

**DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME**

**FOR**

**PHASE 2 SLOVOPARK TOWNSHIP ESTABLISHMENT, MASILONYANA LOCAL MUNICIPALITY**

**DESTEA REF. NO.: EMB/12(ii)a, 19, 27, 28(ii), 12(b)(iv)/20/28**

**PREPARED FOR**

**MASILONYANA LOCAL MUNICIPALITY**



**PREPARED BY**



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## **TITLE PAGE**

**TITLE:** Environmental Management Programme for Phase 2 Slovopark Township Establishment, Masilonyana Local Municipality

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### **LIST OF ABBREVIATIONS**

|        |   |
|--------|---|
| EA     | Environmental Authorisation   |
| CARA   | Conservation of Agricultural Resources Act, 1983                                      |
| CLO    | Community Liaison Officer   |
| DEO    | Designated Environmental Officer  |
| DESTEA | Department of Economic, Small Business Development, Tourism and Environmental Affairs |
| ECO    | Environmental Control Officer   |
| RE     | Resident Engineer   |
| SAHRA  | South African Heritage Resources Agency   |
| MLM    | Masilonyana Local Municipality  |
| PSC    | Project Steering Committee  |

## 1. INTRODUCTION

Vexocom (Pty) Ltd on behalf of Masilonyana Local Municipality appointed *NSVT Consultants* as independent environmental assessment practitioners to undertake the Basic Assessment process for Phase 2 Slovpark Township Establishment on Portion of the Remainder of Farm Brandfort Townlands 720, which involved expansion of the authorised development with an area of 12 hectares. The total footprint development is 149,39 which includes ervens for residential, institution, open spaces, schools and business units, and sport and recreation. The Layout Map for the Slovpark Township Establishment is attached hereto as **Appendix A**.

### 1.1 DETAILS OF PROPONENT

|                          |  |
|--------------------------|--|
| <b>PROJECT PROPONENT</b> | Masilonyana Local Municipality                                 |
| <b>POSTAL ADDRESS</b>    | P.O. Box 8<br>Theunissen<br>9410                               |
| <b>PHYSICAL ADDRESS</b>  | 47 Le Roux Street<br>Theunissen<br>9410                        |
| <b>CONTACT PERSON</b>    | Pule Simon Tshekedi  |
| <b>PHONE</b>             | 057 733 0106   |
| <b>FACSIMILE</b>         | 057 733 2417   |
| <b>CELL</b>              | 072 464 7696   |
| <b>EMAIL</b>             | <a href="mailto:mm@masilonyana.co.za">mm@masilonyana.co.za</a> |
| <b>FARM NAME</b>         | Portion of the Remainder of Farm Brandfort Townlands           |
| <b>LANDOWNER</b>         | Masilonyana Local Municipality                                 |

### 1.2 DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONER

The curriculum vitae of the EAP is attached hereto as **Appendix B**.

|                       |   |                   |   |
|-----------------------|---|-------------------|---|
| <b>EAP</b>            | NSVT Consultants  |                   |   |
| <b>CONTACT PERSON</b> | Lorato Tigedi <i>Pr. Sci. Nat.</i>  |                   |   |
| <b>POSTAL ADDRESS</b> | P. O. Box 42452, Heuwelsig, Bloemfontein 9332   |                   |   |
| <b>TELEPHONE</b>      | (051) 430 1041/2  | <b>FACSIMILE</b>  | 086 239 9133  |
| <b>E-MAIL</b>         | <a href="mailto:lorato@nsvt.co.za">lorato@nsvt.co.za</a>  | <b>CELL</b>       | 082 784 8259  |
| <b>QUALIFICATIONS</b> | B. Sc. (Natural Science)<br>B. Sc. Hons (Wildlife)<br>Masters in Environmental Management (Incomplete: Mini thesis outstanding) | <b>EXPERIENCE</b> | 17 years in the environmental management field as an EAP. She has completed |

