# FISH BY THE SEA (PTY) LTD

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## PROPOSED PROSPECTING FOR DIAMONDS WITH BULK SAMPLING ON AN APPROXIMATELY 121HA AREA BETWEEN THE LOW-WATER AND HIGH-WATER MARK OF THE SEA: PORTION 4 OF THE FARM RIETFONTEIN EXTENSION NO. 151 AND PORTION 4 OF THE FARM GRAAUW DUINEN NO. 152, VANRHYNSDORP

**DMR REF: WC 50/1/1/2/10454/ PR**

**Date: 18 May 2024**

**Contact: 021 851 1616**

**Bernard de Witt**
**Director: EnviroAfrica CC**

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Contact: 082 448 9991 and 084 037 2477

mineral resources

Department:
Mineral Resources
**REPUBLIC OF SOUTH AFRICA**

# ENVIRONMENTAL IMPACT ASSESSMENT REPORT

# and

# ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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


| | |
|---|---|
| **NAME OF APPLICANT:** | **Fish by the Sea (Pty) Ltd** |
| **TEL NO:** | **083 321 1822** |
| **FAX NO:** | **N/A** |
| **POSTAL ADDRESS:** | **P. O. Box 8037 ELANDSFONTEIN 1406** |
| **PHYSICAL ADDRESS:** | **Unit 101, 42 Beach Road, Strand, 7140** |


**DMR REFERENCE NUMBER:** **WC 50/1/1/2/10454/ PR**

**CONTENTS**

## 1. 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 a permit are submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused.

**It is furthermore an instruction that** the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed

supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the applicant.

## 2. OBJECTIVE OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

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—
    (iii) (aa) can be reversed;
    (iv) (bb) may cause irreplaceable loss of resources, and
    (v) (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 manage, avoid or mitigate identified impacts; and
h) identify residual risks that need to be managed and monitored.

# PART A
# SCOPE OF ASSESSMENT AND ENVIRONMENTAL IMPACT ASSESSMENT REPORT

**3.** Contact Person and correspondence address

**a) Details of**

**i) Details of the EAP**

Name of The Practitioner: Bernard de Witt

Tel No.: 021 851 1616

Fax No. 086 512 0154

e-mail address: bernard@enviroafrica.co.za

**ii) Expertise of the EAP.**

(1) **The qualifications of the EAP**
(with evidence).

After qualifying with a B.Sc. in Forestry and a B.A. (Hons) in Public Administration at the University of Stellenbosch, Bernard joined the Department of Forestry as an Indigenous Forest Planner in 1983, going on to become Manager of the Table Mountain Reserve with the Cape Town Council.

He then joined Cape Nature Conservation ("CNC") and headed its Conservation Planning Section before taking up the position of District Manager of the Boland area (inc. the Hottentots Holland and Kogelberg). As a Regional Ecologist, he co-ordinated managerial and scientific inputs into Provincial Nature Reserves in the Boland, Overberg and West Coast regions of the Western Cape Province.

For the last four years of his employment, he assessed and evaluated development applications, from an environmental perspective, on behalf of CNC (now Western Cape Department of Environmental Affairs and Development Planning ("DEA&DP"). Since he left DEA&DP, he has been involved in environmental consulting in the private sector as a member of EnviroAfrica.

(2) **Summary of the EAP's past experience**

Bernard de Witt has more than 30 years of experience in environmental management and environmental impact assessments.

After qualifying with a B.Sc. in Forestry and a B.A. (Hons) in Public Administration at the University of Stellenbosch, Bernard joined the Department of Forestry as an Indigenous Forest Planner in 1983, going on to become Manager of the Table Mountain Reserve with the Cape Town Council.

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For the last four years of his employment, he assessed and evaluated development applications, from an environmental perspective, on behalf of CNC (now Western Cape Department of Environmental Affairs and Development Planning ("DEA&DP")). Since he left DEA&DP, he has been involved in environmental consulting in the private sector as a member of EnviroAfrica.

## b) Description of the property.

**Table 1:** Details of land parcels on which the proposed site is located

| | | |
|---|---|---|
| **Farm Name:** | Portion 4 of the Farm Rietfontein Extension No. 151 and Portion 4 of the Farm Graauw Duinen No. 152, Vanrhynsdorp | |
| **Application area (ha)** | Approximately 121ha | |
| **Magisterial district:** | Vanrhynsdorp | |
| **Distance and direction from nearest town** | 55km north-west of Koekenaap and 50km west of Nuwerus | |
| **21 digit Surveyor General Code for each farm portion** | C07800000000015100004 for Portion 4 of the Farm Rietfontein Extension No. 151 and C07800000000015200004 for Portion 4 of the Farm Graauw Duinen No. 152, Vanrhynsdorp | |

## c) Locality map

**(show nearest town, scale not smaller than 1:250000).**

The locality plan is shown in **Figure 1.**

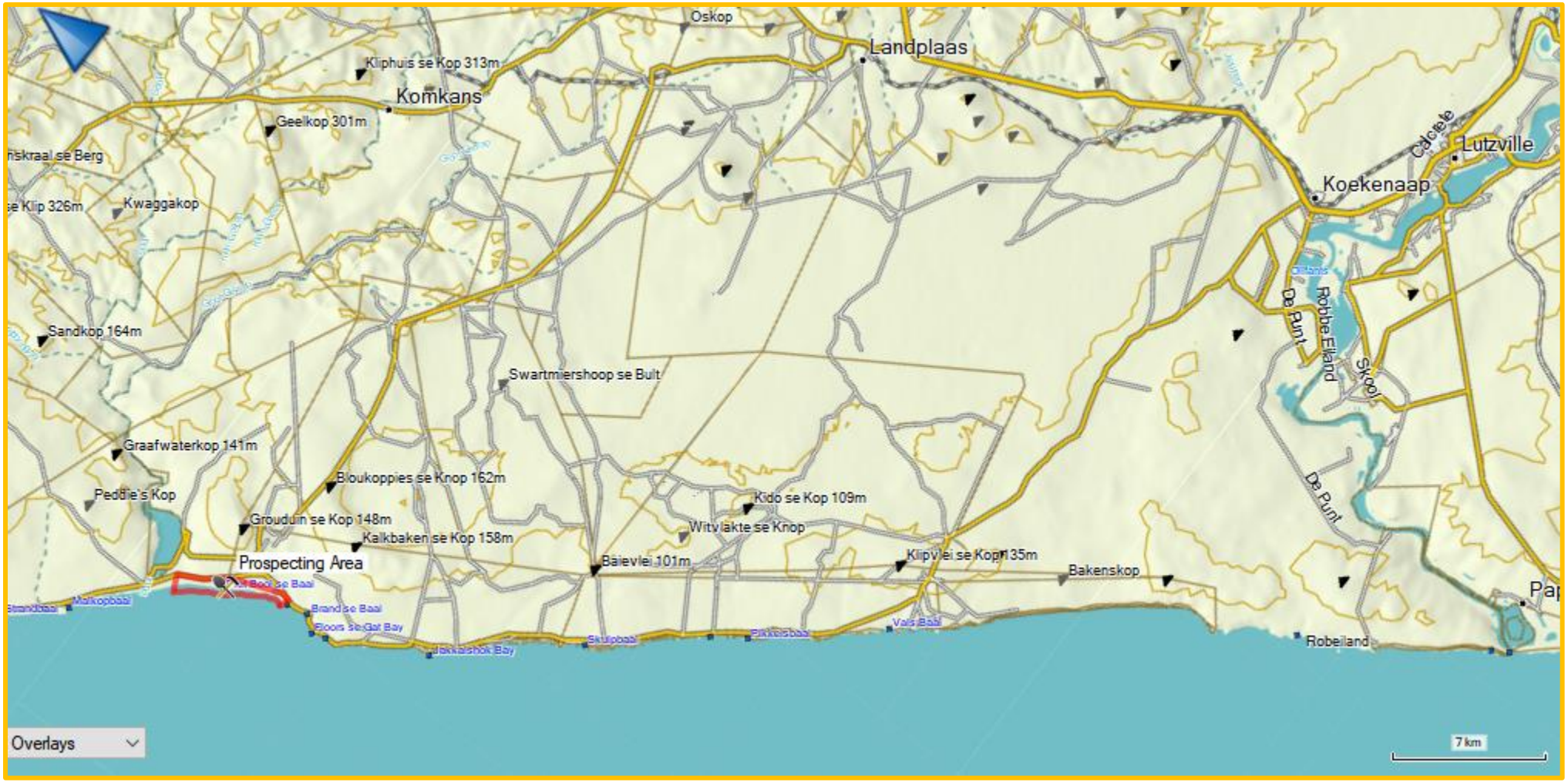


**Figure 1:** Locality plan showing proposed site as polygon with red perimeter

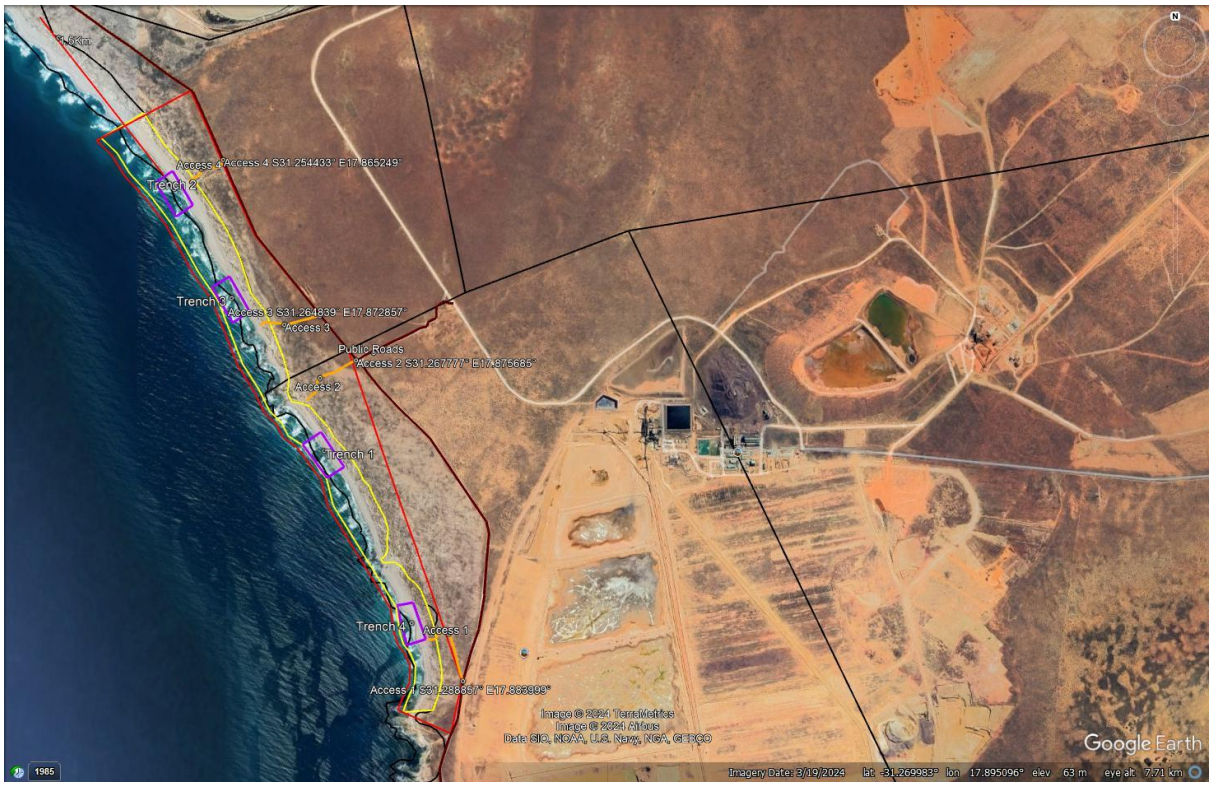


**Figure 2:** Locality plan of proposed site showing proposed bulk sampling trench locations (See also Appendix 1)

**Table 2:** Coordinates of bulk sampling trenches containing the less than 20 prospecting pits

| | Coordinates | | | |
|---|---|---|---|---|
| | **Corner 1** | **Corner 2** | **Corner 3** | **Corner 4** |
| **Trench 1** | S31.273345°S, 17.871481°E | S31.272528°, 17.872895E | S31.275539°S, 17.873402°E | 31.274822°S, 17.874708°E |
| **Trench 2** | 31.255929°S, 17.859907°E | 31.255144°S 17.861224°E | S31.258203°S, 17.861512°E | 31.257431°S, 17.862826°E |
| **Trench 3** | 31.262918°S, 17.864358°E | 31.262198°S, 17.865705°E | S31.265276°S, 17.865987E° | 31.264537°, 17.867312°E |
| **Trench 4** | S31.283954°S, 17.878833°E | S31.283757°S, 17.880088°E | 31.286550°S, 17.879626°E | 31.286158°S, 17.881066°E |

## d) Description of the scope of the proposed overall activity

The applicant *i.e.*, Fish by the Sea (Pty) Ltd proposes prospecting for alluvial diamonds with bulk sampling between the high-water mark of the sea and the low-water mark of the sea on Portion 4 of the Farm Rietfontein Extension No. 151 and Portion 4 of the Farm Graauw Duinen No. 152, Vanrhynsdorp. The proposed prospecting with bulk sampling site is shown in detail in Figure 2 and in Appendix 1.

## Description of planned non-invasive activities:

PHASE 1: Literature Study Imagery Analysis Geological Mapping Geophysical Survey

During this phase the desktop studies and studying of available information on surrounding exploration work that has previously been done will be supplemented by field observations. Ground Resistivity measurements will also be used to “home in” on target areas.

## Description of planned invasive activities:

Phase 2: Preliminary evaluation - Prospecting pits

The objective of the preliminary evaluation phase is to determine a ballpark estimate of grade and size and thus possible in-situ value of the deposit. This is normally established by collecting mini samples by the most cost-effective method available. Due to the relative shallow overburden, prospecting pits is the most common technique and will be employed during this exploration program to allow for geological samples.

The results of the previous exploration program have indicated a series of small but very promising target areas across the entire prospecting area which are probably linked to paleo channels and raised marine beaches within the area.

Pit development will be the same as for trench development (Bulk Sampling) as shown in the diagrams below but on a much smaller scale and it is anticipated that no more than 20 such pits will be developed. After results are logged the pit will be backfilled immediately for security and safety reasons before the project moved to the next pit position.

The following volumes of material requiring earthmoving are only an estimation used in the costing exercise

- Pit floor to inspect and logged the gravel: 5.0m long and 2.0m wide (10m²)
- Depth of Topsoil: 0.5m to be stockpiled separate from overburden
- Depth of Overburden: 5m to be stockpiled separate from topsoil
- Depth of Gravel: 1m to be logged and photographed
- Total Depth of Prospecting Pit: 6.5m
- Footprint including 3m bench: 11m long x8m wide (88m²)
- Volume topsoil: 88m² X 0.5m = 44m³
- Volume overburden: 50m² (average 88m² top & 10m² bottom) X 5m = 250m³
- Volume gravel: 10m² X 1m = 10m³
- Total earthmoving from 20 Prospecting pits: (44m³+250m³) X 20 = 5880m³

## Description of bulk sampling activities

Phase 3 Bulk sampling (Trenches)
The bulk sample will consist of a trench excavated perpendicularly to the low-water mark or paleo beach. There will only ever be one bulk sample open at any given time and it is anticipated that only four such sample sites will be developed. The bulk sampling or trial mining however needs to continue till approximately 1 000 carats has been recovered for the feasibility of the mine to be concluded and the determination to continue with a Mining Right application. The information from this trial mining is also essential to determine the most efficient final recovery method.

The following are pertinent regarding the prospecting trench development.
The trench width will be determined by:

- Overburden depth. The deeper the overburden, the wider the trench will be at the surface.
- The angle of repose and safety of the sidewalk in terms of slumping. The operator on site must determine these, as they are in situ safety considerations.

Prospecting trenching development will consist of the following procedures:

- Remove the overburden (beach sand) to a create a berm of average 5m high around the excavation to prevent seawater and waves entering the excavation (Photo 1).

- Extract alluvial material ±5m thick layer and use infield screen to remove fines and oversize -2mm and +21mm, ±99% scalping for immediate backfill (Photo 2).
- The remaining ±1% (concentrate from the trommel screen) will be bagged and trucked to the containerised processing plant (Bourevestnik autosorter). This process makes use of flow sort X-ray media separator and the final concentrate for diamond recovery is deposit in safe boxes. (Photo 3).

The following volumes requiring earthmoving are only an estimation used in the costing exercise:

- Depth of Overburden: 5m -10 to be used as a berm around the excavation to keep sea water and waves out of the excavation
- Depth of Gravel: 2-5m
- ROM: resource scalped by 99% through infield screening and 1% concentrate (+2mm and -21mm) are bagged and transported to containerised Bourevestnik x-ray sorter
- Total Depth of Prospecting Trench: 10-15m
- Footprint of trench: 300m long x 150m wide (45 000m² or 4.5Ha)
- Volume overburden: 45 000m² X 10m deep = 450 000m³
- ROM 45 000m² X 5m = 225 000m³
- Concentrate 225 000m³ X 1% = 2 250m³ X 2SG = 4 500 tons

The applicant requires 5000 tonnes of concentrate per sample for processing, in order to obtain a representative sample for sufficient statistical analysis to complete a resource statement and determine a grade of carats per 100 ton (CPHT).

### (i) Listed and specified activities

**Table 3:** Applicable listed activities

| NAME OF ACTIVITY | Aerial extent (ha or m²) | LISTED ACTIVITY | APPLICABLE LISTING NOTICE | WASTE MANAGEMENT AUTHORISATION |
|---|---|---|---|---|
| The operation directly relates to prospecting of a mineral resource (diamonds) with bulk sampling and requires a prospecting right with bulk sampling in terms of section 16 of the MPRDA<br>• Refer to Figures 1, 2, 3 and 4:<br>• Accessing the site via existing tracks and access roads to the area.<br>• Bulk sampling trenches will be developed as shown in Figure 3<br>• After samples are completed | Total Prospecting Area ±121ha | X | **Item 20 of GN. R. 983 of 2014 (as amended),** *i.e.,* **"***Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the MPRDA, 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*" | N/A |

| | | | | |
|---|---|---|---|---|
| the trench is backfilled immediately for security and safety reasons before moving on to the next trench position.<br>• Sea water in the trench will be used during screening process.<br>• No Tailings and Fine residue (slimes) dumps will be created.<br>• Refuse collection containers and mobile ablution facilities to be provided. | | | | |
| This operation requires permission in terms of Section 20 of the MPRDA for the removal and disposal of bulk samples of any minerals.<br>The applicant requires 4500-5000 tons of concentrate for processing from each sample to obtain a representative sample for sufficient statistical analysis to complete a resource statement and to determine a grade (CPHT). | Total footprint of all Bulk samples ±18ha<br>Total volume of all Bulk samples for immediate backfill ±270 0000m³. | X | **Item 19 of GN. R. 984 of 2014 (as amended)** *i.e.,* "*The removal and disposal of a mineral, which requires a permission in terms of section 20 of the MPRDA, as well as any other applicable activity as contained in Listing Notice 2, in Listing Notice 1 of 2014 or Listing Notice 3 of 2014, required to exercise the permission"*_____ | N/A |
| The continuous establishment and reclamation of temporary stockpiles resulting from activities which require a prospecting right | Total volume of all bulk samples for immediate backfill ±270 0000m³. | X | N/A | **Item 15 in Category A of GN. R. 633** *i.e.*, "*The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a prospecting right or mining permit in terms of the Mineral and Petroleum Resources Development Act. 2002 (Act No. 28 of 2002)*". |

| | | | | |
|---|---|---|---|---|
| | | | | GN.R. 632 (dated 24/07/2015): Regulations regarding the Planning and Management of Residue Stockpiles and Residue Deposits from a Prospecting, Mining, Exploration or Production Operation |
| OTHER ACTIVITIES (Associated infrastructure not considered to be listed activities) Processing area with containerized processing plant, Storage Facilities, Waste Management Facilities and Ablution Facilities<br><br>Storage of fuel for equipment in mobile fuel bowser provided with bunded parking area. | < 0.5ha<br><br><80m$^3$ | No listed activity triggered | NA | NA |
| | | | | |

## (ii) Description of the activities to be undertaken

(Describe Methodology or technology to be employed, including the type of commodity to be mined and for a linear activity, a description of the route of the activity)

The applicant *i.e.*, Fish by the Sea (Pty) Ltd proposes prospecting for alluvial diamonds with bulk sampling between the high-water mark of the sea and the low-water mark of the sea on Portion 4 of the Farm Rietfontein Extension No. 151 and Portion 4 of the Farm Graauw Duinen No. 152, Vanrhynsdorp. The proposed prospecting with bulk sampling site is shown in more detail below in Figure 2.

### Description of planned non-invasive activities:

PHASE 1: Literature Study Imagery Analysis Geological Mapping Geophysical Survey

During this phase the desktop studies and studying of available information on surrounding exploration work that has previously been done will be supplemented by field observations. Ground Resistivity measurements will also be used to “home in” on target areas.

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The results of the previous exploration program have indicated a series of small but very promising target areas across the entire prospecting area which are probably linked to paleo channels and raised marine beaches within the area.

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The trench width will be determined by:

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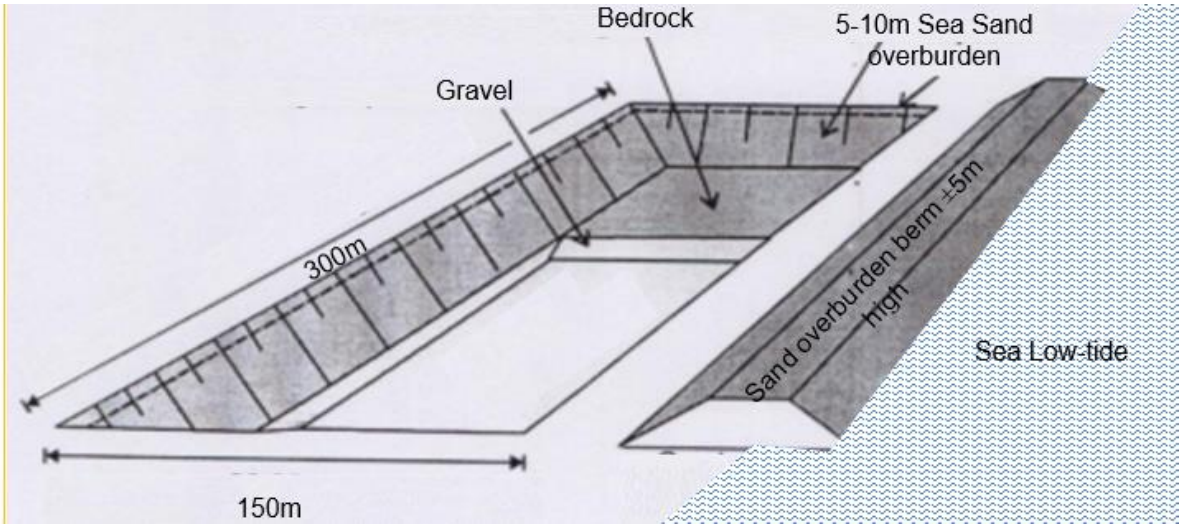


**Figure 3:** Schematic trench development

**Photo 1:** Berm to prevent waves from entering excavation

The maintenance of the berm is a continuous process due to wave action when sampling is ongoing and as soon as the berm is breached, the area is backfilled and levelled within two high tide events. Also note in Photo 1, the 8" mono pump used to pump water from excavations to help prevent flooding during sampling.


**Photo 2:** Infield trommel screen

The screen removes fines and oversize, ±99% scalping (-2mm and +21mm) for immediate backfill. Also shown in Photo 2 is a tough bag for collecting concentrate ±1% that will be transported to the processing plant.

The excavator is used to feed the trommel screen and for backfilling and levelling of the waste product on a continuous basis. The screen makes use of the make-up water that gathers in the pit.

**Photo 3 Bourevestnik auto sorter**

Mobile 6m containerised processing plant to be moved in relation to sample sites. The material from tough bags is processed for the final recovery of diamonds and the waste is backfilled


**Figure 4:** View of prospecting area with proposed trenches, existing access roads, equipment parking area and processing plant container.

