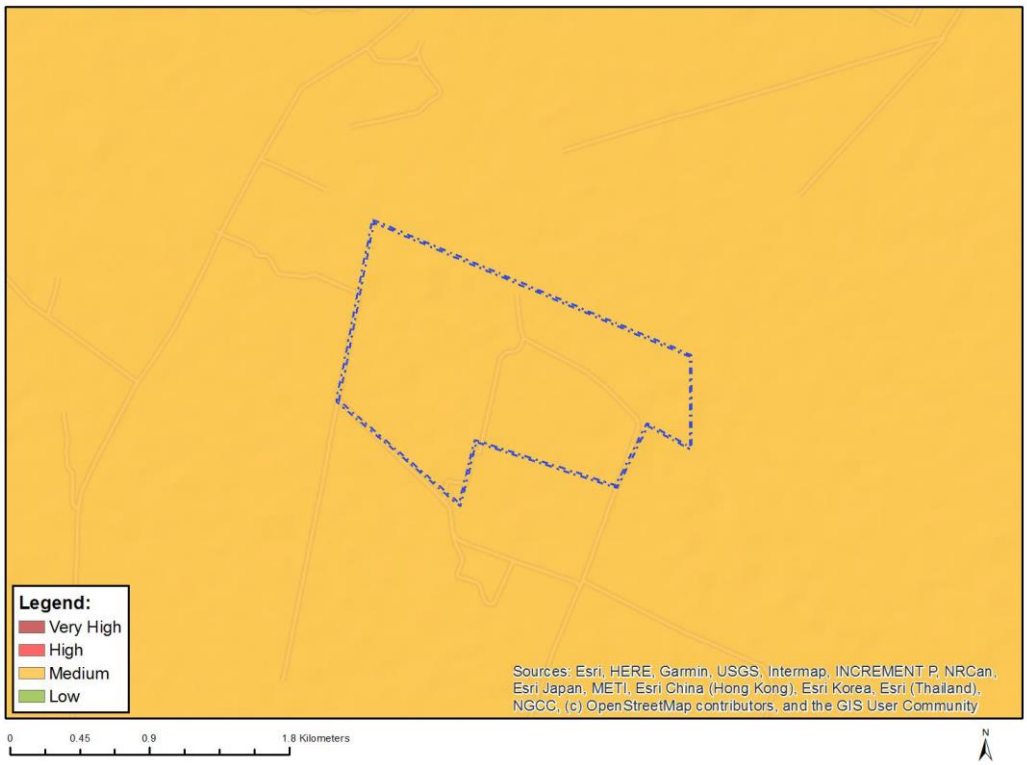

Figure 33: Relative Palaeontology Theme Sensitivity

A desktop Paleontological Assessment has been conducted by Mrs Elize Butler. The findings were as follows:

The proposed development is underlain by the Klipriviersberg Group of the Ventersdorp Supergroup. The PalaeoMap of the South African Heritage Resources Information System (SAHRIS) indicates that the Palaeontological Sensitivity of the Klipriviersberg Group is Low. (Almond and Pether, 2009; Almond *et al*., 2013). The updated geology (Council for Geosciences) refined the geology and also indicates that the study area is underlain Klipriviersberg Group of the Ventersdorp Supergroup.

An overall Low palaeontological significance is allocated to the development footprint. It is therefore considered that the proposed development will not lead to detrimental impacts on the palaeontological reserves of the area and construction of the development may be authorised in its whole extent.

If Palaeontological Heritage is uncovered during surface clearing and excavations the **Chance find Protocol** attached should be implemented immediately. Fossil discoveries ought to be protected and the ECO/site manager must report to South African Heritage Resources Agency (SAHRA) (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za) so that mitigation (recording and collection) can be carried out.
Preceding any collection of fossil material, the specialist would need to apply for a collection permit from SAHRA. Fossil material must be curated in an accredited collection (museum or university collection), while all fieldwork and reports should meet the minimum standards for palaeontological impact studies suggested by SAHRA.

DESCRIPTION OF THE SOCIO-ECONOMIC ENVIRONMENT

Description of the socio-economic environment

- Socio-economic conditions

The Maquassi Hills Local Municipality has been a struggling over the years with challenges such as poor revenue collection and financial management, sanitation backlogs, lack of project management, poor service delivery and infrastructure.

Economy
The following economic sectors that contributed the most to the DKKDM Gross Domestic Product (GDP) in 2007:
» Mining - 19.6%
» Trade - 17.3%
» Finance - 16.2%
» Government - 13.8%

Agriculture only contributed 2.3% towards GDP in the District.

The Economically Active Population in the LM is 61.8%. The high proportion of potentially economically active persons implies that there is a larger human resource base for development projects to involve the local population. The unemployment rate within the LM is high at 33.4% compared to the national (25.2%) and provincial (26.2%) unemployment rate.

Social aspects

Population: According to Statistics South Africa (Census 2011), the population of the DKKDM (based on 2010 boundaries) is 695 933, which increased from 599 670 in 2001. The population is unevenly distributed among the four Local Municipalities and the average annual growth rate of the district is 1.49%. The MHLM has a population of 77 794 people and a population density of 17/km2.

Age composition and gender differentiation: The dependency ratio indicates the amount of individuals that are below the age of 15 and over the age of 64, that are dependent on the Economically Active Population (EAP) (Individuals that are aged 15-64 that are either employed or actively seeking employment). 61.8% of the MHLM comprise the Economically Active Population (EAP) while 33% of the MHLM population are dependent on the EAP. The working age demographic (age 15-65) in the MHLM made up, 61.8% of the population. The high proportion of potentially economically active persons implies that there is a larger human resource base for development projects to involve the local population. However, the youth still represents a large proportion of the population, which means that focus still needs to be placed on youth development.

Education levels: Education plays a critical role in the development of communities and impacts greatly on economies. The type of education and training received by individuals equally determines the occupation or career they would eventually pursue. It provides a set of basic skills for development, creativity and innovative abilities. The level of education influences growth and economic productivity of a region. There is a positive correlation between a higher level of education and the level of development and standard of living.

The North West Municipal Report Census 2011 indicates that majority of the population aged 20 years and older have completed matric at a provincial, district and local level. A small percentage of the population have higher education. However a significant number of the Maquassi Hills LM population have no schooling meaning that the majority of the population have a low-skill level and would either need job employment in low-skill sectors, or better education opportunities in order to improve the skills level of the area, and therefore income levels. Education alone cannot eradicate poverty; rather, education coupled with greater job opportunities in the economy will be the roadmap out of poverty (Stats SA, 2014).

Annual household income levels: The average household incomes of the LM are as follows: » 77.3% of households are classified as low income earners.
» 20.6% of households are classified as middle income earners;

» 2.2% of households are classified as high income earners.

The majority of the population is dependent on forms of assistance either from government and or non-government organisations (MHLM IDP 2014-2016). The high poverty level has social consequences such as not being able to pay for basic needs and services. However skill levels are less likely to improve unless education levels improve which will lead to more skilled people which will in turn lead to the opportunity to earn higher income levels. This means that there should be less focus on the quantity of job creations and more focus on the quality of jobs created.

DESCRIPTION OF THE CURRENT LAND USES.

According to the map (Figure 34 and Figure 35), the proposed area is covered with crops on the western side and is covered with fallow lands & old fields as well as previous mining activities. Please note that Anika Deetlefs will not be held accountable for any historical mining/prospecting activities that had occurred in the past

The disturbance of previous prospecting activities can be seen on the google earth image (figure 36).

If applicable a Water Use License Application will be launched for conducting prospecting operations.

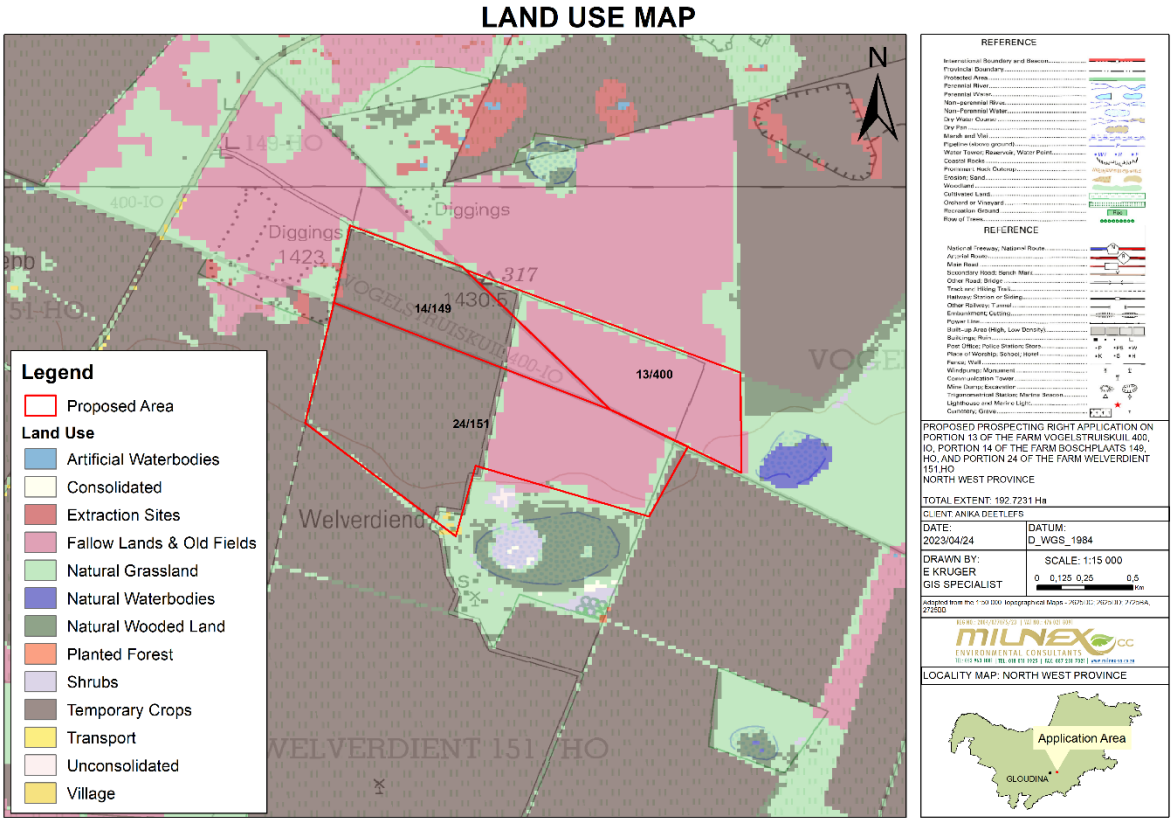

Figure 34: Land use map associated with study site and surrounding areas.

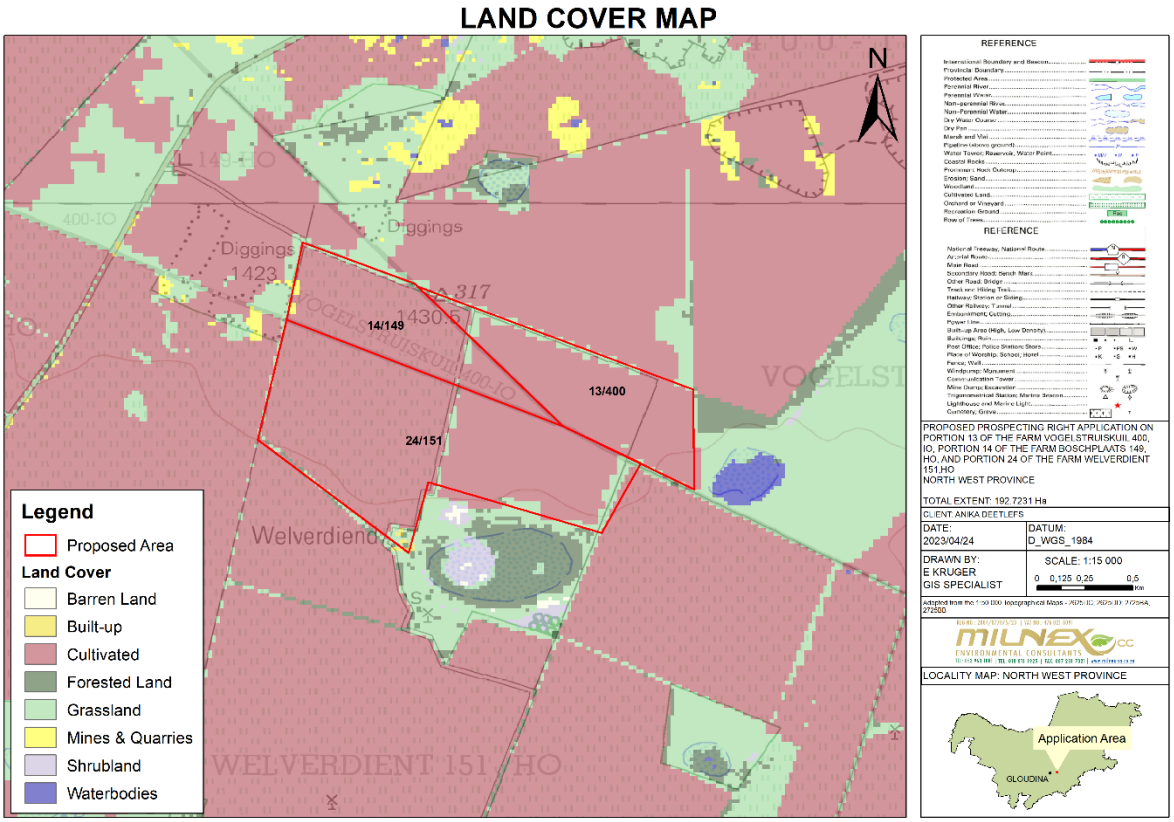

Figure 35: Landcover map associated with study site and surrounding areas.

Figure 36: Google earth map

v) The impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts—

(aa) can be reversed;
(bb) may cause irreplaceable loss of resources; and
(cc) can be avoided, managed or mitigated;

Please see heading **J) AN ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK**, for the impacts identified and their assessment.

vi) The methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;

Method of environmental assessment

The environmental assessment aims to identify the various possible environmental impacts that could results from the proposed development. Different impacts need to be evaluated in terms of its significance and in doing so highlight the most critical issues to be addressed.

Significance is determined through a synthesis of impact characteristics which include context and intensity of an impact. Context refers to the geographical scale i.e. site, local, national or global whereas intensity is defined by the severity of the impact e.g. the magnitude of deviation from background conditions, the size of the area affected, the duration of the impact and the overall probability of occurrence. Significance is calculated as shown in the Table below.

Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

Impact Rating System

Impact assessment must take account of the nature, scale and duration of impacts on the environment whether such impacts are positive or negative. Each impact is also assessed according to the following project phases:

- Construction
- Operation
- Decommissioning

Where necessary, the proposal for mitigation or optimisation of an impact should be detailed. A brief discussion of the impact and the rationale behind the assessment of its significance should also be included. The rating system is applied to the potential impacts on the receiving environment and includes an objective evaluation of the mitigation of the impact. In assessing the significance of each impact the following criteria is used:

Table 12: *The rating system*

NATURE		
Include a brief description of the impact of environmental parameter being assessed in the context of the project. This criterion includes a brief written statement of the environmental aspect being impacted upon by a particular action or activity.		
GEOGRAPHICAL EXTENT		
This is defined as the area over which the impact will be experienced.		
1	Site	The impact will only affect the site.
2	Local/district	Will affect the local area or district.
3	Province/region	Will affect the entire province or region.

4	International and National	Will affect the entire country.
PROBABILITY		
This describes the chance of occurrence of an impact.		
1	Unlikely	The chance of the impact occurring is extremely low (Less than a 25% chance of occurrence).
2	Possible	The impact may occur (Between a 25% to 50% chance of occurrence).
3	Probable	The impact will likely occur (Between a 50% to 75% chance of occurrence).
4	Definite	Impact will certainly occur (Greater than a 75% chance of occurrence).
DURATION		
This describes the duration of the impacts. Duration indicates the lifetime of the impact as a result of the proposed activity.		
1	Short term	The impact will either disappear with mitigation or will be mitigated through natural processes in a span shorter than the construction phase (0 – 1 years), or the impact will last for the period of a relatively short construction period and a limited recovery time after construction, thereafter it will be entirely negated (0 – 2 years).
2	Medium term	The impact will continue or last for some time after the construction phase but will be mitigated by direct human action or by natural processes thereafter (2 – 10 years).
3	Long term	The impact and its effects will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter (10 – 30 years).
4	Permanent	The only class of impact that will be non-transitory. Mitigation either by man or natural process will not occur in such a way or such a time span that the impact can be considered indefinite.
INTENSITY/ MAGNITUDE		
Describes the severity of an impact.		
1	Low	Impact affects the quality, use and integrity of the system/component in a way that is barely perceptible.
2	Medium	Impact alters the quality, use and integrity of the system/component but system/component still continues to function in a moderately modified way and maintains general integrity (some impact on integrity).
3	High	Impact affects the continued viability of the system/ component and the quality, use, integrity and functionality of the system or component is severely impaired and may temporarily cease. High costs of rehabilitation and remediation.
4	Very high	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component permanently ceases and is irreversibly impaired. Rehabilitation and remediation often impossible. If possible rehabilitation and remediation often unfeasible due to extremely high costs of rehabilitation and remediation.
REVERSIBILITY		
This describes the degree to which an impact can be successfully reversed upon completion of the proposed activity.		
1	Completely reversible	The impact is reversible with implementation of minor mitigation measures.
2	Partly reversible	The impact is partly reversible but more intense mitigation measures are required.
3	Barely reversible	The impact is unlikely to be reversed even with intense mitigation measures.
4	Irreversible	The impact is irreversible and no mitigation measures exist.
IRREPLACEABLE LOSS OF RESOURCES		
This describes the degree to which resources will be irreplaceably lost as a result of a proposed activity.		

1	No loss of resource	The impact will not result in the loss of any resources.
2	Marginal loss of resource	The impact will result in marginal loss of resources.
3	Significant loss of resources	The impact will result in significant loss of resources.
4	Complete loss of resources	The impact is result in a complete loss of all resources.
CUMULATIVE EFFECT		
This describes the cumulative effect of the impacts. A cumulative impact is an effect which in itself may not be significant but may become significant if added to other existing or potential impacts emanating from other similar or diverse activities as a result of the project activity in question.		
1	Negligible cumulative impact	The impact would result in negligible to no cumulative effects.
2	Low cumulative impact	The impact would result in insignificant cumulative effects.
3	Medium cumulative impact	The impact would result in minor cumulative effects.
4	High cumulative impact	The impact would result in significant cumulative effects
SIGNIFICANCE		
Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The calculation of the significance of an impact uses the following formula: (Extent + probability + reversibility + irreplaceability + duration + cumulative effect) x magnitude/intensity. The summation of the different criteria will produce a non-weighted value. By multiplying this value with the magnitude/intensity, the resultant value acquires a weighted characteristic which can be measured and assigned a significance rating.		
Points	Impact significance rating	Description
6 to 28	Negative low impact	The anticipated impact will have negligible negative effects and will require little to no mitigation.
6 to 28	Positive low impact	The anticipated impact will have minor positive effects.
29 to 50	Negative medium impact	The anticipated impact will have moderate negative effects and will require moderate mitigation measures.
29 to 50	Positive medium impact	The anticipated impact will have moderate positive effects.
51 to 73	Negative high impact	The anticipated impact will have significant effects and will require significant mitigation measures to achieve an acceptable level of impact.
51 to 73	Positive high impact	The anticipated impact will have significant positive effects.
74 to 96	Negative very high impact	The anticipated impact will have highly significant effects and are unlikely to be able to be mitigated adequately. These impacts could be considered "fatal flaws".
74 to 96	Positive very high impact	The anticipated impact will have highly significant positive effects.

vii) Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;

ACTIVITY	PHASE	POTENTIAL NEGATIVE IMPACTS

Site preparation Site Clearance, establishing construction area	Construction Operation Decommissioning	Physical destruction and disturbance of: • Biodiversity (thicket is mostly invasive tree species and area is already disturbed by agricultural activities) • Air pollution • Disturbing noise • Visual impacts
Earthworks	Construction Operation Decommissioning	Excavations: • Loss of soil resources and land capability • Physical destruction and disturbance of biodiversity (thicket is mostly invasive tree species and area is already disturbed by agricultural activities) • Possible pollution of surface water resources • Possible alteration of natural drainage patterns • Possible contamination of groundwater • Air pollution • Disturbing noise • Visual impacts
Civil works Erection of structures, concrete work, steel work, electrical installation, establishing pipelines (if any)	Construction Operation Decommissioning	• Loss of mineral reserves • Hazardous structures/excavations/surface subsidence • Loss of soil resources and land capability • Possible pollution of surface water resources • Possible contamination of groundwater • Air pollution • Disturbing noise • Visual impacts
Pitting, Trenching, load, and hauling	Construction Operation	• Loss of mineral resources • Loss of soil resources and land capability Physical destruction and disturbance of: • Biodiversity (thicket is mostly invasive tree species and area is already disturbed by agricultural activities) • Air pollution • Disturbing noise • Visual impacts • Possible pollution of surface water resources • Possible contamination of groundwater • Dewatering impacts
Waste rock management Storage, stockpile or final disposal	Operation Decommissioning Closure (final land form)	• Loss of soil resources and land capability • Disturbance of biodiversity (thicket is mostly invasive tree species and area is already disturbed by agricultural activities) • Possible pollution of surface water resources • Possible contamination of groundwater • Air pollution • Disturbing noise • Negative landscape and visual impact
Dirty water management Collection, storage of dirty water for re-use, recycling	Construction Operation Decommissioning	• Possible pollution of surface water resources • Possible contamination of groundwater • Disturbing noise
Stormwater management Stormwater channels and	Construction	• Possible alteration of drainage patterns • Possible pollution of surface water resources

berms, collection of dirty water, storage for re- use	Operation Decommissioning	• Possible contamination of groundwater
Transport systems Use of access points, road transport to and from site for employees and supplies, movement within site boundary (haul roads, conveyors, pipelines), taxi areas	Construction Operation Decommissioning	• Disturbance of biodiversity • Noise • Traffic impacts • Visual impacts
Storage and maintenance services/ facilities Washing vehicles and machinery, storage and handling non-process materials	Construction Operation Decommissioning	• Possible pollution of surface water resources • Possible contamination of groundwater resulting from hydrocarbon spills and soil erosion • Disturbing noise
Demolition Dismantling, demolition, removal of equipment	Operation (as part of maintenance) Decommissioning	• Hazardous structures (e.g., fuel tanks) • Loss of soil resources and land capability • Disturbance of biodiversity • Air pollution • Disturbing noise • Visual impacts
Non-mineralized waste management Transportation of waste materials to waste facility	Construction Operation Decommissioning Closure (limited)	• Pollution if not managed and stored properly
Rehabilitation Replacing soil, slope stabilization, landscaping, re-vegetation, restoration	Construction Operation Decommissioning Closure	• Disturbance of biodiversity • Alteration of natural drainage patterns • Contamination of groundwater • Air pollution • Visual impacts

ACTIVITY	PHASE	POTENTIAL POSITIVE IMPACTS
Job creation	Construction Operation	• Temporary employment and other economic benefits
Maintenance and aftercare Inspection and maintenance of remaining facilities and rehabilitated areas	Closure	• Re-establishment of biodiversity

viii) the possible mitigation measures that could be applied and level of residual risk;

(With regard to the issues and concerns raised by affected parties provide a list of the issues raised and an assessment/ discussion of the mitigations or site layout alternatives available to accommodate or address their concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered).