|                                |   |                                   |   |
|--------------------------------|---|-----------------------------------|---|
| <b>EXPERTISE/<br/>TRAINING</b> | Resources & Sustainability,<br>Physical & Biological<br>Environment, and Informatics<br><br>Project Management for<br>Environmental Management<br><br>Social & Economic<br>Sustainability<br><br>Use of Matrices in EIA<br><br>Public Participation Training<br><br>Introduction to Social Impact<br>Assessment |                                   | environmental<br>impact<br>assessment, basic<br>assessment,<br>drafting of EMPRs<br>and environmental<br>compliance<br>monitoring for<br>various<br>development<br>within the Free<br>State., North West,<br>Northern Cape,<br>and Eastern Cape<br>Provinces.   |
|                                | Integrating HIV/Aids and<br>Gender-related issues into<br>EIA Process<br><br>Integrated Water Resources<br>Management, Water Use<br>Authorisation and Water Use<br>License Application<br><br>One Environmental System<br><br>Introduction to environmental<br>Law  | <b>PROFESSIONAL<br/>AFFILIATE</b> | Environmental<br>Assessment<br>Practitioners<br>Association of<br>South Africa-<br>2020/2519<br><br>South African<br>Council for Natural<br>Scientific<br>Professions-<br>4000161/09<br><br>Member of<br>International<br>Association for<br>Public Participation<br>Southern Africa<br>Affiliate-<br>2010/ZA/FS/0001)<br><br>Member of<br>International<br>Association for<br>Impact<br>Assessment SA-<br>2191 |

## 2 DEFINITIONS

**Environmental Management Programme (“EMPr”):** An environmental action plan or tool used to ensure that undue or reasonably avoidable adverse impacts of a development are prevented, and that positive impacts are enhanced. It thus addresses the how, when, who, where and what of integrating environmental mitigation and monitoring measures through the project development activities.

**Alien Vegetation:** An undesirable plant growth which shall include, but not be limited to all declared category 1 and 2 listed invader species as set out in the Conservation of Agricultural Resources Act (“CARA”), 1983 regulations. Other vegetation deemed to be alien shall be those plant species that show the potential to occupy in number, any area within the defined construction area and which are declared to be undesirable.

**Construction Activity:** Any action taken by Masilonyana Local Municipality (“MLM”), its contractors and sub-contractors, suppliers, or personnel during the construction process.

**Environment:** The surroundings within which humans exist and that could be made up of the following:

- the land, water, and atmosphere of the earth;
- micro-organisms, plant, and animal life;
- any part or combination of (i) and (ii) and the interrelationships among and between them; and
- the physical, chemical, aesthetic, and cultural properties and conditions of the foreground that influence human health and well-being.

**Environmental Aspect:** An environmental aspect is any component of Masilonyana Local Municipality, its contractors and sub-contractor’s construction activity that is likely to interact with the environment.

**Environmental Impact:** An impact or environmental impact is the change to the environment, whether desirable or undesirable, that will result from the effect of a construction activity. An impact may be the direct or indirect consequence of a construction activity.

**Environmental Authorization:** A written decision from the Free State Department of Economic, Small Business Development, Tourism and Environmental Affairs (“DESTEA”) that records its approval for undertaking the planned infill development and the conditions of approval which may include mitigating measures required to prevent or reduce the effects of environmental impacts during the life of a contract.

### 3. PROJECT DESCRIPTION

#### 3.1. BACKGROUND INFORMATION

Phase 1 of Slovpark Township Establishment was authorised in 2017 and it incorporated an information settlement and the development footprint was 138, however, due to the demand of housing units, a Phase 2 was initiated, which entailed expansion of the development footprint with an additional 12 hectares of vacant and undeveloped land, although previously it was used for agricultural activities. The development is located to the north of the R703 Provincial road to Soutpan and west of Majwemasweu. In the vicinity of the proposed site is Telkom overhead telecommunication line and an Eskom steel overhead powerline runs along the site. The site is accessible from the existing access road currently used. The total development footprint for Slovpark Township Establishment is 149.39 hectares within the jurisdiction of Masilonyana Local Municipality, but the western portion is located outside the urban edge.