**Table 4:** Bulk Sampling Activities

| ACTIVITY | | DETAILS |
|---|---|---|
| Number of pits/trenches planned | | Estimated 4 bulk samples until 20 000 tons concentrates has been processed |
| Dimensions of excavations | Number of excavations | Length Breadth Depth |
| | 4 | 300m 150m 10m |
| Locality | | The sample sites will be developed perpendicularly to the low tide line or paleo beach. Refer to Figure 4 for approximate positions to be finalized during Phase 2 |
| Volume Overburden (Waste) per bulk sample area | | 45 000m² X 10m deep = 450 000m³ |
| Volume Ore per bulk sample area | | 45 000m² X 5m = 225 000m³<br>Infield screening (remove 99% fines and oversize from gravel) for immediate backfill<br>Concentrate remaining = 2 250m³ |
| Density Overburden | | 25 000m³ X SG of 2 = 50 000 tons |
| Density Ore | | 2 500m³ X 2SG = 5000 tons |
| Phase(s) when bulk sampling will be required | | Phase 3 |
| Timeframe(s) | | Year 3 and 4 |

## Description of pre-/feasibility studies

The project geologist monitors the program, consolidates, and processes the data and amends the program depending on the results. This is a continuous process throughout the program and continues even when no prospecting is done on the ground. Each physical phase of prospecting is followed by desktop studies involving interpretation and modelling of all data gathered. These studies will determine the manner in which the work program is to proceed in terms of activity, quantity, resources, expenditure and duration. A GIS based database will be constructed capturing all exploration data.

### Associated infrastructure

Accommodation will be provided off-site in one of the nearby towns.
Equipment will be transported to site via the existing roads (including gravel and jeep track). No new roads will be required.

No water will be abstracted in terms of section 21(a) of National Water Act, 1998 (Act no. 36 of 1998) and no water reticulation will be laid-on to the mine work area(s) either.

No secondary processing plant and services will be developed on the prospecting site.
A temporary equipment laydown area will be developed at one of the informal campsites used for recreational activities. This is also the area where the earth moving equipment will be parked when not in use and will include secured storage (containerized storage) area and a mobile chemical toilet.
Fuel will be contained in a mobile bowser provided with a bunded parking area.

### Decommissioning phase

Planning for closure and restoration from the beginning of an operation makes the process easier; waste can be removed as it is created; excavations and surface disturbance can be planned so that topography restoration is less complicated; and topsoil can be re-used at shorter intervals. The decommissioning and closure phase at the end of the life of the mine will consist of implementing the Final Rehabilitation, Decommissioning and Closure Plan that will form part of the final EIR. Rehabilitation is carried out on a continuous basis as part of the annual rehabilitation plan. The rehabilitation work will be conducted under the supervision of an ECO and will be monitored continuously, with annual environmental audits conducted by an independent accredited person to help ensure effective restoration and rehabilitation.

Post prospecting with bulk sampling topography of the proposed site will follow the original landform shape. Rehabilitation will involve backfilling the pits and trenches and this will be assisted by the action of high tides and storm events. The operation will not create any overburden or fine residue dumps. No water reticulation will be required either. No secondary processing plant and services will be developed on the proposed site and no offices nor accommodation will be provided on-site.

**Table 5:** Summary of proposed prospecting with bulk sampling activities

| Phase | Activity | Skill(s) required | Timeframe | Outcome | What technical expert will sign off on the outcome? |
|---|---|---|---|---|---|
| 1 | Non-invasive<br>Literature Study<br>Imagery Analysis<br>Geological Mapping<br>Geophysical Survey | Project Manager<br>Geologist | Month 1-12 | Maps, plan & report on previous work.<br>Delineation of potential gravel resource. | Project Manager |
| 2 | Preliminary evaluation<br>Prospecting Pits | Project Manager<br>Geologist | Month 13-30 | Diamond Ore Characterization (DOC) study for metallurgical purposes | Project Manager |
| 3 | Evaluation phase<br>Bulk sampling (Trenching) | Project Manager<br>Geologist | Month 31-48 | Diamond Ore Characterization (DOC) study for metallurgical purposes and to allow the sufficient recovery of diamonds for evaluation and foot printing purposes. | Project Manager |
| 4 | Final analysis, quality control, database update and resource statement | Project Manager<br>Geologist<br>Economist | Month 49-54 | Feasibility study and decision making If results prove negative, then decommissioning and final closure. If results prove positive, then continue to mining | Project Manager |
| 5 | Application for mining right or final decommissioning and closure | Project Manager | Month 55-60 | Mining right or Closure certificate | Project Manager |

## e) Policy and Legislative Context

**Table 6:** Applicable policies and legislation

| APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT | REFERENCE WHERE APPLIED | HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT. |
|---|---|---|
| **Constitution of South Africa, specifically everyone has a right;**<br>a. to an environment that is not harmful to their health or wellbeing; and<br>b. to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:<br>i. prevents pollution and ecological degradation;<br>ii. promote conservation; and<br>iii. Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development. | Prospecting right with bulk sampling activities | The proposed prospecting and bulk sampling activities will be conducted in such a manner that significant environmental impacts are avoided, where significant environmental impacts cannot altogether be avoided, the impacts will be minimised and mitigated in order to protect the environmental right of<br>South Africans. |
| **Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) [MPRDA] Section 24 (as amended)**<br><br>**MPRDA Regulations as amended by GN R. 349 of 18 April 2011.** | Application to the DMR for a prospecting with bulk sampling right in terms of Section 22. | If the application for prospecting rights with bulk sampling is approved, the conditions and requirements attached to the prospecting right approval will be complied with during prospecting. The DMR is the Competent Authority for the application. |
| **National Environmental Management Act, 1998 (Act No. 107 of 1998) (as amended) [NEMA]** | Application to the DMR for Environmental Authorisation in terms of the EIA Regulations, 2014 (as amended) | An Application for Environmental Authorisation must be submitted to the DMR for an Environmental Authorisation.<br><br>The listed activities that are triggered by this application make it a requirement that this application follows the Scoping and Environmental Impact Reporting process.<br><br>An environmental authorisation must be obtained before the proposed prospecting with bulk |

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| | | sampling work can be commenced with.<br><br>The compilation of this Scoping Report and the Public Participation Process being conducted is required in terms of the EIA Regulations of 2014 (as amended). |
| **National Environmental Management: Waste Management Act, (Act No. 59 of 2008) [NEMWA] (as amended)**<br><br>**Listed waste management activity in GN R. 921 (dated 29/11/ 2013)**<br><br>**Regulations regarding the planning and management of residue stockpiles and residue deposits from a prospecting, mining, exploration or production operation in GNR 632 of 24 July 2015.** | Application to the DMR for a waste management licence in terms of the NEMWA | An application for a waste management licence must be submitted to the DMR. The listed waste management activity triggered determines the application process to be followed.<br><br>The applicable listed waste management activity has been included in Table 3. |
| **National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008)** | NEM:ICMA | The proposed prospecting and bulk sampling will take place on Coastal Public Property and within the Coastal Protection Zone and the impacts thereof must be considered in the application for environmental authorisation. |
| **National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) [NEMBA] National list of ecosystems that are threatened and in need of protection, 2011 (in GN 1002 dated 2 December 2011)** | | There are no Critically Endangered, Endangered or Vulnerable ecosystems identified on the proposed site itself. The proposed site consists of land located between the high-water mark of the sea and the low water mark of the sea and land that is devoid of vegetation. |
| **National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004). National Dust Control Regulations in GN R. 827 of 1 November 2013** | | Dust control measures will be included in the EMPr |
| **National Heritage Resources Act, 1999 (Act No. 25 of 1999)** | | A Palaeontological Impact Assessment and an underwater Heritage Impact Assessment have been conducted and these will be submitted to Heritage Western Cape as part of the public consultation process.<br><br>Sensitive areas will be identified as no-go areas during sampling and all required mitigation measures and will be included in the EMPr |
| **Land Use Planning Act, 2014 (Act No. 3 of 2014) (LUPA)** | Land use permitting application to Matzikama Local Municipality. | Consent use may be required from the Matzikama Local Municipality before the proposed prospecting activities can be conducted on properties that are zoned Agriculture. The municipality will |

| | | |
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| | | be invited to comment on the application. |
| **Municipal Plans and Policies** | | |
| **Standards, Guidelines and Spatial Tools** | | |
| Mining and Biodiversity Guideline: 2013 Mainstreaming biodiversity into the mining sector. Pretoria. | Section 5.1 & 8.1.9 | The mitigation measures to address and mitigate the potential impacts of the proposed prospecting for alluvial diamonds with bulk sampling will be included in the EMPr. |
| DEA Guideline on Need & Desirability (2017) | | |
| DEA Guideline on PPP<br>DMR Guideline on Consultation with Communities and I&APs (undated) | | |
| DEAT Integrated Environmental Management Information Series 5: Impact Significance (2002) | | To be included in the EIR phase. |
| DEAT Integrated Environmental Management Information Series 7: Cumulative Effects Assessment (2004) | | To be included in the EIR phase. |
| SANBI BGIS databases (www.bgis.sanbi.org) | Baseline environmental description and Figures 1 to 4 | Used during desktop study to check for sensitive environments within and close to the proposed site. |
| SANS 1929:2005 Edition 1.1 – Ambient Air Quality Limits for Common Pollutants | Management and monitoring measures | Standard for dust fallout. Dust mitigation measures will be included in the EMPr. |

In addition to the foregoing, the Applicant must also comply with the provisions of other relevant conventions and legislation, which includes, amongst others, the following:

**International Conventions**

- United Nations Convention on Law of the Sea, 1982 (UNCLOS);
- Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (the London Convention) and the 1996 Protocol (the Protocol); and
- Convention on Biological Diversity (1992).

**Other South African Legislation**

- Dumping at Sea Control Act, 1980 (No. 73 of 1980);
- Hazardous Substances Act, 1983 and Regulations (No. 85 of 1983);
- Marine Living Resources Act, 1998 (No. 18 of 1998);
- Marine Traffic Act, 1981 (No. 2 of 1981);
- Marine Pollution (Control and Civil Liability) Act, 1981 (No. 6 of 1981);
- Marine Pollution (Prevention of Pollution from Ships) Act, 1986 (No. 2 of 1986);
- Marine Pollution (Intervention) Act, 1987 (No. 65 of 1987);
- Maritime Safety Authority Act, 1998 (No. 5 of 1998);
- Maritime Safety Authority Levies Act, 1998 (No. 6 of 1998);
- Maritime Zones Act 1994 (No. 15 of 1994);
- Mine Health and Safety Act, 1996 (No. 29 of 1996);
- National Environmental Management: Protected Areas Act, 2003 (No. 57 of 2003)
- National Heritage Resources Act, 1999 (No. 25 of 1999);
- Occupational Health and Safety Act, 1993 (No. 85 of 1993) and Major Hazard Installation Regulations;
- Sea-Shore Act, 1935 (No. 21 of 1935);
- Sea Birds and Seals Protection Act, 1973 (No. 46 of 1973);
- Revised National List of Ecosystems that are Threatened and in Need of Protection (“the Red List of Ecosystems”) in GN No. 2747 of 18 November 2022”.

## f) Need and desirability of the proposed activities.

(Motivate the need and desirability of the proposed development including the need and desirability of the activity in the context of the preferred location).

### Mining and Biodiversity Guidelines (2013)

The Mining and Biodiversity Guidelines (2013)[1] state that: "Sustainable development is enshrined in South Africa's Constitution and laws. The need to sustain biodiversity is directly or indirectly referred to in several Acts, not least the National Environmental Management: Biodiversity Act (No. 10 of 2004) (hereafter referred to as the Biodiversity Act) and is fundamental to the notion of sustainable development. International guidelines and commitments as well as national policies and strategies are important in creating a shared vision for sustainable development in South Africa."

The DMR, as custodian of South Africa's mineral resources, is tasked with enabling the sustainable development of these resources. This includes giving effect to the constitutional requirement to "prevent pollution and ecological degradation; promote conservation; and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development"[2].

The primary environmental objective of the MPRDA is to give effect to the "environmental right"[3] contained in the South African Constitution. The MPRDA further requires the Minister to ensure the sustainable development of South Africa's mineral resources, within the framework of national environmental policies, norms, and standards, while promoting economic and social development.

The Mining and Biodiversity Guidelines (2013) document identifies four categories of biodiversity priority areas in relation to their biodiversity importance and implications for mining. The categories of relevance to this application for alluvial diamonds prospecting with bulk sampling are: Category B: Highest Biodiversity importance – highest risk for mining and Category C: High Biodiversity Importance – high risk to mining.

These categories have since been superseded by the Critical Biodiversity Area (CBA) map (Section 9), which would be interpreted as Category B is now CBA 1, Category C is now CBA 2 and Category D is now Ecological support areas. These categories basically require an EIA process to address the issues of sustainability.

[1] Department of Environmental Affairs, Department of Mineral Resources, Chamber of Mines, South African Mining and Biodiversity Forum, and South African National Biodiversity Institute. 2013. Mining and Biodiversity Guideline: Mainstreaming biodiversity into the mining sector. Pretoria.

[2] Constitution of the Republic of South Africa (No. 108 of 1996).

[3] Section 24 of the Constitution states that "everyone has the right (a) to an environment that is not harmful to their health or well-being; and (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that: prevent pollution and ecological degradation; promote conservation; and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development."

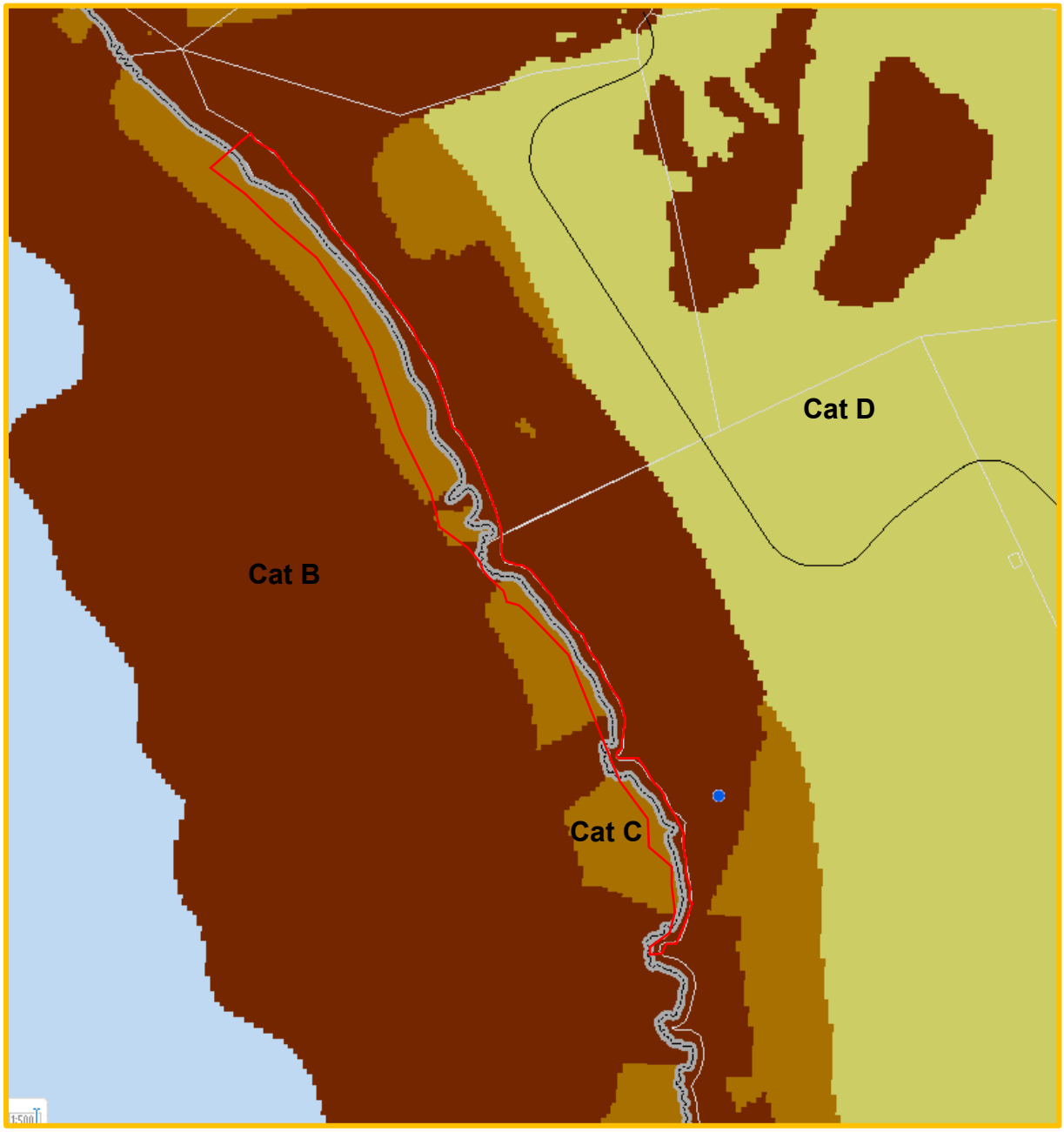



**Figure 5: Location of Prospecting area in terms of Mining and Biodiversity Guidelines (sourced off SANB BGIS Map Viewer)**

### Employment benefits

The proposed prospecting with bulk sampling is a temporary land use, and the proposed site will be rehabilitated in accordance with the Final Closure, Decommissioning and Rehabilitation Plan.

The benefits of the project can be divided into social and economic types. In terms of employment opportunities and job security, the proposed alluvial diamonds prospecting with bulk sampling activities will not per se generate much in the form of employment opportunities. However, should the prospecting with bulk sampling indicate that a feasible resource reserve is available on the proposed site to warrant mining, a new mine may be developed, which would generate extensive and greatly needed employment opportunities in the area of the proposed site.

**West Coast District Municipality IDP**

The West Coast District Municipality extends over an area of 31 099 km2 and has a total population of 464 056 inhabitants and 122 074 households (Table 7). The district includes five local municipalities (Matzikama, Cederberg, Bergrivier, Saldanha Bay, and Swartland) which all have access to the Atlantic Ocean as well as the N7 national road (with the exception of Saldanha municipality) (WCDM, 2021). The population consists of 50.3% female and 49.7% male, with three predominant population group; Coloured (66.58%), Black African (16.36%), and White (15.71%) communities.
Most of the populations' first language is Afrikaans (83.67%) followed by IsiXhosa (8.58%), English (3.98%) and other indigenous languages (IsiNdebele, Sesotho, and Setswana).

The WCDM population dependency ratio is quite high (45.9%) with 68% in the working age group (15-64 years), followed by the young (25%, 0-14 years) and the elderly group (7%, 65+ years). A high dependency ratio puts greater strain on people who are part of the workforce to support their economic dependents (children and elderly people). A higher dependency ratio also means greater pressure on social systems and the delivery of basic services. The level of education in the WCDM is relatively low, with a literacy rate was 79.1% (lower than the average of the Western Cape's 87.2% and slightly lower than the rest of South Africa 80.9%) (Socio Economic Profile West Coast District Municipality). The dropout rate for high school learners (Grades 10 to 12) within the West Coast local municipalities varied from 23.2% to 33%. These high levels of dropouts were influenced by socio-economic factors such as teenage pregnancy, availability of no-fee schools and unemployment (Socio Economic Profile West Coast District Municipality). The average income in the WCDM fall within three ranges: no income (10.5%), R1 to R9 600 per annum (5.3%) and R9 601 to R76 400 per annum for which most of the population can be categorised (57.8%). There were 183 969 people employed in the WCDM in 2018, which constitutes 7.1% of the total employment in the Western Cape. The WCDM experienced an average annual increase of 3 480 jobs over the period 2014-2018, with the Swartland municipality generating the most employment opportunities of 1 146 in the last year, conversely to Matzikama and the Bergriver municipality which only created some 546 jobs. In 2019, the WCDM experienced a loss of 389 jobs, which will have a significant impact on the WCDM economy if this trend continues.

The WCDM experienced the slowest economic growth in the Western Cape between 2005-2013, averaging 3.0% (WCDM 2021). In contrast, the province showed a growth rate of 6.8% over the same period. The West Coast experienced strong growth in its construction (6.2%) and commercial services (6.1%), which include wholesale and retail trade, catering and accommodation; transport, storage and communication; and finance, insurance, real estate and business services sectors (WCDM 2021). The sectors that experienced a reduction over the 2005-2013 period was the agriculture (0.3%), manufacturing (0.3%) and other sectors (3.0%). The general government and community, social and personal (CSP) services sector in the West Coast experienced a steady 2.8% growth. The largest sectors in the West Coast economy in 2013 were the finance, insurance, real estate, and business services (27%), manufacturing (017%), agriculture, forestry and fishing (14%) and wholesale and retail trade, catering and accommodation services (13%) (WCDM 2021). The agriculture, forestry and fishing sector were the primary source of employment, with 70 060 jobs in 2018, contributing 38.1% to total employment in the WCDM. However, the agriculture, forestry and fishing sector contributed the most to the WCDM employment in 2018 (38.1%, or 70 060 jobs).

**Table 7:** Demographic profile summary of the West Coast District Municipality and Strandfontein

| Indicator | West Coast District | Strandfontein |
|---|---|---|
| Population Total | 391 766 | 431 |
| Household Total | 106 781 | 92 |
| Area (km²) | 31 118.6 | 4.18 |
| Population group | | |

| Indicator | West Coast District | Strandfontein |
|---|---|---|
| **First language** | | |
| Afrikaans (%) | 83.67 | 69.4 |
| English (%) | 3.98 | 3.2 |
| IsiXhosa (%) | 8.58 | 22.6 |
| Setswana (%) | 0.63 | 0 |
| **Dependency ratio** | 45.9 | 18.1 |
| **Average annual income** | | |
| No income | | 10.9 |
| R1 – R9 600 (%) | | 3.3 |
| R9 601 – R76 400 (%) | | 47.8 |
| R76 400–R614 400 (%) | | 38 |

The vision of the West Coast District Municipality IDP is: “Weskus the caring centre for innovation & excellence.”

The West Coast District Municipality’s (WCDM) Integrated Development Plan 2017 – 2022 notes that it has “a vast number of mineral resources, of which some are currently not being exploited” and deems that “mining could potentially make an increased economic contribution to the WCDM economy when these unexploited resources are utilised in future”.

**The Mission Statement is:**

- Promote drivers of change, by leading well-coordinated and innovative initiatives to achieve sustainable and integrated development of the West Coast;

**The Strategic Objectives are**

- Care for the social wellbeing, safety, and health of all our communities.
- Promote regional economic growth and tourism
- Co-ordinate and promote the development of bulk and essential services and transport infrastructure
- Foster sound relationships with all stakeholders, especially local Municipalities
- Maintain Financial Viability and Good Governance

**Values**

- Integrity- accountability and ethics to the citizens.
- Transparency- to be transparent and open in our business.

- Loyalty- putting the organisation first.
- Respect- will treat public and colleagues with fairness, respect, and consideration.
- Quality- achieving or exceeding measurable standards.
- Ownership- taking pride in our work.
- Teamwork- working together to achieve our goals.

**Matzikama Local Municipality IDP**

The Matzikama municipality's area of jurisdiction is situated on the north-west coast of the Western Cape and borders the Northern Cape Province (Kamiesberg municipality in the north and Hantam municipalities in the east), the Atlantic Ocean on the west, and the Western Cape (Cederberg municipality) in the south (WCDM 2021). The municipality consist of 18 towns, with three coastal settlements (Doringbaai, Papendorp, and Strandfontein) and several small inland towns which serves as agriculture service centres (Ebenhauser, Lutzville, and Koekenaap) (MM 2019; WCGPT 2018). Matzikama municipality is defined by an arid environment with a flourishing natural irrigation system sustained by the Olifants River. The Olifants River (Vanrhynsdorp Government Scheme) consist of 237 km canals and supply water for several towns, industrial and domestic waste, local agriculture, and irrigation (DWS 2019). Most of the economic activities are concentrated in the south of the municipality, with Vredendal being the largest town and primary economic node (WCGPT 2018). The agriculture sector is largely attributed by the viniculture industry and combined with the forestry and fishing sector contributed the most towards Matzikamas municipal GDP and employment in 2018 (Mayson et al., 2020; MM 2019). The agriculture, forestry and fishing sector employed approximately 25 492 people in 2014 consisting of a mixed workforce of semi-skilled and unskilled workers (PGWC 2018). Matzikama's real GDPR per capita in 2018 was R39 000 which is considerably lower than most surrounding municipalities, including the WCDM (at R59 000). Matzikama municipality real GDPPR decreased between 2018 and 2019 by 2.5%, in addition to a low GDP growth rate of 2.1% over the period 2008-2017, which is 0.3% less than the WCDM average growth rate (WCDM 2021; MM 2020). It is estimated that the Matzikama municipality experienced its largest decline in its annual GDP growth rate in 2019 (4%) when compared to the GDP growth rate between 2014 and 2018 (MM 2021/22). It is anticipated that the COVID-19 pandemic will worsen Matzikama's local economy as a decline in economic performance has already been observed since 2018. A further reduction in municipal revenue, unemployment in the private sector, land grabs for informal housing and the stagnation of development programs is likely to occur in 2021. (MM 2021/22).