Adverse environmental associated with the prospecting activity have been identified through the Scoping & EIR process. Mitigation measures as set out in the Environmental Management Programme (EMPr) attached in Part B must be implemented in order to minimise any potential impacts.

All comments received during the review period of the Scoping and EIR report, as well as response provided is captured and recorded within the Comments and Response Report and will be attached in the final EIR.

POTENTIAL IMPACT	POSSIBLE MITIGATION MEASURES

Influx of persons (job seekers)	• Establish and maintain site security measures • Control site and facility access
Hazardous waste pollution	• Implement hazardous waste, dirty water and mineralised and non- mineralised waste management procedures
Loss of soil resources and land capability through physical disturbance	• Implementation of a soil management plan • Limit disturbance of soil to what is necessary • Stripping, storing, maintenance and replacement of topsoil in accordance with soil management procedures
Physical destruction or disturbance of biodiversity	• Implement a biodiversity management plan • Restrict project footprint • Provide alternative habitat (where appropriate and necessary) • Implement a monitoring programme • Rehabilitate disturbed areas • Prevention of the killing of animal species and harvesting of plant species • Implementation of dust control measures • Pollution prevention measures (water, soil etc.) • Prevention of the disturbance of ecosystems as far as possible.
Surface water pollution	• Appropriate design of polluting facilities and pollution prevention facilities • Implement and maintain stormwater controls that meet regulatory requirements • Implement a monitoring programme (water use, process water quality, rainfall-related discharge quality) • Implement emergency response • Authorise all water uses as defined in the NWA
Groundwater contamination	• Appropriate design of polluting facilities (by qualified person) • Correct handling of hazardous wastes, mineralised and non-mineralised wastes • Compensation for loss • Implementation of a monitoring programme
Dewatering	• Authorise all water uses as defined in the NWA Compliance with relevant license requirements
Air pollution	• Implementation of air quality management plan • Implementation of an air quality monitoring plan • Control dust plumes • Implementation of an air complaints procedure • Maintenance of abatement equipment Implement an emergency response
Noise pollution	• Maintenance of equipment and machinery in good working order • Equip machinery with silencers • Construction of noise attenuation measures (if complaints received) • Implementation of noise monitoring programme (if complaints received)
Visual impacts	• Limit the clearing of vegetation as far as possible • Limit the emissions of visual dust plumes • Use of screening berms Concurrent rehabilitation • Painting infrastructure to compliment the surrounding environment Implementation of a closure plan • Management through care and aftercare
Traffic increases	• Implement speed allaying measures where appropriate, e.g. speed humps where necessary • Education and awareness training of workers • Enforce strict speed limits on mine access roads
Heritage, Cultural & Paleontology	• Avoid heritage and cultural resources as far as practically possible • Apply for the relevant permits to remove or destroy heritage sites (if applicable)

	• Exhumation and relocation of graves according to legal requirements (if applicable) • Mark remaining heritage sites on plan
Economic impact	• Hire people from closest communities as far as practically possible • Local procurement of goods and services as far as practically possible • Compensation for loss of land use • Closure planning will consider skills, economic consideration, and the needs of future farming
Land uses	• Implementation of EMPr commitments that focus on environmental and social impacts • Take necessary steps to prevent negative impact on surrounding land • Compensation for loss • Closure planning to incorporate measures to achieve future land use plans

ix) if no alternative development [location] footprints for the activity were investigated, the motivation for not considering such; and

As discussed in the previous section, based on outcomes of previous studies in the vicinity of the proposed site, the possibility to encounter high volumes Diamonds (Alluvial), Diamonds (General) & Diamonds (DIA) on Portion 13 (portion of portion 6) of the farm Vogelstruiskuil 400, Portion 14 (portion of portion 2) of the farm Boschplaats 149 & Portion 24 of the farm Welverdient 151, Registration Divisions IO & HO, North West Province., were identified. (PWP, **Appendix 9**).

x) a concluding statement indicating the location of the preferred alternative development [location] footprint within the approved site as contemplated in the accepted scoping report;
(Provide a statement motivating the final site layout that is proposed)

The layout follows the limitations of the site and aspects such as, roads, site offices and workshop area as well as fencing.

I. A FULL DESCRIPTION OF THE PROCESS UNDERTAKEN TO IDENTIFY, ASSESS AND RANK THE IMPACTS THE ACTIVITY AND ASSOCIATED STRUCTURES AND INFRASTRUCTURE WILL IMPOSE ON THE PREFERRED [LOCATION] DEVELOPMENT FOOTPRINT ON THE APPROVED SITE
(AS CONTEMPLATED IN THE ACCEPTED SCOPING REPORT THROUGH THE LIFE OF THE ACTIVITY, INCLUDING—.)

i. A description of all environmental issues and risks that are identified during the environmental impact assessment process

Process for the identification of key issues

The methodology for the identification of key issues aims, as far as possible, to provide a user-friendly analysis of information to allow for easy interpretation.

- Checklist: The checklist consists of a list of structured questions related to the environmental parameters and specific human actions. They assist in ordering thinking, data collection, presentation and alert against the omission of possible impacts.

- Matrix: The matrix analysis provides a holistic indication of the relationship and interaction between the various activities, development phases and the impact thereof on the environment. The method aims at providing a first order cause and effect relationship between the environment and the proposed activity. The matrix is designed to indicate the relationship between the different stressors and receptors which leads to specific impacts. The matrix also indicates the specialist studies, which will be submitted as part of the Environmental Impact Report in order to address the potentially most significant impacts.

Checklist analysis

The site visit was conducted to ensure a proper analysis of the site specific characteristics of the study area. The table below provides a checklist, which is designed to stimulate thought regarding possible consequences of specific actions and so assist scoping of key issues. It consists of a list of structured questions related to the environmental parameters and specific human actions. They assist in ordering thinking, data collection, presentation and alert against the omission of possible impacts. The table highlights certain issues, which are further analysed in matrix format.

Table 13: Environmental checklist

QUESTION	YES	NO	Un-sure	Description
1. Are any of the following located on the site earmarked for the development?				
I. A river, stream, dam or wetland		✕		According to the wetland map there is no wetland, dam, stream or pan present on the application area
II. A conservation or open space area		✕		
III. An area that is of cultural importance			✕	The DEA screening tool indicated that the Archaeological & Cultural heritage sensitivity is low (Appendix 7)
IV. Site of geological significance			✕	According to the DEA Screening Report the proposed area falls within a medium Palaeontology Theme Sensitivity (Appendix 7).
V. Areas of outstanding natural beauty		✕		
VI. Highly productive agricultural land			✕	According to the Land Capability map the proposed area falls within land capability Class 4 .There are farmlands on the western side of the application area, the assumption can be made that certain areas are high productive agricultural land.
VII. Floodplain		✕		
VIII. Indigenous forest		✕		The natural vegetation according as observed from the google map (Figure 36), is mostly grassland and some trees here and there
IX. Grass land	✕			The natural vegetation according as observed from the google map (Figure 36), is mostly grassland and some trees here and there
X. Bird nesting sites		✕		According to the Important Bird Areas map (Appendix 7) the proposed area does not fall within an Important Bird Area (IBAs).
XI. Red data species			✕	According to the Landcover map the western area is cultivated (Appendix 7). There may be protected flora species on the proposed area, but is highly unlikely.

XII. Tourist resort	✕			
2. Will the project potentially result in potential?				
I. Removal of people		✕		None.
II. Visual Impacts	✕			Visual impacts will be managed.
III. Noise pollution	✕			The noise impact will be limited to working hours.
IV. Construction of an access road			✕	Access will be obtained from existing gravel roads off the R505 or R504 But if a road is constructed it will be a gravel road which may be wider than 4 metres but will not exceed a width of 13,5 metres inclusive of the reserve.
V. Risk to human or valuable ecosystems due to explosion/fire/ discharge of waste into water or air.		✕		None.
VI. Accumulation of large workforce (>50 manual workers) into the site.		✕		Employment opportunities will be created during the construction and operational phase of the project.
VII. Utilisation of significant volumes of local raw materials such as water, wood etc.	✕			Water will be used during the washing of the gravel and for dust suppression.
VIII. Job creation	✕			Employment opportunities will be created during the construction and operational phase of the project.
IX. Traffic generation		✕		None.
X. Soil erosion	✕			Only areas earmarked for mining will be cleared. prospecting will be phased and the topsoil stockpiled separately. Concurrent rehabilitation will take place.
XI. Installation of additional bulk telecommunication transmission lines or facilities		✕		None.
3. Is the proposed project located near the following?				
I. A river, stream, dam or wetland	✕			According to the wetland map (Appendix 7), there are 3 depressions in nearby proximity to the application area.
II. A conservation or open space area			✕	
III. An area that is of cultural importance			✕	The DEA screening tool indicated that the Archaeological & Cultural heritage sensitivity of the adjacent area is low (Appendix 7)
IV. A site of geological significance			✕	According to the DEA Screening Report the adjacent area falls within a medium Palaeontology Theme Sensitivity (Appendix 7).
V. An area of outstanding natural beauty			✕	

VI. Highly productive agricultural land			✕	According to the Land Capability map the adjacent area falls within land capability Class 4 .There are farmlands on all around the application area, the assumption can be made that certain areas are high productive agricultural land.
VII. A tourist resort		✕		
VIII. A formal or informal settlement		✕		

Matrix analysis

The matrix describes the relevant listed activities, the aspects of the development that will apply to the specific listed activity, a description of the environmental issues and potential impacts, the significance and magnitude of the potential impacts, and the mitigation of the potential impacts. The matrix also highlights areas of particular concern, which requires more in depth assessment. Each cell is evaluated individually in terms of the nature of the impact, duration and its significance – should no mitigation measures be applied. This is important since many impacts would not be considered insignificant if proper mitigation measures were implemented. The matrix also provides an indication if mitigation measures are available.

In order to conceptualise the different impacts the matrix specify the following:

- **Stressor**: Indicates the aspect of the proposed activity, which initiates and cause impacts on elements of the environment.
- **Receptor**: Highlights the recipient and most important components of the environment affected by the stressor.
- **Impacts**: Indicates the net result of the cause-effect between the stressor and receptor.
- **Mitigation**: Impacts need to be mitigated to minimise the effect on the environment.

ii) An assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;

LISTED ACTIVITY (The Stressor)	ASPECTS OF THE DEVELOPMENT /ACTIVITY	POTENTIAL IMPACTS			SIGNIFICANCE AND MAGNITUDE OF POTENTIAL IMPACTS			MITIGATION OF POTENTIAL IMPACTS	SPECIALIST STUDIES / INFORMATION
		Receptors		Impact description	Minor	Major	Duration	Possible Mitigation	
CONSTRUCTION PHASE									
Listing Notice 1, (GNR 327), Activity 19: *The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;* **Listing Notice 1 (GNR 327), Activity 27:***"The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation."* **Listing Notice 3 GNR 324, Activity 4:** *The development of a road wider than 4 metres with a reserve less than 13,5 metres.* ***(h) North West (ii)*** *Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;* ***(iv)*** *Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority;* **Listing Notice 3 GNR 324, Activity 10:** *The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres.* ***(h) North West (iv)*** *Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority;* ***(vi)*** *Areas within a watercourse or wetland, or within 100 metres from the edge of a watercourse or wetland.* ***1) Listing Notice 3 GNR 324, Activity 12:*** *The clearance of an area of 300 square metres or more of indigenous vegetation;* ***(h) North West (v)*** *Within critical biodiversity areas identified in systematic biodiversity plans adopted by the competent authority* ***(v)*** *Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; or* ***(vi)*** *Areas within a watercourse or wetland, or within 100 metres from the edge of a watercourse or wetland*	<u>Site clearing and preparation</u> Areas earmarked for prospecting will need to be cleared, topsoil will be stockpiled separately.	BIOPHYSICAL ENVIRONMENT	Fauna & Flora	• Loss or fragmentation of indigenous natural vegetation. • Loss of sensitive species. • Loss or fragmentation of habitats.		-	S	Yes	-
			Air	• Air pollution due to the increase of traffic. • Dust from mining/prospecting activities	-		M	Yes	-
			Soil	• Soil degradation, including erosion. • Loss of topsoil. • Disturbance of soils and existing land use (soil compaction).	-		S	Yes	-
			Geology	• It is not foreseen that the removal of indigenous vegetation will impact on the geology or vice versa.	-		S	Yes	-
			Existing services infrastructure	• Generation of waste that need to be accommodated at a licensed landfill site. • Generation of sewage that need to be accommodated by the local sewage plant.	-		S	Yes	-
			Ground water	• Pollution due to construction vehicles.	-		S	Yes	-
			Surface water	• Increase in storm water run-off. • Pollution of water sources due to soil erosion. • Destruction of watercourses (pans/dams/streams/wetlands).		-	S	Yes	-
		SOCIAL/ECONOMIC ENVIRONMENT	Local unemployment rate	• Job creation. • Business opportunities. • Skills development.		+	S	Yes	-
			Visual landscape	• Potential visual impact on residents of farmsteads and motorists in close proximity to proposed facility.	-		L	Yes	-
			Traffic volumes	• Increase in construction vehicles.	-		S	Yes	-
			Health & Safety	• Air/dust pollution. • Road safety. • Increased risk of veld fires.		-	S	Yes	-
			Noise levels	• The generation of noise as a result of construction vehicles, the use of machinery such as drills, excavators, dumper trucks and people working on the site.	-		L	Yes	-
			Tourism industry	• Since there are no tourism facilities in close proximity to the site, the construction activities will not have an impact on tourism in the area.	-		M	Yes	-

		Heritage resources	• Removal or destruction of archaeological and/or paleontological sites. • Removal or destruction of buildings, structures, places and equipment of cultural significance. • Removal or destruction of graves, cemeteries and burial grounds.	-		L	Yes	-
OPERATIONAL PHASE								
Listing Notice 1, (GNR 327), Activity 19: *The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;* **Listing Notice 1 (GNR 327), Activity 20 (Amended GNR 517: 2021):** *"Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice or in Listing Notice 3 of 2014, required to exercise the prospecting right"* **Listing Notice 1 (GNR 327), Activity 27:***"The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation."* **Listing Notice 2 (GNR 325), Activity 19 (Amended GNR 517: 2021):** *"The removal and disposal of minerals which requires permission contemplated in terms of section 20 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice, Listing Notice 1 of 2014 or in Listing Notice 3 of 2014, required to exercise the permission.* **Listing Notice 3 GNR 324, Activity 4:** *The development of a road wider than 4 metres with a reserve less than 13,5 metres.* ***(h) North West (ii)*** *Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;* ***(iv)*** *Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority;* **Listing Notice 3 GNR 324, Activity 10:** *The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres.* ***(h) North West (iv)*** *Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority;* ***(vi)*** *Areas within a watercourse or wetland, or within 100 metres from the edge of a watercourse or wetland.*	The key components of the proposed project are described below: • <u>Supporting Infrastructure</u> - A control facility with basic services such as water and electricity will be constructed on the site and will have an approximate footprint 50m² or less. Other supporting infrastructure includes a site office and workshop area. • <u>Roads</u> – Access will be obtained from existing gravel roads off the R34. But if a road is constructed it will be a gravel road which may be wider than 4 metres but will not exceed a width of 13,5 metres inclusive of the reserve. • <u>Fencing</u> - For health, safety and security reasons, the facility will be required to be fenced off from	BIOPHYSICAL ENVIRONMENT	Fauna & Flora	• Fragmentation of habitats. • Establishment and spread of declared weeds and alien invader plants (operations).		-	L	Yes	-
			Air quality	• Air pollution due to the mining / prospecting activity and transport of the gravel to the designated areas.	-		S	Yes	-
			Soil	• Soil degradation, including erosion. • Disturbance of soils and existing land use (soil compaction). • Loss of agricultural potential (medium significance relative to agricultural potential of the site).			L	Yes	-
			Geology	• Collapsible soil. • Seepage (shallow water table). • Active soil (high soil heave). • Erodible soil. • The presence of undermined ground. • Instability due to soluble rock. • Steep slopes or areas of unstable natural slopes. • Areas subject to seismic activity. • Areas subject to flooding.	-		L	Yes	-
			Existing services infrastructure	• Generation of waste that need to be accommodated at a licensed landfill site. • Generation of sewage that need to be accommodated by the municipal sewerage system and the local sewage plant. • Increased consumption of water, dust suppression.	-		L	Yes	-
			Ground water	• Leakage of hazardous materials. The machinery on site require oils and fuel to function. Leakage of these oils and fuels can contaminate water supplies.		-	L	Yes	-
			Surface water	• Increase in storm water runoff. The development will potentially result in an increase in storm water run-off that needs to be managed to prevent soil erosion. • Destruction of watercourses (pans/dams/streams/wetlands). • Leakage of hazardous materials. The machinery on site require oils and fuel to function. Leakage of these oils and fuels can contaminate water supplies.		-	L	Yes	-
		SOCIAL/ECONOMIC ENVIRONMENT	Local unemployment rate	• Job creation. Security guards will be required for 24 hours every day of the week. • Skills development.		+	L	Yes	-
			Visual landscape	• The proposed portions are used for livestock grazing and cultivation which will still take place simultaneously with the prospecting activity, however this depends on the location of the activity.	-		L	Yes	-
			Traffic volumes	• Increase in vehicles collecting gravel for distribution.	-		S	Yes	-

***1) Listing Notice 3 GNR 324, Activity 12**: The clearance of an area of 300 square metres or more of indigenous vegetation; **(h) North West (v)** Within critical biodiversity areas identified in systematic biodiversity plans adopted by the competent authority **(v)** Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; or **(vi)** Areas within a watercourse or wetland, or within 100 metres from the edge of a watercourse or wetland*	the surrounding farm.		Health & Safety	• Air/dust pollution. • Road safety.	-		S	Yes	-
			Noise levels	• The proposed development will result in noise pollution during the operational phase.	-		M	Yes	-
			Tourism industry	• Since there are tourism facilities in close proximity to the site, the decommissioning activities may have an impact on tourism in the area.	-		M	Yes	-
			Heritage resources	• It is not foreseen that the proposed activity will impact on heritage resources or vice versa.	N/A	N/A	N/A	N/A	-
DECOMMISSIONING PHASE									
-	<u>Mine closure</u> During the mine closure the Mine and its associated infrastructure will be dismantled. <u>Rehabilitation of biophysical environment</u> The biophysical environment will be rehabilitated.	BIOPHYSICAL ENVIRONMENT	Fauna & Flora	• Re-vegetation of exposed soil surfaces to ensure no erosion in these areas.		+	L	Yes	-
			Air quality	• Air pollution due to the increase of traffic of construction vehicles.	-		S	Yes	-
			Soil	• Backfilling of all voids • Placing of topsoil on backfill		+	L	Yes	-
			Geology	• It is not foreseen that the decommissioning phase will impact on the geology of the site or vice versa.	N/A	N/A	N/A	N/A	-
			Existing services infrastructure	• Generation of waste that need to be accommodated at the local landfill site. • Generation of sewage that need to be accommodated by the municipal sewerage system and the local sewage plant. • Increase in construction vehicles.	-		S	Yes	-
			Ground water	• Pollution due to construction vehicles.	-		S	Yes	-
			Surface water	• Increase in storm water run-off. • Pollution of water sources due to soil erosion. • Destruction of watercourses (pans/dams/streams/wetlands).	-		S	Yes	-
		SOCIAL/ECONOMIC ENVIRONMENT	Local unemployment rate	• Loss of employment.	-		L	Yes	-
			Visual landscape	• Potential visual impact on visual receptors in close proximity to proposed facility.	-		S	Yes	-
			Traffic volumes	• Increase in construction vehicles.	-		S	Yes	-
			Health & Safety	• Air/dust pollution. • Road safety. • Increased crime levels. The presence of mine workers on the site may increase security risks associated with an increase in crime levels as a result of influx of people in the rural area.	-		L	Yes	-
			Noise levels	• The generation of noise as a result of construction vehicles, the use of machinery and people working on the site.	-		S	Yes	-
			Tourism industry	• Since there are no tourism facilities in close proximity to the site, the decommissioning activities will not have an impact on tourism in the area.	+		S	Yes	-
			Heritage resources	• It is not foreseen that the decommissioning phase will impact on any heritage resources.	N/A	N/A	N/A	N/A	-

(N/A) No impact (+) Positive Impact (-) Negative Impact (S) Short Term (M) Medium Term (L) Long Term

J. AN ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK, INCLUDING—

(i) cumulative impacts;
(ii) the nature, significance and consequences of the impact and risk;
(iii) the extent and duration of the impact and risk;
(iv) the probability of the impact and risk occurring;
(v) the degree to which the impact and risk can be reversed;
(vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and
(vii) the degree to which the impact and risk can be mitigated;

Significance of potential impacts

The following sections present the outcome of the significance rating exercise. The results suggest that almost none of the key issues identified as part of the EIR process had a negative high environmental significance. Instead the overall score indicate a low environmental significance score.