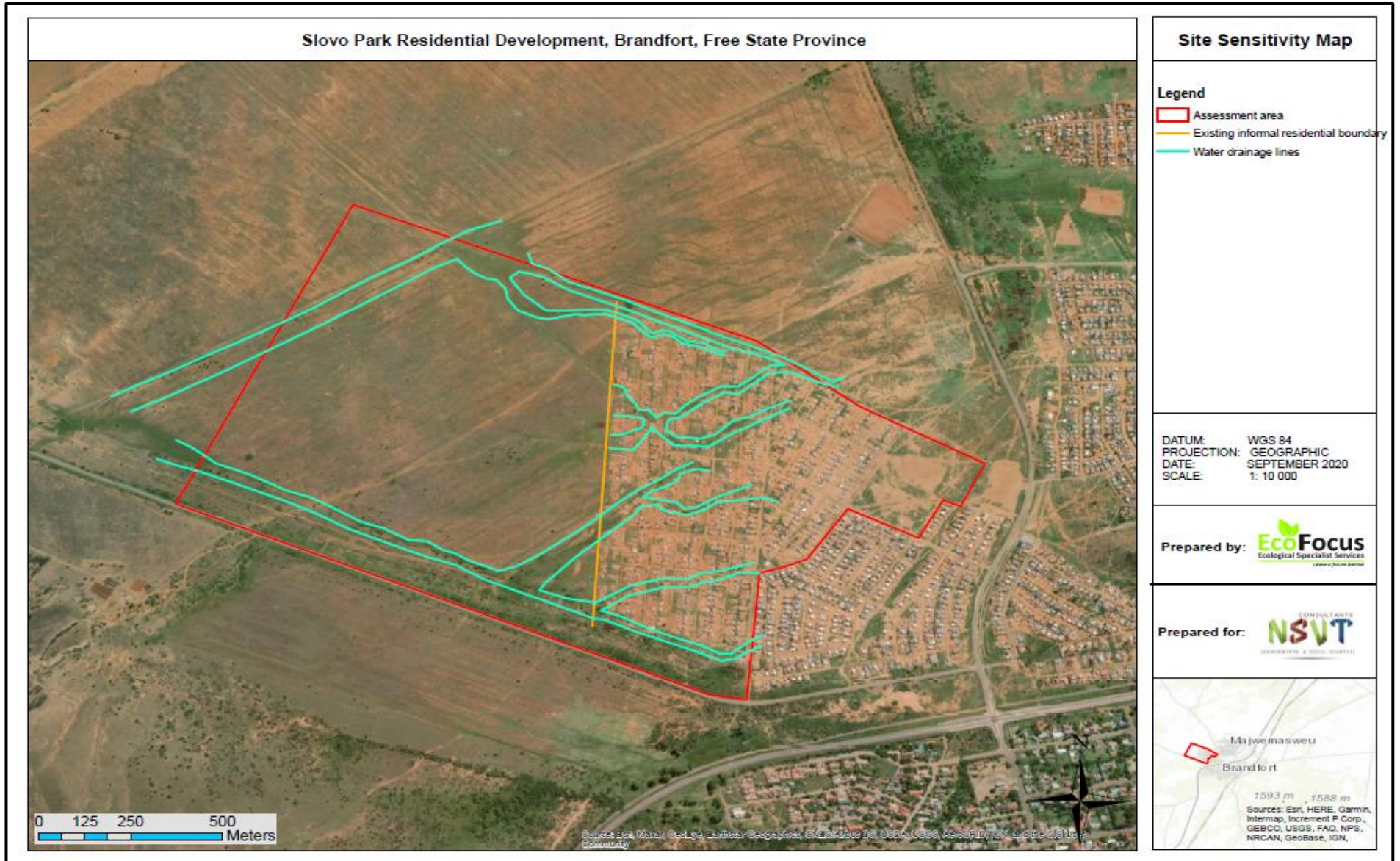
#### 3.2 SENSITIVITY OF THE PROPOSED SITE