**Western Cape Provincial Spatial Development Framework (PSDF)**

The aim of the Western Cape Spatial Development Framework (PSDF) is to:
- gives spatial expression to the national and provincial development agendas,
- serve as a basis for coordinating integrating and aligning on the ground delivery of national and provincial departmental programmes,
- support municipalities to fulfil their municipal planning mandate in line with the national and provincial agendas, and
- communicates government's spatial development intentions to the private sector and civil society."

The Goals of the PSDF is to take the Western Cape on a path towards:
- more inclusivity, productivity, competitiveness, and opportunities in urban and rural space-economies;
- better protection of spatial assets (e.g., cultural, and scenic landscapes) and strengthened resilience of natural and built environments; and
- improved effectiveness in the governance of urban and rural areas."

The rural economy includes but is not limited to farming; fishing and aquaculture; mining; forestry; commodity processing and servicing; eco and agri-tourism; outdoor recreation and events; infrastructure and service delivery; and diverse natural resource related activities (e.g., extraction, rehabilitation, harvesting, etc.). Agriculture is going through a difficult transition period with its traditional export market in recession, escalating pressure on operating margins (i.e., input costs escalations exceed commodity price increases), more stringent international and national compliance requirements, and instability in the labour market as well as the after effects of an unprecedented drought.

**DEA Guideline on Need and Desirability**

As referenced in the DEA Guideline on Need and Desirability (2017), NEMA defines “evaluation” as “the process of ascertaining the relative importance or significance of information, in light of people’s values, preferences and judgements, in order to make a decision”. In evaluating each impact (negative and positive) in terms of each of the aspects of the environment, “need and desirability” must specifically be considered in the analysis of each impact of the proposed activity.
However, to determine if the proposed activity is the best option when considering “need and desirability”, it must also be informed by the sum of all the impacts considered holistically. In this regard “need and desirability” also becomes the impact summary regarding the proposed activity.

These Guidelines state that: “In considering the impact summary, it must be remembered that ultimately the aim of EIA is to identify, predict and evaluate the actual and potential risks for and impacts on the geographical, physical, biological, social, economic and cultural aspects of the environment, in order to find the alternatives and options that best avoid negative impacts altogether, or where negative impacts cannot be avoided, to minimise and manage negative impacts to acceptable levels, while optimising positive impacts, to ensure that ecological sustainable development and justifiable social and economic development outcomes are achieved”.

The **principles of Integrated Environmental Management (EIM)** as set out in Section 2 of the NEMA have been considered in this application for environmental authorisation as is explained below:

- **Environmental management placing people and their needs at forefront of its concern, and serve their physical, physiological, developmental, cultural, and social interests equitably** – This process is being undertaken in a transparent manner and all effort has been made to involve all the relevant stakeholders and I&APs. Public participation is being undertaken for I&APs to raise issues / concerns / comments for taking into account in the process.
- **Socially, environmentally, and economically sustainable development** – All aspects of the receiving environment and how these will be impacted have been considered and will be investigated to ensure a minimum detrimental impact to the environment. Where the impact cannot be avoided, suitable and effective mitigation measures have been proposed to ensure that the impact is mitigated, and these are detailed and included in the EMPr.
- **Consideration for ecosystem disturbance and loss of biodiversity** – the proposed site includes areas identified as CBA. The vegetation type that exists on the proposed site is not listed in the "National List of Threatened Ecosystems that are Threatened and in Need of Protection" in GN 1002 dated 9/12/2011. Ecosystem disturbance and loss of biodiversity will be included in the impact assessment. The EMPr and the Final Rehabilitation, Decommissioning and Closure Plan (Closure Plan) will include mitigation measures for minimising the impacts of the operation on the environment.
- **Pollution and environmental degradation** – The recommendations for impact avoidance and mitigation received form specialist professionals and received during the public participation process will be detailed in the EMPr, and Closure Plan to help minimise potential environmental degradation.
- **Landscape disturbance** – All aspects of the receiving environment and how this is likely to be impacted have been considered and will be investigated to help ensure minimal negative impact to the environment. Where the impact cannot not be avoided, suitable and effective mitigation measures will be detailed in the EMPr and Closure Plan to ensure that the impacts are mitigated.
- **Waste avoidance, minimisation, and recycling** – These aspects have been considered and will be incorporated in the EMPr and the Closure Plan.
- **Responsible and equitable use of non-renewable resources** – These aspects have been considered and there is currently not much scope in the proposed development for reducing reliance on non-renewable resources, e.g., the usage of vehicles that rely on petrol or diesel transport.
- **Avoidance, minimisation, and remedying of environmental impacts** - All aspects of the receiving environment and how this will be impacted have been considered and investigated to ensure a minimum detrimental impact to the environment. Where the impact could not be avoided, suitable and effective mitigation measures will be proposed to ensure that the impact is mitigated. The required mitigation measures will be included in the EMPr and the Closure Plan.
- I**nterests, needs and values of Interested and Affected Parties** – The Scoping and EIR process is being undertaken in a transparent manner and all effort is being made to involve all the relevant stakeholders and I&APs. All the comments received on this Draft Scoping Report and the responses of the EAP thereto will be included in the Scoping Report.

- **Access to information** – Potential I&APs and the commenting authorities were notified of the availability of the Draft Scoping Report for a commenting period of 30 days.
- **Promotion of community well-being and empowerment** – This process is being undertaken in a transparent manner and all effort is being made to involve all the relevant stakeholders and registered I&APs.

The potential impacts on the biophysical environment and socio-economic conditions will be assessed, and steps been taken to avoid or at least mitigate the potential negative impacts and to enhance the positive impacts. Adequate and appropriate opportunity is being provided for partaking in the public participation process. Environmental attributes have been considered based on the available information and environmental management practices have been identified and will be implemented to ensure that the proposed activities will proceed in accordance with the principles described in Section 2 of the NEMA.

## g) Motivation for the preferred development footprint within the approved site including a full description of the process followed to reach the proposed development footprint within the approved site.

### Process to Reach the Proposed Preferred Alternative

With reference to the site plan showing the location of the proposed activities on the proposed site, details are provided of the alternatives considered with respect to:

(a) the type of activity to be undertaken;
(b) layout of the activity;
(c) the technology to be used in the activity;
(d) the operational aspects of the activity; and
(e) the option of not implementing the proposed development.

Appendix 2 in Section 2 (h)(i) of the EIA Regulations, 2014 (as amended), requires that all S&EIR processes identify and describe feasible and reasonable alternatives. Alternatives considered during screening phases of the project are described below.

### Site alternatives

The proposed site has been selected based on the existing historical prospecting and production records of the area and on the results of designated research. The results of previous exploration work indicate a series of small but very promising target areas across the proposed site that are probably linked to paleo channels and raised marine beaches within the area.

Having considered the above and the fact that the proposed site is also located relatively close to existing diamond mines, the proposed alluvial diamonds prospecting with bulk sampling is likely to yield results that warrant the eventual establishment of on-site diamond mining operations.

In addition, the proposed site is located between the low-water and high-water mark of the sea, making the proposed site a highly active marine zone that should return to a condition similar to the pre-prospecting with bulk sampling condition within a short period of time.

In light of the above, it was deemed unwise to spend time considering site alternatives elsewhere and so the proposed site is the only site alternative considered.

### Type of Activity

The proposed site has been selected based on the existing historical prospecting and production records of the area and on the results of designated research. The results of previous exploration work indicate a series of small but very promising target areas across the proposed site that are probably linked to paleo channels and raised marine beaches within the area.

Having considered the above and the fact that the proposed site is also located relatively close to existing diamond mines, the proposed alluvial diamonds prospecting with bulk sampling is the only activity alternative considered in addition to the 'no-go' alternative.

### Design or Layout of Activity

The proposed prospecting with bulk sampling is contemplated only between the low-water and the high-water mark of the sea, making the proposed site a narrow strip of land. In view of this space limitation and the need to avoid disturbing the on-site vegetated areas located landward of the high-water mark of the sea, the only layout alternative considered is the layout alternative described in detail above.

### Technology Alternatives

The relatively soft and shallow beach sand on the proposed site makes the use of excavators and the other equipment described in Section 3 more cost-effective than any other technology alternative. The technology described above is therefore the only technology alternative considered.

### The No-go Alternative

The 'no-go' alternative entails keeping the existing landuse on the land parcels that constitute the proposed site unchanged. The land is zoned Agriculture but is disused, as no agricultural activity takes place thereon. The proposed site is instead used informally by campers who set up informal recreational campsites.

The adoption of the no-go alternative also means that the proposed prospecting with bulk sampling would not take place and so the feasibility of diamond mining on the proposed site would remain an uncertainty. In such a situation, the possibility will not come into existence of a future investment in a diamond mine on the proposed site and the potential socio-economic benefits of mining, e.g., mining-related employment opportunities that would otherwise have become available would never materialise.

## i) Details of the development footprint alternatives considered.

With reference to the site plan provided as Appendix 4 and the location of the individual activities on site, provide details of the alternatives considered with respect to:

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

Please refer to Section 3(d) and the process described above that was followed when comparing and contrasting various alternatives. and the

## ii) Details of the Public Participation Process Followed

The public participation process followed is in accordance with the requirements specified in Regulation 41 of the EIA Regulations, 2014 (as amended). The details of the public participation process conducted

comments received and the responses made thereto during the scoping phase of the application are appended to this Draft EIR as Appendix 5.

I&APs were notified in writing of the availability of the Draft Scoping Report for a commenting period of at least 30 days via electronic mail correspondence in which the internet link for downloading the report was included. The electronic mail correspondence included notification that the report is also accessible on the website of EnviroAfrica.

Site notices and pamphlets and a newspaper advertisement in the *Ons Kontrei* of 13 January 2024 were also used to notify I&APs of the availability of the Draft Scoping Report and the report was made available on the website of EnviroAfrica.

The Draft EIR is being subjected to the same public participation process that was conducted for the Draft Scoping Report, except that the availability of the Draft EIR has not been made public via a newspaper advertisement.

## iii) Summary of issues raised by I&APs

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

**THE INFORMATION REQUIRED IN TABLE 8 BELOW IS CONTAINED IN A COMPLETE MANNER IN THE PUBLIC PARTICIPATION DOCUMENT ATTACHED HERETO AS APPENDIX 5.**

**Table 8: Summary of Issues Raised by I&APs**

| **Interested and Affected Parties**<br>**List the names of persons consulted in this column, and**<br>**Mark with an X where those who must be consulted were in fact consulted.** | | **Date Comments Received** | **Issues raised** | **EAPs response to issues as mandated by the applicant** | **Section and paragraph reference in this report where the issues and or response were incorporated.** |
|---|---|---|---|---|---|
| **AFFECTED PARTIES** | | | | | |
| **Landowner** | | | | | |
| National Government of South Africa (National Department of Public Works) | | Comments not received | | | |
| | | | | | |
| **Lawful occupier/s of the land** | | | | | |
| | | | | | |
| **Landowners or lawful occupiers on adjacent properties** | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| **Municipal Councillor** | | Comments not received | | | |
| | | N/A | | | |
| **Municipality** | | Comments not received | | | |
| | | | | | |
| | | | | | |
| **Organs of state (Responsible for** | | N/A | | | |

| | | | | | |
|---|---|---|---|---|---|
| **infrastructure that may be affected Roads Department, Eskom, Telkom, DWA** | | | | | |
| | | | | | |
| **Communities** | | N/A | | | |
| | | | | | |
| **Dept. Land Affairs** | | N/A | | | |
| | | | | | |
| **Traditional Leaders** | | N/A | | | |
| N/A | | | | | |
| **Department of Minerals** | | | | | |
| | | | | | |
| **Other Competent Authorities affected** | | | | | |
| National Department of Water & Sanitation | | Comment not received | | | |
| Dept. Agriculture, Land Reform & Rural Development | | | | | |
| Western Cape Department of Agriculture | | | | | |
| **OTHER AFFECTED PARTIES** | | | | | |
| | | | | | |
| **INTERESTED PARTIES** | | | | | |
| Mari Rossouw (Farmer residing within 10km of proposed site) | | | | | |

## iv) The Environmental attributes associated with the development footprint alternatives. **(The environmental attributed described must include socio-economic, social, heritage, cultural, geographical, physical and biological aspects)**

## (1) Baseline Environment

### (a) Type of Environment Affected by the Proposed Activity

#### Regional Setting

The proposed site is located on Portion 4 of the Farm Graauw Duinen No. 152 and Portion 4 of the Farm Rietfontein Extension No. 151, Vanrhynsdorp, This is south of the Sout River and north of Brand se Baai along the west coast. The proposed site is remote, with the nearest formal community of Koekenaap located more than 50km south-east of the proposed site. The nearest town, Lutzville is located approximately 63km south-east along the R363 Regional Road.

According to the Screening Tool Report, two wind energy developments and no solar energy farms exist within 30km of the proposed site and no intersections with Environmental Management Framework areas exist. The area inland of the proposed site comprises livestock farms (sheep) and coastal environment utilized for informal recreation. Salt mining is taking place more than 1km to the north of the proposed site, with large scale strip mining and beach mining to the south and east.

This proposed prospecting with bulk sampling will concentrate mostly on the current exploration results of Trans Hex as part of their Concession 11A and Surf Zone exploration. Some of the results on recovery of diamonds for these areas were made available, showing the possible continuation of resource availability from the low-water to the high-water mark of the sea.

Most of the tracks providing access to the beach exist as a result of informal camping and Kelp collection that take place on the proposed site. The small size of the proposed prospecting and bulk sampling operation has resulted in no new infrastructure being contemplated on the proposed site and existing tracks will be utilised.
.

#### Landscape and Land Use

The proposed site and surrounding area are characterised by undulating topography, sloping gently towards the west. The inland area is covered with vegetated sand dunes aligned in a north to south manner.

The proposed site is zoned Agriculture, but no agricultural activity takes place thereon. The proposed site is instead used by informally by kelp collectors and by campers that set up informal recreational campsites.

The areas inland from the proposed site are used as range for livestock to graze. The other landuses in the vicinity of the proposed site include salt mining as well as well as diamond mining.

#### Geology and Soils

The geology of the study area is complex with a diversity of metamorphic formations and sedimentary and igneous rock types. The most prominent and resistant are volcano-sedimentary metamorphites and gneisses of the mid-Protozoroic Namaqualand Metamorphic Complex and the limestones, dolomites and phylites of the Pan-African Gariep Supergroup (AEMCO, 2016).

The study area is underlain by unconsolidated and semi-consolidated sediments of Quaternary age. These sediments overlie meta-sediments of the Vanrhynsdorp Group, the metamorphic rocks of the

Namaqualand Metamorphic Complex (NMC), as well as granites and dykes of the Koegel Fontein Complex (KFC). Unconsolidated and/or semi-consolidated sediments overlying the basement rock formations comprise:

- Dune deposits;
- Littoral (shoreline) deposits;
- Alluvial deposits (associated with the presence of preferential flow paths in the basement); and
- Wind transported deposits.

The sands decrease in age in a westward direction towards the coast. Prevailing soils are yellow-red-brown silty sands of Pleistocene origin, often overlain by a calcrete layer varying in depth and compaction. Windblown sands overlie the calcrete layer and have a high sodium level due to the proximity to the sea and the presence of salt in the dew precipitates on the soil surface. These high sodium levels make the soil forms unsuitable for crop production, although the natural vegetation is well-adapted to high salinity levels. The unconsolidated nature of the sediment leads to a high potential for erosion by runoff and wind.

Exploration of marine alluvial diamonds shows that there are preferential localities in which marine sedimentary deposits have higher probabilities of containing diamonds. These include gullies, potholes, and bedrock depressions, all of which are associated with marine wave-cut terraces. Such bedrock features are key concentration factors, and control all major aspects of sediment deposition in the marine environment. Diamonds are generally found close to the bedrock and are deposited in high-energy environment sediments containing pebbles, cobbles, and boulders. These sediments commonly owe their existence to storm beach deposits along the base lines of low cliffs and wave-cut terraces. Also, it is upon these surfaces that diamondiferous gravels have been concentrated and redistributed northward by wave and current action during sea-level still stands. Due to numerous sea-level fluctuations, particularly in the Quaternary, multiple terrace development during sequential periods of transgression and regression has resulted in modification of existing terraces and the disruption of the depositional pattern of marine diamonds.


**Figure 6a:** Regional geology around proposed site


**Figure 6b:** Surface geology of proposed site with approximate subsurface extent of underlying marine formations

### Topography

The geology and topography of the area, together with the semi-arid climate and the proximity to the coast, have determined the basic landscape features and visual elements of the proposed site and surrounding area. The proposed site and surrounding area are characterised by undulating topography sloping gently to the west. The inland area is covered by vegetated sand dunes aligned in a north to south manner. The highest elevation is in the east of the study area gradually decreasing towards the coast in the west. Elevations range from more than 30m above mean sea level (mamsl) along the eastern boundary down to sea level along the western coastal boundary of the proposed site).

A steep-sided valley system, approximately 30km long and approximately 100m deep, follows the course of the Sout River estuary on the northern boundary of the mining area. The estuary is a severely degraded system and is currently worked as a saltpan (Golder Associates, 2011).

The coastline is dominated by exposed rocky headlands alternating with fine grained sandy beaches often backed by a rocky and/or sandy escarpment. Wavecut platforms and pebble beaches are absent along this stretch of the coastline. The coastline included in this application forms part of the Southern Benguela Ecoregion. The coastline on the proposed site and surrounding area is characterised by Sandy Shores (S- Shores) and Mixed Shores. Much of the coastline between Hondeklipbaai and the Olifants River mouth comprises sandy shores. Sandy beaches are among the most dynamic coastal environments. Except for a few beaches in large bay systems (such as St Helena Bay, Saldanha Bay, Table Bay), the beaches along the South African West Coast are typically highly exposed. Exposed

sandy shores consist of coupled surf-zone, beach, and dune systems, which together form the active littoral sand transport zone (Short & Hesp 1985).

The three morphodynamic beach types described are dissipative, reflective, and intermediate beaches (McLachlan et al. 1993). Generally, dissipative beaches are relatively wide and flat with fine sands and low wave energy. Waves start to break far from the shore in a series of spilling breakers that 'dissipate' their energy along a broad surf zone. This generates slow swashes with long periods, resulting in less turbulent conditions on the gently sloping beach face. Reflective beaches in contrast, have high wave energy, and are coarse grained (>500 pm sand) with narrow and steep intertidal beach faces. The relative absence of a surf-zone causes the waves to break directly on the shore causing a high turnover of sand. Intermediate beach conditions exist between these extremes.

There are 64 estuarine systems along the West Coast between the Orange River and Cape Agulhas (SANBI 2018) of which approximately 75% are 'Critically Endangered' or 'Endangered', while 13% are considered 'Vulnerable'. Numerous smaller estuaries along the West Coast are intermittently, or seasonally open (Holgat, Buffels, Swartlintjies, Bitter, Spoeg, Groen, Brak, Sout and Jakkals Rivers). The nearest estuary to the study area is the Sout River 1km to the north.

### Slope

See Section on Topography.

### Climate

The proposed site is in an arid environment with average temperatures of approximately 16°C. In the coldest months of the year (May to August) temperatures below 10°C are often recorded. The highest temperatures are reached from December to January (may well exceed 30°C). The maximum recorded temperature was 42.5°C in March 2017 and the minimum temperature was 4.6°C recorded in July 2016 (Council for Scientific and Industrial Research meteorological station at Brand se Baai, 2011 – 2018 data). The proposed site and its surrounds experience hot dry summers and very low rainfall winters. The area receives rain throughout the year, with most of it occurring between the months of May and August. The mean annual rainfall from 1993 to 2018 was approximately 140mm/a, although it is evident that the years since 2013 have been dominated by dry weather patterns which caused the drought experienced in the region.

One of the major contributors to precipitation in the area is fog, which contributes up to 252.9mm per 100 days of the year (Anglo American Corporation, 1990). According to Mucina and Rutherford (2006), the climate is winter-rainfall climate with irregular rain events occurring mostly from May to August and almost always no rain between November and February. MAP of 115mm. Dew is experienced throughout the winter and frosts hardly occur.

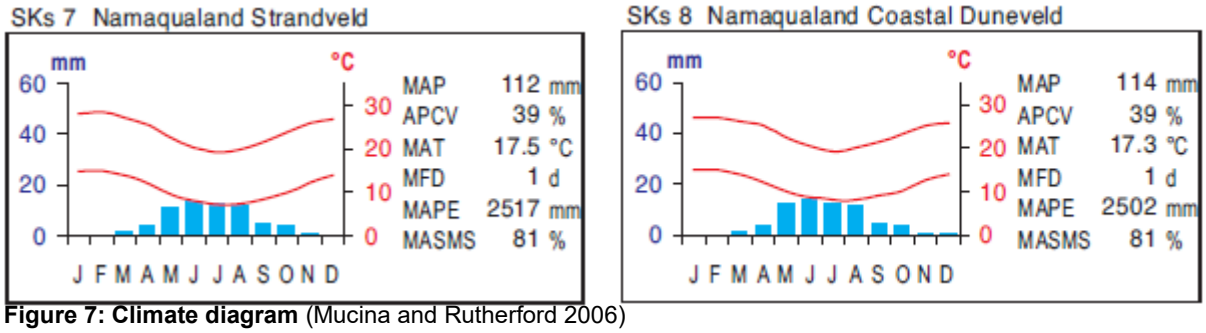



**Figure 7: Climate diagram** (Mucina and Rutherford 2006)

This section is based on desktop information sourced from Air Quality Impact Assessments completed for strip mining operations adjacent to the proposed site, mainly Airshed, 2018.

### Air Quality

This section is based on desktop information sourced from Air Quality Impact Assessments completed for strip mining operations adjacent to the proposed site, mainly Airshed, 2018.

Criteria pollutants are considered those pollutants most commonly found in the atmosphere, that have proven detrimental health effects when inhaled and are regulated by ambient air quality criteria. These generally include carbon monoxide (CO), nitrogen dioxide ($NO_2$), sulphur dioxide ($SO_2$), Particulate Matter (PM) and ground level ozone (O3). In determining ambient air quality, concentrations of pollutants are measured and/or modelled and compared against air quality standards.

These standards are intended to protect human health and environmental degradation and, as such, focus on emissions perceived to pose a health or environmental risk. The National Ambient Air Quality Standards (NAAQS) and additional standards for particulate matter less than 2.5µm in aerodynamic diameter (PM2.5) are provided in Table 9. These standards are based on international best practices and aim to protect human health and indicate safe exposure levels for most of the population throughout an individual's lifetime, including the very young and the elderly.

**Table 9**: National Ambient Air Quality Standards

| Pollutant | Averaging Period | Concentration (µg/m³) | Permitted Frequency of Exceedance | Compliance Date |
|---|---|---|---|---|
| $SO_2$ | 10 minutes | 500 | 526 | Immediate |
| | 1 hour | 350 | 88 | Immediate |
| | 24 hour | 125 | 4 | Immediate |
| | 1 year | 50 | 0 | Immediate |
| Benzene | 1 year | 5 | 0 | 1 January 2015 |
| CO | 1 hour | 30000 | 88 | Immediate |
| | 8 hour(a) | 10000 | 11 | Immediate |
| Lead | 1 year | 0.5 | 0 | Immediate |
| $NO_2$ | 1 hour | 200 | 88 | Immediate |
| | 1 year | 40 | 0 | Immediate |
| $O_3$ | 8 hour(b) | 120 | 11 | Immediate |
| $PM_{2.5}$ | 24 hour | 40 | 4 | 1 January 2016 till 31 December 2029 |
| | 24 hour | 25 | 4 | 1 January 2030 |
| | 1 year | 20 | 0 | 1 January 2016 till 31 December 2029 |
| | 1 year | 15 | 0 | 1 January 2030 |
| $PM_{10}$ | 24 hour | 75 | 4 | 1 January 2015 |
| | 1 year | 40 | 0 | 1 January 2015 |

The National Dust Control Regulations (NDCR) prescribe general measures for the control of dust. The standard for acceptable dustfall rates is set out for residential and non-residential areas. According to these regulations, the dustfall that originates from this project cannot exceed 1200mg/m²/day beyond the boundary of the proposed site, considering the permitted frequency of exceeding dust fall rate of two within a year, not sequential months. In addition to the dust fall limits, the NDCR prescribe monitoring procedures and reporting requirements.