INITIAL CLEARANCE AND SITE PREPARATION PHASE

Direct impacts: During this phase minor negative impacts are foreseen over the short term. The latter refers to a period of weeks. The site preparation may result in the loss or fragmentation of indigenous natural fauna and flora, loss or fragmentation of habitats, soil erosion, hydrology, and temporary noise disturbance, generation of waste, visual intrusions, increase in heavy vehicle traffic, and risk to safety, livestock/game and farm infrastructure, and increased risk of veld fires. The abovementioned impacts are discussed in more detail below:

Ecological Impacts:

Potential Environmental Impact	Environmental Impact Before Mitigation					Significance	Environmental Impact After Mitigation					Significance
	Frequency of Impact	Frequency of Activity	Severity	Spatial Scale	Duration		Frequency of Impact	Frequency of Activity	Severity	Spatial Scale	Duration	
Loss and disturbance of watercourse habitat and fringe vegetation	5	4	4	2	4	**90 Medium-High**	2	4	2	1	4	**42 Low**
Alteration of the amount of sediment entering the water resource and associated change in turbidity	5	4	4	2	4	**90 Medium-High**	3	4	3	2	4	**63 Medium-Low**
Alteration of water quality (surface and ground water)	3	4	3	3	4	**70 Medium-Low**	3	4	2	2	2	**42 Low**
Loss of Terrestrial habitat	5	4	4	2	4	**90 Medium-High**	3	4	3	2	4	**63 Medium-Low**
Loss of Aquatic Biota	5	4	4	2	4	**90**	3	4	3	2	4	**63 Medium-Low**

						Medium-High						
Loss of Terrestrial Fauna	5	4	4	2	4	**90 Medium-High**	3	4	2	2	2	**42 Low**
Loss of Terrestrial Flora	5	5	4	2	4	**100 Medium-High**	3	4	2	2	3	**49 Low**
Introduction and spread of alien vegetation	5	5	4	2	4	**100 Medium-High**	3	3	2	2	2	**54 Medium-Low**

Impact methodology pertaining to all Biodiversity/Ecological impacts as stated above can be found on page 76-80 of the Ecological and Wetland Impact Report, attached in **Appendix 12.**

- Loss of topsoil – Topsoil may be lost due to poor topsoil management (burial, erosion, etc.) during construction related soil profile disturbance (levelling, excavations, disposal of spoils from excavations etc.) The effect will be the loss of soil fertility on disturbed areas after rehabilitation.

Loss of topsoil	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative
Geographical extent	Site (1)	Site (1)
Probability	Probable (3)	Unlikely (1)
Duration	Permanent (4)	Medium term (2)
Magnitude	High (3)	Low (1)
Reversibility	Barely reversible (3)	Completely reversible (1)
Irreplaceable loss of resources	Significant (3)	Marginal (2)
Cumulative impact	Medium cumulative impact (3).	
Significance	**Negative High (51)**	**Negative low (10)**
Can impacts be mitigated?	The following mitigation or management measures are provided: • If an activity will mechanically disturb below surface in any way, then any available topsoil should first be stripped from the entire surface and stockpiled for re-spreading during rehabilitation. • Topsoil stockpiles must be conserved against losses through erosion by establishing vegetation cover on them. • Dispose of all subsurface spoils from excavations where they will not impact on undisturbed land. • During rehabilitation, the stockpiled topsoil must be evenly spread over the entire disturbed surface. • Erosion must be controlled where necessary on top soiled areas. Establish an effective record keeping system for each area where soil is disturbed for constructional purposes. These records should be included in environmental performance reports, and should include all the records below. • Record the GPS coordinates of each area. • Record the date of topsoil stripping. • Record the GPS coordinates of where the topsoil is stockpiled. • Record the date of cessation of constructional (or operational) activities at the particular site.	

	• Photograph the area on cessation of constructional activities. • Record date and depth of re-spreading of topsoil. • Photograph the area on completion of rehabilitation and on an annual basis thereafter to show vegetation establishment and evaluate progress of restoration over time. Section (f) of the EMPr also provide mitigation measures related to topsoil management.

- Soil erosion – Soil erosion due to alteration of the land surface run-off characteristics. Alteration of run-off characteristics may be caused by construction related land surface disturbance, vegetation removal and the establishment of roads. Erosion will cause loss and deterioration of soil resources.

Soil erosion	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Geographical extent	Site (1)	Site (1)
Probability	Possible (2)	Possible (2)
Duration	Long term (3)	Medium term (2)
Magnitude	Medium (2)	Low (1)
Reversibility	Barely reversible (3)	Completely reversible (1)
Irreplaceable loss of resources	Marginal loss of resource (2)	Marginal loss of resource (2)
Cumulative impact	Medium cumulative impact (3).	
Significance	**Negative Low (28)**	**Negative low (11)**
Can impacts be mitigated?	The following mitigation or management measures are provided: Implement an effective system of run-off control, where it is required, that collects and safely disseminates run-off water from all hardened surfaces and prevents potential down slope erosion. Include periodical site inspection in environmental performance reporting that inspects the effectiveness of the run-off control system and specifically records the occurrence any erosion on site or downstream – refer to section (f) of the EMPr.	

- Temporary noise disturbance - Preparation activities will result in the generation of noise over a period of months. Sources of noise are likely to include vehicles, the use of machinery such as back actors and people working on the site. The noise impact is unlikely to be significant; but activities should be limited to normal working days and hours (6:00 – 18:00).

Temporary noise disturbance	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Probable (3)	Possible (2)
Duration	Short term (1)	Short term (1)
Magnitude	Medium (2)	Low (1)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	No loss of resource (1)	No loss of resource (1)
Cumulative impact	The impact would result in negligible to no cumulative effects (1).	
Significance	**Negative low (18)**	**Negative low (8)**
Can impacts be mitigated?	Yes, management actions related to noise pollution are included in section (f) of the EMPr.	

- Generation of waste - general waste, construction waste, sewage and grey water - The workers on site are likely to generate general waste such as food wastes, packaging, bottles, etc. Construction waste is likely to consist of packaging, scrap metals, waste cement, etc If any). The applicant will need to ensure that general and construction waste is appropriately disposed of i.e. taken to the nearest licensed landfill. Sufficient ablution facilities must be provided, in the form of portable/VIP toilets.

Generation of waste	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Site (1)
Probability	Possible (2)	Possible (2)
Duration	Medium term (2)	Medium term (2)
Magnitude	Medium (2)	Low (1)
Reversibility	Irreversible (4)	Irreversible (4)
Irreplaceable loss of resources	Marginal loss of resource (2)	No loss of resource (1)
Cumulative impact	Low cumulative impact (2) - An additional demand for landfill space could result in significant cumulative impacts if services become unstable or unavailable, which in turn would negatively impact on the local community.	
Significance	**Negative low (28)**	**Negative low (12)**
Can impacts be mitigated?	Yes, it is therefore important that all management actions and mitigation measures included in section (f) of the EMPr are implemented.	

- Impacts on heritage objects

According to the Phase 1 Heritage impact assessment no impact was allocated as no Heritage/Cultural objects were found

The following mitigation measures are recommended:

- Protection of archaeological, historical and any other site or land considered being of cultural value within the project boundary against vandalism, destruction and theft.
- The preservation and appropriate management of new discoveries in accordance with the NHRA, should these be discovered during construction activities

The following shall apply:

- Known sites should be clearly marked in order that they can be avoided during construction activities.
- The contractors and workers should be notified that archaeological sites might be exposed during the construction activities.
- Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible;
- All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;
- Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and
- Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the NHRA (Act No. 25 of 1999), Section 51. (1).

Control

In order to achieve this, the following should be in place:

- A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage.
- Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above.
- In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures.

- Increase in vehicle traffic – The movement of heavy vehicles during the clearance of vegetation and topsoil has the potential to damage local farm roads and create dust and safety impacts for other road users in the area. Access will be obtained from existing gravel roads. While the volume of traffic along this gravel road off the R504 road is low, the movement of heavy vehicles along this road is likely to damage the road surface and impact on other road users. The contractor should be required to ensure that damage to the road is repaired periodically. The movement of additional heavy vehicle traffic will add significantly to the current traffic load on the road. The impact on the roads is therefore likely to be moderate.

Increase in vehicle traffic	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Probable (3)	Probable (3)
Duration	Short term (1)	Short term (1)
Magnitude	High (3)	Medium (2)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	No loss of resource (1)	No loss of resource (1)
Cumulative impact	Medium cumulative impact (3). If damage to roads is not repaired then this will affect the farming activities in the area and result in higher maintenance costs for vehicles of local farmers and other road users. The costs will be borne by road users who were no responsible for the damage.	
Significance	**Negative medium (33)**	**Negative low (11)**
Can impacts be mitigated?	The potential impacts associated with heavy vehicles can be effectively mitigated. The mitigation measures include: • The contractor must ensure that damage caused by construction on the roads are repaired. The costs associated with the repair must be borne by the contractor; • Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers; • All vehicles must be road-worthy and drivers must be qualified and made aware of the potential road safety issues and need for strict speed limits. Also refer section (f) of the EMPr. For mitigation measures related to traffic.	

- Risk to safety, livestock/game, and farm infrastructure - The presence on and movement of workers on and off the site poses a potential safety threat to local famer's and farm workers in the vicinity of the site threat. In addition, farm infrastructure, such as fences and gates, may be damaged and stock losses may also result from gates being left open and/or fences being damaged or stock theft linked either directly or indirectly to the presence of farm workers on the site.

Risk to safety, livestock/game, and farm infrastructure	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Site (1)	Site (1)
Probability	Possible (2)	Unlikely (1)
Duration	Medium term (2)	Medium term (2)
Magnitude	Medium (2)	Low (1)
Reversibility	Partly reversible (2)	Completely reversible (1)
Irreplaceable loss of resources	Marginal resource (2)	Marginal resource (2)
Cumulative impact	Low cumulative effects (2), provided losses are compensated for.	
Significance	**Negative low (22)**	**Negative low (9)**

Can impacts be mitigated?	Key mitigation measures include: • **Anika Deetlefs** should enter into an agreement with the local farmers in the area whereby damages to farm property etc. during the construction phase will be compensated for. The agreement should be signed before the construction phase commences; • The construction area should be fenced off prior to the commencement of the construction phase. The movement of construction workers on the site should be confined to the fenced off area; • Contractors appointed by **Anika Deetlefs** should provide daily transport for low and semi-skilled workers to and from the site. This would reduce the potential risk of trespassing on the remainder of the farm and adjacent properties; • **Anika Deetlefs** should hold contractors liable for compensating farmers in full for any stock losses and/or damage to farm infrastructure that can be linked to construction workers. This should be contained in the Code of Conduct to be signed between the proponent, the contractors and neighbouring landowners. The agreement should also cover loses and costs associated with fires caused by construction workers or construction related activities (see below); • The Environmental Management Programme (EMPr) should outline procedures for managing and storing waste on site, specifically plastic waste that poses a threat to livestock/game if ingested; • Contractors appointed **Anika Deetlefs** must ensure that all workers are informed at the outset of the construction phase of the conditions contained on the Code of Conduct, specifically consequences of stock theft and trespassing on adjacent farms. • Contractors appointed by **Anika Deetlefs** must ensure that construction workers who are found guilty of trespassing, stealing livestock/game and/or damaging farm infrastructure are dismissed and charged. This should be contained in the Code of Conduct. All dismissals must be in accordance with South African labour legislation; • The housing of construction workers on the site should be strictly limited to security personnel (if any).

- Increased risk of veld fires - The presence of construction workers and construction-related activities on the site poses an increased risk of grass fires that could in turn pose a threat to livestock/game, crops, wildlife and farmsteads in the area. In the process, farm infrastructure may also be damaged or destroyed and human lives threatened. The potential risk of grass fires was heightened by the windy conditions in the area, especially during the dry, windy winter months from May to October. In terms of potential mitigation measures, a fire-break should be constructed around the perimeter of the site prior to the commencement of the construction phase. In addition, fire-fighting equipment should be provided on site during the different phase of prospect.

Increased risk of veld fires	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Site (1)
Probability	Probable (3)	Possible (2)
Duration	Medium term (2)	Medium term (2)
Magnitude	High (3)	Medium (2)
Reversibility	Partly reversible (2)	Completely reversible (1)
Irreplaceable loss of resources	Significant loss (3)	Marginal loss (2)

Cumulative impact	Low cumulative effects (2), provided losses are compensated for.	
Significance	**Negative medium (42)**	**Negative low (20)**
Can impacts be mitigated?	The mitigation measures include: • A fire-break should be constructed around the perimeter of the site prior to the commencement of the construction phase; • Contractor should ensure that open fires on the site for cooking or heating are not allowed except in designated areas; • Contractor to ensure that construction related activities that pose a potential fire risk, such as welding, are properly managed and are confined to areas where the risk of fires has been reduced. Measures to reduce the risk of fires include avoiding working in high wind conditions when the risk of fires is greater. In this regard special care should be taken during the high risk dry, windy winter months; • Contractor to provide adequate firefighting equipment on-site, including a fire fighting vehicle; • Contractor to provide fire-fighting training to selected construction staff; • No construction staff, with the exception of security staff, to be accommodated on site over night; • As per the conditions of the Code of Conduct, in the advent of a fire being caused by construction workers and or construction activities, the appointed contractors must compensate farmers for any damage caused to their farms. The contractor should also compensate the firefighting costs borne by farmers and local authorities.	

OPERATIONAL PHASE

Direct impacts: During the operational phase the study area will serve as an prospecting area and the impacts are generally associated with Ecological impacts soil erosion, change in land use, impacts associated with the, increase in storm water runoff, increased consumption of water, visual intrusion, the generation of general waste, leakage of hazardous materials, and the change in the sense of place, Heritage & Paleontological Impacts. The operational phase will also have a direct positive impact through the provision of permanent employment opportunities and facilitating a positive economic growth. The abovementioned impacts are discussed in more detail below:

Ecological Impact

Potential Environmental Impact	Environmental Impact Before Mitigation						Environmental Impact After Mitigation					
	Frequency of Impact	Frequency of Activity	Severity	Spatial Scale	Duration	Significance	Frequency of Impact	Frequency of Activity	Severity	Spatial Scale	Duration	Significance
Loss and disturbance of watercourse habitat and fringe vegetation	5	5	5	2	5	**120 High**	4	4	3	1	4	**64 Medium-Low**
Alteration of the amount of sediment entering the water resource and	5	5	5	2	5	**120 High**	4	4	3	2	4	**72 Medium-Low**

associated change in turbidity												
Alteration of water quality (surface and ground water)	5	4	4	4	4	**108 High**	4	4	2	3	2	**56 Medium – Low**
Loss of Terrestrial habitat	5	5	5	2	4	**110 High**	3	4	4	2	4	**70 Medium- Low**
Loss of Aquatic Biota	5	5	5	2	4	**110 High**	3	4	4	2	4	**70 Medium- Low**
Loss of Terrestrial Fauna	5	5	5	2	4	**110 High**	4	3	4	2	3	**63 Medium-Low**
Loss of Terrestrial Flora	5	5	5	2	5	**120 High**	4	3	4	2	3	**63 Medium-Low**
Introduction and spread of alien vegetation	5	5	5	2	5	**120 High**	4	4	3	2	3	**64 Medium-Low**

Impact methodology pertaining to all Biodiversity/Ecological impacts as stated above can be found on page 76-80 of the Ecological & Wetland Impact Report, attached in **Appendix 12.**

- Soil erosion – The largest risk factor for soil erosion will be during the operational phase when the prospecting activity ensues and soil is left bare until rehabilitation is initiated. Erosion will be localised within the site. This will ultimately lead to the irretrievable commitment of this resource. The measurable effect of reducing erosion by utilizing mitigation measures may reduce possible erosion significantly.

Concurrent backfilling will take place in order to rehabilitate.

Soil erosion	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Site (1)	Site (1)
Probability	Probable (3)	Possible (2)
Duration	Long term (3)	Medium term (2)
Magnitude	Medium (2)	Medium (2)
Reversibility	Barely reversible (3)	Completely reversible (1)
Irreplaceable loss of resources	Significant loss of resource (3)	Marginal loss of resource (2)
Cumulative impact	Medium cumulative impact (3). Should these impacts occur, there will be a cumulative impact on the air and water resources in the study area in terms of pollution.	
Significance	**Negative Medium (32)**	**Negative Low (22)**
Can impacts be mitigated?	Yes, to avoid soil erosion it will be a good practice to not remove all the vegetation at once but to only clear the area as it becomes necessary and to implement concurrent rehabilitation. Also refer to section (f) of the EMPr.	

- Change in land-use –The use of the area for the operation of the prospecting activity will not disturb existing activities on most of the portion as both (existing activities and prospecting activities) can be done concurrently.

Change in land use	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Site (1)	Site (1)
Probability	Possible (2)	Unlikely (1)

Duration	medium term (2)	medium term (2)
Magnitude	Medium (2)	Low (1)
Reversibility	Partly reversible (2)	Completely reversible (1)
Irreplaceable loss of resources	Marginal loss of resource (2)	No loss of resource (1)
Cumulative impact	Low cumulative impacts (2).	
Significance	**Negative Low (22)**	**Negative low (8)**
Can impacts be mitigated?	The proponent should establish a Rehabilitation Fund to be used to rehabilitate the area once the proposed facility has been decommissioned. The fund should be funded by revenue generated during the operational phase of the project. The motivation for the establishment of a Rehabilitation Fund is based on the experience in the mining sector where many mines on closure have not set aside sufficient funds for closure and decommissioning. Also refer to section (f) of the EMPr.	

- Generation of alternative land use income – Income generated through the Diamonds Alluvial (DA) & Diamonds General (D) prospecting will provide the municipality with increased cash flow and livelihood, thereby improve the financial sustainability of the municipality.

Generation of alternative land use income	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Positive	Positive
Geographical extent	Local (2)	Local (2)
Probability	Possible (2)	Possible (2)
Duration	medium term (2)	medium term (2)
Magnitude	Medium (2)	Medium (2)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Marginal loss of resource (2)	Marginal loss of resource (2)
Cumulative impact	Medium cumulative impacts (3).	
Significance	**Positive medium (26)**	**Positive medium (26)**
Can impacts be mitigated?	No mitigation required.	

- Increase in storm water runoff – The development will potentially result in an increase in storm water run-off that needs to be managed to prevent soil erosion, especially where vegetation will be cleared. Not all the vegetation should be removed at once. Only the specific trench being excavated at the specific time should be cleared and concurrent rehabilitation must be implemented.

Increase in storm water runoff	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Probable (3)	Unlikely (1)
Duration	Long term (3)	Long term (3)
Magnitude	Medium (2)	Low (1)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Marginal loss of resource (2)	Marginal loss of resource (2)
Cumulative impact	Medium cumulative impact (3) - Should these impacts occur, there will be a cumulative impacts on the wider area.	
Significance	**Negative medium (30)**	**Negative low (13)**

Can impacts be mitigated?	Yes. It is therefore important that all management actions and mitigation measures included in section (f) of the EMPr. are implemented to ensure that these impacts do not occur The cut-off trenches and silt fences will be installed where necessary as to control runoff storm water by attenuating it and control the movement of sediment on the premises. These structures will be monitored on a regular basis. It is suggested that it be monitored on a weekly basis during the rainy season, and after possible rain events during the dry season. If these practices is found to be insufficient for the control of storm water and sedimentation, other alternatives should immediately be investigated and implemented.

- Increased consumption of water - Since 2 x 16 feet washing pan will be used, the amount of water for the pans will be 34 000 litres per hour, from which 30% is re-used. Water will also be used for dust suppression.

Increased consumption of water	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Region (3)	Region (3)
Probability	Definite (4)	Definite (4)
Duration	Long term (3)	Long term (3)
Magnitude	High (3)	Medium (2)
Reversibility	Irreversible (4)	Irreversible (4)
Irreplaceable loss of resources	Significant loss of resources (3)	Marginal loss of resources (2)
Cumulative impact	High cumulative impacts (4) - An additional demand on water sources could result in a significant cumulative impact with regards to the availability of water.	
Significance	**Negative high (63)**	**Negative medium (40)**
Can impacts be mitigated?	Yes, management actions and mitigation measures related to the use of water are included in section (f) of the EMPr.	

- Generation of waste – Approximately 15 Workers will be present on site from 6:00 – 18:00, Monday to Saturday. Sources of general waste will be waste food, packaging, paper, etc. General waste will be stored on-site in a skip bin with a lid, when the skip bin is full the content must be removed to a licensed landfill site.

Generation of waste	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Site (1)
Probability	Probable (3)	Possible (2)
Duration	Short term (1)	Short term (1)
Magnitude	Low (1)	Low (1)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Marginal of resource (2)	No loss of resource (1)
Cumulative impact	Low cumulative impact (2) - An additional demand for landfill space could result in significant cumulative impacts with regards to the availability of landfill space.	
Significance	**Negative low (12)**	**Negative low (7)**
Can impacts be mitigated?	Yes, management actions related to waste management are included in section (f) of the EMPr.	

- Leakage of hazardous materials - The proposed prospecting activity will make use of machinery that use fuel and oil. Leakage of these oils and fuel can contaminate water supplies and must be prevented by constructing oil and diesel permeable bunds to ensure that any spills are suitably attenuated and not released into the environment.

Leakage of hazardous materials	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Possible (2)	Unlikely (1)
Duration	Long term (3)	Long term (3)
Magnitude	High (3)	Medium (2)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Marginal loss of resource (2)	Marginal loss of resource (2)
Cumulative impact	The impact would result in negligible to no cumulative effects (1)	
Significance	**Negative medium (36)**	**Negative low (22)**
Can impacts be mitigated?	Yes. It is therefore important that all management actions and mitigation measures included in the section (f) of EMPr are implemented to ensure that these impacts do not occur.	