According to the Heritage Specialist, the proposed site has a Generally protected C (GP: C), with a low significance because it was previously degraded by agricultural activities. Heritage-significant sites, including the South African War concentration camp memorials and British war grave sites, and the Winnie Mandela House Museum (Masikelemo St, Majwemasweu, Brandfort, will not be affected by the proposed development. From the findings of the ecological assessment, the proposed site falls within the Vaal-Vet Sandy Grassland (GH 10), classified as Endangered. It is characterised by plains dominated landscape with some scattered slightly irregular undulating plains and hills. It is classified as nationally listed Endangered ecosystem in accordance with DEA's List of Nationally Threatened Ecosystems. The entire assessment area falls within ESA 2. The area of expansion on the western site is situated on old historically cultivated land and confined portions were subjected to burning and it is reasonably assumed that the area is likely anthropogenically burnt on a regular basis. Although, the grassland within the proposed site is not a reminiscent of the natural climatic state of the vegetation type, approximately 15 individuals of *Helichrysum nudifolium* were found to be present on site, thus would require a flora permit application to be obtained from DESTEA. There are no Red Data Listed, other Provincially or Nationally protected species or any other species of conservational significance were found to be present. No important bird species, unique or specialized bird habitats were observed or expected to utilise the area for breeding and/or persistence and the area does not fall within any Important Bird Area. Within the total development footprint, there are remnants of small ephemeral drainage lines, within the central and eastern portions of the total development footprint, which continue to flow into the western grassland portion but to a limited extent. Two of these dissipates into the western portion while the rest join two larger significant first order ephemeral drainage, which flows along the northern/western and southern boundaries. These significant drainage lines are viewed as displaying an important role in the local water catchment and drainage towards the west and south-west. Hence, the recommended 32 metres protective buffer.

The Sensitivity Map indicating the areas to be avoided is shown in *Figure 1* below.



The Sensitivity Map is shown in *Figure 1* below:



**Figure 1: Sensitivity Map for the Proposed Site**

## **4 CHECKLIST FOR THE PROPOSED PROJECT**

### **1. Give a detailed description of the development:**

Masilonyana Local Municipality intends to expand the authorised Slovopark Township Establishment, which is a mixed land-use development with an area of 12 hectares towards the north-western site on Portion of the Remainder of Farm Brandfort Townlands 720. The total development footprint is 149.39 hectares will be subjected to clearance of vegetation within and near drainage lines, for the construction of buildings, installation of swage, water, and stormwater control infrastructure, etc.

### **2. Give a brief description of the surrounding area:**

In the southern side, the area is bordered by Telkom overhead telecommunication line and Provincial Road R703, Eskom runs across the proposed site towards the western portion, the northern site is undeveloped whereas the informal settlement and Majwemasweu are on the eastern side.

### **3. Is the project significantly different from the surrounding land use?**

No, it is an expansion of a previously authorised residential development

### **4. Are any of the following located on the site chosen for the development?**

- i. River, stream, dam, wetland – No, but there are drainage lines
- ii. Open space area – No
- iii. Residential (formal or informal settlement) – Yes, informal settlement
- iv. Area of cultural importance, e.g. graveyards, old houses, museum, etc. – No

### **5. Will the project be considered a noisy intrusion to the neighbors?**

No, as the only increased noise levels will be during vegetation clearance and construction process thereafter, it will be general noise levels of a residential area. Therefore, the intrusion is short-term.

### **6. Would it be necessary to construct roads to access the proposed site?**

No, but the existing roads will have to be upgraded as part of the development.

## 5 ENVIRONMENTAL MANAGEMENT PROGRAMME

### 5.1. INTRODUCTION

The EMPr has been divided into four different phases associated with the proposed development namely the pre-construction planning phase, the construction phase and operational phase. It will be implemented by Masilonyana Local Municipality on approval by DESTEA, the competent authority. It must be read in conjunction with the contract documentation to ensure that the municipality works in an environmentally sensitive manner, thus ensuring the impacts on the environment and neighbouring residents of the development area are kept to a minimum and no-go areas are not affected by the construction activities.

### 5.2 OBJECTIVES OF THE EMPR

The aim of the EMPr is to ensure that impact on the environment due to the proposed development is limited. To achieve this, the EMPr has the following objectives:

- ❑ To identify possible environmental impacts of the proposed activity on the environment and mitigation thereof.
- ❑ To provide information on construction activities associated with the identified environmental issues.
- ❑ To provide guidelines for the management of the identified environmental issues.
- ❑ To provide guidelines to the responsible persons from MLM to follow appropriate contingency plans in the case of various possible impacts.

### 5.3 RESPONSIBLE PERSON (S)

The implementation of this EMPr requires the involvement of various role players, each with specific responsibilities to ensure that the development is completed in an environmentally sensitive manner.

**The Developer:** Masilonyana Local Municipality

Responsibility: To implement the final EMPr after approval by DESTEA before the commencement of the construction phase and ensure the proposed development complies with the National Environmental Management Act (Act 107 of 1998) requirements and the Environmental Authorisation ("EA").