The air quality of the proposed site and surrounding area is mostly influenced by activities at the Tronox Namakwa Sands' MSP, farming activities, domestic fires, vehicle exhaust emissions and dust entrained by vehicles. These emission sources vary from activities that generate relatively coarse airborne particulates (such as farmland preparation, dust from unpaved roads and the Tronox Mine) to fine particulate matter (PM) such as those emitted by vehicle exhaust pipes, diesel power generators and dryers. Other sources of PM include occasional fires in the residential areas of Koekenaap, Lutzville, Vredendal and farm activities.
Emissions from unpaved roads constitute a major source of emissions to the atmosphere in South Africa. Dust emissions from unpaved roads are a function of vehicle traffic and the silt load on the roads. Emissions generated by wind erosion are dependent on the frequency of disturbance of the erodible surface.

Prospecting with bulk sampling activities will take place in a very remote area between the low-water mark and high-water mark of the sea and dust generation will be limited to a small radius around the operation and no sensitive receptors were identified. The impact of dustfall from this prospecting with

bulk sampling operation is regarded as insignificant in comparison to the large-scale strip-mining operation, where specialist studies concluded the simulated 24-hour average dustfall rates do not exceed the NDCR non-residential limit of 600 mg/m²-day

**Noise**

The proposed site is surrounded by farmland with typical, low noise levels. Along the coast, noise generated by wave action is likely to result in higher-than-normal ambient noise levels, especially during rough sea conditions. Traffic-generated noise in the area is low (estimate at ±55dBA). Noise from earthmoving equipment and machinery associated with the proposed prospecting with bulk sampling operation will be within normal limits and due to the remote locality of the operation will be of low impact. There are very few noise receptors in the area of the proposed site, with the nearest receptor being the large scale strip-mining inland that generates much higher noise levels.

Typical noise levels generated by various types of construction equipment are listed in the table below.

**Table 10:** Noise levels likely from construction equipment

| Equipment | Typical operational Noise level at given offset (dBA) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 5m | 10m | 25m | 50m | 100m | 250m | 500m | 1000m |
| Air compressor | 91 | 85 | 77 | 71 | 65 | 57 | 51 | 46 |
| Crane (mobile) | 93 | 87 | 79 | 73 | 67 | 59 | 53 | 47 |
| Dozer | 95 | 89 | 81 | 75 | 69 | 61 | 55 | 49 |
| Pump | 86 | 80 | 72 | 66 | 60 | 52 | 46 | 40 |
| Rock Drill | 108 | 102 | 94 | 88 | 82 | 74 | 68 | 62 |
| Trucks | 87 | 81 | 73 | 67 | 64 | 60 | 57 | 54 |

In South Africa, the noise impact on human receptors is evaluated in terms of the SANS 10103 guidelines for sound pressure levels as listed in the table below.

**Table 11:** Noise levels expected in different areas

| Type of District | Equivalent continuous rating level for ambient noise - dBA | | | | | |
|---|---|---|---|---|---|---|
| | Outdoors | | | Indoors with windows open | | |
| | Day-night | Daytime | Night | Day- | Daytime | Night- |
| Rural districts | 45 | 45 | 35 | 35 | 35 | 25 |
| Suburban district | 50 | 50 | 40 | 40 | 40 | 30 |
| Urban traffic | 55 | 55 | 45 | 45 | 45 | 35 |
| Urban districts | 60 | 60 | 50 | 50 | 50 | 40 |
| Central business district | 65 | 65 | 55 | 55 | 55 | 45 |
| Industrial district | 70 | 70 | 60 | 60 | 60 | 50 |

**Daytime refers to 06h00 to 22h00 and nighttime refers 22h00 to 06h00*

**Biodiversity**

The proposed site includes portions of the Cape Seashore Vegetation regarded as least threatened. According to the National Protected Areas Expansion Strategy (NPAES) Department of Environment Affairs (DEA) 2009 the area is not included in the NPAES, with the closest focus area as the Knersvlakte Nature Reserve which is located approximately 55km from the proposed site.

No protected areas are located within a 10km radius of the proposed site. The Elephant Rock Island Reserve ("Robben Island") is the nearest declared protected area managed by CapeNature and is located more than 10km south of the proposed site.

Regarding sensitive terrestrial ecosystems that have been identified in terms of the Western Cape Biodiversity Spatial Plan of 2017 most of the area classified as Critical Biodiversity Area (CBA1) with small sections classified as Ecological Support Areas 1 (ESA1) and Ecological Support Areas 2 (ESA2).

The surf zone included in this application forms part of the Southern Benguela Ecoregion. The coastline of the study area is characterised by Sandy Shores (S- Shores), Rocky Shores (R- Shores) Mixed Shores, and Estuaries. These were categorised into ecosystem types by Sink et al. (2019) and assigned a threat status depending on their geographic extent and extent of ecosystem degradation.

Some of the proposed site has been categorised as Mixed Shore with a threat status of 'vulnerable.' Due to the exposed nature of the coastline in the study area, most beaches are categorised as Intermediate Sandy Shore with a threat status of 'Near Threatened' reflecting the condition of the ecosystem types following decades of shore- and vessel-based diamond mining.

The National Coastal and Marine Spatial Biodiversity Plan comprises a map of Critical Biodiversity Areas (CBAs), Ecological Support Area (ESAs). The study area overlaps with areas mapped as Critical Biodiversity Areas Natural and Critical Biodiversity Areas Restored.


**Figure 8:** Project footprint (yellow polygon) in relation to Sensitive Terrestrial Ecosystems also indicating target areas

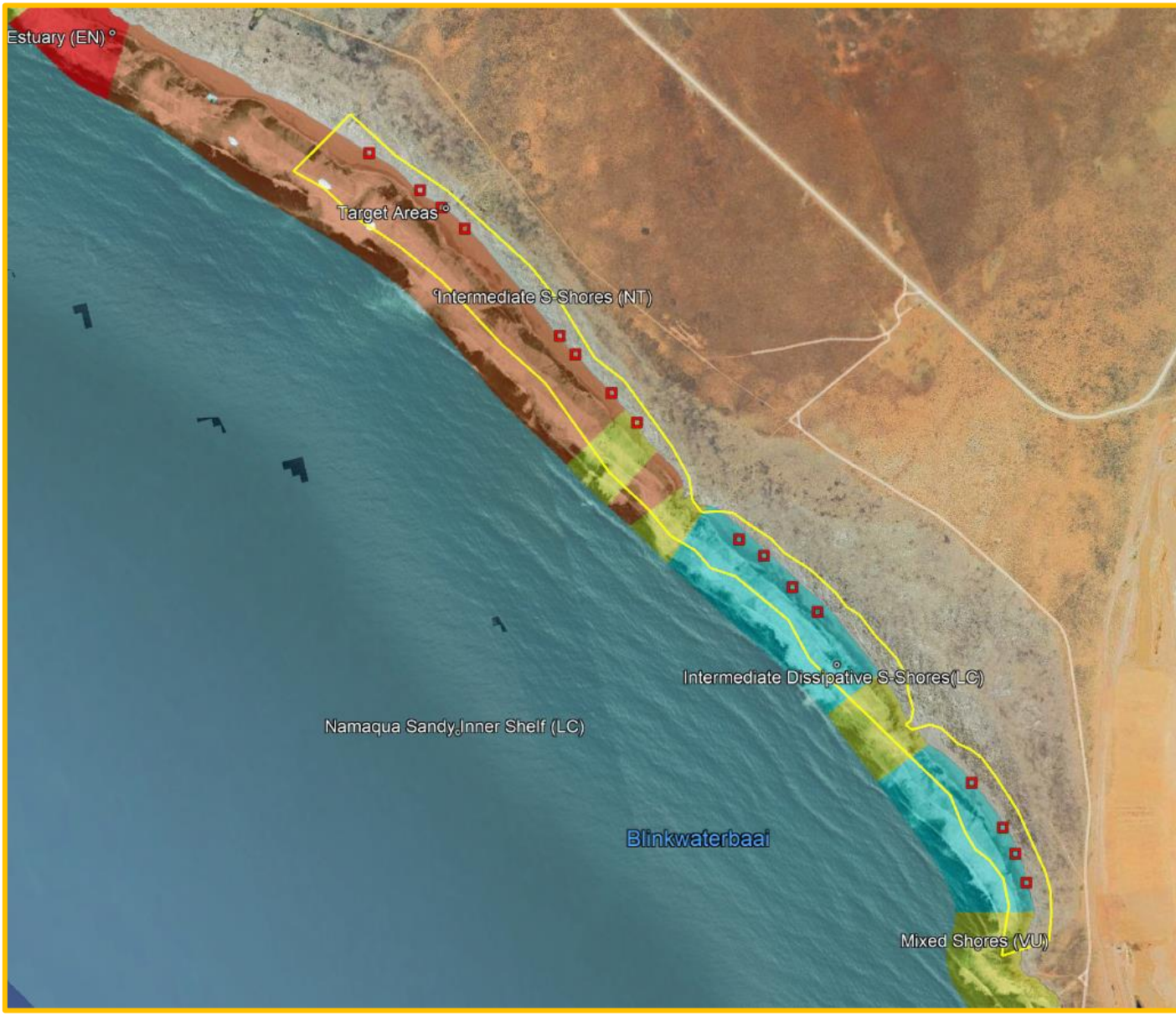



**Figure 9:** Proposed site (yellow polygon) in relation to Sensitive Coastal Ecosystems also indicating target areas

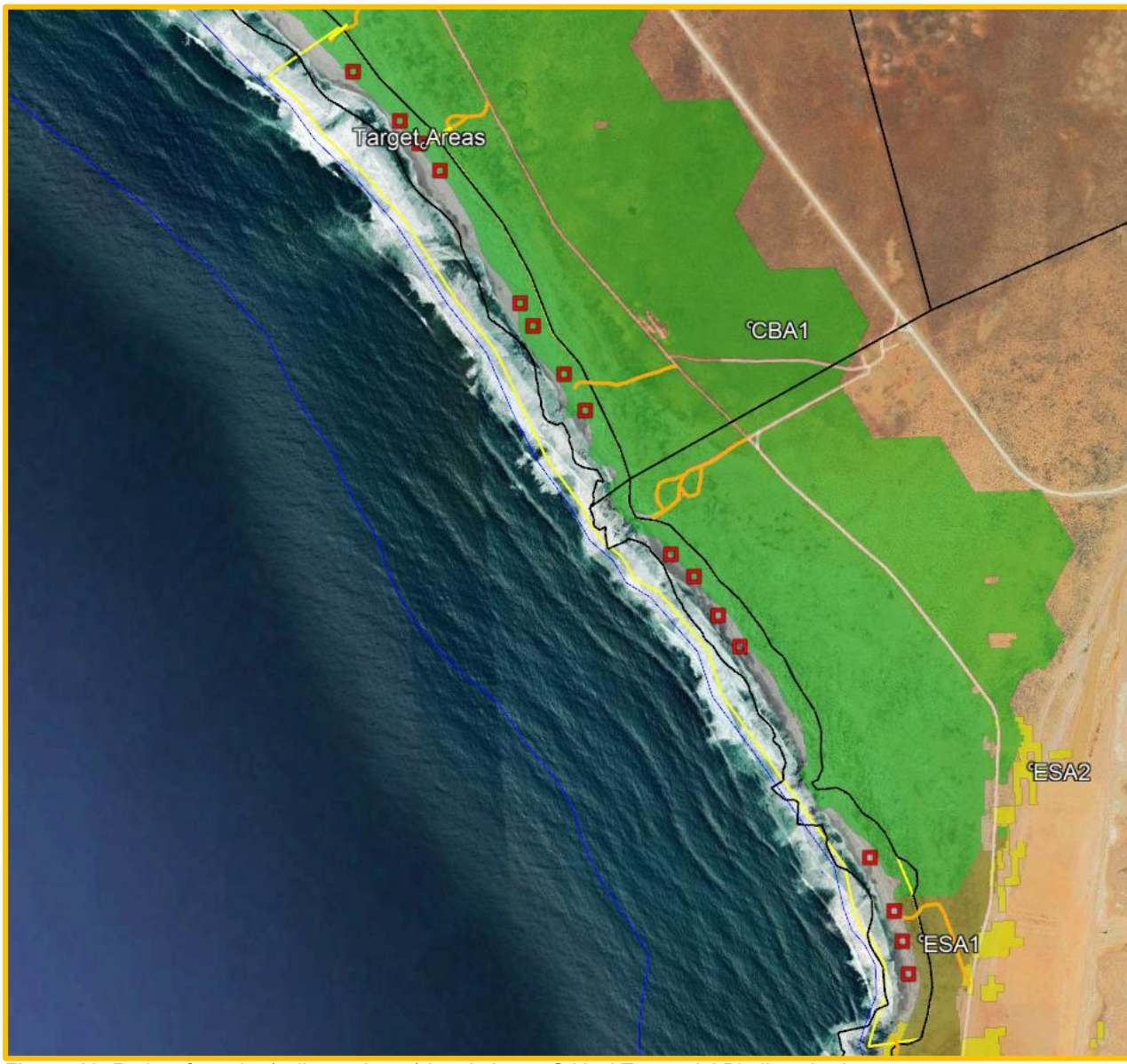



**Figure 10:** Project footprint (yellow polygon) in relation to Critical Terrestrial Biodiversity Areas

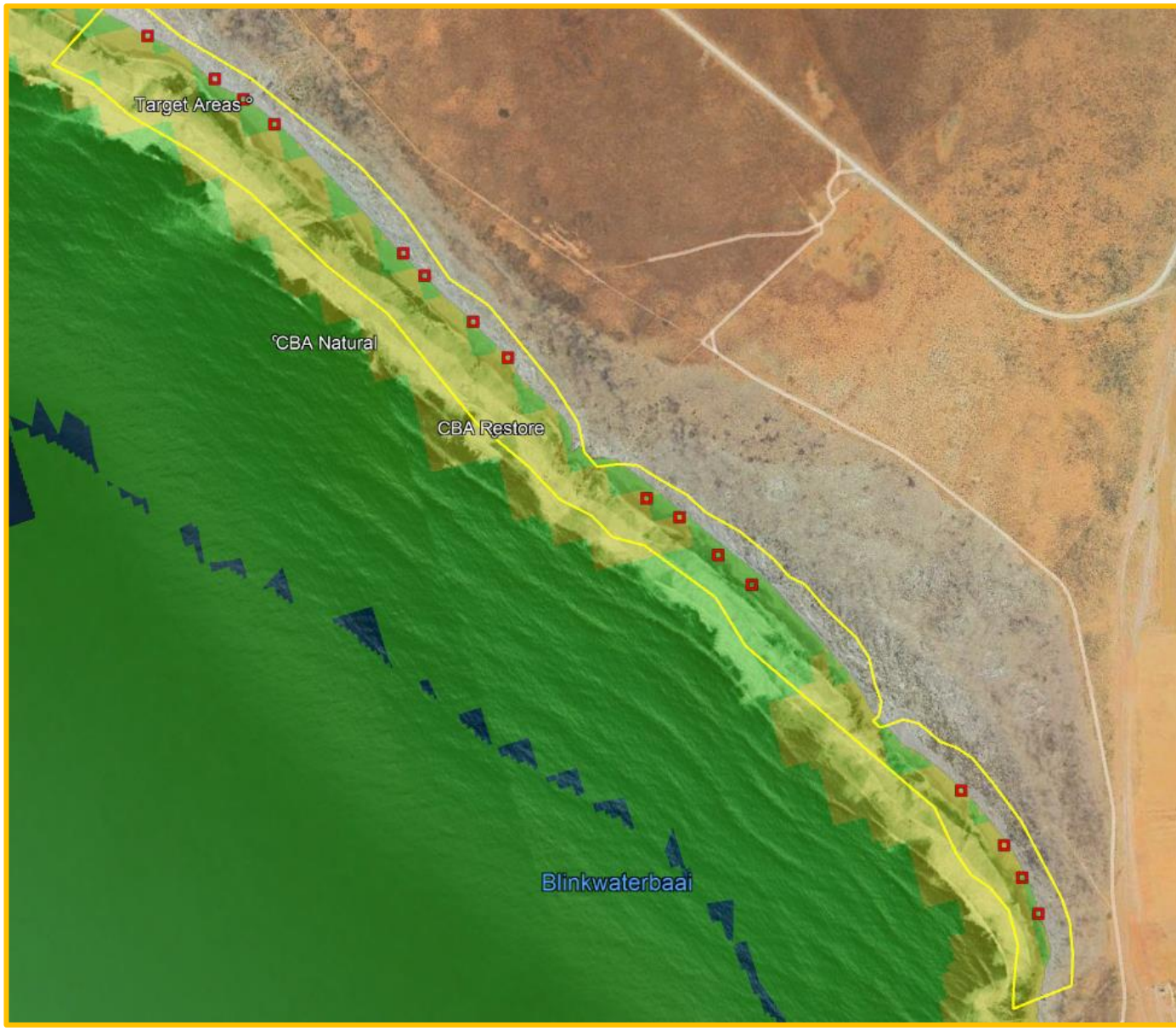



**Figure 11:** Project footprint (yellow polygon) in relation to Critical Marine and Coastal Biodiversity Areas

According to the Screening Tool Report, part of the area is regarded as Vey High sensitivity regarding the Terrestrial Biodiversity Theme, as it is located within Critical Biodiversity Areas and Ecological Support Areas.

The CBA map of the area also indicates that most of the area falls within Marine CBAs. These areas have been designated as CBAs to promote coastal resource protection and to maintain ecological processes associated with the coastal strip, especially the ability of fauna to move along the coast. Although CBAs confer no rights and have no official conservation status in law, they provide an indication of ecological status (biodiversity). This does not mean that CBAs need to be fenced off from human use, but rather that they should be supported by good planning, decision-making and management to ensure that human use does not significantly impact the condition of the ecosystem negatively.

**Table 12:** Terrestrial biodiversity Theme Sensitivity Features

| Sensitivity | Feature(s) |
|---|---|
| Low | Low Sensitivity |
| Very High | ESA 2: Restore from other land use |
| Very High | ESA 1 |
| Very High | CBA 1: Terrestrial |
| Very High | CR_Namaqualand Seashore Vegetation |

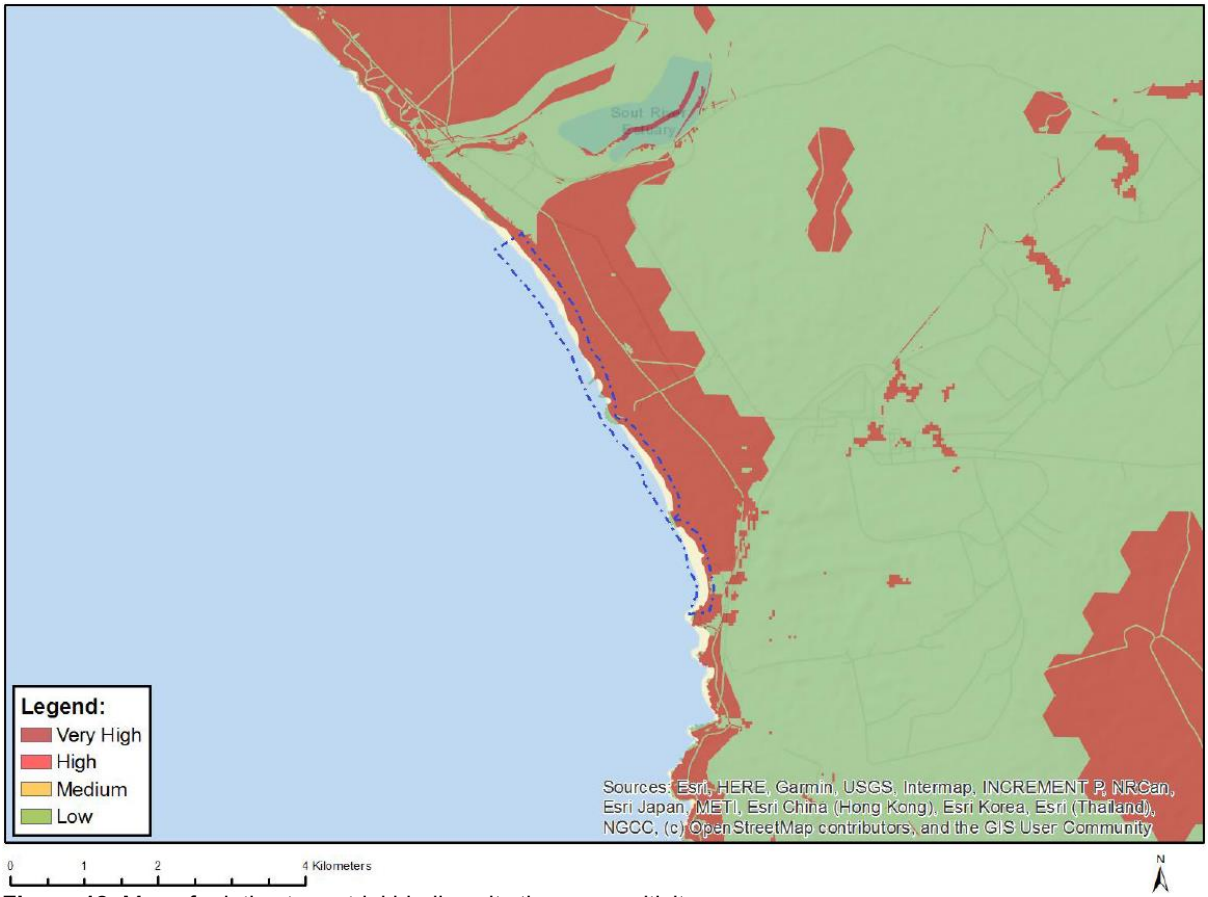



**Figure 12**: Map of relative terrestrial biodiversity theme sensitivity

### Vegetation

According to the national vegetation map (Mucina and Rutherford, 2006) the vegetation along the shore is classified as Namaqualand Seashore Vegetation, categorised as Critical endangered and also used as a criterion for the very high sensitivity regarding the Terrestrial Biodiversity Theme in the Screening Tool Report. According to Mucina and Rutherford (2006), Namaqualand Seashore Vegetation occurs on slightly sloping beach, coastal rocky formations supporting sparse vegetation composed partly of succulent hummock-forming and spreading dwarf shrubs and herbs on the beach, in shell beds and on low dunes. The site visit has however shown steep sloping dunes without coastal rocky formations and vegetation structure more compatible with Cape Seashore vegetation. Skowno et al. (2019) as part of fine scale planning for the Western Cape Biodiversity Spatial Plan therefore define this vegetation as Cape Seashore vegetation regarded as least threatened. The Olifants River was regarded as the original boundary between the Namaqualand and Cape Seashore Vegetation in the south but Skowno et al. (2019) put the southern boundary between the two vegetation types to just north of the provincial boundary.

Due to the relatively low cover of the Seashore vegetation and the high winds along the coast, the coastal dunes are considered vulnerable to disturbance and easily mobilised. Increased sand movement due to disturbance caused by access roads as well as increased sand input from the beaches due to beach mining activities would potentially affect this community and monitoring of the stability of these areas especially along the access roads to the beaches will be a priority.

The Screening Tool Report only identifies 12 SCC, none of which are listed species and legally protected in terms of the listed threatened or protected species (TOPS) regulations in terms of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004). Most of the SCC listed are regarded as Vulnerable according to the IUCN Red List with only *Ruschia bipapillata, Otholobium incanum, Oncosiphon schlechteri* and Sensitive Species 1156 regarded as Endangered according to the IUCN Red List.

Although some listed species are likely present in the vicinity of the proposed site, the overall abundance of such species within the proposed site is low and a high impact on listed plant species is not likely, as no prospecting with bulk sampling will take place above the high-water mark of the sea. Studies have shown that the proposed site is fairly homogenous and similar habitat broadly prevails in the area. The proposed development will have a medium significance impact regarding vegetation, as bare patches will be selected for on-site activities that are above the high-water mark of the sea and all activities except for gaining access will be kept out of the coastal dunes. It is concluded in the Terrestrial Biodiversity Assessment that mitigating the potential impacts in the described manner can cause the impacts on terrestrial biodiversity to fall to a low level of significance.