- Noise disturbance - Prospecting activities will result in the generation of noise over a period of approximately 5 years. Sources of noise are likely to include vehicles, the use of machinery such as back actors, rotary pans and people working on site. Noise may impact on the existing activities however, this depends on where the prospecting activities will take place, which will only be determined during Phase 1 and Phase 2 (PWP) of the prospecting activities.

Temporary noise disturbance	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Possible (2)	Possible (2)
Duration	Medium term (2)	Medium term (2)
Magnitude	Medium (2)	Low (1)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	Marginal loss of resource (2)	No loss of resource (1)
Cumulative impact	The impact would result in low cumulative effects (2).	
Significance	**Negative low (22)**	**Negative low (10)**
Can impacts be mitigated?	Yes, management actions related to noise pollution are included in section (f) of the EMPr.	

Indirect impacts: The operational phase will have an indirect negative impact through the change in the sense of place and an indirect positive impact through the provision of additional electrical infrastructure.

Potential impact on tourism – The impact of the proposed prospecting of Diamonds Alluvial (DA), Diamonds General (D) & Diamonds (DIA) on the areas sense of place with mitigation is likely to be low.

Potential impacts on tourism	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Probable (3)	Possible (2)
Duration	Medium term (2)	Medium term (2)
Magnitude	Medium (2)	Low (1)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	Marginal loss of resource (2)	Marginal loss of resource (2)

Cumulative impact	The impact would result in low cumulative effects (2).	
Significance	**Negative low (24)**	**Negative low (11)**
Can impacts be mitigated?	The proponent may compensate the income losses of any entity that may endure loss of visitors as a result of the prospecting activities. Proof must be provided that losses are due to prospecting activities.	

- Impacts on heritage objects

According to the Phase 1 Heritage impact assessment no impact was allocated as no Heritage/Cultural objects were found

The following mitigation measures are recommended:

- Protection of archaeological, historical and any other site or land considered being of cultural value within the project boundary against vandalism, destruction and theft.
- The preservation and appropriate management of new discoveries in accordance with the NHRA, should these be discovered during construction activities

The following shall apply:

- Known sites should be clearly marked in order that they can be avoided during construction activities.
- The contractors and workers should be notified that archaeological sites might be exposed during the construction activities.
- Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible;
- All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;
- Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and
- Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the NHRA (Act No. 25 of 1999), Section 51. (1).

Control

In order to achieve this, the following should be in place:

- A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage.
- Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above.
- In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures.

- Impacts on palaeontological objects

Impact methodology pertaining to all Paleontological impacts as stated above can be found on page 15-19 of the Paleontological Desktop Assessment Report, attached in Appendix 12.

Impacts	Extent	Duration	Magnitude	Reversibility	Irreplaceable loss	Cumulative effect	Impact Significance
	1	4	1	4	4	2	14 Low

DECOMMISIONING PHASE (MINE CLOSURE AND REHABILITATION)

Direct impacts: Typically, the major social impacts associated with the decommissioning phase are linked to the loss of jobs and associated income. This has implications for the households who are directly affected, the communities within which they live. If infrastructures are removed after a 3/5 year period, the site will be returned to its natural state. Therefore, the physical environment will benefit from the closure of the prospecting area.

- Rehabilitation of the physical environment – The physical environment will benefit from the closure of the prospecting area since the site will be restored to its pre-prospecting state. The areas to be prospected must be rehabilitated in such a way that it can support the existing pre-prospecting activity of that specific area. Existing pre-prospecting activities include but is not limited to golf course, municipal sewerage works, and municipal landfill site. The area is already disturbed by previous mining activities in the past and has unrehabilitated areas.

Potential Environmental Impact	Environmental Impact Before Mitigation						Environmental Impact After Mitigation					
	Frequency of Impact	Frequency of Activity	Severity	Spatial Scale	Duration	Significance	Frequency of Impact	Frequency of Activity	Severity	Spatial Scale	Duration	Significance
Loss of terrestrial habitat	4	4	2	2	3	**56 Medium – Low**	3	4	2	1	2	**35 Low**
Changing the physical structure within a water resource (habitat)	4	4	3	3	3	**72 Medium – Low**	3	4	2	2	2	**42 Low**
Introduction and spread of alien vegetation	4	3	3	3	3	**63 Medium – Low**	3	3	2	1	2	**30 Low**

- Loss of employment - The decommissioning of the facility has the potential to have a negative social impact on the local community as it will create job losses.

Loss of employment	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Probable (3)	Probable (3)
Duration	Permanent (4)	Permanent (4)
Magnitude	Medium (2)	Medium (2)
Reversibility	Irreversible (4)	Irreversible (4)
Irreplaceable loss of resources	No loss of resource (1)	No loss of resource (1)
Cumulative impact	Medium cumulative impacts (3)	
Significance	**Negative medium (34)**	**Negative medium (34)**
Can impacts be mitigated?	The following mitigation measures are recommended: • All structures and infrastructure associated with the proposed facility should be dismantled and transported off-site on decommissioning;	

	• **Anika Deetlefs** should establish an Environmental Rehabilitation Trust Fund to cover the costs of decommissioning and rehabilitation of disturbed areas.

Indirect impacts: No indirect impacts are anticipated from the decommissioning phase of the proposed development.

K. SUMMARY OF THE FINDINGS AND RECOMMENDATIONS OF ANY SPECIALIST REPORT

(where applicable, a summary of the findings and recommendations of any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final assessment report;)

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
Phase 1 Cultural Heritage Impact Assessment, conducted by Francois P Coetzee	A Phase 1 heritage Impact Assessment was conducted by Mr Francois P Coetzee in July 2023 and the report was received in July 2023. The findings were as follows: **Review of existing information/data** Additional information on the cultural heritage of the area was sourced from the following records: - National Mapping Project by SAHRA (which lists heritage impact assessment reports submitted for South Africa); - Environmental Potential Atlas (ENPAT); - Online SAHRIS database; - National Automated Archival Information retrieval System (NAAIRS); - Maps and information documents supplied by the client; and - Several heritage surveys have been conducted in the vicinity of the survey area (published and unpublished) material on the area (Kruger 2018a, 2018b; Kusel 2007; Van Schalkwyk 2017) Although several heritage impact assessments have been completed in the general vicinity of the survey area, no heritage sites were recorded inside the survey footprint. A survey conducted in the Bloemhof Nature Reserve situated to the south of the survey footprint recorded Early, Middle and Later Stone assemblages, two cemeteries and at least ten historical farm homesteads (Kusel 2007). A survey on the farm Kameelkuil 88 HO near Bloemhof yielded one graveyard with over 100 graves (Van Schalkwyk 2017). A heritage scoping study (desktop) of the farm Ganspan 194 HO, situated to the north of the current survey footprint, was conducted and indicated a high probability of historical structures and graves in the area (Kruger 2018a). A heritage scoping study (desktop) of the farm Oersonskraal 250 HO, situated to the east of the current survey footprint, was conducted and indicated a low to medium probability of military remains, historical structures and graves in the area (Kruger 2018b). A survey of a 600 km 400 kV transmission line running through the general region of the survey footprint revealed no significant cultural heritage remains (Dreyer 2007).	**X**	

	According to the Surveyor General's database the farm Vogelstruiskuil 400 IO which was first surveyed in 1910, Boschplaats 149 HO which was first surveyed in 1911 and Welverdient 151 HO which was first surveyed in 1907. Note that the indications of several structures were only noted on the 1972 version of the 1:50 000 topographical map of the farm Boschplaats 149 HO that were probably occupied in the 1970s. However these structures have been removed as they do not appear on the 2001 edition of the map. These structures could not be located during the field survey as they now form part of agricultural fields and mining activities. Note that no declared National Heritage Sites have been recorded in the Wolmaransstad region. According to the SAHRIS database no heritage sites are recorded near the survey footprint, although a number of historical buildings and graveyards are indicated in Wolmaransstad and further to the west. **Site visits** The field survey was conducted on 12 July 2023. **Social interaction and current inhabitants** The local farmers and resident labourers were consulted during this survey. **Public Consultation and Stakeholder Engagement** An advertisement was placed in English in the local newspaper (Stellalander) notifying the public of the EIA process and requesting Interested and Affected Parties (I&APs) to register with, and submit their comments to Milnex CC. I&APs were given the opportunity to raise comments within 30 days of the advertisement. Site notices were placed on site in English to inform surrounding communities and immediately adjacent landowners of the proposed development. I&APs will be given the opportunity to raise comments. **Assumptions, restrictions, gaps and limitations** No physical restrictions were encountered as the survey area was accessible. As a result all areas were investigated in detail. Additional information was obtained from maps and other remote data. **<u>The Cultural Heritage Sites</u>** **Isolated occurrences** Isolated occurrences are artefacts or small features recorded on the surface with no contextual information. No other associated material culture (in the form of structures or deposits) was noted that might provide any further context. This can be the result of various impacts and environmental factors such as erosion and modern developments. By contrast archaeological sites are often complex sites with evidence of archaeological deposit and various interrelated features such as complex deposits, stone walls and middens. However, these isolated occurrences are seen as remains of erstwhile complex or larger sites and they therefore provide a broad indication of possible types of sites or structures that might be expected to occur or have occurred in the survey footprint. No isolated finds were recorded during the survey.		

	Heritage sites None **Locations and Evaluation of Sites** None **Management Measures** Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the proposed development can be excavated/recorded and a management plan can be developed for future action. Those sites that are not impacted on can be written into the management plan, whence they can be avoided or cared for in the future. **Objectives** - Protection of archaeological, historical and any other site or land considered being of cultural value within the project boundary against vandalism, destruction and theft. - The preservation and appropriate management of new discoveries in accordance with the NHRA, should these be discovered during construction activities The following shall apply: - Known sites should be clearly marked in order that they can be avoided during construction activities. - The contractors and workers should be notified that archaeological sites might be exposed during the construction activities. - Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible; - All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken; - Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and - Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the NHRA (Act No. 25 of 1999), Section 51. (1). **Control** In order to achieve this, the following should be in place: - A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage. - Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above.		

	- In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures. **Recommendations and Conclusions** No historical or archaeological (both Stone Age and Iron Age) artefacts, assemblages, features, structures or settlements were recorded during the survey of the project footprint. It is therefore recommended that the proposed prospecting activities, from a heritage perspective, may proceed and no further mitigation measures are required.		
Ecological And Wetland Impact Assessment Report, conducted by Grietjie Stander from Milnex CC	According to the DFFE screening tool report in terms of National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998), the site has the following sensitivities: • Animal Species Theme: Low Sensitivity • Aquatic Biodiversity Theme: Very High Sensitivity • Plant Species Theme: Low Sensitivity • Terrestrial Biodiversity Theme: Very High Sensitivity A post-screening site visit was therefore conducted to determine the accuracy of the generated information. After the site visit the following was concluded: • The site presented Low Sensitivity for the Animal Species Theme due to the majority of the study site being agricultural fields. Although habitat has been lost to some extent, avifaunal abundance and diversity were high within some of the wetlands. • The site presented a High Sensitivity for the Aquatic Species Theme. Some disturbances occur within the wetlands, but these wetlands will still provide sufficient habitat to aquatic species such as macroinvertebrates and other aquatic dependent fauna, such as birds and frogs. Avifaunal abundance and diversity were high within some of the wetlands. • The site presented a Low Plant Species Sensitivity Theme. Little natural vegetation is present on site, due to land being transformed to agricultural fields. Some areas showed disturbances due to historic prospecting / mining activities. These		

areas were well vegetated and showed species diversity. The protected *Vachellia erioloba* trees were observed in one isolated area on site.

- The site has a High sensitivity from a terrestrial biodiversity perspective. The assessment area with the exception of the agricultural fields, is viewed as being of high sensitivity due to it forming part of ecological corridors and thus the ecological connectivity, -functionality and -integrity of the broader landscape.

The information below concludes the Desktop findings supported by field verifications:

- According to data sourced from South African National Biodiversity Institute (SANBI), the study site is located within the Endangered Western Highveld Sandy Grassland vegetation type.
- The study area does not fall into a Protected Area, but overlaps with a Priority Focus Area (PFA) under the National Protected Area Expansion Strategy (NPAES).
- According to the North West Biodiversity sector plan and map (2015), the affected footprint overlaps with CBA1, CBA2 and ESA2 areas.
- According to the National Wetland Map version 5 (NWM5) (2018), one (1) Depression wetland was expected to occur within the application farm portion. The site visit confirmed one (1) Seep wetland and three (3) Depression wetlands.
- Naturalized exotic weeds, Exotic and Invasive Vegetation Species were recorded on site.
- No sensitive plant species were flagged by the DFFE screening report. Kindly refer to Section 4.2.2 for a list of dominant plant species observed on site.
- No bird or mammal species of conservation concern were flagged by the DFFE screening report. For Avifaunal species potentially occurring on site, and that enjoy conservation status in the Eskom Red Data Book, kindly refer to Section 4.3.1 for a species list. For mammal species potentially occurring on site, and that enjoy conservation status, kindly refer to Section 4.3.1 for a species list.
- Based on the Reptile Atlas of Africa and the Frog Atlas of South Africa (ADU, 2019) the Near Threatened *Pyxicephalus adspersus* (Giant Bull Frog) and Vulnerable Cape sand snake (*Psammophis leightoni*) are expected to occur on site.
- Ecological sensitivity levels range from Low to High.

Results for wetlands recorded are summarised in the table below:

Classification	Scientific Buffer	PES	EIS	REC

	<table><tr><td>DEP1</td><td>55 m</td><td>D</td><td>D – Low Marginal</td><td>D Maintain</td></tr><tr><td>DEP2</td><td>60 m</td><td>B</td><td>B – High</td><td>A/B Improve</td></tr></table> The allocation of buffers/exclusion zones was in accordance with the wetlands PES as well as EIS. The allocated buffers can be reviewed. Various potential impacts are associated with the activities and are discussed in the impact assessment scores derived according to the amended EIA Regulations (2017). Results for Sensitivity and Impact Assessment: <table><tr><td>**Ecological Sensitivity**</td><td>Ecological sensitivity levels range from **Low** to **High.**</td></tr><tr><td>**NEMA Impact assessment**</td><td>Impacts from the Construction phase are expected to range from **Medium - Low** to **Medium - High** while impacts from the Operational phase is expected to be **High.**</td></tr><tr><td>**Remedial Measures**</td><td>Refer to Section 7.2</td></tr></table> It is imperative that an effective management plan is implemented to ensure that all remedial measures discussed in the report are implemented. It is important for the operations to be conducted outside of the recommended exclusion buffers for the delineated wetlands. Other measures to reinstate or compensate the loss of the wetlands should be considered in the event that the activity is allowed to continue within the wetland area. It is the opinion of the specialist that the proposed prospecting should also occur outside the High ecological sensitive areas and that it should be considered by the competent authority for Environmental Authorisation and approval.				
Palaeontological Desktop Assessment, conducted by Elize Butler from Banzai	**FINDINGS AND RECOMMENDATIONS** The proposed development is underlain by the Klipriviersberg Group of the Ventersdorp Supergroup. The PalaeoMap of the South African Heritage Resources Information System (SAHRIS) indicates that the Palaeontological Sensitivity of the Klipriviersberg Group is Low. (Almond and Pether, 2009; Almond *et al*., 2013). The updated geology (Council for Geosciences) refined the geology and also indicates that the study area is underlain Klipriviersberg Group of the Ventersdorp Supergroup.				**X**	

Environmental (Pty) Ltd	An overall Low palaeontological significance is allocated to the development footprint. It is therefore considered that the proposed development will not lead to detrimental impacts on the palaeontological reserves of the area and construction of the development may be authorised in its whole extent. If Palaeontological Heritage is uncovered during surface clearing and excavations the **Chance find Protocol** attached should be implemented immediately. Fossil discoveries ought to be protected and the ECO/site manager must report to South African Heritage Resources Agency (SAHRA) (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za) so that mitigation (recording and collection) can be carried out. Preceding any collection of fossil material, the specialist would need to apply for a collection permit from SAHRA. Fossil material must be curated in an accredited collection (museum or university collection), while all fieldwork and reports should meet the minimum standards for palaeontological impact studies suggested by SAHRA. CHANCE FINDS PROTOCOL The following procedure will only be followed if fossils are uncovered during the excavation phase of the development. Cultural Heritage in South Africa (includes all heritage resources) is protected by the National Heritage Resources Act (Act No 25 of 1999) (NHRA). According to Section 3 of the Act, all Heritage resources include “all objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens”. Palaeontological heritage is unique and non-renewable and is protected by the NHRA and are the property of the State. It is thus the responsibility of the State to manage and conserve fossils on behalf of the citizens of South Africa. Palaeontological resources may not be excavated, broken, moved, or destroyed by any development without prior assessment and without a permit from the relevant heritage resources authority as per section 35 of the NHRA. A fossil is the naturally preserved remains (or traces thereof) of plants or animals embedded in rock. These organisms lived millions of years ago. Fossils are extremely rare and irreplaceable. By studying fossils, it is possible to determine the environmental conditions that existed in a specific geographical area millions of years ago. This informational document is intended for workmen and foremen on construction sites. It describes the actions to be taken when mining or construction activities accidentally uncovers fossil material.		

	It is the responsibility of the Environmental Site Officer (ESO) or site manager of the project to train the workmen and foremen in the procedure to follow when a fossil is accidentally uncovered. In the absence of the ESO, a member of the staff must be appointed to be responsible for the proper implementation of the chance find protocol as not to compromise the conservation of fossil material. <u>Chance Find Procedure</u> • If a chance find is made the person responsible for the find must immediately stop working and all work that could impact that finding must cease in the immediate vicinity of the find. • The person who made the find must immediately report the find to his/her direct supervisor which in turn must report the find to his/her manager and the ESO or site manager. The ESO or site manager must report the find to the relevant Heritage Agency (South African Heritage Research Agency, SAHRA). (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za). The information to the Heritage Agency must include photographs of the find, from various angles, as well as the GPS co-ordinates. • A preliminary report must be submitted to the Heritage Agency within 24 hours of the find and must include the following: 1) date of the find; 2) a description of the discovery and a 3) description of the fossil and its context (depth and position of the fossil), GPS co-ordinates. • Photographs (the more the better) of the discovery must be of high quality, in focus, accompanied by a scale. It is also important to have photographs of the vertical section (side) where the fossil was found. • Upon receipt of the preliminary report, the Heritage Agency will inform the ESO (or site manager) whether a rescue excavation or rescue collection by a palaeontologist is necessary. • The site must be secured to protect it from any further damage. No attempt should be made to remove material from their environment. The exposed finds must be stabilized and covered by a plastic sheet or sand bags. The Heritage agency will also be able to advise on the most suitable method of protection of the find. • If the fossil cannot be stabilized the fossil may be collected with extreme care by the ESO. Fossils finds must be stored in tissue paper and in an appropriate box while due care must be taken to remove all fossil material from the rescue site.		

	• Once the Heritage Agency has issued the written authorization, the developer may continue with the development on the affected area.		

The reports are available under **Appendix 12**.

According to the DFFE Screening Report, nine (9) specialist assessments have been identified for inclusion in the assessment report, the department (DMRE) also requested Please see the table below for the list of these studies and also our response. Please refer to **Appendix 7.**

<table>
<tr><th>Specialist study according to DEA Screening tool</th><th>Response</th></tr>
<tr><td>Agriculture Impact Assessment</td><td>
The land capability for the proposed area and surrounding area also falls within Land in Class 4.

Most western part of the application area has been or are currently cultivated. The rest of the application area to the east consists of natural areas and old prospecting activities

The proposed works include:

<table>
<tr><th colspan="3">Timeframe: 10 months (month 0-10)</th></tr>
<tr><td>Pits</td><td>50 pits</td><td></td></tr>
<tr><td>Total area disturbed for 10 months</td><td>50 pits x (4m x 3m) / 10 000 =</td><td>0.06 Ha disturbed</td></tr>
</table>
<table>
<tr><th colspan="3">Timeframe: 24 months (month 10-34)</th></tr>
<tr><td>Trenches</td><td>50 trenches</td><td></td></tr>
<tr><td>Total area disturbed for 24 months</td><td>50 trenches x (40m x 30m) / 10 000 =</td><td>6 Ha disturbed</td></tr>
</table>

According to the table above it can be observed that disturbance will be 6.06 Ha over an application area of 192.7231.

It is unlikely that the 6.06 hectare disturbance will have a high impact on the current land capability and cultivation capacity.

Therefor no Agricultural Impact Assessment was done.
</td></tr>
</table>

<table>
<tr><td colspan="2"></td><td></td></tr>
<tr><td colspan="2">Archaeological and cultural Heritage Impact Assessment</td><td>A Phase 1 HIA was conducted and has been included in Appendix 12 of the Final EIR and EMPR</td></tr>
<tr><td colspan="2">Paleontological Impact Assessment</td><td>A Paleontological Desktop Assessment was conducted and has been included in Appendix 12 of the Final EIR and EMPR</td></tr>
<tr><td rowspan="4">Biodiversity study</td><td>Terrestrial Biodiversity Impact Assessment</td><td rowspan="4">An Ecological & Wetland Impact Assessment was conducted. The study is available under Appendix 12.</td></tr>
<tr><td>Aquatic Biodiversity Impact Assessment</td></tr>
<tr><td>Plant Species Assessment</td></tr>
<tr><td>Terrestrial Biodiversity Impact Assessment</td></tr>
<tr><td colspan="2">Noise Impact Assessment</td><td>We do not see the need for this study as noise is limited to working hours.