**Consulting Engineers/Developer/Site Manager:** Vexocom (Pty) Ltd

Responsibility: To undertake the detailed design for the proposed development and to ensure that necessary permits have been obtained prior to construction.

**The Environmental Control Officer (“ECO”):** To be appointed

Responsibility:

- ❑ To ensure that MLM implements the EMPr for the duration of the project from pre-construction to post-construction (decommissioning).
- ❑ To review the method statements with the resident engineer.
- ❑ To maintain a direct open line between the residents and the municipality.
- ❑ To audit the implementation of the EMPr and compliance to the EA once a month until project completion.

**The Contractor:** To be appointed

Responsibility:

- ❑ To implement the EMPr and keep a copy on-site for the duration of the construction phase, as the obligations imposed by the document are legally binding.
- ❑ To comply with the EA and undertake construction activities in an environmentally sensitive manner and rehabilitation of the proposed site post-development
- ❑ To undertake good housekeeping practices during the duration of the project.
- ❑ To ensure that adequate environmental awareness training takes place in the language of the Employees.

**Designated Environmental Officer (“DEO”):** To be appointed

Responsibility:

- ❑ To implement the Environmental Management Programme.
- ❑ To maintain records of environmental queries for the duration of the construction.
- ❑ To resolve environmental issues during the construction phase of the project.

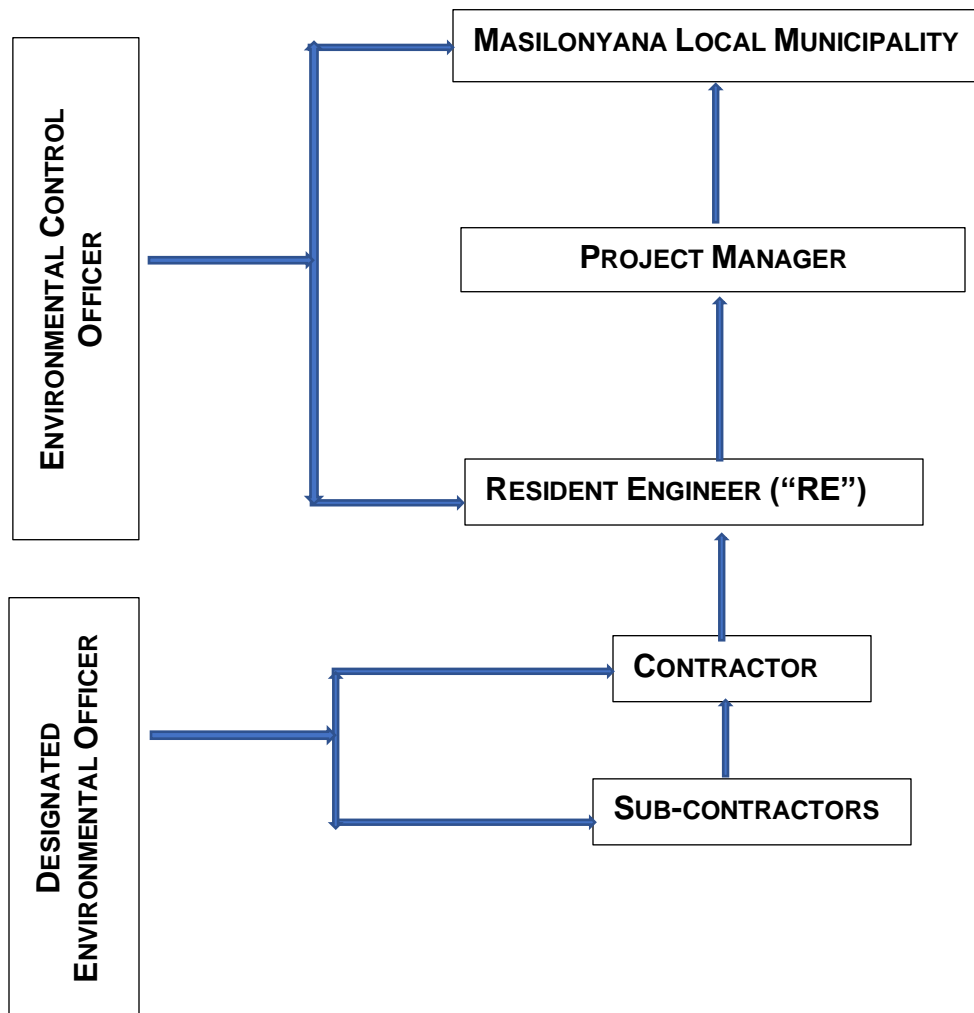
**The Project Steering Committee (“PSC”) (Environmental Forum):** A committee that comprises of representatives of the MLM representative, Engineers, Developer, Ward Councillor, Local Community and Contractor.