According to the Screening Tool Report the proposed site is regarded as an area of medium sensitivity regarding Plant Species. The SSVR and Terrestrial Biodiversity Assessment confirm this sensitivity rating and that with the aforementioned impact mitigation measures implemented, the impact on plant species caused by the proposed development will be medium and may even fall to a low level of significance.

**Table 13:** Plant Species theme Sensitivity Features

| Sensitivity | Feature(s) |
|---|---|
| Low | Low Sensitivity |
| Medium | Ruschia bipapillata |
| Medium | Otholobium incanum |
| Medium | Manulea cinerea |
| Medium | Sensitive species 1002 |
| Medium | Tetragonia pillansii |
| Medium | Leucoptera nodosa |
| Medium | Oncosiphon schlechteri |
| Medium | Sensitive species 1156 |
| Medium | Argyrolobium velutinum |
| Medium | Aspalathus obtusata |
| Medium | Helichrysum dunense |
| Medium | Muraltia obovata |

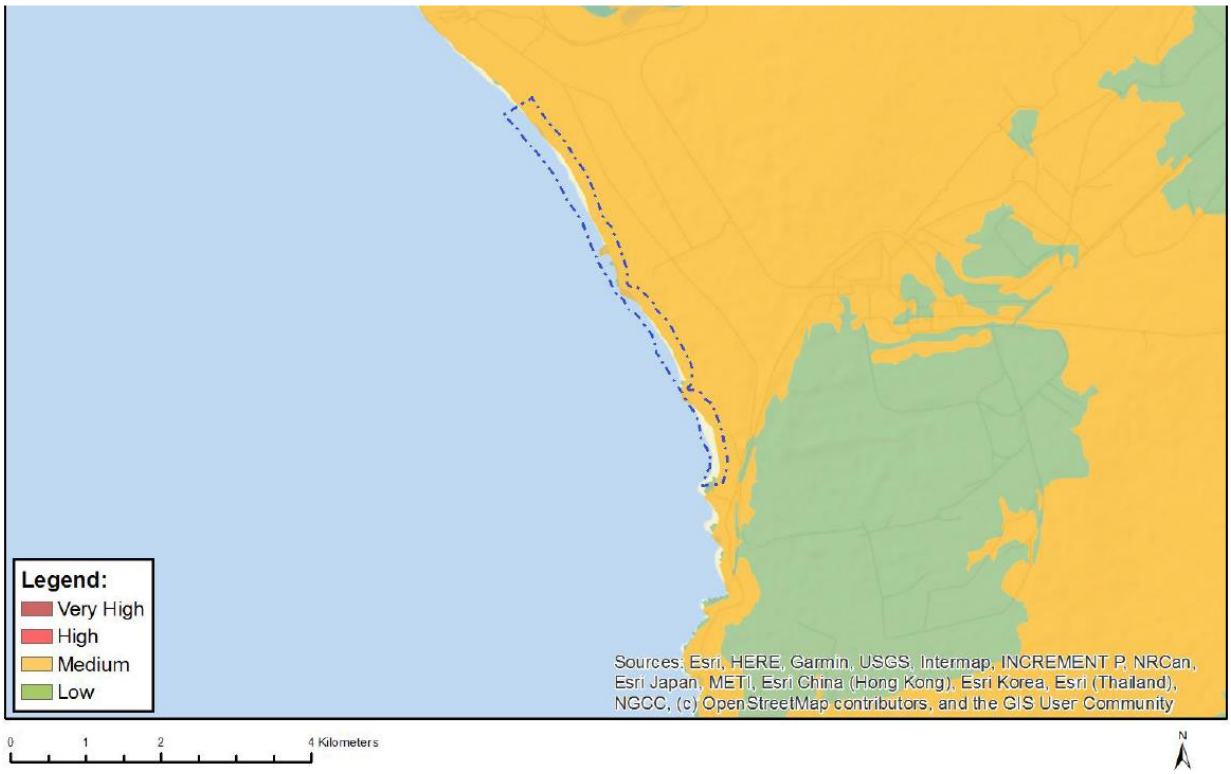



**Figure 13:** Map of relative Plant Species theme sensitivity

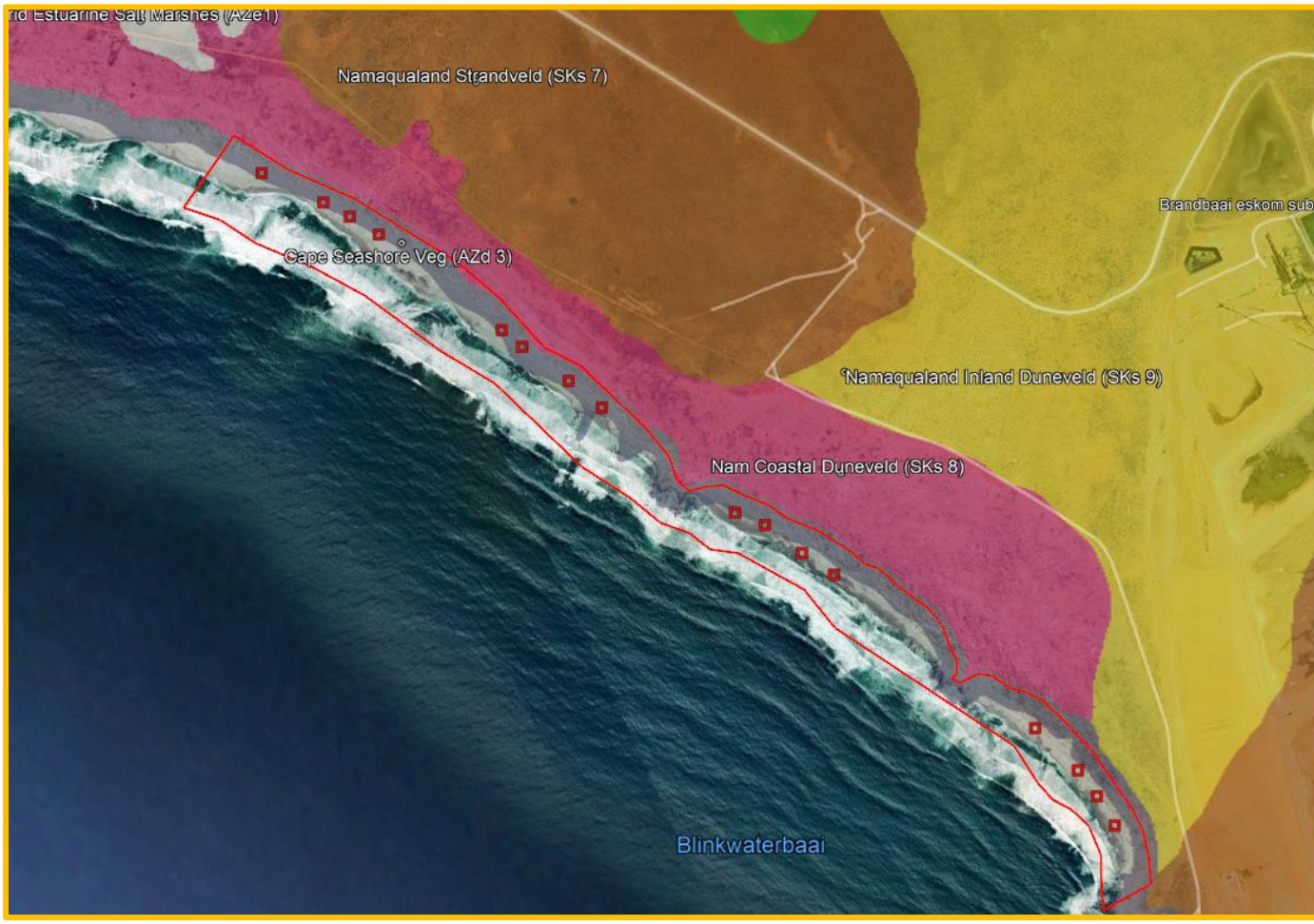



**Figure 14:** Vegetation types of the proposed site and surrounding area

**Fauna**

The larger mammals in the area are mainly Steenbok, Common Duiker and Cape Porcupine with Cape Fox and African Wild Cat the most common predators. Several studies done for large scale mining and renewable energy projects has shown there is no significant difference between the mammalian community structure in the study area and the broader area and the range of habitats is similar. The beaches appear to be important for several predators such as African Wild Cat and Black-backed Jackal which regularly visit the beaches to look for carrion.

The Cape fur seal is a resident along the west coast of Africa, occurring at numerous breeding and non-breeding sites on the mainland and on nearshore islands and reefs. The South African population, which includes the West Coast colonies, was estimated at ca. 725,000 individuals in 2020. This is about 40% of the total southern African population, which has previously been estimated at up to 2 million (Seakamela et al. 2022).

There are several Cape fur seal breeding colonies within the broader study area: at Bucchu Twins near Alexander Bay, at Cliff Point (approximately 17km north of Port Nolloth), at Kleinzee (incorporating Robeiland), Strandfontein Point (south of Hondeklipbaai), Elephant Rocks, Paternoster Rocks and Jacobs Reef at Cape Columbine. The closest breeding colony to the study area is at Elephant Rocks 40Km to the south. They are therefore highly likely to be encountered during sampling activities as Seals are highly mobile animals with a general foraging area covering the continental shelf up to 120 nautical miles offshore (Shaughnessy 1979), with bulls ranging further out to sea than females.

According to the South African Reptile Conservation Assessment database and du Preez and Carruthers (2009), the study area falls within the distribution range of at least 58 reptiles, comprising 5 chelonians, 23 snakes, 24 lizards and skinks, 12 geckos and 1 chameleon. Several West Coast endemics are present within the development footprint but only the Sensitive species 32 is listed as SCC as part of the Screening Tool Report and is regarded as Vulnerable in terms of TOPS 2015 list. The Namaqua Sand Frog is common along the west coast as is it is independent of surface water.

The presence of the Avifaunal SCC is the only criteria giving the study area a high sensitivity regarding relative Animal Species theme. Approximately 188 terrestrial and coastal bird species have been recorded in the study area and surrounds (including the Olifants River Estuary), based on data obtained from the Southern African Bird Atlas Project. Of this total, 19 species (10%) are considered endemic and 30 (16%) near-endemic to South Africa (Taylor et al., 2015), while 12 species (6%) are listed as Threatened and six (3%) as Near Threatened.

The landscape of the study area represents two primary avifaunal habitats, the interior sandy plains, and the coastal shore. The interior plains of the study area support mostly small passerines (~ 52 species, 65%). While none of these passerines are red listed, 14 species are endemic and 19 near-endemic to South Africa (Taylor et al., 2015). Non-passerines make up a third (35%) of all shrubland species, with the following of particular importance (with red list status): the Endangered Black Harrier *Circus maurus*, the Vulnerable Southern Black Korhaan *Afrotis afra*, and Secretarybird *Sagittarius serpentarius*, and the Near Threatened Kori Bustard *Ardeotis kori*.

No sensitive or unique areas with respect to foraging, breeding, or roosting were identified within the study area, although most of the above red listed species utilise the habitat to varying degrees. There are no terrestrial Important Bird Areas (IBAs), Coordinated Avifaunal Roadcount routes (CAR) or Coordinated Waterbird Count sites (CWAC) near the study area. The nearest IBA is the Olifants River Estuary approximately 40km south, which is also a registered CWAC site.

Approximately 35 bird species are almost exclusively associated with the coastal shore, including cormorants, gulls, terns, oystercatcher, and resident and migratory shorebirds. These are all non-passerine species with a very low incidence of endemism, yet a relatively high number are red listed (9 species, 25%). The most commonly encountered SCC throughout the year include the Endangered Cape Cormorant *Phalacrocorax capensis* and African Black Oystercatcher *Haematopus moquini*. The latter is no longer red listed as numbers have increased by 37% since 1980, while its population has experienced an eastward range expansion (Taylor et al., 2015).

There are no known breeding colonies for any of the three cormorant species near the study area (Taylor et al., 2015). The closest breeding islands to the study area are Bird Island in Lambert's Bay approximately 45 km to the south of the study area.

Regarding the sandy beaches where sampling will be concentrated during this project, the coastal biological communities consist of many hundreds of species, often displaying considerable temporal and spatial variability (even at small scales). No rare or endangered species have been recorded (Awad et al. 2002). The biological communities 'typical' of the surf zone habitats are described briefly below, focusing both on dominant, conspicuous species, as well as potentially threatened or sensitive species, which may be affected by the proposed prospecting activities.

In the southern Benguela, a rich outer turbulent zone (10-33 m from the shore) supports cnidarians (anemones), tube building polychaetes and amphipods; while the less diverse offshore turbulent zone (3-5 m from the shore) is typified by deep burrowing polychaetes and crustaceans. Poor species diversity and abundance, as well as the presence of cumaceans, characterise the inner turbulent part of the surf zone (0-1 m from the shore).

Fish such as galjoen (Dichistius capensis) and white steenbras (Lithognathus lithognathus) frequent turbulent surf zone waters off the West Coast where they swim over submerged beaches at high tide and feed on small crustaceans (Branch 1981). Surf zone habitats, particularly medium to low energy beaches, are in fact widely recognised as important nursery areas for fish (Lenanton et al. 1982; Clark et al. 1996).

The abalone, an important commercial species present in kelp beds south of Cape Columbine is naturally absent north of Cape Columbine. Key predators in the sub-littoral include the commercially important West Coast rock lobster and the octopus. The rock lobster acts as a keystone species as it influences community structure via predation on a wide range of benthic organisms (Mayfield et al. 2000).

Intertidal Sandy Beaches

The composition of their faunal communities is largely dependent on the interaction of wave energy, beach slope and sand particle size, which is termed beach morphodynamics. Dissipative beaches usually harbour the richest intertidal faunal communities and intermediate beach conditions have a very variable species composition (McLachlan et al. 1993; Jaramillo et al. 1995, Soares 2003). This variability is mainly attributable to the amount and quality of food available. Beaches with a high input of e.g., kelp wrack have a rich and diverse drift-line fauna, which is sparse or absent on beaches lacking a drift-line (Branch & Griffiths 1988). Beaches act as filters and energy recyclers in the nearshore environment (Brown & McLachlan 2002).

The upper beach dry zone (supralittoral) is situated above the high-water spring (HWS) tide level, and receives water input only from large waves at spring high tides or through sea spray. This zone is characterised by a mixture of air breathing terrestrial and semi-terrestrial fauna, often associated with, and feeding on kelp deposited near or on the driftline. The mid-beach retention zone and low-beach saturation zone (intertidal zone or mid-littoral zone) has a vertical range of about 2m. This mid-shore region is characterised by the cirolanid isopods, and amphipods of the families Haustoridae and Phoxocephalidae. In some areas, juvenile and adult sand mussels may also be present in considerable numbers.

The surf zone extends from the Low-water Spring mark to about 2m depth. A variety of polychaetes are typical of this zone, although they generally extend partially into the midlittoral above. In areas where a suitable swash climate exists, the gastropod Bullia digitalis may also be present in considerable numbers, surfing up and down the beach in search of carrion. The transition zone spans approximately 2 - 5 m depth beyond the inner turbulent zone. Extreme turbulence is experienced in this zone, and therefore this zone typically harbours the lowest diversity on sandy beaches. The outer turbulent zone extends beyond the surf zone and below 5m depth, where turbulence is significantly decreased and species diversity is again much higher.

Intertidal Rocky Shores

Several studies on the west coast of southern Africa have documented the important effects of wave action on the intertidal rocky-shore community. Specifically, wave action enhances filter-

feeders by increasing the concentration and turnover of particulate food, leading to an elevation of overall biomass despite low species diversity (McQuaid & Branch 1985; Bustamante & Branch 1995, 1996a; Bustamante et al. 1997). Conversely, sheltered shores are diverse with a relatively low biomass, and only in relatively sheltered embayments does drift kelp accumulate and provide a vital support for very high densities of kelp trapping limpets, that occur exclusively there (Bustamante et al. 1995). In the subtidal, these differences diminish as wave exposure is moderated with depth.

West Coast rocky intertidal shores can be divided into five zones based on their characteristic biological communities: The Littorina, Upper Balanoid, Lower Balanoid, Cochlear/Argenvillei and the Infratidal Zones. These biological zones correspond roughly to zones based on tidal heights. Tolerance to the physical stresses associated with life on the intertidal, as well as biological interactions such as herbivory, competition and predation interact to produce these five zones.

The uppermost part of the shore is the littoral fringe, which is the part of the shore that is most exposed to air, perhaps having more in common with the terrestrial environment and characterised by low species diversity. From the Lower Balanoid zone, biological communities are determined by exposure to wave action.

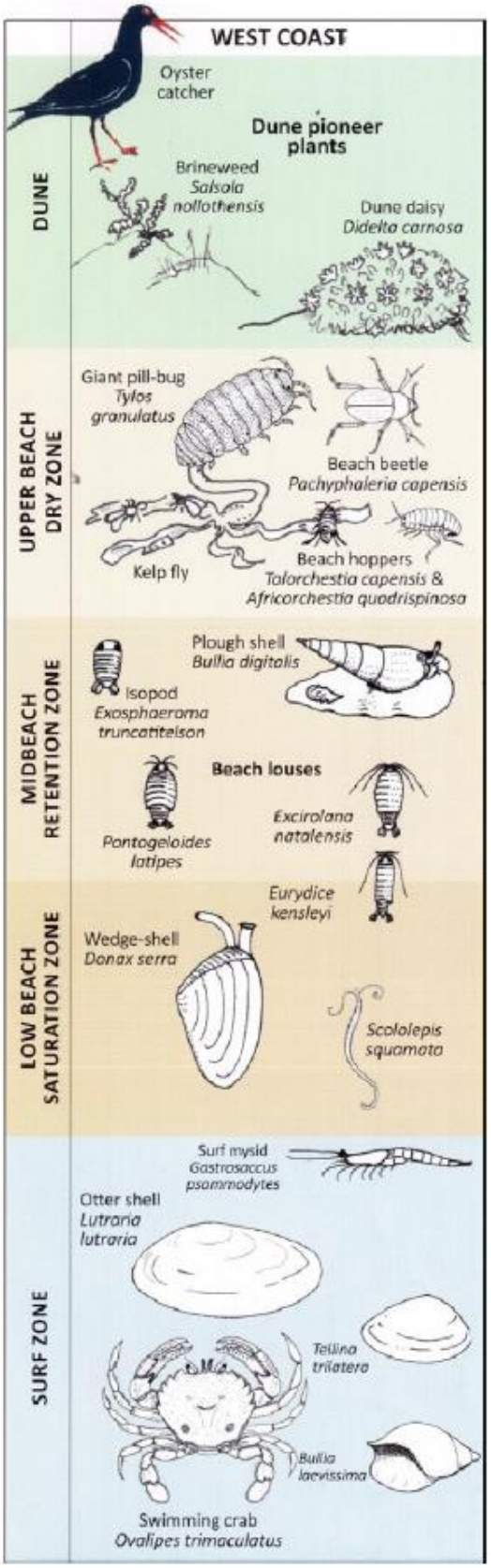



**Figure 15:** Schematic representation of the West Coast intertidal beach zonation

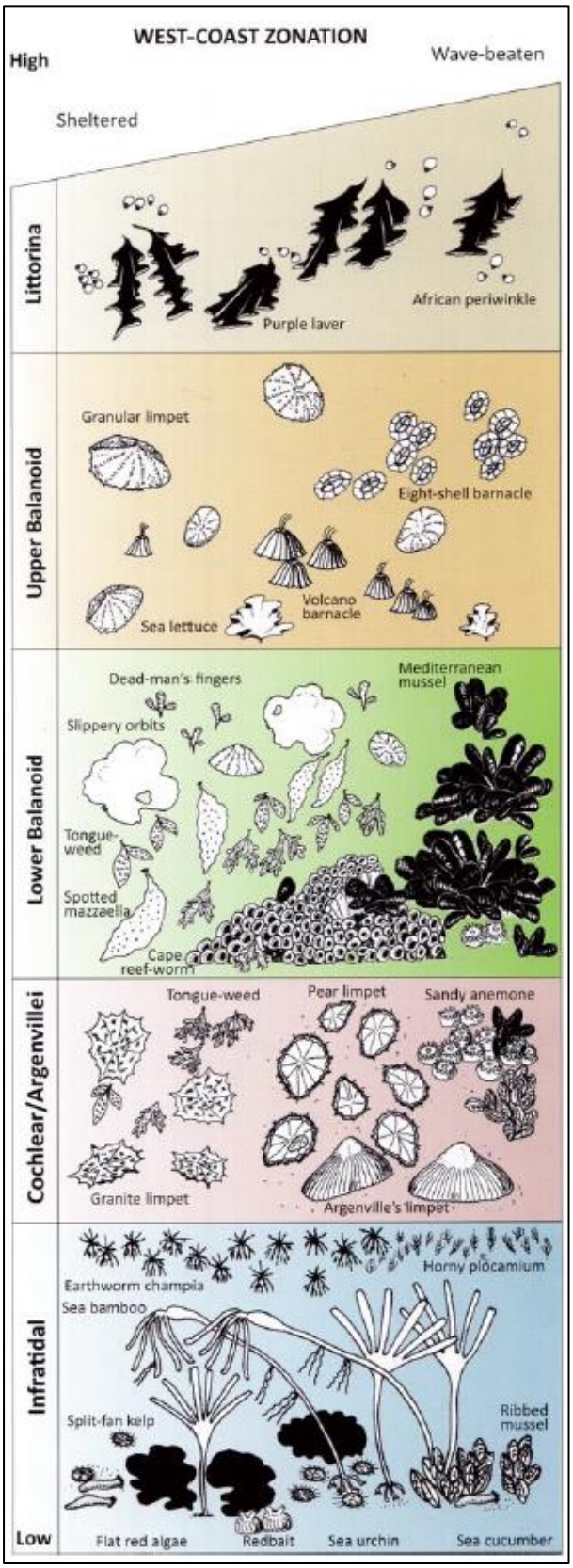



**Figure 16:** Schematic representation of the West Coast intertidal rocky shore zonation

Several specialist studies completed for the largescale mining and renewable energy projects in and around the study area have shown that there is no discernible difference in mammalian community structure and composition inside and outside of the development areas. The resident mammalian fauna appears to be tolerant of mining activities and did not avoid the mining areas to a significant degree. Consequently, the major impact on fauna from the proposed development is likely to be the temporary loss of less than 5ha of coastal habitat, which is of local but not broader significance. As with mammals, impacts on reptiles and amphibians are likely to be restricted largely to habitat loss equivalent to the development footprint.

As sandy beaches are highly dynamic, these habitats are less sensitive to disturbance than rocky shore environments. Sandy beaches are also quicker to recover from disturbance than rocky habitats, with recovery from intensive mining operations being found to occur within two to three years in Namibia (Pulfrich and Branch 2014). Relatively few species occur on sandy beaches in comparison to rocky shores due to the unstable and harsh nature of beaches. Those species that do occur on sandy beaches are hardy and well adapted to life in these environments (Branch 1981).

Prospecting with bulk sampling activities will have a medium significance impact on these species due to the small area to be disturbed and short duration of activities. Mitigation of the disturbance is also possible and after mitigation the impact will be of Medium to low significance. It must also be noted that less than 5ha mainly sandy beaches will temporary be disturbed by sampling.
According to the Screening Tool Report the proposed site is located in an area of high sensitivity regarding Animal Species, but more than 90% having a medium sensitivity.