Limited equipment will also be used, such as the following:

<table><tr><th>List of equipment</th></tr><tr><td>2 x 16 feet washing pans, Conveyor & Screen
2 x 30ton dumper trucks
3 x Excavators
2 x Front End Loader
1 x 3 ton truck (transport people)
2 x Sludge pumps
2 x Water pumps
1 x Welder
1 x Grinder
1 x drilling machine
1 x 200KVA Generator</td></tr></table></td></tr>
<tr><td colspan="2">Radioactivity Impact Assessment</td><td>This study is not necessary since the process of mining Diamonds Alluvial (DA), Diamonds General (D) & Diamonds (DIA) does not have any radioactive effects.</td></tr>
</table>

L. AN ENVIRONMENTAL IMPACT STATEMENT WHICH CONTAINS—

(i) a summary of the key findings of the environmental impact assessment:

This section provides a summary of the assessment and conclusions drawn from the proposed prospecting area. In doing so, it draws on the information gathered as part of the environmental impact assessment process and the knowledge gained by the environmental consultant during the course of the process and presents an informed opinion on the environmental impacts associated with the proposed project. The following conclusions can be drawn for the proposed prospecting activity:

- Potential impacts on biodiversity:

An Ecological and Wetland Impact Assessment Report was conducted by an Ecologist, Me Liezl Landman, from Milnex CC. The report is available under **Appendix 12**. The findings of the study as a follow:

According to the DFFE screening tool report in terms of National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998), the sit

- Animal Species Theme: Low Sensitivity
- Aquatic Biodiversity Theme: Very High Sensitivity
- Plant Species Theme: Low Sensitivity
- Terrestrial Biodiversity Theme: Very High Sensitivity

A post-screening site visit was therefore conducted to determine the accuracy of the generated information. After the site visit the following wa

- The site presented Low Sensitivity for the Animal Species Theme due to the majority of the study site being agricultural fields. Alt abundance and diversity were high within some of the wetlands.
- The site presented a High Sensitivity for the Aquatic Species Theme. Some disturbances occur within the wetlands, but these wetla such as macroinvertebrates and other aquatic dependent fauna, such as birds and frogs. Avifaunal abundance and diversity were h
- The site presented a Low Plant Species Sensitivity Theme. Little natural vegetation is present on site, due to land being transformed due to historic prospecting / mining activities. These areas were well vegetated and showed species diversity. The protected *Vachell* site.
- The site has a High sensitivity from a terrestrial biodiversity perspective. The assessment area with the exception of the agricultura forming part of ecological corridors and thus the ecological connectivity, -functionality and -integrity of the broader landscape.

The information below concludes the Desktop findings supported by field verifications:

- According to data sourced from South African National Biodiversity Institute (SANBI), the study site is located within the Endangered
- The study area does not fall into a Protected Area, but overlaps with a Priority Focus Area (PFA) under the National Protected Area
- According to the North West Biodiversity sector plan and map (2015), the affected footprint overlaps with CBA1, CBA2 and ESA2 ar
- According to the National Wetland Map version 5 (NWM5) (2018), one (1) Depression wetland was expected to occur within the ap Seep wetland and three (3) Depression wetlands.
- Naturalized exotic weeds, Exotic and Invasive Vegetation Species were recorded on site.
- No sensitive plant species were flagged by the DFFE screening report. Kindly refer to Section 4.2.2 for a list of dominant plant speci
- No bird or mammal species of conservation concern were flagged by the DFFE screening report. For Avifaunal species potentially the Eskom Red Data Book, kindly refer to Section 4.3.1 for a species list. For mammal species potentially occurring on site, and that for a species list.

- Based on the Reptile Atlas of Africa and the Frog Atlas of South Africa (ADU, 2019) the Near Threatened *Pyxicephalus adspers* (*Psammophis leightoni*) are expected to occur on site.
- Ecological sensitivity levels range from Low to High.

Results for wetlands recorded are summarised in the table below:

Classification	Scientific Buffer	PES	EIS	REC
DEP1	55 m	D	D – Low Marginal	D Maintain
DEP2	60 m	B	B – High	A/B Improve

The allocation of buffers/exclusion zones was in accordance with the wetlands PES as well as EIS. The allocated buffers can be reviewed. Va and are discussed in the impact assessment scores derived according to the amended EIA Regulations (2017).

Results for Sensitivity and Impact Assessment:

Ecological Sensitivity	Ecological sensitivity levels range from **Low** to **High.**
NEMA Impact assessment	Impacts from the Construction phase are expected t impacts from the Operational phase is expected to be
Remedial Measures	Refer to Section 7.2

It is imperative that an effective management plan is implemented to ensure that all remedial measures discussed in the report are impleme outside of the recommended exclusion buffers for the delineated wetlands. Other measures to reinstate or compensate the loss of the wetlan allowed to continue within the wetland area. It is the opinion of the specialist that the proposed prospecting should also occur outside the considered by the competent authority for Environmental Authorization and approval.

➢ Potential impact on palaeontological, heritage and cultural resources:

A Phase 1 Cultural Heritage Impact Assessment was conducted by and a Palaeontological Desktop Assessment was conducted by Elize Butler from Banzai Environmental (Pty) Ltd. The reports are available under **Appendix 12**. Below are the findings of the specialist studies:

A Phase 1 heritage Impact Assessment was conducted by Mr Francois P Coetzee in July 2023 and the report was received in July 2023. The findings were as follows:

Review of existing information/data

Additional information on the cultural heritage of the area was sourced from the following records:
- National Mapping Project by SAHRA (which lists heritage impact assessment reports submitted for South Africa);
- Environmental Potential Atlas (ENPAT);
- Online SAHRIS database;
- National Automated Archival Information retrieval System (NAAIRS);
- Maps and information documents supplied by the client; and
- Several heritage surveys have been conducted in the vicinity of the survey area (published and unpublished) material on the area (Kruger 2018a, 2018b; Kusel 2007; Van Schalkwyk 2017)

Although several heritage impact assessments have been completed in the general vicinity of the survey area, no heritage sites were recorded inside the survey footprint. A survey conducted in the Bloemhof Nature Reserve situated to the south of the survey footprint recorded Early, Middle and Later Stone assemblages, two cemeteries and at least ten historical farm homesteads (Kusel 2007). A survey on the farm Kameelkuil 88 HO near Bloemhof yielded one graveyard with over 100 graves (Van Schalkwyk 2017). A heritage scoping study (desktop) of the farm Ganspan 194 HO, situated to the north of the current survey footprint, was conducted and indicated a high probability of historical structures and graves in the area (Kruger 2018a).

A heritage scoping study (desktop) of the farm Oersonskraal 250 HO, situated to the east of the current survey footprint, was conducted and indicated a low to medium probability of military remains, historical structures and graves in the area (Kruger 2018b). A survey of a 600 km 400 kV transmission line running through the general region of the survey footprint revealed no significant cultural heritage remains (Dreyer 2007).

According to the Surveyor General's database the farm Vogelstruiskuil 400 IO which was first surveyed in 1910, Boschplaats 149 HO which was first surveyed in 1911 and Welverdient 151 HO which was first surveyed in 1907.

Note that the indications of several structures were only noted on the 1972 version of the 1:50 000 topographical map of the farm Boschplaats 149 HO that were probably occupied in the 1970s. However these structures have been removed as they do not appear on the 2001 edition of the map. These structures could not be located during the field survey as they now form part of agricultural fields and mining activities.

Note that no declared National Heritage Sites have been recorded in the Wolmaransstad region. According to the SAHRIS database no heritage sites are recorded near the survey footprint, although a number of historical buildings and graveyards are indicated in Wolmaransstad and further to the west.
Site visits
The field survey was conducted on 12 July 2023.

Social interaction and current inhabitants
The local farmers and resident labourers were consulted during this survey.

Public Consultation and Stakeholder Engagement
An advertisement was placed in English in the local newspaper (Stellalander) notifying the public of the EIA process and requesting Interested and Affected Parties (I&APs) to register with, and submit their comments to Milnex CC. I&APs were given the opportunity to raise comments within 30 days of the advertisement. Site notices were placed on site in English to inform surrounding communities and immediately adjacent landowners of the proposed development. I&APs will be given the opportunity to raise comments.

Assumptions, restrictions, gaps and limitations
No physical restrictions were encountered as the survey area was accessible. As a result all areas were investigated in detail. Additional information was obtained from maps and other remote data.

The Cultural Heritage Sites
Isolated occurrences
Isolated occurrences are artefacts or small features recorded on the surface with no contextual information. No other associated material culture (in the form of structures or deposits) was noted that might provide any further context. This can be the result of various impacts and environmental factors such as erosion and modern developments. By contrast archaeological sites are often complex sites with evidence of archaeological deposit and various interrelated features such as complex deposits, stone walls and middens. However, these isolated occurrences are seen as remains of erstwhile complex or larger sites and they therefore provide a broad indication of possible types of sites or structures that might be expected to occur or have occurred in the survey footprint.
No isolated finds were recorded during the survey.

Heritage sites
None

Locations and Evaluation of Sites
None

Management Measures
Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the proposed development can be excavated/recorded and a management plan can be developed for future action. Those sites that are not impacted on can be written into the management plan, whence they can be avoided or cared for in the future.

Objectives
- Protection of archaeological, historical and any other site or land considered being of cultural value within the project boundary against vandalism, destruction and theft.

- The preservation and appropriate management of new discoveries in accordance with the NHRA, should these be discovered during construction activities

The following shall apply:

- Known sites should be clearly marked in order that they can be avoided during construction activities.
- The contractors and workers should be notified that archaeological sites might be exposed during the construction activities.
- Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible;
- All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;
- Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and
- Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the NHRA (Act No. 25 of 1999), Section 51. (1).

Control
In order to achieve this, the following should be in place:
- A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage.
- Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above.
- In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures.

Recommendations and Conclusions
No historical or archaeological (both Stone Age and Iron Age) artefacts, assemblages, features, structures or settlements were recorded during the survey of the project footprint.

It is therefore recommended that the proposed prospecting activities, from a heritage perspective, may proceed and no further mitigation measures are required

PALEONTOLOGICAL DESKTOP ASSESSMENT
FINDINGS AND RECOMMENDATIONS
The proposed development is underlain by the Klipriviersberg Group of the Ventersdorp Supergroup. The PalaeoMap of the South African Heritage Resources Information System (SAHRIS) indicates that the Palaeontological Sensitivity of the Klipriviersberg Group is Low. (Almond and Pether, 2009; Almond *et al*., 2013). The updated geology (Council for Geosciences) refined the geology and also indicates that the study area is underlain Klipriviersberg Group of the Ventersdorp Supergroup.

An overall Low palaeontological significance is allocated to the development footprint. It is therefore considered that the proposed development will not lead to detrimental impacts on the palaeontological reserves of the area and construction of the development may be authorised in its whole extent.

If Palaeontological Heritage is uncovered during surface clearing and excavations the **Chance find Protocol** attached should be implemented immediately. Fossil discoveries ought to be protected and the ECO/site manager must report to South African Heritage Resources Agency (SAHRA) (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za) so that mitigation (recording and collection) can be carried out.
Preceding any collection of fossil material, the specialist would need to apply for a collection permit from SAHRA. Fossil material must be curated in an accredited collection (museum or university collection), while all fieldwork and reports should meet the minimum standards for palaeontological impact studies suggested by SAHRA.

CHANCE FINDS PROTOCOL

The following procedure will only be followed if fossils are uncovered during the excavation phase of the development.

Cultural Heritage in South Africa (includes all heritage resources) is protected by the National Heritage Resources Act (Act No 25 of 1999) (NHRA). According to Section 3 of the Act, all Heritage resources include "all objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens".

Palaeontological heritage is unique and non-renewable and is protected by the NHRA and are the property of the State. It is thus the responsibility of the State to manage and conserve fossils on behalf of the citizens of South Africa. Palaeontological resources may not be excavated, broken, moved, or destroyed by any development without prior assessment and without a permit from the relevant heritage resources authority as per section 35 of the NHRA.

A fossil is the naturally preserved remains (or traces thereof) of plants or animals embedded in rock. These organisms lived millions of years ago. Fossils are extremely rare and irreplaceable. By studying fossils, it is possible to determine the environmental conditions that existed in a specific geographical area millions of years ago.

This informational document is intended for workmen and foremen on construction sites. It describes the actions to be taken when mining or construction activities accidentally uncovers fossil material.

It is the responsibility of the Environmental Site Officer (ESO) or site manager of the project to train the workmen and foremen in the procedure to follow when a fossil is accidentally uncovered. In the absence of the ESO, a member of the staff must be appointed to be responsible for the proper implementation of the chance find protocol as not to compromise the conservation of fossil material.

Chance Find Procedure

- If a chance find is made the person responsible for the find must immediately stop working and all work that could impact that finding must cease in the immediate vicinity of the find.

- The person who made the find must immediately report the find to his/her direct supervisor which in turn must report the find to his/her manager and the ESO or site manager. The ESO or site manager must report the find to the relevant Heritage Agency (South African Heritage Research Agency, SAHRA). (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za). The information to the Heritage Agency must include photographs of the find, from various angles, as well as the GPS co-ordinates.

- A preliminary report must be submitted to the Heritage Agency within 24 hours of the find and must include the following: 1) date of the find; 2) a description of the discovery and a 3) description of the fossil and its context (depth and position of the fossil), GPS co-ordinates.

- Photographs (the more the better) of the discovery must be of high quality, in focus, accompanied by a scale. It is also important to have photographs of the vertical section (side) where the fossil was found.

- Upon receipt of the preliminary report, the Heritage Agency will inform the ESO (or site manager) whether a rescue excavation or rescue collection by a palaeontologist is necessary.

- The site must be secured to protect it from any further damage. No attempt should be made to remove material from their environment. The exposed finds must be stabilized and covered by a plastic sheet or sand bags. The Heritage agency will also be able to advise on the most suitable method of protection of the find.

- If the fossil cannot be stabilized the fossil may be collected with extreme care by the ESO. Fossils finds must be stored in tissue paper and in an appropriate box while due care must be taken to remove all fossil material from the rescue site.
- Once the Heritage Agency has issued the written authorization, the developer may continue with the development on the affected area.

➢ Potential social impacts:

The presence of construction workers poses a potential risk to family structures and social networks. While the presence of construction workers does not in itself constitute a social impact, the manner in which construction workers conduct themselves can impact on local communities. The most significant negative impact is associated with the disruption of existing family structures and social networks.

➢ Potential impacts on land use:

According to the map (Figure 34 and Figure 35), the proposed area is covered with crops on the western side and is covered with fallow lands & old fields as well as previous mining activities. Please note that Anika Deetlefs will not be held accountable for any historical mining/prospecting activities that had occurred in the past

The disturbance of previous prospecting activities can be seen on the google earth image (figure 36).

If applicable a Water Use License Application will be launched for conducting prospecting operations.

➢ Potential negative impacts: (noise, dust, soil degradation, storm water, traffic, health and safety) associated with the operation of the facility are expected to be of low-medium after mitigations.

➢ Positive impacts: The mining of Diamonds Alluvial (DA), Diamonds General (D) & Diamonds (DIA) will have socio-economic benefit to the area.

All possible negative impacts and risks that have been identified in this report can be effectively mitigated and managed by implementing the migratory measures as set out in the Environmental Management Programme (EMPr) attached in Part B. It is therefore recommended that the environmental authorisation for the prospecting right be granted.

(i) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred [site] development footprint on the approved site as contemplated in the accepted scoping report indicating any areas that should be avoided, including buffers; and

Provide a map at an appropriate scale which superimposes the proposed overall activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers.

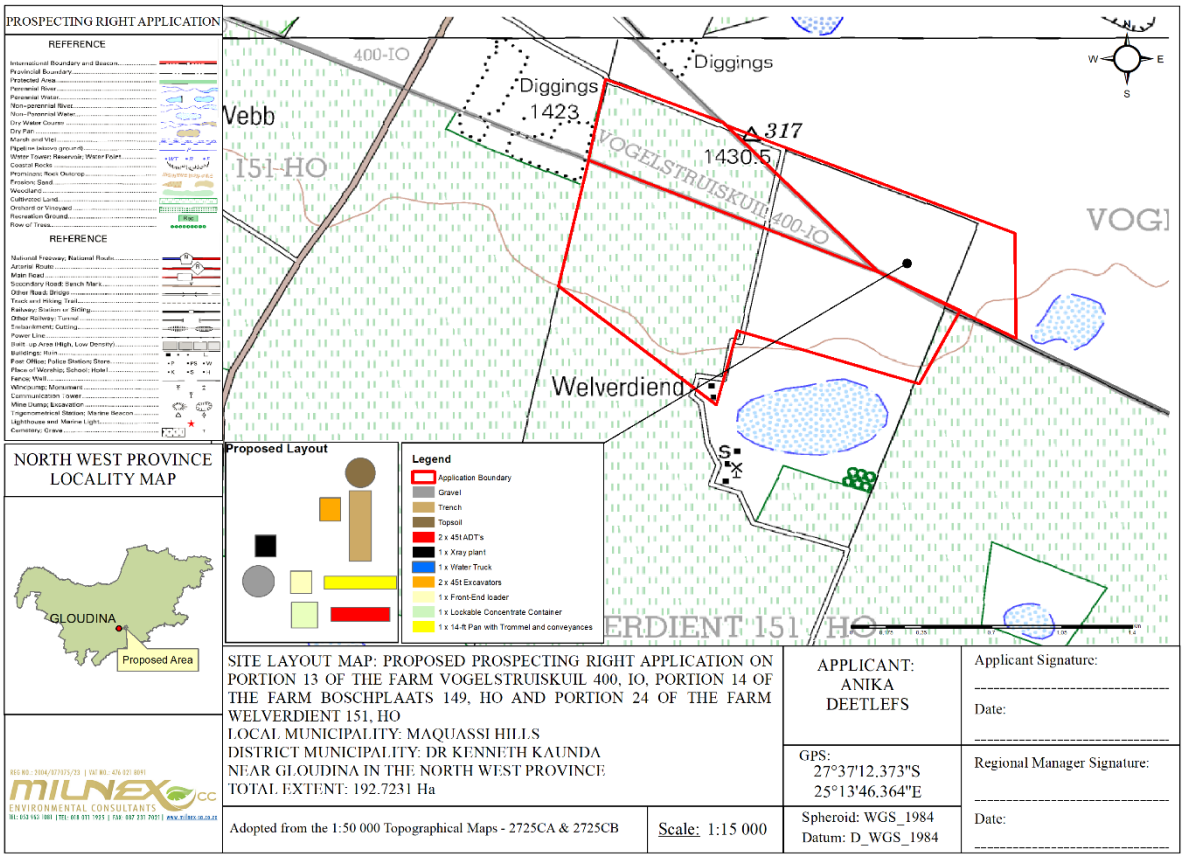

Figure 37: Site Plan

Refer to Site layout Map attached in **Appendix 4**.

According to the Ecological and Wetland Impact Assessment done by Me Stander , the following were determined

A terrestrial biodiversity & wetland assessment was conducted on the 3rd and 4th of July 2023. The study focused on 2 applications, namely NW30/5/1/1/2/13707PR, on Portion 21 (portion of portion 6) of the farm Vogelstruiskuil 400, Portion 14 (portion of portion 2) of the farm Boschplaats 149 & Portion 24 of the farm Wleverdient 151(Right side on relevant maps) & on the application lodged under DMRE Ref: NW30/5/1/1/2/13820PR on the Remaining Extent of Portion 1 of the Farm Boschplaats 149 (Left side on relevant maps). Both applications were submitted to the Department of Mineral Resources & Energy (DMRE). For the purpose of this application, this document will only focus on the assessment done for this application (NW30/5/1/1/2/13707PR, on Portion 21 (portion of portion 6) of the farm Vogelstruiskuil 400, Portion 14 (portion of portion 2) of the farm Boschplaats 149 & Portion 24 of the farm Wleverdient 151).

Wetland Habitat Description and System Characterisation

The wetland assessment was conducted from the 3rd to the 4th of July 2023, which was within the dry season. A hand-held auger and GPS phone were used to log all information in the field. The wetlands within the 500m regulated area were identified and delineated in accordance with the DWAF (2005) guidelines. A site visit was conducted to confirm the desktop findings and are discussed below. The field survey focused on the wetlands within the application portion as these are potentially most at risk.

Two (2) wetlands were identified during the site visit. The site visit confirmed the wetlands to be (2) Depression wetlands. The assessment will aim to assess the state and importance of these wetlands, along with conserving them through consideration of the catchment area.

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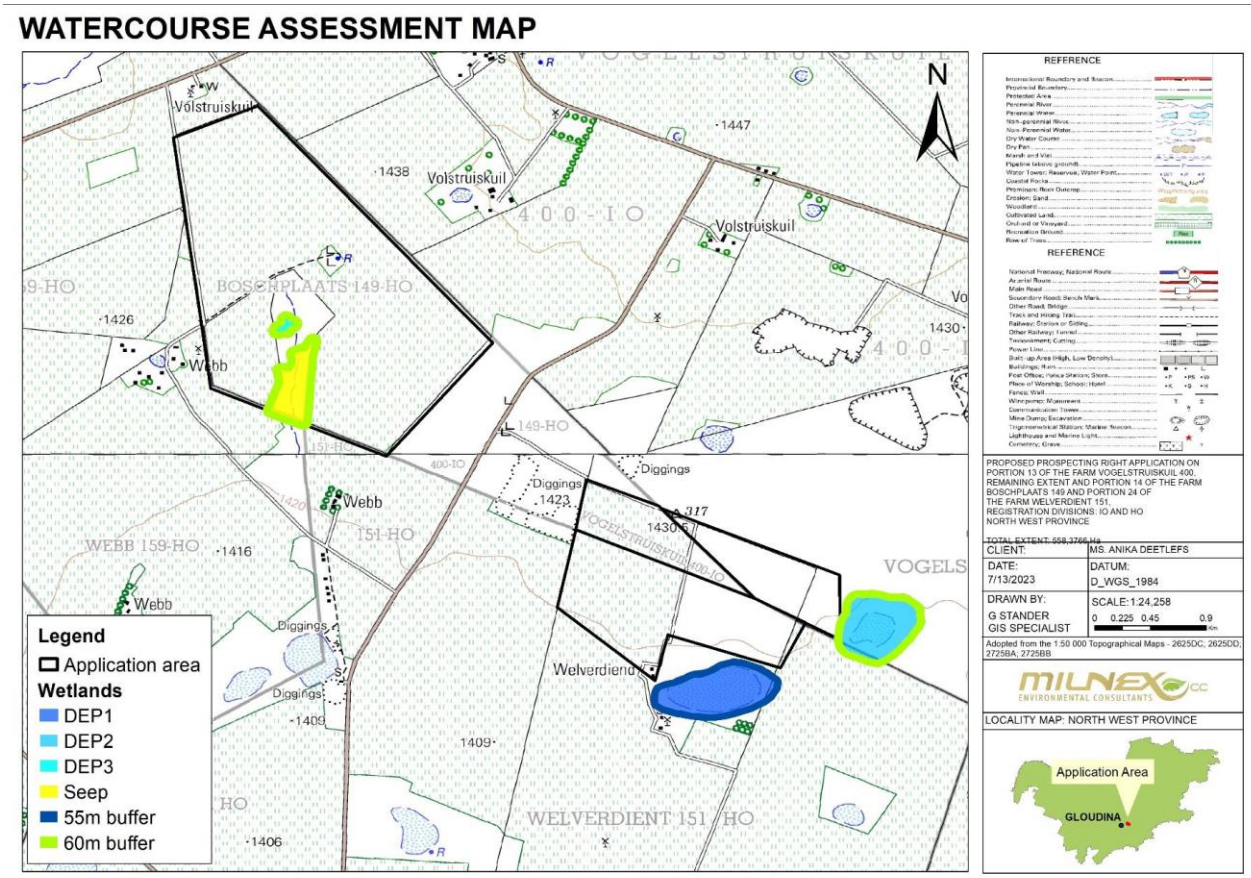

Figure 38: Wetland types expected to occur in the study area.

(ii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;

There is regional socio economic benefits due to the Diamonds Alluvial (DA), Diamonds General (D) & Diamonds (DIA) being prospected in the North West province and greater knowledge is gained on the mineralogy of South Africa. All possible negative impacts and risks that have been identified in this report can be effectively mitigated and managed by implementing the mitigation measures as set out in the Environmental Management Programme (EMPr) attached in Part B. Significant adverse social environmental impacts are anticipated.

M. PROPOSED IMPACT MANAGEMENT OBJECTIVES AND THE IMPACT MANAGEMENT OUTCOMES FOR INCLUSION IN THE EMPR

Based on the assessment and where applicable the recommendations from specialist reports, the recording of proposed [impact management objectives, and the] impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation.

Management objectives include:

- Ensure that the prospecting activity does not cause pollution to the environment or harm to persons.
- Minimise production of waste.
- All prospecting activities must be conducted in a manner that minimises noise impact, litter, environmental degradation and health hazards i.e. injuries.
- The prospecting area must be kept neat and tidy during waste handling to prevent unsightliness and accidents.

Expected outcomes include:

- Minimum impacts on the environment as a result of Diamonds Alluvial, Diamonds General & Diamonds.
- Compliance with legislative requirements.
- Prospecting is neat and tidy and well managed.

N. FINAL PROPOSED ALTERNATIVES.

(Provide an explanation for the final layout of the infrastructure and activities on the overall site as shown on the final site map together with the reasons why they are the final proposed alternatives which respond to the impact management measures, avoidance, and mitigation measures identified through the assessment)

This alternative asks the question, if there is not, from an environmental perspective, a more suitable location for the proposed prospecting for Diamonds (Alluvial), Diamonds (General) & Diamonds including associated infrastructure, on) on Portion 13 (portion of portion 6) of the farm Vogelstruiskuil 400, Portion 14 (portion of portion 2) of the farm Boschplaats 149 & Portion 24 of the farm Welverdient 151, Registration Divisions IO & HO, North West Province..were identified. The specific site has been chosen for its mineral resources thus making an alternative site selection null and void. No prospecting should commence without the necessary permits and the impacts on the surrounding area, the livestock grazing, agricultural land and natural area should be kept to the minimum.

O. ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION.

(Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;)

- The operational activities and relevant rehabilitation of disturbed areas should be monitored against the improved EMPr and all other relevant environmental legislation.
- A copy of the EMP should be made available onsite at all times.
- Implementation of the proposed mitigation measures set out in the EMPr.

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

(Which relate to the assessment and mitigation measures proposed)

The uncertainties in results are mostly related to the availability of information, time available to gather the relevant information as well as the sometimes subjective nature of the assessment methodology. In terms of addressing the key issues the EAP is satisfied that there are no major gaps in knowledge and that the report provide sufficient information to conduct the significance rating and provide the environmental authority with sufficient information to make an informed decision.

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

(**and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;)**

Reasons why the activity should be authorized or not.

Based on the outcomes of other diamond exploration in the area, the possibility to encounter further Diamond Reserves were identified.

The proposed prospecting area is targeted as, historically, several alluvial diamond occurrences are known in the area, and a number of these have been exploited in the past. There are also various alluvial diamond operations within the vicinity of the exploration area.

The option of not approving the activities will result in a significant loss to valuable diamond deposits being exploited. And all economic benefits will be lost.

Conditions that must be included in the authorisation

- The operational activities and relevant rehabilitation of disturbed areas should be monitored against the improved EMPr and all other relevant environmental legislation.
- A copy of the EMP should be made available onsite at all times.
- Implementation of the proposed mitigation measures set out in the EMPr.

The EMPr should be binding on all managers and contractors operating/utilizing the site.
The applicant shall familiarize himself with the content of this document and the attached specialist studies and the requirements/conditions thereof.

R. PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED.

For a minimum of 5 years.

S. AN UNDERTAKING UNDER OATH OR AFFIRMATION BY THE EAP IN RELATION TO:

Confirm that the undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Basic assessment report and the Environmental Management Programme report.

The undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Environmental Impact Assessment report and the Environmental Management Programme report.

I, Christiaan Baron, herewith confirms

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

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

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

D. the acceptability of the project in relation to the finding of the assessment and level of mitigation proposed; ☒

Signature of the environmental assessment practitioner:

Milnex CC

Name of company:

21/08/2023

Date:

T. FINANCIAL PROVISION

(where applicable, details of any financial provision[s] for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;)

Applicant: **Anika Deetlefs** **Ref No.:** **NW30/5/1/1/2/13707PR**
Evaluators: **Milnex CC** **Date:** **21/08/2023**

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	1000	19,46	1	1	19460
2 (A)	Demolition of steel buildings and structures	m2	30	271,16	1	1	8134,8
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	399,61	1	1	0
3	Rehabilitation of access roads	m2	150	48,53	1	1	7279,5
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	470,97	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	256,89	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	542,33	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0,5	276014,6	0,52	1	71763,796
7	Sealing of shafts adits and inclines	m3	0	145,57	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0	189528,12	1	1	0
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0,1212	236053,85	1	1	28609,72662
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	685612,26	0,66	1	0
9	Rehabilitation of subsided areas	ha	0,1212	158701,26	1	1	19234,59271
10	General surface rehabilitation	ha	0,1212	150138,24	1	1	18196,75469
11	River diversions	ha	0	150138,24	1	1	0
12	Fencing	m	0	171,26	1	1	0
13	Water management	ha	1	57086,79	0,25	1	14271,6975
14	2 to 3 years of maintenance and aftercare	ha	0,5	1998,37	1	1	999,185
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum	0			1	0
					Sub Total 1		187950,0525
1	Preliminary and General		22554,0063		weighting factor 2 1,05		23681,70662
2	Contingencies			18795,00525			18795,00525
					Subtotal 2		230426,76
					VAT (15%)		34564,01
					Grand Total		**264991**

A. Explain how the aforesaid amount was derived.

The closure cost estimate will be aligned with the National Environmental Management Act: Regulations: Financial Provisioning for Mitigation and Rehabilitation of Environmental Damage Caused by Reconnaissance, Prospecting, Exploration, Mining or Production Operations. The amount will be calculated by Milnex CC.

B. Confirm that this amount can be provided for from operating expenditure. (Confirm that the amount, is anticipated to be an operating cost and is provided for as such in the Mining work programme, Financial and Technical Competence Report or Prospecting Work Programme as the case may be).

Financial Guarantee

The financial guarantee for the rehabilitation for land disturbed by **Anika Deetlefs** will be submitted

Rehabilitation Fund

Anika Deetlefs will also make provision for rehabilitation during closure by establishing a rehabilitation trust.

U. DEVIATIONS FROM THE APPROVED SCOPING REPORT AND PLAN OF STUDY.

(i) Any deviation from the methodology used in determining the significance of potential environmental impacts and risks; and

None of the methodologies approved for the scoping report were deviated

(ii) Motivation for the deviation.

Not applicable

V. ANY SPECIFIC INFORMATION THAT MAY BE REQUIRED BY THE COMPETENT AUTHORITY; AND

No specific information requirements have been detailed by the Competent Authority.

W. COMPLIANCE WITH THE PROVISIONS OF SECTIONS 24(4)(A) AND (B) OF THE ACT

Read with Section 24 (3) (A) and (7) of the National Environmental Management Act (Act 107 of 1998). The EIA Report must include the:

ii. Impact on the socio-economic conditions of any directly affected person. (Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as Appendix 2.19.1 and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

The prospecting Diamonds Alluvial (DA), Diamonds General (D) and Diamonds (DIA) prospecting may impact directly on any socio-economic aspects. Indirect socio-economic benefits are expected to be associated with the creation of employment.

According to the map (Figure 34 and Figure 35), the proposed area is covered with crops on the western side and is covered with fallow lands & old fields as well as previous mining activities. Please note that Anika Deetlefs will not be held accountable for any historical mining/prospecting activities that had occurred in the past

The disturbance of previous prospecting activities can be seen on the google earth image (figure 36).

If applicable a Water Use License Application will be launched for conducting prospecting operations.

iii. Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act. **(**Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) with the exception of the national estate contemplated in section 3(2)(*i*)(vi) and (vii) of that Act, attach the investigation report as Appendix 2.19.2 and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

Cultural and heritage aspects

Specialist study

Phase 1 Cultural Heritage Impact Assessment & PDA

A Phase 1 heritage Impact Assessment was conducted by Mr Francois P Coetzee in July 2023 and the report was received in July 2023. The findings were as follows:

Review of existing information/data

Additional information on the cultural heritage of the area was sourced from the following records:
- National Mapping Project by SAHRA (which lists heritage impact assessment reports submitted for South Africa);
- Environmental Potential Atlas (ENPAT);
- Online SAHRIS database;
- National Automated Archival Information retrieval System (NAAIRS);
- Maps and information documents supplied by the client; and
- Several heritage surveys have been conducted in the vicinity of the survey area (published and unpublished) material on the area (Kruger 2018a, 2018b; Kusel 2007; Van Schalkwyk 2017)

Although several heritage impact assessments have been completed in the general vicinity of the survey area, no heritage sites were recorded inside the survey footprint. A survey conducted in the Bloemhof Nature Reserve situated to the south of the survey footprint recorded Early, Middle and Later Stone assemblages, two cemeteries and at least ten historical farm homesteads (Kusel 2007). A survey on the farm Kameelkuil 88 HO near Bloemhof yielded one graveyard with over 100 graves (Van Schalkwyk 2017). A heritage scoping study (desktop) of the farm Ganspan 194 HO, situated to the north of the current survey footprint, was conducted and indicated a high probability of historical structures and graves in the area (Kruger 2018a). A heritage scoping study (desktop) of the farm Oersonskraal 250 HO, situated to the east of the current survey footprint, was conducted and indicated a low to medium probability of military remains, historical structures and graves in the area (Kruger 2018b). A survey of a 600 km 400 kV transmission line running through the general region of the survey footprint revealed no significant cultural heritage remains (Dreyer 2007).

According to the Surveyor General's database the farm Vogelstruiskuil 400 IO which was first surveyed in 1910, Boschplaats 149 HO which was first surveyed in 1911 and Welverdient 151 HO which was first surveyed in 1907.
Note that the indications of several structures were only noted on the 1972 version of the 1:50 000 topographical map of the farm Boschplaats 149 HO that were probably occupied in the 1970s. However these structures have been removed as they do not appear on the 2001 edition of the map. These structures could not be located during the field survey as they now form part of agricultural fields and mining activities.

Note that no declared National Heritage Sites have been recorded in the Wolmaransstad region. According to the SAHRIS database no heritage sites are recorded near the survey footprint, although a number of historical buildings and graveyards are indicated in Wolmaransstad and further to the west.
Site visits
The field survey was conducted on 12 July 2023.

Social interaction and current inhabitants
The local farmers and resident labourers were consulted during this survey.

Public Consultation and Stakeholder Engagement
An advertisement was placed in English in the local newspaper (Stellalander) notifying the public of the EIA process and requesting Interested and Affected Parties (I&APs) to register with, and submit their comments to Milnex CC. I&APs were given the opportunity to raise comments within 30 days of the advertisement. Site notices were placed on site in English to inform surrounding communities and immediately adjacent landowners of the proposed development. I&APs will be given the opportunity to raise comments.

Assumptions, restrictions, gaps and limitations
No physical restrictions were encountered as the survey area was accessible. As a result all areas were investigated in detail. Additional information was obtained from maps and other remote data.

The Cultural Heritage Sites
Isolated occurrences

Isolated occurrences are artefacts or small features recorded on the surface with no contextual information. No other associated material culture (in the form of structures or deposits) was noted that might provide any further context. This can be the result of various impacts and environmental factors such as erosion and modern developments. By contrast archaeological sites are often complex sites with evidence of archaeological deposit and various interrelated features such as complex deposits, stone walls and middens. However, these isolated occurrences are seen as remains of erstwhile complex or larger sites and they therefore provide a broad indication of possible types of sites or structures that might be expected to occur or have occurred in the survey footprint.
No isolated finds were recorded during the survey.

Heritage sites
None

Locations and Evaluation of Sites
None

Management Measures
Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the proposed development can be excavated/recorded and a management plan can be developed for future action. Those sites that are not impacted on can be written into the management plan, whence they can be avoided or cared for in the future.

Objectives
- Protection of archaeological, historical and any other site or land considered being of cultural value within the project boundary against vandalism, destruction and theft.
- The preservation and appropriate management of new discoveries in accordance with the NHRA, should these be discovered during construction activities

The following shall apply:

- Known sites should be clearly marked in order that they can be avoided during construction activities.
- The contractors and workers should be notified that archaeological sites might be exposed during the construction activities.
- Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible;
- All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;
- Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and
- Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the NHRA (Act No. 25 of 1999), Section 51. (1).

Control
In order to achieve this, the following should be in place:
- A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage.
- Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above.

- In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures.

Recommendations and Conclusions
No historical or archaeological (both Stone Age and Iron Age) artefacts, assemblages, features, structures or settlements were recorded during the survey of the project footprint.

It is therefore recommended that the proposed prospecting activities, from a heritage perspective, may proceed and no further mitigation measures are required

PALEONTOLOGICAL DESKTOP ASSESSMENT
FINDINGS AND RECOMMENDATIONS
The proposed development is underlain by the Klipriviersberg Group of the Ventersdorp Supergroup. The PalaeoMap of the South African Heritage Resources Information System (SAHRIS) indicates that the Palaeontological Sensitivity of the Klipriviersberg Group is Low. (Almond and Pether, 2009; Almond et al., 2013). The updated geology (Council for Geosciences) refined the geology and also indicates that the study area is underlain Klipriviersberg Group of the Ventersdorp Supergroup.
An overall Low palaeontological significance is allocated to the development footprint. It is therefore considered that the proposed development will not lead to detrimental impacts on the palaeontological reserves of the area and construction of the development may be authorised in its whole extent.
If Palaeontological Heritage is uncovered during surface clearing and excavations the Chance find Protocol attached should be implemented immediately. Fossil discoveries ought to be protected and the ECO/site manager must report to South African Heritage Resources Agency (SAHRA) (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za) so that mitigation (recording and collection) can be carried out.
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This informational document is intended for workmen and foremen on construction sites. It describes the actions to be taken when mining or construction activities accidentally uncovers fossil material.
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• If a chance find is made the person responsible for the find must immediately stop working and all work that could impact that finding must cease in the immediate vicinity of the find.
• The person who made the find must immediately report the find to his/her direct supervisor which in turn must report the find to his/her manager and the ESO or site manager. The ESO or site manager must report the find to the relevant Heritage

Agency (South African Heritage Research Agency, SAHRA). (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za). The information to the Heritage Agency must include photographs of the find, from various angles, as well as the GPS co-ordinates.

- A preliminary report must be submitted to the Heritage Agency within 24 hours of the find and must include the following: 1) date of the find; 2) a description of the discovery and a 3) description of the fossil and its context (depth and position of the fossil), GPS co-ordinates.
- Photographs (the more the better) of the discovery must be of high quality, in focus, accompanied by a scale. It is also important to have photographs of the vertical section (side) where the fossil was found.
- Upon receipt of the preliminary report, the Heritage Agency will inform the ESO (or site manager) whether a rescue excavation or rescue collection by a palaeontologist is necessary.
- The site must be secured to protect it from any further damage. No attempt should be made to remove material from their environment. The exposed finds must be stabilized and covered by a plastic sheet or sand bags. The Heritage agency will also be able to advise on the most suitable method of protection of the find.
- If the fossil cannot be stabilized the fossil may be collected with extreme care by the ESO. Fossils finds must be stored in tissue paper and in an appropriate box while due care must be taken to remove all fossil material from the rescue site.
- Once the Heritage Agency has issued the written authorization, the developer may continue with the development on the affected area.

Other matters required in terms of sections 24(4)(a) and (b) of the Act.

(the EAP managing the application must provide the competent authority with detailed, written proof of an investigation as required by section 24(4)(b)(i) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in sub-regulation 22(2)(h), exist. The EAP must attach such motivation as Appendix 4).

Portion 13 (portion of portion 6) of the farm Vogelstruiskuil 400, Portion 14 (portion of portion 2) of the farm Boschplaats 149 & Portion 24 of the farm Welverdient 151, Registration Divisions IO & HO, North West Province, is preferred due to the sites underlying geology and the possible diamond bearing gravel as well as site access (i.e. to facilitate the movement of machinery, equipment, infrastructure and people). The specific site has been chosen for its possible mineral resources thus making an alternative site selection null and void.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

An EMPr must comply with section 24N of the Act and include—

A. DETAILS OF–

(i) the EAP who prepared the EMPr; and
(ii) the expertise of that EAP to prepare an EMPr, including a curriculum vitae;

Name of Practitioner	Qualifications	Contact details
Christiaan Baron	Master's Degree in Environmental Management (refer to Appendix 1) Registered EAP (EAPASA) **Reg No: 2020/2639**	Tel No.: (018) 011 1925 Fax No. : (053) 963 2009 e-mail address: christiaan@milnex-sa.co.za

Contact details of other	Qualifications	Contact details
Lizanne Esterhuizen	Honours Degree in Environmental Science (refer to **Appendix 1**) Awaiting EAPASA Registration	Tel No.: (018) 011 1925 Fax No. : (053) 963 2009 e-mail address: lizanne@milnex-sa.co.za
Andile Nxumalo	Honours Degree in Environmental Science (refer to Appendix 1) Awaiting EAPASA Registration	Tel No.: (018) 011 1925 Fax No. : (053) 963 2009 e-mail address: andile.grant@milnex-sa.co.za

It is hereby confirmed that the requirements for the provision of the details and expertise of the EAP are contained in Part A, section 1(a) as required. The Curriculum Vitae for the responsible EAP is contained in **Appendix 2**.

B. DESCRIPTION OF THE ASPECTS OF THE ACTIVITY

(a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;)

It is hereby confirmed that the requirements to describe the aspects of the activity that are required by the EMP is already included in Part A, section 1(h).

C. COMPOSITE MAP

(a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that [any areas that] should be avoided, including buffers;)

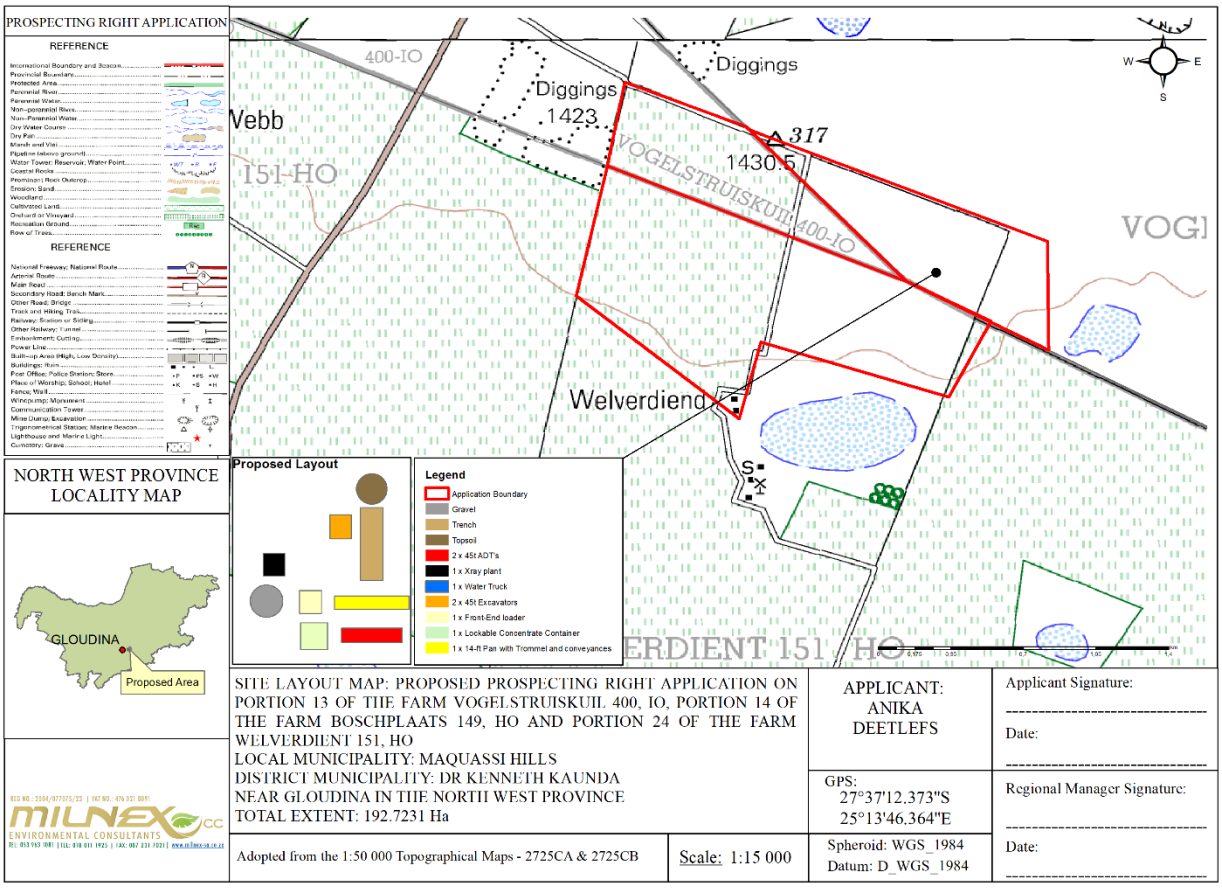

Figure 39: Site Plan

Refer to Site layout Map attached in **Appendix 4**.