**Table 14:** Animal Species theme Sensitivity Features

| Sensitivity | Feature(s) |
|---|---|
| High | Aves-Circus maurus |
| Low | Subject to confirmation |
| Medium | Aves-Afrotis afra |
| Medium | Sensitive species 32 |
| Medium | Invertebrate-Brinckiella mauerbergerorum |

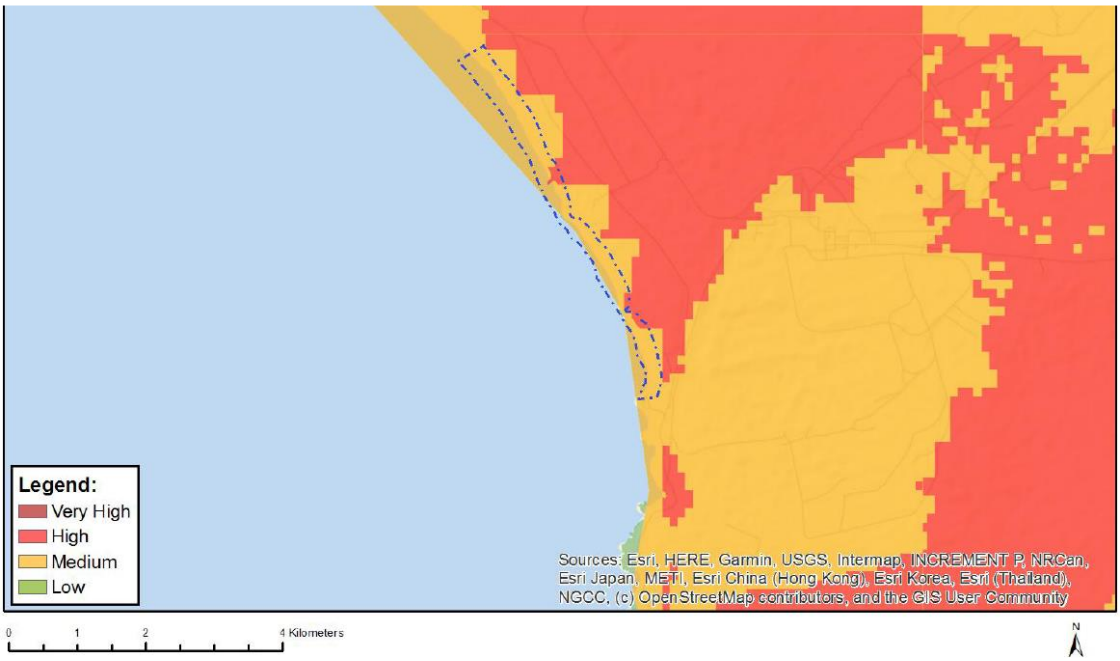



**Figure 17:** Map of relative Animal Species theme sensitivity

### Aquatic biodiversity and Water Resources

The study area lies in the Olifants-Doorn Water Management Area (WMA). Within this WMA, the study area falls within DWS's quaternary catchment F60E, comprising a large quaternary without any major

rivers. The rivers in the WMA comprise relatively minor systems and have been mapped in the national 1:50 000 river cover as “non-perennial” (*i.e.*, ephemeral) rivers.
The National Ecoregional Classification of Kleynhans et al. (2005) classifies the study area as falling within the Western Coastal Belt Ecoregion. This ecoregion is characterized by plains with low and moderate relief, an altitude between sea level and 700 m amsl and vegetation that comprises primarily Succulent Karoo types (Kleynhans et al. 2005). The ecoregion includes the Olifants, Doring, Sout, Groen, Buffels and western section of the Orange Rivers.
The Sout River flows into the Atlantic Ocean via its estuary, just south of the boundary of the proposed site.

The Sout River classified as a NFEPA River (FEPA 3) flows within a clearly defined channel, edged on either side by steep slopes up to the surrounding terrain. It is flat-bottomed and gently sloped, and its course meanders gently towards its estuary, typical of a lowland river. The arid nature of its catchment dictates that the river rarely conveys surface flows. Nevertheless, the channel remains sandy and clear of vegetation, due to low water availability in the landscape.

The PES of the Sout River upstream of its estuary is Category B – largely natural. This reflects a river that is relatively unimpacted, with low levels of alien plant or animal invasion; relatively intact species diversity; low levels of erosion; assumed low levels of abstraction (due to the high natural salinity of the system and the low frequency of flows); and an apparently natural geomorphology, with low levels of geomorphological change (Driver at al. 2011). Wetlands in the surrounding area comprise mainly pans, which are classified by Ollis et al (2013) and identified in NFEPA data as “depressions”. However, no wetlands occur in the study area.

The only estuaries close to the study area are the intermittently-open Sout River estuary, approximately 1.3km to the north. A salt processing works has been established in the Sout River estuary, with the result that there has been considerable disturbance to the estuary bed and banks with multiple berms being created to contain water and promote its evaporation (to produce salt). Roads cross the watercourse, often with small single culverts, resulting in downstream constriction of flows and associated narrowing of wetland extent, downstream of the saltworks.

As surface water flow in the Sout River is rare, the saltworks use saline groundwater rather than river flows to derive their salts. This means that the lower estuary is the only part of the Sout River system that is perennially wet. Standing water in the lower estuary promotes algal growth (*Cladophora sp.*) and provides an artificial wetland habitat that supports wading birds such as Flamingos. Physical disturbance of the estuary and changes in its natural flow dynamics are significant.

A groundwater divide exists between quaternary catchments F60D and F60E. Groundwater north of the divide flows inland towards the Sout River and Groot Goeraap River, whereas groundwater south of the divide flows towards the coast and the Sout River.
Specialist studies completed for the area suggests that the potential groundwater flow in the area will accumulate in the shallow subsurface above bedrock material and follow low-lying topographical trends. As such, any seep into the subsurface is expected to flow down towards bedrock, where it would accumulate/mound and then begin flowing towards the coast. Any sources of contamination in this seep will likely follow a similar path, and over time trend towards the coast. As there are no current groundwater users, the coastal environment is the only receptor to this flow.

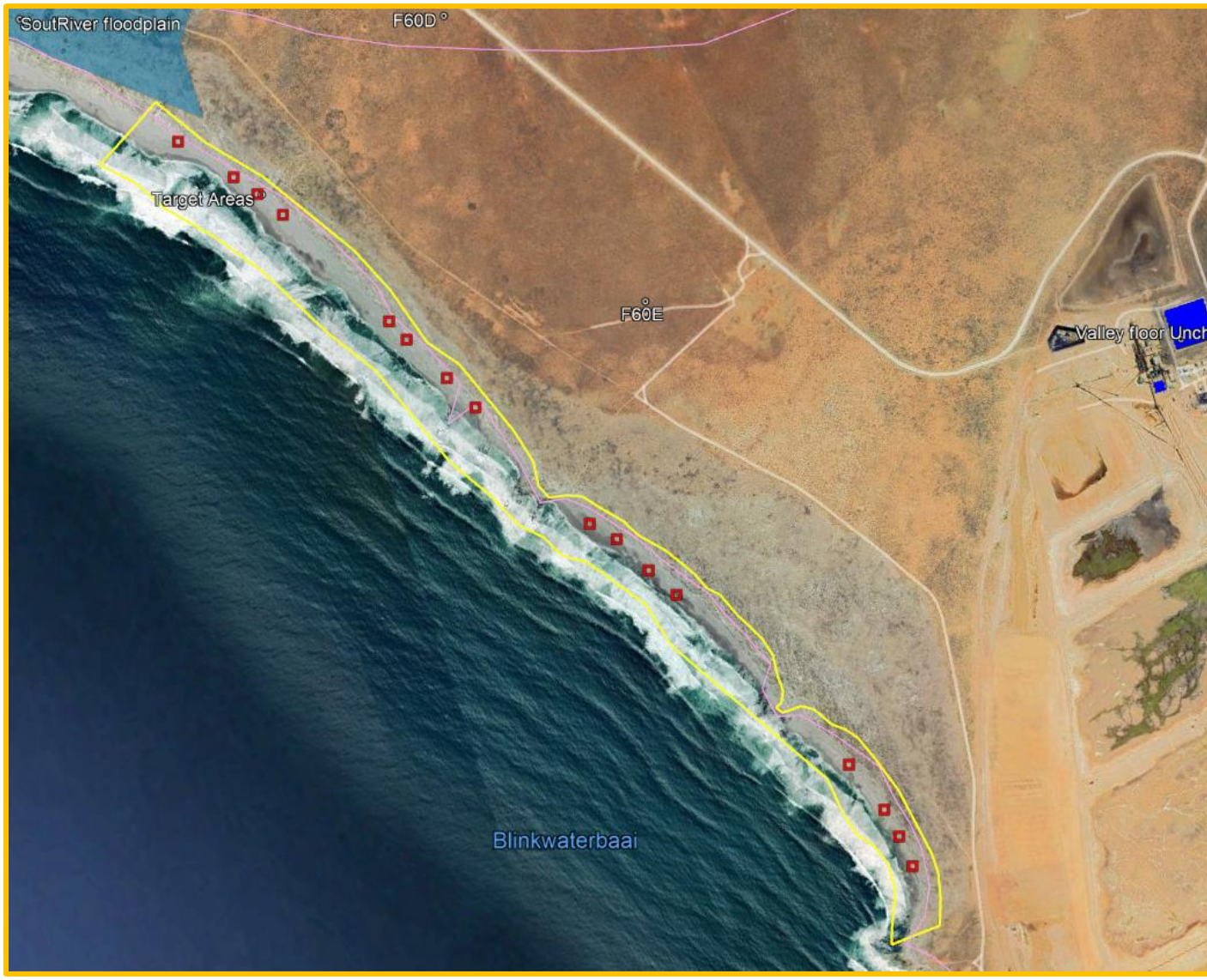



**Figure 18:** Location of Prospecting area (yellow polygon) in relation to Aquatic biodiversity and Water Resources

According to the Screening Tool Report the prospecting area is rated as having a very high sensitivity regarding Aquatic biodiversity.

**Table 15:** Aquatic biodiversity theme Sensitivity Features

| Sensitivity | Feature(s) |
|---|---|
| Low | Low sensitivity |
| Very High | ESA 1: Aquatic |
| Very High | Estuary_Sout (Noord) |
| Very High | Wetlands_(Estuary) |

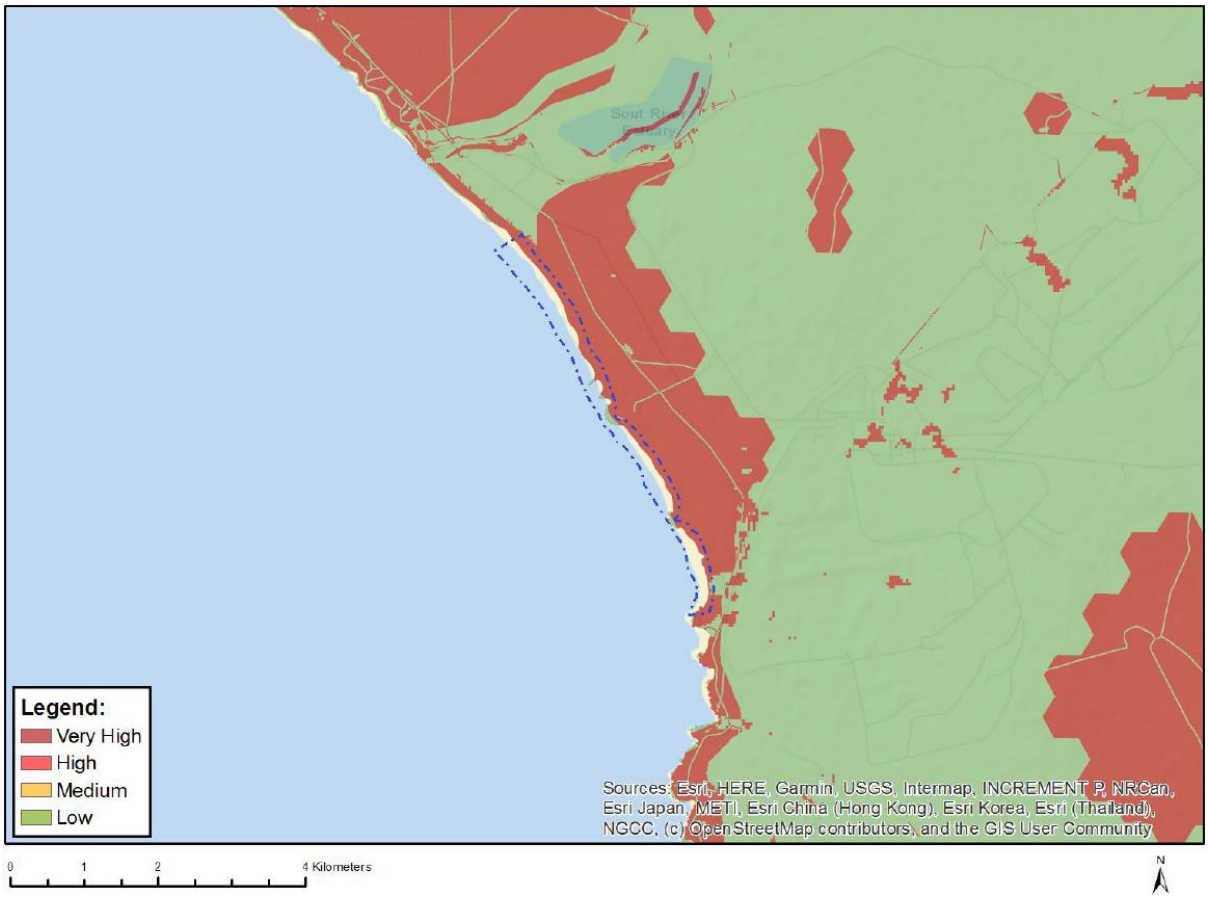



**Figure 19:** Map of Aquatic biodiversity theme sensitivity

### Socio-economic

The West Coast District's (WCD) population is expected to grow at an average annual rate of 1.7 per cent, rising from an estimated 464 056 people in 2020 to 496 511 in 2024. This growth rate is slightly lower than that of the Western Cape at 1.8 per cent across the same period.

Despite vibrant economic activity in the Swartland, Saldanha and Bergrivier areas, large parts of the WCD remain impoverished. The WCD has the second lowest GDPR per capita in the Province and its Gini-coefficient (reflection of income inequality) has been worsening in recent years. Overall quality of life, as measured through the human development index (HDI) has however been improving. Residents of the WCD enjoy relatively high basic service delivery access levels i.e., 98.3 per cent for water, 94.0 per cent for electricity, 76.9 per cent for refuse removal, 87.2 per cent for sanitation and 86.7 per cent for housing.

The district's economy maintained an annual average GDPR growth rate of 1.5 per cent from 2014-2018 but fell into recession in 2019 with an estimated growth rate of -1.2 per cent. In 2018 the economy was mostly driven by activities within the manufacturing; agriculture, forestry, and fishing; as well as wholesale and retailed trade, catering, and accommodation sectors. The impact of the drought has had a significant impact on the agriculture, forestry, and fishing sector within the district, not only in terms of diminished production yield that negatively affected exports, but also in terms of job losses.

### Cultural, Heritage and Palaeontological Resources

**Table 16:** Archaeological and Cultural and Heritage theme Sensitivity Features

| Sensitivity | Feature(s) |
|---|---|
| Low | Low sensitivity |

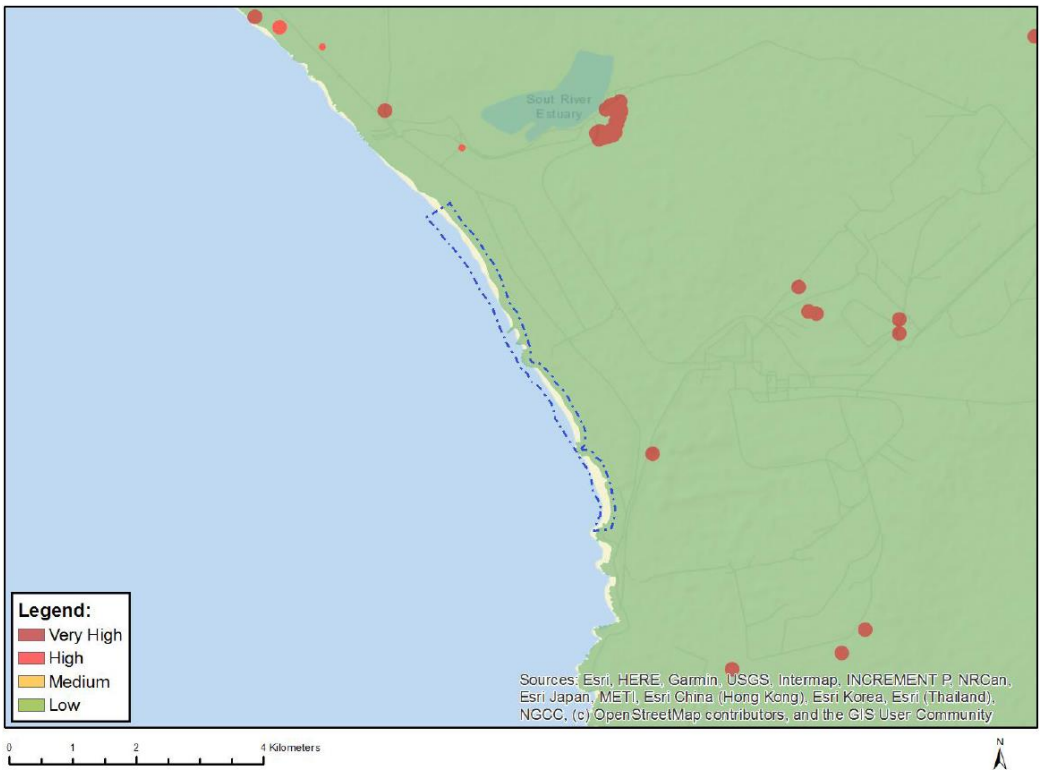



**Figure 20:** Map of relative Archaeological and Cultural and Heritage theme sensitivity

According to the Screening Tool Report, the relative paleontological sensitivity is rated as low to medium and this is confirmed by the SAHRIS Palaeosensitivity map.

A Desktop Paleontological Impact Assessment (PIA) was undertaken due to the medium sensitivity result stipulated in the screening tool report. All mitigating measures proposed will be included in the EMPr.

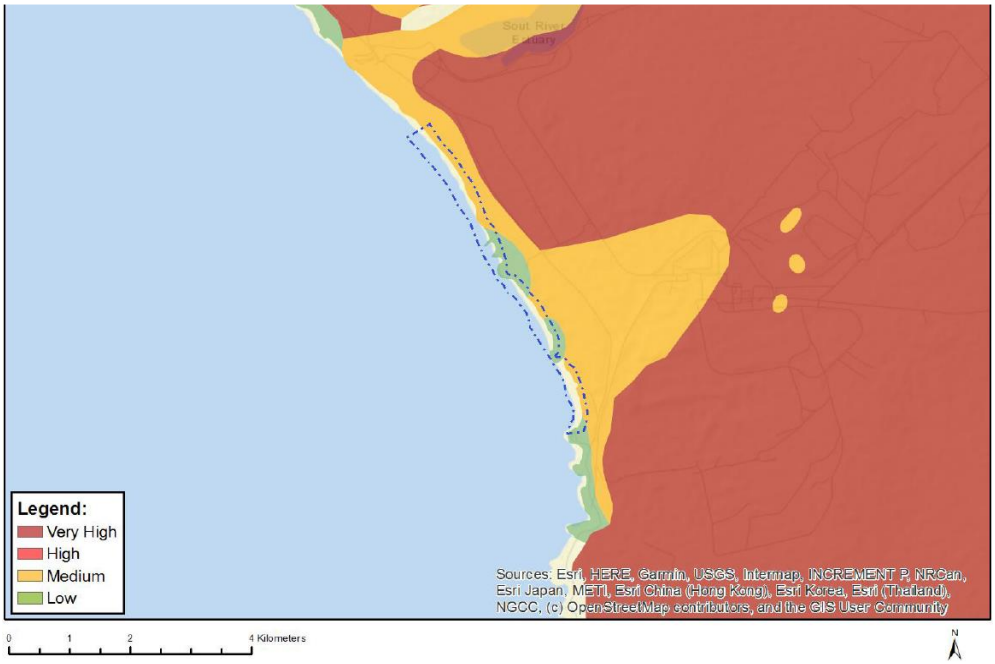



**Figure 21:** Map of relative Palaeontological theme Sensitivity

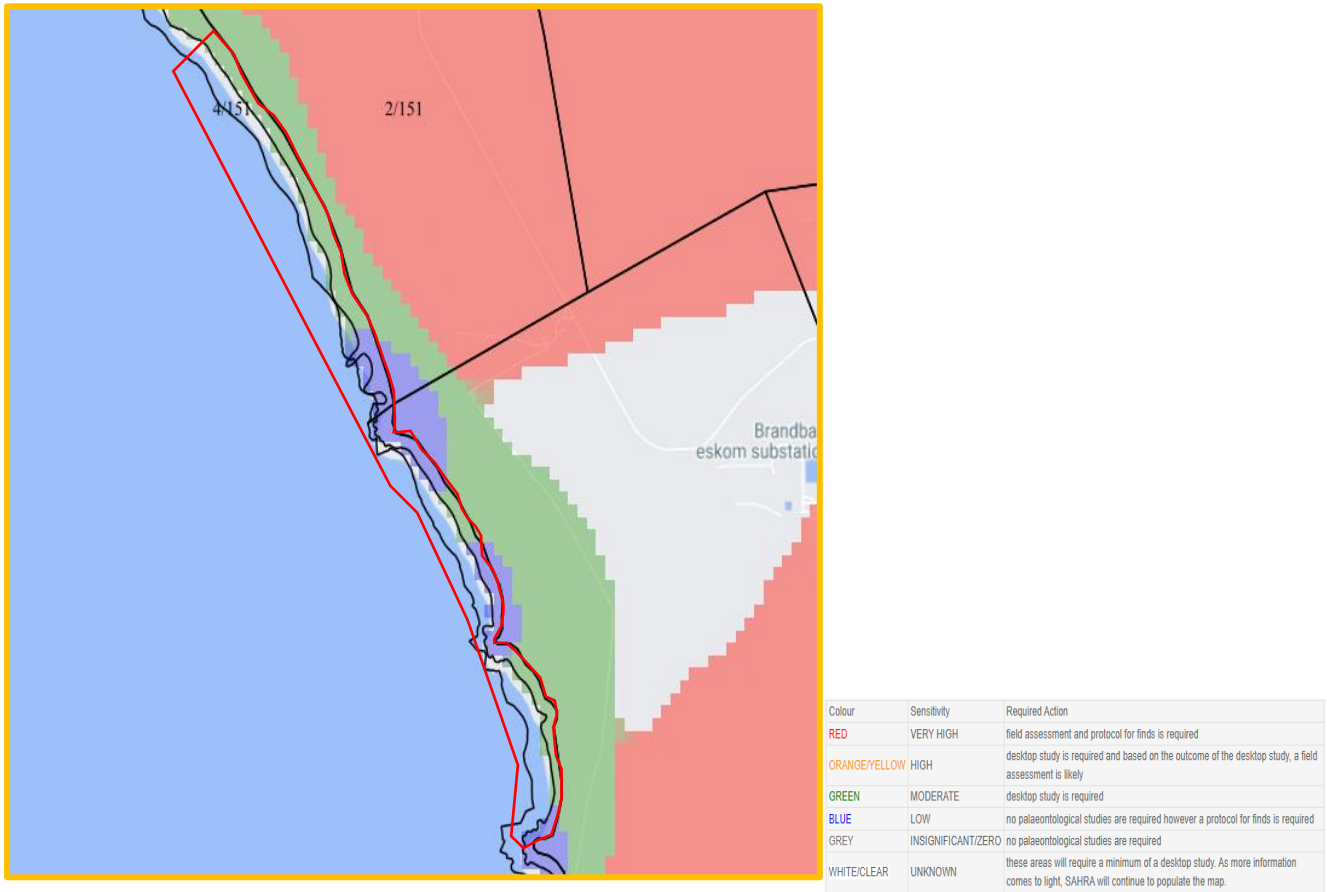



**Figure 22:** SAHRIS Palaeo sensitvity map showing the study area to be of moderate sensitivity (green shading) as well as low sensitivity (blue shading)

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

(Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties together with the significance, probability, and duration of the impacts. Please indicate the extent to which they can be reversed, the extent to which they may cause irreplaceable loss of resources, and can be avoided, managed or mitigated).

The prospecting with bulk sampling activities comprise desktop and geophysical activities and depending on the outcome thereof, the exact location of trenches will be selected and that is where bulk sampling will be conducted.

The impact assessment will therefore be separated into three distinct phases, namely:

- Construction phase (Site establishment);
- Operational phase (Sampling via prospecting pits and bulk sampling in trenches), and
- Decommissioning phase

**Potential Risks/Impacts**

**Potential risks associated with safety**

- The safety of personnel and the general public due to operating large earth-moving equipment.
- Management of dust, noise and ground vibration associated with prospecting and bulk sampling activities, in relation to surrounding communities.
- Potentially dangerous areas like excavations or equipment left behind and uncontrolled access to a potentially unsafe post-prospecting and bulk sampling area.