D. A DESCRIPTION OF THE IMPACT MANAGEMENT [OBJECTIVES] OUTCOMES, INCLUDING MANAGEMENT STATEMENTS, IDENTIFYING THE IMPACTS AND RISKS THAT NEED TO BE AVOIDED, MANAGED AND MITIGATED AS IDENTIFIED THROUGH THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS FOR ALL PHASES OF THE DEVELOPMENT INCLUDING—

i) **Determination of closure objectives.** (ensure that the closure objectives are informed by the type of environment described in 2.4 herein)

Closure objectives for the alluvial diamond mine will aim to ensure that the residual post-closure impacts be minimized and be acceptable to relevant parties. To achieve these closure objectives, the following will be implemented:

- All prospecting related infrastructure, foundations and concrete areas will be decommissioned, removed from the site and appropriately disposed of. Reclaimable structures such as metal, electrical installations or equipment will be sold for re-use or as scrap.

- All disturbed areas within the site not already vegetated will be re-vegetated with appropriate indigenous, ecologically adapted species appropriate to the area and the final land use as soon as possible after operation ceases. Progress of vegetation growth/establishment, stability and drainage/erosion will be monitored and, in the event of adverse trends being identified, corrective measures will be implemented.

- Vegetation monitoring will consider, inter alia, the establishment of perennial ground cover and infestation by alien invasive plant species. The encroachment of indigenous vegetation into the area will be used as an indication of a stable, self-sustaining vegetation cover with little risk of retrogressing to a situation where are and water pollution may occur.

- Final landforms must be resilient to perturbation and also be self-sustaining to obviate/limit further/ongoing interventions and maintenance by **Anika Deetlefs.** The remaining impacts be of an acceptable nature with minimal deterioration over time.
- The final outcome of the prospecting site rehabilitation would be productive systems, where required sustaining either cattle or wildlife.
- Environmental and human quality of life, including health and safety requirements in general, would not be compromised; and
- Closure is achieved in an efficient and cost-effective manner as possible and with minimum socioeconomic changes.

E. A DESCRIPTION AND IDENTIFICATION OF IMPACT MANAGEMENT OUTCOMES REQUIRED FOR THE ASPECTS CONTEMPLATED IN PARAGRAPH (D);]

The above goal is underpinned by more specific objectives listed below.

1. Upfront planning/development

To provide overall guidance and direction to closure planning and/or the implementation of progressive closure measures over the remaining over the prospecting life.

2. Physical stability

To ensure that surface infrastructure and prospecting residue and/or disturbances that are present at processing plant decommissioning will be removed and/or stabilised in a manner that these will not compromise post-closure land use and be sustainable long-term landforms.

- Closure, removal and disposal of all surface infrastructure that has no beneficial post-closure use.
- Shaping and vegetating the remaining earth embankments, trenches, etc. to stabilise slopes and integrate with surrounding topography.

3. Environmental quality

To ensure that local environmental quality is not adversely affected by possible physical effects arising from prospecting operations and the prospecting site after closure. This will be achieved by:

- Avoiding and/or limiting the following during prospecting operations which could result in adverse effects that could not be readily addressed and/or mitigated at closure.
  - Dust fall-out areas surrounding the prospecting site.
  - Wash-off and/or mobilisation of chemically contaminated soils and sediments from the prospecting site that could have long term adverse effects on local aquatic health and/or other water uses.
  - Possible shallow groundwater contamination adversely affecting the quality of the local water resource and its beneficial use.
- Limiting the potential for dust generation on the rehabilitated prospecting site that could cause nuisance and/or health effects to surrounding landowners;
- Limiting the possible adverse water quality and quantity effects arising from the rehabilitated prospecting site to ensure that long term beneficial use of local resources is not compromised;
- Conducting soil clean-up/remediation to ensure that the planned land use could be implemented and maintained;

4. Health and safety

To limit the possible health and safety threats due to terrain hazards to humans and animals utilizing the rehabilitated prospecting site after closure by:

- Demonstrating through upfront soil testing that any resultant inorganic and organic pollution present on the site is acceptable;
- Removal of potential contaminants such as hydrocarbons and chemicals off site;
- Shaping of embankments and trenches to safe slopes and reintegrating of these into surrounding topography.
- Ensuring that the environmental quality as reflected above is achieved.

5. Land capability / land use

To ensure that the required land capability to achieve and support the planned land use can be achieved over the prospecting site by:

- Clean-up and reclamation of contaminated soil areas in order not to compromise the above land use planning earmarked for implementation;
- To ensure that the overall rehabilitated prospecting site is free draining
- Transferring prospecting related surface infrastructure to third parties for beneficial use after closure.

6. Aesthetic quality

To ensure that the rehabilitated prospecting site will display, at a minimum, an acceptable aesthetic appearance that would not compromise the planned land use by leaving behind:

- A prospecting area that is properly cleared-up with no fugitive/scattered waste piles
- Rehabilitated prospecting area that is free draining and disturbed areas that are suitably vegetated.
- Rehabilitated prospecting residues that are suitably landscaped, blending with the surrounding environment as far as possible.
- Shaped and rehabilitated terrace and hard stand areas, roughly emulating the local natural surface topography.

7. Landscape viability

To create a landscape that is self-sustaining and over time will evolve/converge to the desired ecosystem structure, function and composition by:

- Conducing surface profiling, with associated material movement optimisation, to obtain a landscape resembling the natural landscapes to support the succession trajectory towards a climax ecological system.
- Establishing woody patches and create “rough and loose” areas for pioneer specie establishment around the respective patches.
- Establishing pioneer species as follows:
- Collected and prepared seeds for broad casting;
- Seedlings grown on on-site nursery;
- Cuttings collected from surrounding veld areas;
- Conducting rehabilitation monitoring and corrective action as required.

8. Biodiversity

To encourage, where appropriate, the re-establishment of native vegetation on the rehabilitated mine site such the terrestrial biodiversity is largely re-instated over time, by:

- Stabilising disturbed areas to prevent erosion in the short- to medium term until a suitable vegetation cover has established; and
- Establishing viable self-sustaining vegetation communities of local fauna, as far as possible.

F. A DESCRIPTION OF PROPOSED IMPACT MANAGEMENT ACTIONS, IDENTIFYING THE MANNER IN WHICH THE IMPACT MANAGEMENT [OBJECTIVES AND] OUTCOMES CONTEMPLATED IN PARAGRAPH (D) [AND (E)] WILL BE ACHIEVED, AND MUST, WHERE APPLICABLE, INCLUDE ACTIONS TO —

Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure.

The Rehabilitation & Closure Plan is attached as **Appendix 10.**

Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline.

Applicant: **Anika Deetlefs** **Ref No.:** **NW30/5/1/1/2/13707PR**
Evaluators: **Milnex CC** **Date:** **21/08/2023**

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	1000	19,46	1	1	19460
2 (A)	Demolition of steel buildings and structures	m2	30	271,16	1	1	8134,8
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	399,61	1	1	0
3	Rehabilitation of access roads	m2	150	48,53	1	1	7279,5
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	470,97	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	256,89	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	542,33	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0,5	276014,6	0,52	1	71763,796
7	Sealing of shafts adits and inclines	m3	0	145,57	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0	189528,12	1	1	0
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0,1212	236053,85	1	1	28609,72662
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	685612,26	0,66	1	0
9	Rehabilitation of subsided areas	ha	0,1212	158701,26	1	1	19234,59271
10	General surface rehabilitation	ha	0,1212	150138,24	1	1	18196,75469
11	River diversions	ha	0	150138,24	1	1	0
12	Fencing	m	0	171,26	1	1	0
13	Water management	ha	1	57086,79	0,25	1	14271,6975
14	2 to 3 years of maintenance and aftercare	ha	0,5	1998,37	1	1	999,185
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum	0			1	0
					Sub Total 1		187950,0525
1	Preliminary and General		22554,0063		weighting factor 2 1,05		23681,70662
2	Contingencies		18795,00525				18795,00525
					Subtotal 2		230426,76
					VAT (15%)		34564,01
					Grand Total		**264991**

a. Confirm that the financial provision will be provided as determined.

Financial Guarantee

The financial guarantee for the rehabilitation for land disturbed by **Anika Deetlefs** will be submitted

Rehabilitation Fund

Anika Deetlefs will also make provision for rehabilitation during closure by establishing a rehabilitation trust.

IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

Measures to rehabilitate the environment affected by the undertaking of any listed activity

ACTIVITIES **(E.g. For prospecting -** drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route **etc…etc…etc** **E.g. For mining**,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)	**PHASE** (of operation in which activity will take place. State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure).	**SIZE AND SCALE of disturbance** (volumes, tonnages and hectares or m²)	**MITIGATION MEASURES** (describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)	**COMPLIANCE WITH STANDARDS** (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	**TIME PERIOD FOR IMPLEMENTATION** Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-.. Upon cessation of the individual activity Or. Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.
Clearance of vegetation	Pitting and trenching phase-(construction and operation phase)	192 7231 Ha **Pits:** 50 pits, with dimensions of 4m x 3m x 4m each. **Trenches**: 50 trenches with dimensions of 40m x 30m x 4m each. Concurrent backfilling will take place in	1) Site clearing must take place in a phased manner, as and when required. 2) Areas which are not to be prospected on within two months must not be cleared to reduce erosion risks. 3) The area to be cleared must be clearly demarcated and this footprint strictly maintained. 4) Spoil that is removed from the site must be removed to an approved spoil site or a licensed landfill site. 5) The necessary silt fences and erosion control measures must be implemented in areas where these risks are more prevalent.	Compliance with Duty of Care as detailed within NEMA	Duration of operations on the prospecting activities.

		order to rehabilitate.			
Construction of roads	Pitting and trenching phase (construction and operation phase)	+- 150m	1) Planning of access routes to the site for construction/prospecting purposes shall be done in conjunction with the Contractor and the Landowner. All agreements reached should be documented and no verbal agreements should be made. The Contractor shall clearly mark all access roads. Roads not to be used shall be marked with a “NO ENTRY for prospecting vehicles" sign. 2) Construction routes and required access roads must be clearly defined. 3) Damping down of the un-surfaced roads must be implemented to reduce dust and nuisance. 4) Soils compacted by construction/prospecting activities shall be deep ripped to loosen compacted layers and re-graded to even running levels. 5) The contractor must ensure that damage caused by related traffic to the gravel access road off the N8 is repaired continuously. The costs associated with the repair must be borne by the contractor; 6) Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis and ensuring that vehicles used to transport the gravel are fitted with tarpaulins or covers; 7) All vehicles must be road-worthy and drivers must be qualified and made aware of the potential road safety issues and need for strict speed limits.	Compliance with Duty of Care as detailed within NEMA	Duration of operations on the prospecting activities.
Prospecting Diamonds Alluvial (DA), Diamonds General (D) and Diamonds (DIA) – Soils and geology	Pitting and trenching phase (construction and operation phase)	192 7231 Ha **Pits:** 50 pits, with dimensions of 4m x 3m x 4m each. **Trenches**: 50 trenches with dimensions of 40m x 30m x 4m each.	1) The Contractor should, prior to the commencement of earthworks determine the average depth of topsoil (If topsoil exists), and agree on this with the ECO. The full depth of topsoil should be stripped from areas affected by construction and related activities prior to the commencement of major earthworks. This should include the building footprints, working areas and storage areas. Topsoil must be reused where possible to rehabilitate disturbed areas. 2) Care must be taken not to mix topsoil and subsoil during stripping. 3) The topsoil must be conserved on site in and around the pit/trench area.	Compliance with Duty of Care as detailed within NEMA	Duration of operations on the mine

		Concurrent backfilling will take place in order to rehabilitate.	4) Subsoil and overburden in the prospecting area should be stockpiled separately to be returned for backfilling in the correct soil horizon order. 5) If stockpiles are exposed to windy conditions or heavy rain, they should be covered either by vegetation or geofabric, depending on the duration of the project. Stockpiles may further be protected by the construction of berms, trenches or low brick walls around their bases. 6) Stockpiles should be kept clear of weeds and alien vegetation growth by regular weeding. 7) Where contamination of soil is expected, analysis must be done prior to disposal of soil to determine the appropriate disposal route. Proof from an approved waste disposal site where contaminated soils are dumped if and when a spillage/leakage occurs should be attained and given to the project manager. 8) The impact on the geology will be permanent. There is no mitigation measure.		
Prospecting Diamonds Alluvial (DA), Diamonds General (D) and Diamonds (DIA) – excavations	Pitting and trenching phase (construction and operation phase)	192 7231 Ha Pits: 50 pits, with dimensions of 4m x 3m x 4m each. Trenches: 50 trenches with dimensions of 40m x 30m x 4m each. Concurrent backfilling will take place in order to rehabilitate.	1) The prospecting activities must aim to adhere to the relevant noise regulations and limit noise to within standard working hours in order to reduce disturbance of dwellings in close proximity to the development. 2) Mine, pans, workshops and other noisy fixed facilities should be located well away from noise sensitive areas. Once the proposed final layouts are made available by the Contractor(s), the sites must be evaluated in detail and specific measures designed in to the system. 3) Truck traffic should be routed away from noise sensitive areas, where possible. 4) Noise levels must be kept within acceptable limits. 5) Noisy operations should be combined so that they occur where possible at the same time. 6) Mine workers to wear necessary ear protection gear. 7) Noisy activities to take place during allocated hours. 8) Noise from labourers must be controlled. 9) Noise suppression measures must be applied to all equipment. Equipment must be kept in good working order and where	Compliance with Duty of Care as detailed within NEMA	Duration of operations on the prospecting area

			appropriate fitted with silencers which are kept in good working order. Should the vehicles or equipment not be in good working order, the Contractor may be instructed to remove the offending vehicle or machinery from the site. 10) The Contractor must take measures to discourage labourers from loitering in the area and causing noise disturbance. Where possible labour shall be transported to and from the site by the Contractor or his Sub-Contractors by the Contractors own transport. 11) Implementation of enclosure and cladding of processing plants. 12) Applying regular and thorough maintenance schedules to equipment and processes. An increase in noise emission levels very often is a sign of the imminent mechanical failure of a machine.		

IMPACT MANAGEMENT ACTIONS

(A description of impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (c) and (d) will be achieved).

ACTIVITY (whether listed or not listed). **(E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)**.	**POTENTIAL IMPACT** **(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc….etc…)**	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated **(e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)**	**MITIGATION TYPE** **(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc)** **E.g.** • **Modify through alternative method.** • **Control through noise control** • **Control through management and monitoring** • **Remedy through rehabilitation..**	**STANDARD TO BE ACHIEVED** **(Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.**
Loss and disturbance of wetland habitat and fringe vegetation	**Construction:** Infrastructure development within wetlands Loss of vegetation Erosion **Operational:** Excavation from the wetlands leading to degraded wetlands. Removal of substrate within wetlands	Wetland	Construction Operational Decommissioning	Other than approved and authorized structures, no other development or maintenance infrastructure is allowed within the delineated wetlands and their associated buffer zones. No prospecting is to take place in Depression 1 and its buffer zone. It is to be treated as a no-go area. Alien and invasive vegetation control should take place throughout all phases to prevent loss of floral habitat. Monitor the occurrence of erosion during the rainy season and take immediate corrective action where needed. No stockpiling should take place within a wetland or the calculated buffers. All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised, and be surrounded by bunds.	Minimisation of impacts to acceptable limits

	Clearing of vegetation – vegetation loss Loss of biodiversity Vehicles driving in and through wetlands **Decommissioning:** Damage to vegetated areas Ineffective rehabilitation measures Vehicles driving in and through wetlands			All maintenance and prospecting, if allowed, within wetlands must be restricted to the dry season. Maintenance activities should not impact on rehabilitated or naturally vegetated areas. The duration of impacts on the wetland systems should be minimized as far as possible by ensuring that the duration of time in which habitat alteration and sedimentation will take place is minimized. Rehabilitation must ensure that wetland structure and function are reinstated in such a way as to ensure the ongoing functionality of the systems at pre-prospecting levels. All rehabilitation activities should occur in the dry season.	
Alteration of the amount of sediment entering the water resource and associated change in turbidity	**Construction:** Vegetation clearance causing sedimentation Earthworks activities Disturbance of soil surface and runoff characteristics Erosion **Operational:** Excavation from the wetlands leading to degraded systems.	Watercourses	Construction Operational Decommissioning	Buffer zones should be maintained, in order to minimise sedimentation of the downstream areas. No stockpiling should take place within wetlands or the calculated buffers. Ensure that erosion management and sediment controls are strictly implemented from the beginning of site clearing activities. All areas should be re-sloped and top-soiled where necessary and reseeded with indigenous grasses to stabilise the loose material. All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised, and be surrounded by bunds.	Minimisation of impacts to acceptable limits

	Removal of substrate within wetlands Clearing of vegetation – vegetation loss Loss of biodiversity Vehicles driving in and through watercourses **Decommissioning:** Damage to vegetated areas Ineffective rehabilitation measures Vehicles driving in and through watercourses			As far as possible the existing road network should be utilised, minimising the need to develop new access routes resulting in an increased impact on the local environment. Erosion control measures, such as berms, must be implemented to manage runoff from roads to prevent erosion and pollution. Rehabilitation of disturbed areas as a result of construction must be implemented immediately upon completion of construction. Rehabilitation must ensure that riparian structure and function are reinstated in such a way as to ensure the ongoing functionality of the larger riparian systems at pre-prospecting levels. All rehabilitation activities should occur in the dry season. The duration of impacts on the wetland systems should be minimised as far as possible by ensuring that the duration of time in which sedimentation will take place is minimised. Maintain flood capacity, particularly in areas with significant flood hazards.	
Alteration of water quality (surface and ground water)	**Construction:** Runoff from road surfaces Discharge of sewage Discharge of solvents, chemicals and hydrocarbons **Operational:** Maintenance of vehicles and machinery	Water Quality	Construction Operational Decommissioning	Re-fuelling must take place on a sealed surface area to prevent hydrocarbon pollution. All spills should be cleaned up immediately and disposed of. Spill kits should be readily available and easily accessible throughout the site. All chemicals must be stored safely on site, outside the buffer areas and surrounded by bunds. Chemical storage containers must be regularly inspected for early leak detection. Littering must be prevented by effective site management and the provision of bins.	Minimisation of impacts to acceptable limits

	Runoff from road surfaces Discharge of sewage Discharge of solvents, chemicals and hydrocarbons Excavation from the wetlands and the release of nutrients and pollutants from disturbed soils Removal of substrate within wetlands **Decommissioning:** Damage to vegetated areas Ineffective rehabilitation measures Vehicles driving			Provision of adequate sanitation facilities located outside of the delineated buffer zones. An emergency spill procedure should be developed and implemented. No stockpiling should take place within wetlands and their buffers. All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimized, and be surrounded by bunds. Stockpiles must be located away from channels, wetlands and drainage lines. Erosion and sedimentation into wetlands must be minimised through the effective stabilization and the re-vegetation of any disturbed areas.	
Loss of terrestrial habitat	**Construction:** Clearing of vegetation – vegetation loss **Operational:** Removal of substrate within wetlands Clearing of vegetation during prospecting operations	Terrestrial Vegetation	Construction Operational Decommissioning	Areas that are stripped during construction and operation should be re-vegetated with indigenous vegetation. It is recommended that areas to be developed be specifically demarcated so that during the construction phase, only the demarcated areas be impacted upon (including fencing off the defined project area) and preventing movement of workers into natural areas. The duration of the prospecting should be minimized to as short term as possible, in order to reduce the period of disturbance on fauna and flora.	Minimisation of impacts to acceptable limits

	Decommissioning: Damage to vegetated areas Ineffective rehabilitation measures Vehicles driving in and through watercourses			Areas of indigenous vegetation should under no circumstances be fragmented or disturbed for used as an area for dumping of waste. As far as possible the existing road network should be utilised, minimising the need to develop new access routes resulting in an increased impact on the local environment. All staff and visitors to the site must undergo an induction process and must be made aware of the sensitive nature of the environment and faunal and floral species which occur there. The area must be re-vegetated with plant and grass species which are indigenous to the exact vegetation types. Rehabilitation measures that are implemented must be continually monitored to ensure that proper succession has occurred and that there is no erosion occurring. An alien invasive vegetation management plan should be developed and implemented. Alien and invasive vegetation control should take place throughout all phases to prevent loss of floral habitat.	
Loss of Aquatic Biota	**Construction:** Runoff from road surfaces Sedimentation Discharge of solvents, chemicals and hydrocarbons **Operational:** Maintenance of vehicles and machinery Runoff from road surfaces	Aquatic Biota	Construction Operational	Biomonitoring of aquatic macro-invertebrates within wetlands systems when surface water is present.	Minimisation of impacts to acceptable limits

	Discharge of solvents, chemicals and hydrocarbons Excavation from the watercourses and the release of nutrients and pollutants from disturbed soils Removal of substrate within wetlands Sedimentation				
Loss of Terrestrial Fauna	**Construction and Operational:** • Vegetation loss and disturbance – clearing of vegetation • Excessive noise disturbances • Illegal hunting • Habitat fragmentation destruction • Vehicles driving through natural vegetated areas	Terrestrial Fauna	Construction Operational	Site clearing to take place in a phased manner (where possible) to allow for any faunal species present to move away from the study site to the surrounding open space areas. Prior and during vegetation clearance any larger fauna species noted should be given the opportunity to move away from the construction machinery. Fauna species such as frogs and reptiles that have not moved away should be carefully and safely removed to a suitable location beyond the extent of the development footprint by a suitably qualified ECO trained in the handling and relocation of animals. Fencing should be erected around the project area to prevent workers and members of the public from entering the surrounding environments. This fence should have small openings to allow wildlife to pass through. Waste management must be a priority and all waste must be collected and stored adequately. It is recommended that all waste be removed from site on a weekly basis to prevent rodents and pests entering the site. Should any sensitive or Red Data animal or bird species be encountered during the construction, operation and decommissioning activities, these should be relocated to natural areas in the vicinity. Any sensitive fauna that are inadvertently killed	Minimisation of impacts to acceptable limits

				during earthmoving operations should be preserved as museum voucher specimens. No hunting, trapping or killing of fauna are allowed. Any lizards, snakes or monitors encountered should be allowed to escape to a suitable habitat away from disturbance. General avoidance of snakes is the best policy if encountered. Snakes should not be intentionally harmed or killed and allowed free movement away from the area. Trenches and deep excavations should not be left open for extended periods of time as fauna may fall in and become trapped in them. Trenches which are exposed should contain soil ramps allowing fauna to escape the trench.	
Loss of Terrestrial Flora	**Construction and Operational:** Vegetation clearance Vehicles driving through natural vegetated areas Habitat fragmentation and destruction	Terrestrial flora	Construction Operational	Areas that are stripped during construction and operation should be re-vegetated with indigenous vegetation as soon as possible. This will also reduce the likelihood of encroachment by alien invasive plant species. Protected trees and plants shall not be removed or damaged without prior approval, permits or licenses from the relevant authority. The protected *Vachellia erioloba* occurs on site.	Minimisation of impacts to acceptable limits
Introduction and spread of alien vegetation	**Construction:** Clearing of vegetation Movement of vehicles between different site. **Operational:** Removal of substrate within watercourses	Terrestrial vegetation	Construction Operational Decommissioning	Proliferation of alien and invasive species is expected within any disturbed areas particularly as there are some alien and invasive species present within the study site. These species should be eradicated and controlled to prevent further spread beyond. An alien invasive vegetation management plan should be developed and implemented. Alien and invasive vegetation control should take place throughout all phases to prevent loss of floral habitat. Footprint areas should be kept as small as possible when removing alien plant species.	Minimisation of impacts to acceptable limits

	Clearing of vegetation during prospecting operations Vehicles driving in and through watercourses **Decommissioning:** Damage to vegetated areas Ineffective rehabilitation measures Vehicles driving in and through watercourses			No vehicles should be allowed to drive through designated sensitive drainage and wetlands areas during the eradication of alien and weed species.	
Prospecting of Diamonds Alluvial (DA), Diamonds General (D) and Diamonds (DIA) – excavations	Loss of topsoil	Soil	Pitting and trenching phase (construction and operation phase)	1) The Contractor should, prior to the commencement of earthworks determine the average depth of topsoil, and agree on this with the ECO. The full depth of topsoil should be stripped from areas affected by construction and related activities prior to the commencement of major earthworks. This should include the building footprints, working areas and storage areas. Topsoil must be reused where possible to rehabilitate disturbed areas. 2) Care must be taken not to mix topsoil and subsoil during stripping. 3) The topsoil must be conserved on site in and around the pit/trench area. 4) Subsoil and overburden in the prospecting area should be stockpiled separately to be returned for backfilling in the correct soil horizon order. 5) If stockpiles are exposed to windy conditions or heavy rain, they should be covered either by vegetation or geofabric,	Minimisation of impacts to acceptable limits

				depending on the duration of the project. Stockpiles may further be protected by the construction of berms or low brick walls around their bases. 6) Stockpiles should be kept clear of weeds and alien vegetation growth by regular weeding. 7) Where contamination of soil is expected, analysis must be done prior to disposal of soil to determine the appropriate disposal route. Proof from an approved waste disposal site where contaminated soils are dumped if and when a spillage/leakage occurs should be attained and given to the project manager. Establish an effective record keeping system for each area where soil is disturbed for prospecting purposes. These records should be included in environmental performance reports, and should include all the records below. • Record the GPS coordinates of each area. • Record the date of topsoil stripping. • Record the GPS coordinates of where the topsoil is stockpiled. • Record the date of cessation prospecting activities at the particular site. • Photograph the area on cessation of prospecting activities. • Record date and depth of re-spreading of topsoil. • Photograph the area on completion of rehabilitation and on an annual basis thereafter to show vegetation establishment and evaluate progress of restoration over time.	
	Erosion	Soil Air Water	Pitting and trenching phase (construction and operation phase)	1) An effective system of run-off control should be implemented, where it is required, that collects and safely disseminates run-off water from all hardened surfaces and prevents potential down slope erosion. 2) Periodical site inspection should be included in environmental performance reporting that inspects the effectiveness of the run-off control system and specifically records the occurrence of any erosion on site or downstream.	Minimisation of impacts to acceptable limits

				3) Wind screening and stormwater control should be undertaken to prevent soil loss from the site. 4) The use of silt fences and sand bags must be implemented in areas that are susceptible to erosion. 5) Other erosion control measures that can be implemented are as follows: o Brush packing with cleared vegetation o Mulch or chip packing o Planting of vegetation o Hydroseeding/hand sowing 6) Sensitive areas need to be identified prior to construction/prospecting so that the necessary precautions can be implemented. 7) All erosion control mechanisms need to be regularly maintained. 8) Seeding of topsoil and subsoil stockpiles to prevent wind and water erosion of soil surfaces. 9) Retention of vegetation where possible to avoid soil erosion. 10) Vegetation clearance should be phased to ensure that the minimum area of soil is exposed to potential erosion at any one time. 11) Re-vegetation of disturbed surfaces should occur immediately after construction/prospecting activities are completed. This should be done through seeding with indigenous grasses. 12) No impediment to the natural water flow other than approved erosion control works is permitted. 13) To prevent stormwater damage, the increase in stormwater run-off resulting from construction/prospecting activities must be estimated and the drainage system assessed accordingly. 14) Stockpiles not used in three (3) months after stripping must be seeded or backfilled to prevent dust and erosion.	
	Air Pollution	Air	Pitting and trenching phase (construction and operation phase)	**Dust control** 1) Wheel washing and damping down of un-surfaced and un-vegetated areas. 2) Retention of vegetation where possible will reduce dust travel.	Minimisation of impacts to acceptable limits

				3) Clearing activities must only be done during agreed working times and permitting weather conditions to avoid drifting of sand and dust into neighbouring areas. 4) Damping down of all exposed soil surfaces with a water bowser or sprinklers when necessary to reduce dust. 5) The Contractor shall be responsible for dust control on site to ensure no nuisance is caused to the neighbouring communities. 6) A speed limit of 30km/h must not be exceeded on site. 7) Any complaints or claims emanating from the lack of dust control shall be attended to immediately by the Contractor. 8) Any dirt roads that are utilised by the workers must be regularly maintained to ensure that dust levels are controlled. **Odour control** 9) Regular servicing of vehicles in order to limit gaseous emissions. 10) Regular servicing of onsite toilets to avoid potential odours. **Rehabilitation** 11) The Contractor should commence rehabilitation of exposed soil surfaces as soon as practical after completion of earthworks. **Fire prevention** 12) No open fires shall be allowed on site under any circumstance. All cooking shall be done in demarcated areas that are safe and cannot cause runaway fires. 13) The Contractor shall have operational fire-fighting equipment available on site at all times. The level of firefighting equipment must be assessed and evaluated through a typical risk assessment process.	
	Noise		Pitting and trenching phase (construction and operation phase)	1) The prospecting activities must aim to adhere to the relevant noise regulations and limit noise to within standard working hours in order to reduce disturbance of dwellings in close proximity to the development.	Minimisation of impacts to acceptable limits

				2) Mine, crushers, workshops and other noisy fixed facilities should be located well away from noise sensitive areas. Once the proposed final layouts are made available by the Contractor(s), the sites must be evaluated in detail and specific measures designed in to the system. 3) Truck traffic should be routed away from noise sensitive areas, where possible. 4) Noise levels must be kept within acceptable limits. 5) Noisy operations should be combined so that they occur where possible at the same time. 6) Mine workers to wear necessary ear protection gear. 7) Noisy activities to take place during allocated hours. 8) Noise from labourers must be controlled. 9) Noise suppression measures must be applied to all equipment. Equipment must be kept in good working order and where appropriate fitted with silencers which are kept in good working order. Should the vehicles or equipment not be in good working order, the Contractor may be instructed to remove the offending vehicle or machinery from the site. 10) The Contractor must take measures to discourage labourers from loitering in the area and causing noise disturbance. Where possible labour shall be transported to and from the site by the Contractor or his Sub-Contractors by the Contractors own transport. 11) Implementation of enclosure and cladding of processing plants. 12) Applying regular and thorough maintenance schedules to equipment and processes. An increase in noise emission levels very often is a sign of the imminent mechanical failure of a machine.	
	Impact on potential cultural and heritage artefacts and Paleontological aspects	Heritage & Palaeontology	Pitting and trenching phase (construction and operation phase)	**Heritage** Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the proposed development can be excavated/recorded and a management plan can be developed for	Minimisation of impacts to acceptable limits

				future action. Those sites that are not impacted on can be written into the management plan, whence they can be avoided or cared for in the future. Protection of archaeological, historical and any other site or land considered being of cultural value within the project boundary against vandalism, destruction and theft. The preservation and appropriate management of new discoveries in accordance with the NHRA, should these be discovered during construction activities. The following shall apply: Known sites should be clearly marked in order that they can be avoided during construction activities. The contractors and workers should be notified that archaeological sites might be exposed during the construction activities. Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible; All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken; Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the NHRA (Act No. 25 of 1999), Section 51. (1).	

				In order to achieve this, the following should be in place: A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage. Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above. In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures. No archaeological (both Stone Age and Iron Age) artefacts, assemblages, features, structures or settlements were recorded during the survey of the project footprint. <u>Palaeontology</u> It is the responsibility of the Environmental Site Officer (ESO) or site manager of the project to train the workmen and foremen in the procedure to follow when a fossil is accidentally uncovered. In the absence of the ESO, a member of the staff must be appointed to be responsible for the proper implementation of the chance find protocol as not to compromise the conservation of fossil material. Chance Find Procedure If a chance find is made the person responsible for the find must immediately stop working and all work that could impact that finding must cease in the immediate vicinity of the find.	

				The person who made the find must immediately report the find to his/her direct supervisor which in turn must report the find to his/her manager and the ESO or site manager. The ESO or site manager must report the find to the relevant Heritage Agency (South African Heritage Research Agency, SAHRA). (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za). The information to the Heritage Agency must include photographs of the find, from various angles, as well as the GPS co-ordinates. A preliminary report must be submitted to the Heritage Agency within 24 hours of the find and must include the following: 1) date of the find; 2) a description of the discovery and a 3) description of the fossil and its context (depth and position of the fossil), GPS co-ordinates. Photographs (the more the better) of the discovery must be of high quality, in focus, accompanied by a scale. It is also important to have photographs of the vertical section (side) where the fossil was found. Upon receipt of the preliminary report, the Heritage Agency will inform the ESO (or site manager) whether a rescue excavation or rescue collection by a palaeontologist is necessary. The site must be secured to protect it from any further damage. No attempt should be made to remove material from their environment. The exposed finds must be stabilized and covered by a plastic sheet or sand bags. The Heritage agency will also be able to advise on the most suitable method of protection of the find. If the fossil cannot be stabilized the fossil may be collected with extreme care by the ESO. Fossils finds must be stored in tissue paper and in an appropriate box while due care must be taken to remove all fossil material from the rescue site.	

				Once the Heritage Agency has issued the written authorization, the developer may continue with the development on the affected area.	
Waste management		Pollution	Pitting and trenching phase (construction and operation phase)	**Litter management** 1) Refuse bins must be placed at strategic positions to ensure that litter does not accumulate within the construction site. 2) The Contractor shall supply waste collection bins where such is not available and all solid waste collected shall be disposed of at registered/licensed landfill. 3) Good housekeeping practices should be implemented to regularly maintain the litter and rubble situation on the construction site. 4) If possible and feasible, all waste generated on site must be separated into glass, plastic, paper, metal and wood and recycled. An independent contractor can be appointed to conduct this recycling. 5) Littering by the employees of the Contractor shall not be allowed under any circumstances. The ECO shall monitor the neatness of the work sites as well as the Contractor campsite. 6) Skip waste containers should be maintained on site. These should be kept covered and arrangements made for them to be collected regularly. 7) All waste must be removed from the site and transported to a landfill site promptly to ensure that it does not attract vermin or produce odours. 8) Where a registered waste site is not available close to the construction site, the Contractor shall provide a method statement with regard to waste management. 9) A certificate of disposal shall be obtained by the Contractor and kept on file, if relevant. 10) Under no circumstances may solid waste be burnt on site. 11) All waste must be removed promptly to ensure that it does not attract vermin or produce odours. **Hazardous waste**	Minimisation of impacts to acceptable limits

				12) All waste hazardous materials must be carefully stored as advised by the ECO, and then disposed of offsite at a licensed landfill site, where practical. Incineration may be used where relevant. 13) Contaminants to be stored safely to avoid spillage. 14) Machinery must be properly maintained to keep oil leaks in check. 15) All necessary precaution measures shall be taken to prevent soil or surface water pollution from hazardous materials used during construction and any spills shall immediately be cleaned up and all affected areas rehabilitated. **Sanitation** 16) The Contractor shall install mobile chemical toilets on the site. 17) Staff shall be sensitised to the fact that they should use these facilities at all times. No indiscriminate sanitary activities on site shall be allowed. 18) Toilets shall be serviced regularly and the ECO shall inspect toilets regularly. 19) Toilets should be no closer than 50m or above the 1:100 year flood line from any natural or manmade water bodies or drainage lines or alternatively located in a place approved of by the Engineer. 20) Under no circumstances may open areas, neighbours fences or the surrounding bush be used as a toilet facility. 21) The construction of “Long Drop” toilets is forbidden, but rather toilets connected to the sewage treatment plant. 22) Potable water must be provided for all construction staff. **Remedial actions** 23) Depending on the nature and extent of the spill, contaminated soil must be either excavated or treated on-site. 24) Excavation of contaminated soil must involve careful removal of soil using appropriate tools/machinery to storage containers until treated or disposed of at a licensed hazardous landfill site.	

				25) The ECO must determine the precise method of treatment for polluted soil. This could involve the application of soil absorbent materials as well as oil-digestive powders to the contaminated soil. 26) If a spill occurs on an impermeable surface such as cement or concrete, the surface spill must be contained using oil absorbent material. 27) If necessary, oil absorbent sheets or pads must be attached to leaky machinery or infrastructure. 28) Materials used for the remediation of petrochemical spills must be used according to product specifications and guidance for use. 29) Contaminated remediation materials must be carefully removed from the area of the spill so as to prevent further release of petrochemicals to the environment, and stored in adequate containers until appropriate disposal.	
Water Use and Quality	Water pollution	Water	Pitting and trenching phase (construction and operation phase)	**Water Use** 1) Develop a sustainable water supply management plan to minimise the impact to natural systems by managing water use, avoiding depletion of aquifers and minimising impacts to water users. 2) Water must be reused, recycled or treated where possible. **Water Quality** 3) The quality and quantity of effluent streams discharged to the environment including stormwater should be managed and treated to meet applicable effluent discharge guidelines. 4) Discharge to surface water should not result in contaminant concentrations in excess of local ambient water quality criteria outside a scientifically established mixing zone. 5) Efficient oil and grease traps or sumps should be installed and maintained at refueling facilities, workshops, fuel storage depots, and containment areas and spill kits should be available with emergency response plans. **Stormwater**	

				6) The site must be managed in order to prevent pollution of drains, downstream watercourses or groundwater, due to suspended solids and silt or chemical pollutants. 7) Silt fences should be used to prevent any soil entering the stormwater drains. 8) Temporary cut off drains and berms may be required to capture stormwater and promote infiltration. 9) Promote a water saving mind set with construction/prospecting workers in order to Contractor ensure less water wastage. 10) Hazardous substances must be stored at least 40m from any water bodies on site to avoid pollution. 11) The installation of the stormwater system must take place as soon as possible to attenuate stormwater from the construction phase as well as the operation phase. 12) Earth, stone and rubble is to be properly disposed of, or utilized on site so as not to obstruct natural water path ways over the site. i.e. these materials must not be placed in stormwater channels, drainage lines or rivers. 13) There should be a periodic checking of the site's drainage system to ensure that the water flow is unobstructed. 14) If a batching plant is necessary, run-off should be managed effectively to avoid contamination of other areas of the site. Untreated runoff from the batch plant must not be allowed to get into the storm water system or nearby streams, rivers or erosion channels or dongas. The cut-off trenches and silt fences will be installed where necessary as to control runoff storm water by attenuating it and control the movement of sediment on the premises. These structures will be monitored on a regular basis. It is suggested that it be monitored on a weekly basis during the rainy season, and after possible rain events during the dry season.	

				If these practices is found to be insufficient for the control of storm water and sedimentation, other alternatives should immediately be investigated and implemented. **Groundwater resource protection** 15) Process solution storage ponds and other impoundments designed to hold non fresh water or non-treated process effluents should be lined and be equipped with sufficient wells to enable monitoring of water levels and quality. 16) Prevent dirty water runoff from leaving the general mining area; 17) Compact the base of dirty areas, like the workshops and oil and diesel storage areas to minimise infiltration of poor-quality water to the underlying aquifers; 18) Enough supply of absorbent fibre should be kept at the site to contain accidental spills; 19) Contain dirty water in return water dams and re-use dirty water for dust suppression and make up water in the plant; 20) Proper storm water management should be implemented. Berms should also be constructed to ensure separation of clean water and dirty water areas; 21) A detailed mine closure plan should be prepared during the operational phase, including a risk assessment, water resource impact prediction etc. as stipulated in the DWS Best Practice Guidelines. The implementation of the mine closure plan, and the application for the closure certificate can be conducted during the decommissioned phase. **Sanitation** 22) Adequate sanitary facilities and ablutions must be provided for construction workers (1 toilet per every 15 workers). 23) The facilities must be regularly serviced to reduce the risk of surface or groundwater pollution. **Concrete mixing**	

				24) Concrete contaminated water must not enter soil or any natural drainage system as this disturbs the natural acidity of the soil and affects plant growth. **Public areas** 25) Food preparation areas should be provided with adequate washing facilities and food refuse should be stored in sealed refuse bins which should be removed from site on a regular basis. 26) The Contractor should take steps to ensure that littering by construction/prospecting workers does not occur and persons should be employed on site to collect litter from the site and immediate surroundings, including litter accumulating at fence lines. **27)** No washing or servicing of vehicles on site. **Infrastructure** 28) Infrastructure should adhere to the GN704 of the South African National Water Act (36 of 1998) and not be located within the 1:100- year Return Period flood line. This is essential for the safety of human life as well as for the protection of infrastructure from flood inundation and destruction.	

Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including

G. MONITORING OF IMPACT MANAGEMENT ACTIONS

H. MONITORING AND REPORTING FREQUENCY

I. RESPONSIBLE PERSONS

J. TIME PERIOD FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS

K. MECHANISM FOR MONITORING COMPLIANCE

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Ecological Impacts	Loss or fragmentation of habitats Spread of Invasive plant species	• Conduct regular internal audits • Conduct regular external audits	• Environmental Manager • Suitable qualified environmental auditor	Monitoring should be undertaken for duration of operations. Internal audits should be undertaken at least every 6 months. External audits should be undertaken by a suitably qualified auditor on an annual basis. Reports should be made available to the competent authority if required.
Prospecting of Diamonds Alluvial (DA), Diamonds General (D) & Diamonds (DIA) – excavations	Loss of topsoil Erosion Air Pollution Noise Impact on potential cultural, heritage artefacts and fossils	• Conduct regular internal audits • Conduct regular external audits	• Environmental Manager • Suitable qualified environmental auditor	Monitoring should be undertaken for duration of operations. Internal audits should be undertaken at least every 6 months. External audits should be undertaken by a suitably qualified auditor on an annual basis. Reports should be made available to the competent authority if required.
Waste management	Pollution	• Conduct regular internal audits • Conduct regular external audits	• Environmental Manager • Suitable qualified environmental auditor	Monitoring should be undertaken for duration of operations. Internal audits should be undertaken at least every 6 months. External audits should be undertaken by a suitably qualified auditor on an annual basis. Reports should be made available to the competent authority if required.
Water Use and Quality	Water pollution	• Conduct regular internal audits • Conduct regular external audits	• Environmental Manager • Suitable qualified environmental auditor	Monitoring should be undertaken for duration of operations. Internal audits should be undertaken at least every 6 months. External audits should be undertaken by a suitably qualified auditor on an annual basis. Reports should be made available to the competent authority if required.

Heritage & Palaeontology	Disturbance or destruction of paleontological & heritage	• Conduct regular checks	• Environmental Manager • Suitable qualified environmental auditor	Monitoring should be undertaken for duration of operations. Internal audits should be undertaken at least every 6 months. External audits should be undertaken by a suitably qualified auditor on an annual basis. Reports should be made available to the competent authority if required.

L. A PROGRAM FOR REPORTING ON COMPLIANCE, TAKING INTO ACCOUNT THE REQUIREMENTS AS BY THE REGULATIONS;

External audits should be undertaken by a suitably qualified auditor on an annual basis. Reports should be made available to the Competent Authority if required.

M. AN ENVIRONMENTAL AWARENESS PLAN DESCRIBING THE MANNER IN WHICH—

(i) Manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work.

Anika Deetlefs will implement an Environmental Awareness Plan which will include various mechanisms for informing employees of environmental risks resulting from their work, including:

- Induction training for full –time staff and contractors;
- In-house training sessions to be held with relevant employees;
- On the job training regarding environmental issues
- Training and skills development

The above measures will be implemented through an Environmental Communication Strategy to be implemented.

See the attached **Appendix 11** for the Awareness plan

(ii) Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment.

Anika Deetlefs will implement an incident reporting and reporting procedure in order to identify risks timeously and implement actions to avoid or minimise environmental impacts.

N. SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY
(Among others, Confirm that the financial provision will be reviewed annually).

No specific information requirements have been detailed by the Competent Authority.

END OF THE REPORT