**Potential risks associated with environmental features**

- Loss of indigenous vegetation due to establishment of laydown areas.
- Soil erosion.
- Oil and fuel leaks from earthmoving and transport equipment and machinery or spillage of fuel during the transfer from fuel bowser to equipment.
- Post-prospecting and bulk sampling topography is unlike the original landform.
- Change in topography due to spoil heaps being left behind after prospecting and bulk sampling.
- Pollution resulting from poor waste management.
- Equipment and other items used during the prospecting operation being were left behind.
- Incomplete removal of re-usable infrastructure.
- Disturbance to sensitive environments such as Critical Biodiversity areas and any associated biodiversity corridors, wetlands and other aquatic ecosystems and terrestrial habitats for species of conservation concern.
- Potential contamination of groundwater from unmanaged use of hydrocarbons on-site, and incorrect storage of hazardous substances.
- Chemical contaminants polluting surface and/or groundwater.
- Waste classes are not kept in separate streams and incomplete removal of waste.
- Vehicle wash bays and workshop facilities produce petrochemical and solvent contaminated runoff.
- Toilets, fuel depots or storage facilities of potentially polluting substances can contaminate surface water.

**Potential risks associated with viable and sustainable land**

- Lack of diligence in controlling the prospecting and bulk sampling footprint, resulting in unnecessary loss of agricultural potential.
- Uncontrolled development of roads, where existing farm tracks are not kept to and redundant internal roads are left behind.
- Post-prospecting and bulk sampling landform not compatible with the surrounding landscape and lowers land capability to significantly lower than the pre-prospecting and bulk sampling land capability.
- Sub-surface infrastructure remaining behind, limiting the intended post-closure land use, including footings and foundations, power supply and water installations including pumps and pipelines.
- Long term changes in land use caused by delaying to implement rehabilitation and maintenance measures.
- Unsuccessful rehabilitation can reduce the post-prospecting and bulk sampling land use options. Rehabilitated areas could be too unstable to support post-prospecting and bulk sampling land use objectives that are compatible with surrounding areas.
- Ecological degradation due to loss of habitat and cumulative impact.
- Inadequate control of alien invasive vegetation species can result in the establishment of populations or seed sources that threaten adjacent areas.

**Potential risks associated with a post-prospecting and bulk sampling landform**

- Impact on surface water resources by increasing the extent of hardened surfaces.
- Inadequate topsoil restoration or creation of unnatural surface topography which could impact lower or adjacent slopes due to increased runoff velocity.
- Altered storm water runoff response due to large impervious areas and concentrated runoff in drainage systems. Concentrated storm runoff from infrastructure areas is erosive, causing sheet, rill and donga erosion features.
- Potentially dangerous areas like excavations incorrectly rehabilitated including uncontrolled access to potentially unsafe post-prospecting areas.

**Potential risks associated with the socio-economic environment**

- Disturbance of local communities in urban and rural areas caused by noise and dust emissions and increase in heavy vehicles along transport routes.
- Temporary exclusions of recreational activities in active mining areas.
- An influx of non-local people in the local communities looking for work, with an increase in demand for housing, schooling, and services. Such an influx of workers in a community often results in a change in social dynamics.
- Positive impacts include, for example, the creation of both formal and informal businesses to supply additional needs, whilst negative social impacts include, for example, an increase in substance abuse, HIV transmission and unwanted pregnancies.
- Staff losing their jobs at mine closure can have devastating effects on communities that are reliant on mine-based income.
- Job losses of secondary industries, businesses and contractors and contractual agreements with service providers surpassing mine closure date.
- Lack of compliance with the approved EMPr and a lack of auditing of the EMPr.
- Prospecting with bulk sampling activities closure stalled due to non-compliance with relevant legislation (national, provincial, and local).

**Potential risks associated with visual intrusion, noise, vibration, light pollution, and air emissions**

- Terrain morphology plays a critical role in defining the visual envelope of prospecting developments and can either reduce or enhance visual impact. Apart from visual intrusion, there is also the risk of a reduced sense of place. The visual intrusion impact of prospecting activity would be on nearby roads, homesteads, settlements, recreational activities, and along tourism routes or corridors.
- The visual disturbance would be caused by prospecting activities such as excavations.

Machinery and structures provide a colour contrast, as do disturbed areas against adjacent natural areas.

- Nuisance effects of air emissions due to a lack of implementation of dust suppression activities could impact on communities.
- Dust generated on haul roads reduces visibility, representing a safety hazard.
- Dust can retard vegetation growth and reduce the palatability of vegetation.
- The cumulative effect of a rise in the ambient noise levels or high noise levels in specific areas that exceed specified levels would impact on communities in close proximity.

**Potential risks associated with archaeological, cultural heritage or paleontological sites**

- Disturbance of identified surface, or unknown sub-surface sites, if mitigation and monitoring is not implemented in accordance with the mitigation measures in the Underwater Heritage Impact Assessment and the Palaeontology Impact Assessment.

Progressive development can encroach upon or disturb identified sites.

**Potential impacts and risks associated with the Preferred Alternative**

Refer to Section 3(g) above, wherein is described the location, type of activity, layout and technology alternatives, and the preliminary result of having only the preferred and the 'no-go' alternative. The potential impacts and risks of adopting the preferred alternative are listed in Table 19 below.

**Potential impacts and risks associated with the 'no-go' alternative**

The 'no-go alternative entails maintaining the status quo and so the proposal of conducting diamond prospecting with bulk sampling on the proposed site would be abandoned. If the proposed diamond prospecting with bulk sampling does not take place, it will not become known whether or not a viable diamond mine that can result in significant socio-economic benefits with acceptable ecological impacts can be established on the proposed site. It would therefore be highly undesirable to adopt the 'no-go' alternative in the area of the proposed site, where employment opportunities are so scarce.

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

Refer to Table 18 below, which provides the impact assessment criteria applied in the rating of the impacts associated with each phase of the Preferred alternative. Each impact is assessed in terms of: nature (character status); extent (spatial scale); duration (time scale); probability (likelihood) of occurring; reversibility of the impact; the degree to which the impact may cause irreplaceable loss of resources; the significance (size or magnitude scale) prior to mitigation; the degree to which the impact can be mitigated; and, the significance (size or magnitude scale) after mitigation.

**Table 18: Impact Assessment Criteria**

| ASSESSMENT CRITERIA | |
|---|---|
| **NATURE** | |
| Positive | Beneficial to the receiving environment |
| Negative | Harmful to the receiving environment |
| Neutral | Neither beneficial or harmful |
| **EXTENT (GEOGRAPHICAL)** | |
| Site | The impact will only affect the site |
| Local/ district | Will affect the local area or district |
| Province/region | Will affect the entire province or region |
| International and National | Will affect the entire country |
| **CONSEQUENCE** | |

| | |
|---|---|
| Loss/gain | The impact will result in loss or gain of resource |
| No loss/gain | The impact will result in no loss or no gain of resource |
| **DURATION** | |
| Construction period / Short term | Up to 3 years |
| Medium term | Up to 6 years after construction |
| Long term | More than 6 years after construction |
| **PROBABILITY** | |
| Definite | Impact will certainly occur (>75% probability of occurring) |
| Probable | Impact likely to occur (50 – 75% probability of occurring) |
| Possible | Impact may occur (25 – 50% probability of occurring) |
| Unlikely | Impact unlikely to occur (0 – 25% probability of occurring) |
| **REVERSIBILITY** | |
| Reversible | Impacts can be reversed though the implementation of mitigation measures |
| Irreversible | Impacts are permanent and cannot be reversed by the implementation of mitigation measures |
| **IRREPLACEABLE LOSS OF RESOURCES** | |
| High | The impact will result in a complete loss of resources |
| Medium | The impact will result in significant loss of resources |
| Low | The impact will result in marginal loss of resources |
| No Loss | The impact will not result in the loss of any resources |
| **CUMULATIVE EFFECTS** | |
| High | The impact would result in significant cumulative effects |
| Medium | The impact would result in moderate cumulative effects |
| Low | The impact would result in minor cumulative effects |
| **SIGNIFICANCE RATINGS** | |
| Very High | Major to permanent environmental change with extreme social importance. |
| High | Long term environmental change with great social importance. |
| Medium | Medium to long term environmental change with fair social importance. |
| Low | Short to medium term environmental change with little social importance. |
| Very low | Short-term environmental change with no social importance |
| None | No environmental change |
| Unknown | Due to lack of information |
| **DEGREE TO WHICH IMPACT COULD BE AVOIDED/MANAGED/MITIGATED** | |
| High | The impact could be significantly avoided/managed/mitigated. |
| Medium | The impact could be fairly avoided/managed/mitigated. |
| Low | The impact could be avoided/managed/mitigated to a limited degree. |
| Very Low | The impact could not be avoided/managed/mitigated; there are no mitigation measures that would prevent the impact from occurring. |

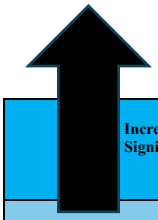
**ENVIRONMENTAL IMPACT SIGNIFICANCE RATING KEY:**

**Negative Impacts**

| SIGNIFICANCE | RATING | Final rating score / value range |
|---|---|---|
| Very Significant | Very High | -11 to -16 |
| Significant | High | -7 to <-11 |
| Increasing Significance | Medium | -4 to <-7 |
| Insignificant | Low | -2 to <-4 |
| | Very Low | -1 to <-2 |

**Positive Impacts**

| SIGNIFICANCE | RATING | Final rating score / value range |
|---|---|---|
| Significant | High | 10 to 16 |




| | | |
|---|---|---|
| | Medium | 4 to <10 |
| Insignificant | Low | 1 to <4 |

**vii) The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the community that may be affected.**

(Provide a discussion in terms of advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties)

Please refer to Section 3(g) on discussion of the alternatives and Table 19.

**viii) The possible mitigation measures that could be applied and the level of 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).

Please refer to Table 19 for the possible mitigation measures included under each potential impact.

**ix) Motivation where no alternative sites were considered.**

Please refer to the discussion of alternatives in Section 3(g) .

**x) Statement motivating the alternative development location within the overall site. (Provide a statement motivating the final site layout that is proposed)**

Please refer to Section 3(g).

**h) Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (In respect of the final site layout plan) through the life of the activity. (Including (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process and (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.)**

**i) Assessment of each identified potentially significant impact and risk**

(This section of the report must consider all the known typical impacts of each of the activities (including those that could or should have been identified by knowledgeable persons) and not only those that were raised by registered interested and affected parties).

**Table 19:** Assessment of each potential impact and risk

| Phase | Activities | Potential Impact | ASPECTS AFFECTED | Significance (before mitigation) | Proposed mitigation | Significance (after mitigation |
|---|---|---|---|---|---|---|
| | | | | | | |
| CONSTRUCTION PHASE | Establishment Activities (Setting up office and toilets, parking areas for vehicles, caterpillars and equipment) | Decline in public access to coast | Public access to the coast | Medium | Put up signage indicating available alternative ways in which the public can still access the coast | Low |
| | | Inconvenience to landuses on neighbouring properties through dust and visual disturbance | Aesthetics relating to air quality and visual appeal | Medium | Restrict construction activities to the identified development footprint and implement dust suppression measures. | Low |
| | | Disturbance to fauna through vehicle and construction work noise. Vegetation damage from setting up facilities and equipment as well as driving and parking vehicles and caterpillars | Noise | Medium | Restrict construction activities to the identified development footprint | Medium-Low |
| | | Soil compaction from frequent driving on existing two-lane access tracks to and from site | Agricultural potential | Medium | Scarify the two-lane track when necessary | Low |
| | | Potential contamination of soil from petrochemical spills | Agricultural potential | Medium | -Keep vehicles well maintained and clean up any spills as soon as possible with clean-up kits that are kept on the site.<br>- Use appropriately sized drip trays for all refueling, repairs or when vehicles are parked | Low |
| | | .<br>for access Soil contamination from inadequate waste management | | Medium | -Provide new workers on the site with environmental training that includes *inter alia*, waste management | Low |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | -Provide adequate number of portable toilets available for on-site workers and ensure regular sewage collection for disposal at wastewater treatment works.<br>-Provide adequate number of on-site refuse bins and ensure the refuse is regularly collected and disposed of at licensed waste disposal site. | |
| | | Dust nuisance from on-site activities | Aesthetic appeal and air quality | High | -Keep excavated material wet using seawater. | Low |
| | | Noise and ground vibration causing nuisance on neighboring properties | | Medium | -Keep vehicles, caterpillars and equipment well maintained to limit noise | Low |
| | | Potential impacts on archaeological and paleontological resources | Archaeology and palaeontology | Medium | Implement recommendations of heritage specialist and comply with any requirements specified by SAHRA and Heritage Western Cape | Low |
| **OPERATIONAL PHASE** | Collection of samples and Sample Analysis (Including: excavations, refuelling, waste generation & management, spoils, and | Visual disturbance due to spoil heaps caused by excavating (prospecting pits and bulk sampling trenches) | Aesthetic appeal | Medium | Backfill prospecting pits and bulk sampling trenches with spoil as soon as possible to limit the time that spoil heaps remain in view | Medium-Low |
| | | Water resources degradation from on-site activities within close proximity to watercourses | Freshwater water resources | Medium | -Keep prospecting and bulk sampling activities at least 1.3km from mouth of Salt River. Comply with any requirements specified by the National DWS | Low |

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| | overburden dumps | Terrestrial biodiversity disturbance from on-site prospecting with bulk sampling activities and from vehicles. Disturbance of onsite wildlife and vegetation from removal of existing vegetation and from sampling areas and service roads. Damage to coastal dune system | Terrestrial biodiversity | High | -Keep development footprint between the low and the high-water mark of the sea and on patches that are devoid of indigenous vegetation and that are located seaward of the sand dunes<br>-Backfill prospecting pits and bulk sampling trenches with spoil as possible to enable invertebrates living in topsoil to return as soon as possible<br>-Appoint biodiversity specialist and implement recommendations of biodiversity specialist and comply with any requirements specified by CapeNature, DEA&DP" Oceans and Coast and DFFE: Oceans and Coasts | Medium-Low |
| | | Marine ecological disturbance from on-site prospecting and bulk sampling activities and threats to the conservation status of the seashore that constitutes the proposed site | Marine ecological | High | Keep development footprint between the low and the high-water mark of the sea<br><br>-Backfill prospecting pits and bulk sampling trenches with spoil as soon as possible to enable speedy ecosystem recovery<br>-Appoint marine ecological specialist and implement recommendations of specialist and comply with any requirements specified by CapeNature, DEA&DP" | Medium-Low |

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| | | | | | Oceans and Coast and DFFE: Oceans and Coasts | |
| | | Soil compaction from repeated use of existing two-lane access track to proposed sites and soil erosion from exposed areas | Agricultural potential | Low | -Scarify the two-lane track when necessary and avoid deviating from the existing two-lane farm track<br>-Avoid clearing any vegetation | Low |
| | | Soil contamination and waste management | Pollution | Medium | -Provide new workers on the site with environmental training that includes *inter alia*, waste management<br>-Provide adequate number of portable toilets available for on-site workers and ensure regular sewage collection for disposal at wastewater treatment works.<br>-Provide adequate number of on-site refuse bins and ensure the refuse is regularly collected and disposed of at licensed waste disposal site. | Low |
| | | Dust nuisance to neighbours and visual disturbance | Aesthetic appeal and air quality | Medium | Keep excavated material wet with seawater to limit dust and backfill prospecting pits and bulk sampling trenches as soon as possible to limit the time that spoil heaps will remain visible | Low |
| | | Emissions (Dust), Noise and Vibration causing nuisance from topsoil stripping, site establishment activities and vehicles | | -Keep vehicles, caterpillars and | -Keep vehicles, caterpillars and equipment well maintained to limit noise | -Low |

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| | | | | equipment well maintained to limit noise | | |
| | | Obstruction of public access to coast due to prospecting pits, bulk sampling trenches and presence of spoil heaps | Public access to the coast | Medium | Indicate alternative routes for the public to use. Conduct concurrent backfilling and rehabilitation as prospecting with bulk sampling continues | Low |
| | | Topographic degradation of nearshore environment due to neglected spoil heaps | Topography and waste management | | Conduct concurrent backfilling and rehabilitation as prospecting with bulk sampling continues | Low |
| | | Potential impacts on archaeological and paleontological resources | Archaeology and paleontology | Medium | Implement recommendations of heritage specialist and comply with any requirements specified by SAHRA and Heritage Western Cape | Low |
| | | Cumulative impacts | | Medium | Implement the above and below impact mitigation measures to minimize the negative impacts of this small short-term development proposal and maximise the positive impacts | Medium-Low |
| **DECOMMISSIONING PHASE** | Rehabilitation of the prospecting right area: backfilling shaping landscape profile; scarifying | Biodiversity (wildlife and vegetation) disturbance from vehicles and caterpillars | Terrestrial biodiversity | Medium | Implement recommendations of biodiversity specialist and comply with requirements specified by CapeNature, DEA&DP" Oceans and Coast and DFFE | Low |

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| | compacted areas and vehicle tracks; replacing topsoil, etc. | Dust and vehicle emissions from rehabilitation activities | Aesthetic appeal and air quality | Medium | Keep excavated material wet with seawater to limit dust and backfill prospecting pits and bulk sampling trenches as soon as possible to limit the time that spoil heaps will remain visible | Low |
| | | Soil erosion | Agricultural potential | Medium | Keep excavated material wet using seawater | Low |
| | | Socio-economic impacts: employment opportunities during construction, operational, rehabilitation and decommissioning activities. | Socio-economic issues | Medium | Mitigation not required | |

The supporting impact assessment conducted by the EAP IS attached as Appendix 7

## j) Summary of specialist reports.

(This summary must be completed if any specialist reports informed the impact assessment and final site layout process and must be in the following tabular form):-

**Table 20:** Specialist studies conducted

| LIST OF STUDIES UNDERTAKEN | RECOMMENDATIONS OF SPECIALIST REPORTS | SPECIALIST RECOMMENDATIONS INCLUDED IN THE EI REPORT (Mark with an X where applicable) | n. |
|---|---|---|---|
| Marine Ecology Impact Assessment | • Develop the prospecting plan to ensure that sampling proceeds systematically and efficiently from one end of the target area to the next.<br>• To prevent degradation of the sensitive high-shore beach areas, all activities must be managed according to a strictly enforced Environmental Management Plan. High safety standards and good housekeeping must form an integral part of any operations on the shore from start-up, including, but not limited to:<br>– drip trays and bunding under all vehicles and equipment on the shore where losses are likely to occur;<br>– no vehicle maintenance or refuelling on shore;<br>– accidental diesel and hydrocarbon spills to be cleaned up accordingly; and<br>– collect and dispose polluted soil at appropriate bio-remediation sites.<br>• To avoid unnecessary disturbance of communities and destruction of habitats, heavy vehicle traffic in the high- and mid-shore must be limited to the minimum required, and must be restricted to clearly demarcated access routes and operational | **X**<br><br>(All the recommendations are included in this Draft EIR) | EMPR |

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| | areas only. The operational footprint of the intertidal sampling sites site should be minimised as far as practicable.<br>• Initiate infilling of individual sampling holes on completion of sampling at that site. This should involve back-filling excavations using excess sediments and discards and restoring the beach profile to that resembling the pre-sampling situation.<br>• On cessation of operations, all sampling equipment, artificial constructions or beach modifications created during prospecting must be removed from above and within the intertidal zone. | | |
| Palaeontological Impact Assessment | It is recommended that a requirement to be alert for fossil bones and archaeological shipwreck material which may be uncovered during the prospecting be included in the Environmental Management Programme (EMP) for the proposed prospecting operations. Under supervision of the Environmental Control Officer (ECO) and as part of Environmental and Health & Safety awareness training, personnel involved in the prospecting must be instructed to be alert for the occurrence of fossil bones. In the event of such discoveries the **Fossil Finds Procedure** provided below, for incorporation into the Environmental Management Programme for the proposed prospecting, must be followed.<br><br>**FOSSIL FINDS PROCEDURE**<br>Should fossil bones be encountered in trenches the unearthed bones must be retrieved for safekeeping and the works foreman and the ECO for the project must be informed immediately. If a concentration of bones is unearthed must cease at the site, the works foreman and the ECO must be informed immediately, and the find site must be protected from further disturbance. It should be feasible to relocate the prospecting site to an adjacent spot and thus avoid machine downtime. | **X**<br><br>(All the recommendations are included in this Draft EIR) | EMPR |

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| | Heritage Western Cape (HWC) and/or an appropriate specialist archaeologist or palaeontologist must be informed and supplied with contextual information by email:<br>□ A description of the nature of the find.<br>□ Detailed images of the finds (with scale included).<br>□ Position, pit/hole number of the find and depth.<br>□ Digital images of the context. *i.e*. the excavation (with scales).<br><br>HWC and the palaeontologist will assess the information provided for fossil finds and liaise with the ECO, the environmental consultants and the developer and a suitable response will be established.<br><br>On the discovery of conservation-worthy fossils, a collection permit must be applied for from HWC.<br><br>The applicant should be the qualified specialist responsible for assessment, collection and reporting.<br><br>Should fossils be found that require rapid collecting, application for a palaeontological permit must be made to HWC immediately. Arrangements must be made to transport rescued fossil material deemed worthy of conservation and study to an appropriate curatorial institution.<br><br>In addition to the information and images of the find, the application requires details of the registered owners of the sites, their permission and a site-plan map. All fossils must be deposited at a HWC approved institution. The rescue and reporting of discovered archaeological or palaeontological remains by a contracted specialist shall be at the Developer's expense. | | |
| Underwater Heritage Impact Assessment | The contractors and workers should be notified that archaeological sites might be exposed during the prospecting activities.<br><br>• Should any heritage artefacts be exposed during prospecting, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer and SAHRA shall be notified as soon as possible; | **X**<br><br>(All the recommendations are included in this Draft EIR) | EMPR |

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| | • 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;<br><br>• Where possible, if any heritage resources are accidently recovered photographs of them must be taken, noting the date, time, location and types of artefacts found. Under no circumstances may any artefacts be removed, destroyed or interfered on the site, unless under permit from SAHRA.<br><br>• Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and<br><br>• 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 | | |
| Terrestrial Biodiversity Assessment | • No damaging of the foredunes and barrier dunes must be allowed during the prospecting.<br>• Entry to and exit from the beach environment would be through a few access points in the dunes. These routes must be adhered to and no further entry and exit points established.<br>• No activities should be allowed in the dune-field. The prospecting and other activities must be strictly limited to the beach environment. | **X**<br><br>(All the recommendations are included in this Draft EIR) | EMPR |
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Attach copies of Specialist Reports as appendices

## k) Environmental impact statement

### (i) Summary of the key findings of the environmental impact assessment;

The layout and technology of the prospecting pits and trenches and associated infrastructure has been determined largely by the shape, position and orientation of the mineral resource expected on the proposed site.
In summary:

- The Preferred Alternative is prospecting for alluvial diamonds with bulk sampling, as per the locations shown in Figure 5.
- The existing tracks that connect the proposed site to the bigger public road will be utilised. No electrical lines are required.
- The preferred activity alternative is prospecting for alluvial diamonds with bulk sampling.
- The preferred operational alternative is the method of having three prospecting pits open at any given time, one in the process of rehabilitation, one that is operational and one in the process of development.
- The development of trenches for bulk sampling will then follow, based on the results of the prospecting work.
- The spoil generated as the bulk sampling process proceeds will be used to concurrently backfill and rehabilitate the part of each trench where bulk sampling has been completed.

This approach is practical and based on best practice to help ensure a phased approach of prospecting with bulk sampling, with concurrent rehabilitation being conducted.

There are therefore no other reasonable or feasible sites, layouts, activities, technologies, or operational alternatives for further consideration in the impact assessment, except for the mandatory “no-go” alternative.

### (ii) Final Site Map

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. Attached as Appendix 1

### (iii) Summary of the positive and negative implications and risks of the proposed activity and identified alternatives;

The proposed prospecting for diamonds with bulk sampling is a small short-term development proposal that will result in Medium to Low negative impacts that include cumulative impacts, if the recommended impact mitigation measures are implemented. The positive impact of the proposed development is also low, as the development proposal is small and short-term and so only a few short-term employment opportunities will result from the proposed prospecting with bulk sampling. It is therefore only in a small and short-lived manner that unemployment in the area if the proposed site will be alleviated by the proposed diamonds

prospecting with bulk sampling. The main benefit of the proposed prospecting with bulk sampling is that the development proposal will make information available for determining whether or not a feasible diamond mine that can provide many long-term employment opportunities can be established on the proposed site.

## l) 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.**

The EMPr that the competent authority approves must be strictly implemented as well as all the recommendations contained in the reports compiled by the specialist professionals. The recommendations are contained in Table 20.

## m) 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)**

Please refer to Section 3(g) where the considered alternatives are discussed.

## n) Aspects for inclusion as conditions of Authorisation.

All aspects that should be made conditions of the sought environmental authorisation have been included in the EMPr.

## o) Description of any assumptions, uncertainties and gaps in knowledge.

(Which relate to the assessment and mitigation measures proposed)

It is assumed that the information that has been collected by the EAP and the specialist professionals and presented in this Draft EIR is free of any significant errors and that the impact assessment that is based on the said information and the proposed mitigation measures are therefore adequate for good decision-making.

## p) Reasoned opinion as to whether the proposed activity should or should not be authorised

### i) Reasons why the activity should be authorized or not.

The proposed alluvial diamonds prospecting with bulk sampling is short-term in nature and the impacts thereof are mostly confined to a narrow strip of land between the low and the high-water mark of the sea. The sea is very active between the low-water mark and high-water mark and so the excavations for prospecting and bulk sampling that will be made on the proposed site and then back-filled with spoil will soon be back to a condition resembling the condition of the proposed site before the proposed prospecting and bulk sampling was commenced with. The proposed prospecting with bulk sampling is a relatively

small and short-term development proposal, thereby making the anticipated cumulative impact of the development proposal medium to low, if the impact mitigation measures contained in the EMPr and in the specialist reports are implemented.

### ii) Conditions that must be included in the authorisation

All the recommendations contained in the reports compiled by the specialist professionals and all the impact mitigation measures contained in the EMPr

### (1) Specific conditions to be included into the compilation and approval of EMPr

### (2) Rehabilitation requirements

Please refer to the Rehabilitation Plan and Closure Plan

## q) Period for which the Environmental Authorisation is required.

It is hereby requested that the environmental authorisation be made valid for a period of 10 years, as 10 years is the limit to which an environmental authorisation can remain valid without a detailed Part 2 amendment process having to be followed

## r) Undertaking

I Bernard de Witt, the appointed EAP for this EIA application hereby 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 Environmental Impact Report and the Environmental Management Programme Report.

## s) Financial Provision

**State the amount that is required to both manage and rehabilitate the environment in respect of rehabilitation.**

The total amount required to conduct rehabilitation concurrently with the proposed prospecting with bulk sampling is estimated at R140 429.04.

### i) Explain how the aforesaid amount was derived.

The amount was arrived at through various identified possible combinations of required rehabilitation work and costs were calculated for each of these, based on quotations obtained from independent third party suppliers for earthmoving equipment rental and various other consumables. Please refer to the Rehabilitation Plan and Closure Plan attached hereto as Appendix 8.

**ii) 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).

It is hereby confirmed that the Applicant is able to provide the amount from operating expenditure. Please refer to the Declarations signed by the Applicant.

## t) Deviations from the approved scoping report and plan of study.

### i) Deviations from the methodology used in determining the significance of potential environmental impacts and risks.

The methodology for determining the significance of potential impacts and risks has not been deviated from. Instead, the methodology has been expanded on by the addition of an impact significance rating key.

### ii) Motivation for the deviation.

The Plan of Study approved by the competent authority has not been deviated from.

## u) Other Information required by the competent Authority

### i) Compliance with the provisions of sections 24(4)(a) and (b) read with section 24 (3) (a) and (7) of the National Environmental Management Act (Act 107 of 1998). the EIA report must include the:-

**(1) 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 proposed alluvial diamonds prospecting with bulk sampling is located well away from human settlements and will therefore not cause any noteworthy negative socio-economic impacts. In addition, it is only limited positive socio-economic impacts that are anticipated for this short-term project. The landowner is the National Government of South Africa, with the National Department of Public Works assuming the responsibility of the landowner.

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

The proposed prospecting with bulk sampling will change the character of an area exceeding 5000m$^2$ in size. An approval in terms of the National Heritage Resources Act, 1999 (Act No. 29 of 1999) is therefore required from the relevant heritage resources agency before the proposed prospecting with bulk sampling can be commenced with.

An underwater Heritage Impact Assessment was conducted as well as a Palaeontology Impact Assessment It is concluded in the Underwater Heritage Impact Assessment that the anticipated negative impact of the proposed prospecting with bulk sampling is low, if the recommended mitigation measures are implemented. It is also indicated in the Palaeontological Impact Assessment that the anticipated negative impact of the proposed prospecting with bulk sampling is low negative without mitigation and low positive with mitigation. The impact mitigation measures recommended by the appointed specialist professionals are contained in the EMPr attached as Appendix 13 and in Table 20.

## v) 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)**.

# PART B

# ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

## 1) Draft environmental management programme.

a) **Details of the EAP,** (Confirm that the requirement for the provision of the details and expertise of the EAP are already included in PART A, section 1(a) herein as required).

It is hereby confirmed that the details of the EAP are contained in Part A, Section 1 (a)

b) **Description of the Aspects of the Activity** (Confirm that the requirement to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, section (1)(h) herein as required).

It is hereby confirmed that the requirement to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, section (1)(h).

**c) Composite Map**

(Provide a map **(Attached as an Appendix**) 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 should be avoided, including buffers)

Please refer to the Regulation 2(2) plan attached as Appendix 4.

d) **Description of Impact management objectives including management statements**

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

The closure objectives for the proposed alluvial diamonds prospecting with bulk sampling entail rehabilitating the proposed site as much as possible to a state resembling the state of the proposed site before the proposed prospecting with bulk sampling was commenced with. Please refer to the Rehabilitation and Closure Plan attached hereto as Appendix 8.

ii) **The process for managing any environmental damage, pollution, pumping and treatment of extraneous water or ecological degradation as a result of undertaking a listed activity.**

The damage that will be caused by the proposed prospecting and bulk sampling activities will be strictly managed in line with the EMPr (Appendix 13, refers) that the competent authority approves.

iii) **Nagged Potential risk of Acid Mine Drainage**. (Indicate whether or not the mining can result in acid mine drainage)

The proposed prospecting for alluvial diamonds with bulk sampling will not cause any acid mine drainage.

iv) **Steps taken to investigate, assess, and evaluate the impact of acid mine drainage.**

The proposed prospecting with bulk sampling work does not entail any kind of chemical processing of excavated material on the proposed site. All the excavated material on the proposed site will be used for backfilling of the prospecting pits and the bulk sampling trenches, except for the samples that will be transported off-site for further processing. The possibility of causing acid mine drainage on the proposed site therefore does not exist.

v) **Engineering or mine design solutions to be implemented to avoid or remedy acid mine drainage.**

The proposed prospecting with bulk sampling will not cause any acid mine drainage.

vi) **Measures that will be put in place to remedy any residual or cumulative impact that may result from acid mine drainage.**

The proposed prospecting with bulk sampling will not cause any impacts relating to acid mine drainage.

vii) **Volumes and rate of water use required for the mining, trenching or bulk sampling operation.**

The proposed prospecting with bulk sampling does not require water.

viii) **Has a water use licence has been applied for?**

A water use licence has not been applied for, as the National Department of Water and Sanitation has not provided any comment indicating that a water use licence is required for the proposed prospecting with bulk sampling.

## ix) Impacts to be mitigated in their respective phases

**Table 21:** Measures to rehabilitate the environment affected by the undertaking of any listed activity

| ACTIVITIES | PHASE | SIZE AND SCALE of disturbance | MITIGATION MEASURES<br>Refer Table 19 for complete mitigation measures | COMPLIANCE WITH STANDARDS | TIME PERIOD FOR IMPLEMENTATION |
|---|---|---|---|---|---|
| Non-invasive activities | Pre-Construction | 151ha | • All operations will be carried out under the guidance of a strong, experienced manager with proven skills in public consultation and conflict resolution, including environmental coordinator where applicable.<br>• All prospecting personnel will be made aware of the local conditions and sensitivities in the prospecting area and the fact that some of the local residents may not welcome the prospecting activities in the area.<br>• There will be a strict requirement to treat local residents with respect and courtesy at all times. | Environmental Awareness Plan | Before and during prospecting activities |
| Site Access<br><br>- Access Roads (temporary, jeep track roads less than 4m wide) | Construction | ±950m | • Existing farm roads and tracks must be used as far as possible;<br>• Where new access tracks are required, such tracks must be scarified during decommissioning;<br>• Vehicle's speed must take into account the possibility of collisions with fauna.<br>• All compacted areas will be scarified and any topsoil stockpiled to be spread over the disturbed area. | Approved PWP Environmental Authorisation; NEMA Sec 2 Principles. | Upon cessation of the individual activity |
| Site establishment:<br>- Demarcation of footprint for prospecting pits and overburden and topsoil dumps<br>- Placement of temporary portable toilets and resting place. | Construction | 88m² per sample site Max ±1000m² including equipment laydown area & Sanitation requirements | • Avoid cultural/heritage impacts by maintaining 100m buffer from any identified heritage feature and demarcation.<br>• Any buried artefacts that may be uncovered during site activities will require such activities to stop to assess their significance and determine appropriate mitigation measures<br>• The minimal area required for site establishment must be provided.<br>• The soil disturbance and clearance of vegetation for movement areas will be limited to the absolute minimum required and will not be dozed or scraped with vegetation roots left intact for later re-growth. | Heritage Act Environmental Authorisation; NEMA Sec 2 Principles | Before and during sampling activities<br>Upon cessation of the individual activity |

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| Exploration:<br>- Prospecting pits<br>- Equipment maintenance & refuelling<br>- Vehicle movements<br>- Waste generation & management | Operational phase | Estimated 10 pits 88m² per sample site Max ±1600m² including equipment laydown area & Sanitation requirements<br><br>Hydrocarbon storage <30m$^3$ | • Equipment and other visually prominent items on the site will be located in consultation with the landowner;<br>• Make use of existing vegetation as far as possible to screen the prospecting operations from view; and<br>• Low vehicle speeds will be enforced on unpaved surfaces.<br>• Maintain a buffer of 100m between sampling sites and dwellings.<br>• Storm water must be diverted around the excavation and stockpiles to prevent erosion, if necessary.<br>• Oils and lubricants must be stored within sealed containment structures.<br>• Fuel storage must be contained in mobile bowsers.<br>• All chemicals and hydrocarbons shall be stored within 110% bund wall capacity.<br>• Any mechanical equipment maintenance must be undertaken on drip trays or UPVC sheets to prevents spills/ leaks onto the soil.<br>• Refuelling will be done with care to minimise the chance of spillages.<br>• A spill kit will be available on each site where prospecting activities are in progress; and any spillages will be cleaned up immediately.<br>• Underneath equipment with potential oil spillages shall be lined with plastic liner to prevent soil and water contamination.<br>• When not in use, a drip tray must be placed beneath mechanical equipment and vehicles.<br>• Avoid hydrocarbon spills by employing proper vehicle maintenance.<br>• Waste materials generated on site must be stored in suitable lidded containers and removed off site to a suitable disposal facility. Waste separation must be undertaken if practical for recycling.<br>• Due to the remote location of the site, dust emissions are unlikely to be a source of nuisance; however, the site must be wetted if required.<br>• Rehabilitation, backfilling and preparation for re-vegetation must be done as soon as work is completed and before moving to the next sample site.<br>• The disturbed overburden and topsoil dumpsite and movement areas should be rehabilitated by scarifying compacted areas.<br>• Any stored topsoil should be spread over the scarified surface to promote re-vegetation and prevent soil erosion. | SANS 10103 guideline<br>GN R. 827 (NEM: AQA)<br>GN R. 704 (NWA)<br>NEMA | Upon cessation of the individual activity<br>Immediately in case of spills |

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| Exploration:<br>- Bulk sampling trenches<br>- Equipment maintenance & refuelling<br>- Vehicle movements<br>- Waste generation & management | Operational phase | Estimated four bulk sampling trenches adding up to Max ±18ha including equipment laydown area & Sanitation requirements<br><br>Hydrocarbon storage <30m$^3$ | • Equipment and other visually prominent items on the site will be located in consultation with the landowner;<br>• Make use of existing vegetation as far as possible to screen the prospecting operations from view; and<br>• Low vehicle speeds will be enforced on unpaved surfaces.<br>• Maintain a buffer of 100m between sampling sites and dwellings.<br>• Storm water must be diverted around the excavation and stockpiles to prevent erosion, if necessary.<br>• Oils and lubricants must be stored within sealed containment structures.<br>• Fuel storage must be contained in mobile bowsers.<br>• All chemicals and hydrocarbons shall be stored within 110% bund wall capacity.<br>• Any mechanical equipment maintenance must be undertaken on drip trays or UPVC sheets to prevents spills/ leaks onto the soil.<br>• Refuelling will be done with care to minimise the chance of spillages.<br>• A spill kit will be available on each site where prospecting activities are in progress; and any spillages will be cleaned up immediately.<br>• Underneath equipment with potential oil spillages shall be lined with plastic liner to prevent soil and water contamination.<br>• When not in use, a drip tray must be placed beneath mechanical equipment and vehicles.<br>• Avoid hydrocarbon spills by employing proper vehicle maintenance.<br>• Waste materials generated on site must be stored in suitable lidded containers and removed off site to a suitable disposal facility. Waste separation must be undertaken if practical for recycling.<br>• Due to the remote location of the site, dust emissions are unlikely to be a source of nuisance; however, the site must be wetted if required.<br>• Backfilling of trenches with spoil followed by rehabilitation must be done concurrently with bulk sampling proceeding to next trench.<br>• The disturbed overburden and topsoil dumpsite and movement areas should be rehabilitated by scarifying compacted areas.<br>• Any stored topsoil should be spread over the scarified surface to promote re-vegetation and prevent soil erosion. | SANS 10103 guideline<br>GN R. 827 (NEM: AQA)<br>GN R. 704 (NWA)<br>NEMA | Upon cessation of the individual activity<br>Immediately in case of spills |

| | | | | | |
|---|---|---|---|---|---|
| Final Rehabilitation and removal of temporary infrastructure | Decommissioning | <1ha | • Dual use access roads must be handed back to the landowner in a good state of repair.<br>• A review of the final rehabilitation, decommissioning and closure plan must be done annually to ensure all outstanding environmental liabilities are covered and sufficient funds is available to implement the closure plan.<br>• All fixed assets that can be profitably removed will be removed for salvage or resale.<br>• All redundant infrastructure and services need to be demolished including ruins, buildings, foundations, footings.<br>• Any item that has no salvage value to the mine, but could be of value to individuals, will be sold (zero salvage assumed in closure cost estimation) and the remaining treated as waste and removed from site.<br>• Redundant structures, buildings, and civil foundations (down to 500mm below surface for subsurface infrastructure) will be removed for use elsewhere or demolished and discarded.<br>• Inert waste, which is more than 500 mm underground, such as pipes, will be left in place<br>• All services related to the mining operation, water supply lines and storage on site will have to be demolished.<br>• All redundant power lines and cable associated with electrical supply will be removed.<br>• Implementing screening as part of the cleaning activities before materials are moved from the mine.<br>• The infrastructure area will be screened for petrochemical spills and cleaned and waste from the temporary storage facility will be removed and the area cleaned.<br>• The compacted salvage yard, lay down and movement areas will be screened for petrochemical spills and cleaned before it is ripped and levelled.<br>• Excavations created by removing subsurface infrastructure needs to be filled, levelled, and compacted.<br>• Final walk through of complete mining lease area to ensure no mining related waste and of re-usable infrastructure remain on site. | Environmental Authorisation; NEMA Section 2 Principles | Final decommissioning |

## e) Impact Management Outcomes

(A description of impact management outcomes, identifying the standard of impact management required for the aspects contemplated in paragraph ();

| ACTIVITY | POTENTIAL IMPACT | ASPECTS AFFECTED | PHASE In which impact is anticipated | MITIGATION TYPE | STANDARD TO BE ACHIEVED |
|---|---|---|---|---|---|
| Prospecting with bulk sampling | Conflict with other land users | Social | Life of operation | Control through monitoring & management | Impact minimised and mitigated. |
| Site Access | Disturbance of onsite flora and fauna | Fauna and Flora | Construction | Remedy through restriction and rehabilitation | Impact minimised and mitigated. |
| | Soil compaction from repeated use of access road | Soil resources | | Remedy through rehabilitation | |
| Site Establishment Sampling and laydown areas | Disturbance of onsite flora and fauna | Fauna and Flora | Construction | Remedy through restriction and rehabilitation | Impact mitigated end use objectives |
| | Noise Generation | Noise | | Control through monitoring & management | Impact mitigated |
| | Visual intrusion | Visual | | | Impact mitigated |
| Site Establishment Sampling and laydown area Soil compaction due to vehicle movement | Destruction or loss of Cultural and Heritage Resources | Cultural and Heritage | Construction | Avoidance by relocation of activity | Impact avoided |
| | Soil disturbance and compaction and topsoil stockpiling | Soil | | Remedy through restriction and rehabilitation | Impact mitigated end use objectives |
| | Noise Generation | Noise | | Control through monitoring & management | Impact mitigated |
| | Dust fall & nuisance from activities | Air quality | | | Impact mitigated |

| | | | | | |
|---|---|---|---|---|---|
| Erection of temporary structures such as toilets, fuel tanker, water tanker | Visual intrusion | Visual | Construction | Remedy through restriction and rehabilitation | Impact mitigated end use objectives |

## f) 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 | **POTENTIAL IMPACT** | **MITIGATION TYPE** | **TIME PERIOD FOR IMPLEMENTATION** | **COMPLIANCE WITH STANDARDS** |
|---|---|---|---|---|
| Prospecting with bulk sampling | • Conflict with other land users | Control through monitoring & management | Concurrently with prospecting activities | Remain within the scope of the Prospecting Works Programme and Environmental Authorisation. |
| Site Access | • Disturbance of onsite flora and fauna<br>• Soil compaction from repeated use of access road to sample sites | Remedy through restriction and rehabilitation | Immediately on cessation of activities. | |
| Site Establishment<br>Excavations and laydown area<br>Vegetation clearance | • Disturbance of onsite flora and fauna<br>• Noise Generation<br>• Visual intrusion | Remedy through restriction and rehabilitation<br>Control through monitoring & management | Concurrently with prospecting activities as far as possible, otherwise immediately on cessation of activities. | |
| Site Establishment<br>Excavations and laydown area<br>Topsoil stripping & stockpiling<br>Compaction due to levelling and vehicle movement | • Destruction or loss of Cultural and Heritage Resources<br>• Soil disturbance and compaction and topsoil stockpiling<br>• Noise Generation<br>• Dust fall & nuisance from activities | Avoidance by relocation of activity<br>Remedy through restriction and rehabilitation<br>Control through monitoring & management | | |
| Erection of temporary structures such as toilets, fuel tanker, water tanker | • Visual intrusion | Remedy through restriction and rehabilitation | Immediately on cessation of activities. | |

## i) Financial Provision

### (1) Determination of the amount of Financial Provision.

**(a) Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under Regulation 22 (2) (d) as described in 2.4 herein.**

The objectives are indicated in the Rehabilitation Plan and Closure Plan attached hereto as Appendix 8 and these objectives entail restoring the proposed site as much as possible, to a state comparable to the state of the proposed site before the proposed prospecting with bulk sampling was commenced with.

**(b) Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties.**

The landowner, *i.e.*, the National Department of Public Works was given an opportunity to comment on the Draft Scoping Report, together with other Interested and Affected Parties and no comment was received. The landowner has also been given an opportunity comment on this Draft EIR.

**(c) 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.**

Please refer to the Rehabilitation Plan and Closure Plan attached hereto as Appendix 8

**(d) Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.**

It can be confirmed that the Rehabilitation Plan and the objectives in the Closure Plan are compatible, as the goal of rehabilitating the proposed site is to backfill as much excavated material as possible after removal of sample material for further processing off-site. The backfilling will then be followed by thework of restoring the topography as much as possible to the topography of the proposed site before the proposed prospecting with bulk sampling was commenced with.

This will not be very difficult to achieve, as the proposed site is located in the zone between the high water and low water mark of the sea. The sea is very active in such zones and this will facilitate the process of restoring the topography of the proposed site to resemble the topography of the proposed site before the proposed prospecting with bulk sampling was commenced with.

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

Please refer to the Rehabilitation Plan and Closure Plan attached hereto as Appendix 8.

## (f) Confirm that the financial provision will be provided as determined.

The financial provision will be provided as determined and this is confirmed in the Declarations form Signed by the Applicant.

**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 |
|---|---|---|---|---|
| All Prospecting Activities | N/A | Ensure that the prospecting programme is being implemented in line with the approved prospecting works programme | Site Manager and Geologist | **Annual**<br>Submit a prospecting progress report to DMR |
| | All commitments contained in the BA Report and accompanying EMPr | Ensure commitments made within the approved BAR and EMPr are being adhered to. | Site Manager and independent EAP | **Annual**<br>Undertake and submit an environmental performance audit to DMR |
| Site establishment | Visual inspection of soil erosion and/or compaction | All exposed areas, access roads, the excavation site and soil stockpiles must be monitored for erosion on a regular basis and specifically after rain events. | Site Manager<br>Contractor (or sub-contractors) | **Weekly, and after rain events (only during invasive activities)**<br>Weekly monitoring reports to be signed-off by the Site Manager<br>Corrective action to be confirmed and signed-off by the Site Manager<br>Consolidated monthly monitoring reports (including confirmation of corrective action taken, with photographic evidence) to be submitted to the Site Manager. |
| Sampling Activities | Visual inspection of biodiversity impacts | Visual inspection of site activities and other possible secondary impacts<br>• Control and minimise the development of new access tracks<br>• Appropriate storage and handling of topsoil | | |

## l) Indicate the frequency of the submission of the performance assessment report.

An external environmental performance audit shall be conducted annually by an independent environmental assessment practitioner that include an annual rehabilitation plan for implementation during the next reporting period. A review of the Final decommissioning, rehabilitation and mine closure Plan will also be done on an annual basis together with an update of the quantum calculations for financial provision for rehabilitation.

## m) Environmental Awareness Plan

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

Training is part of the employee induction process and environmental Management System (EMS). The induction includes:

- Awareness training for contractors and employees;
- Job specific training – training for personnel performing tasks which could cause
- potentially significant environmental impacts;
- EMS training;
- Comprehensive training – on emergency response, spill management, etc;
- Specialised skills; and
- Training verification and record keeping

Before commencement of the proposed prospecting with bulk sampling, all employees and contractors who are involved with such activities should attend relevant induction and training. It is standard practice for employees and the employees of contractors that will be working on a new project or at a new site to attend an induction course where the nature and characteristics of the project and the site are explained.

The training course should include key information extracted from the EMP concerning the potential environmental impacts, the mitigation measures that will be applied, the monitoring activities that will be undertaken and the roles and responsibilities of contractors' and personnel.
The full EMP document must also made available to attendees.

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

The environmental risks and how to manage these is dealt with in the induction course referred to in section (m) (1) above. If an incident of environmental pollution or damage does occur it is analysed and appropriate prevention and/or mitigation measures are developed. These measures are added to the EMP and conveyed to the relevant personnel.
All unplanned incidents with the potential to cause pollution or environmental degradation or conflict with local residents will be reported to the Mineral Resources Manager within 24 hours.

**Hydrocarbon Spills**
Hydrocarbon spills that are considered to be emergency incidents are large-scale spills (cover a surface area >1m2), resulting from situations such as; a leaking diesel bowser, an oil drum that is knocked over, large spillages from equipment, etc.
Activities that are involved in the clean-up of such instances include:

- The containment of the spill,
- The removal of all contaminated material, and
- The disposal (at a licenced hazardous disposal facility) or bioremediation (at a licenced facility) of this material.

**Fire**
There is the potential for fire to occur in the following locations of the drill site:

- Veld fires across vegetated areas; and
- Vehicles and equipment.

**Veld fires**: Any person who notices the fire must report this to the fire brigade and their supervisor immediately. If possible, additional personnel may be sent to contain the fire, but only if the lives of the personnel will not be endangered.

**Vehicles and Equipment**: Fire extinguishers will be available at the site where sampling activities will take place and in the vehicles. All staff members will be trained in the use of fire-fighting equipment.

## n) Specific information required by the Competent Authority
**(Among others, Confirm that the financial provision will be reviewed annually).**

It is hereby confirmed that the financial provision will be reviewed annually. Please refer to the Rehabilitation Plan and Closure Plan and the Declarations signed by the Applicant.

## 2) UNDERTAKING

The EAP herewith confirms

**a)** the correctness of the information provided in the reports ☐

**b)** the inclusion of comments and inputs from stakeholders and I&APs ; ☐

**c)** the inclusion of inputs and recommendations from the specialist reports where relevant; ☐and

**d)** the acceptability of the project in relation to the finding of the assessment and level of mitigation proposed; ☐

**-END-**