Responsibility:

- ❑ To monitor the implementation of the EMPr.
- ❑ To assist in the sourcing of general workers from the local community and surrounding farms.
- ❑ To help ensure participation of local contractors during construction.
- ❑ To assist in resolving social or environmental issues that may arise during construction.

## 5.4 ORGANOGRAM FOR REPORTING LINES

The organogram below depicts the chain of command for implementation of the EMPr.



### 5.4.1. PROPOSED MECHANISMS FOR MONITORING COMPLIANCE WITH THE EMPr AND REPORTING THEREOF

The ECO must have adequate environmental knowledge to understand and implement this EMPr. They may not be someone appointed by the contractor, engineer or other party involved with the project. The ECO must be appointed and report to MLM only. If, in the opinion of the ECO, that there is a serious threat to or impact on the environment caused directly by the construction activities, the ECO may petition the Engineer to stop the works. Upon failure by the contractor or his workforce to show adequate consideration to the environmental aspects of this EMPr, the ECO may recommend to the engineer to have the contractor's representatives or any employee(s) removed from the site or the work suspended until the matter is remedied. If the transgression continues, the ECO in consultation with the Engineers may issue the contractor with a penalty.

## 5.5 METHOD STATEMENT

A method statement outlines construction activities to be undertaken with mitigation measures. The contractor must give a written statement to MLM or ECO at least two weeks before the activity so that any irregularities can be handled before construction commences and communicated to the workforce. The format of the method statement must clearly indicate the following:

1. Construction and Operational Procedures
2. Materials and Equipment used
3. How and where materials will be stored
4. When actions will be undertaken

Based on the EMPr specifications, the following method statements are required as a minimum:

- ☐ Site layout and establishment
- ☐ Handling of accidental spillages of hazardous substances
- ☐ Cement mixing
- ☐ Waste management procedures
- ☐ Wastewater management procedures
- ☐ Stormwater Management
- ☐ Erosion Remediation
- ☐ Traffic accommodation
- ☐ Fire control and emergency procedures

## 5.6 ENVIRONMENTAL AWARENESS TRAINING

Masilonyana Local Municipality, workforce of the contractors and sub-contractors involved with the work in the construction phase are to be briefed on their obligation towards environmental protection and methodologies in terms of the EMPr prior to work commencing. The briefing must be done by the Designated Environmental Officer prior to construction in the form of an on-site talk (toolbox talks). There should be records for the said presentation, which should be done in a language that will be easily understood by all. This should be done prior to commencement of construction activities and for new sub-contractors and general workers if construction has commenced.

The environmental training should, as a minimum, include the following:

- The importance of conformance with all environmental policies
- The environmental impacts, actual or potential, of their work activities;
- The environmental benefits of improved personal performance;
- Their roles and responsibilities in achieving conformance with the environmental policy and procedures and EMPr;

- The potential consequences of departure from specified operating procedures;
- The mitigation measures required to be implemented when carrying out their work activities.
- Identification of protected trees prior to commencement of construction.

The basic rules of conduct in addition to the awareness training, which must be considered for the duration of the project, are tabulated below.

**Table 1: Basic conduct rules during construction**

| Do   | Do Not   |
|--|--|
| Use of toilet facilities provided.   | Make open fires for cooking, dedicated areas must be provided.                         |
| Clear your work areas of litter and building rubbish at the end of each day          | Allow any cement bags or litter to be blown around                                     |
| Report all petroleum leakages and/or spillages                                       | Access the neighboring properties without the owners' consent                          |
| Confine work and storage of equipment and comply with all safety procedures          | Dispose of cigarettes and burning matches randomly                                     |
| Provide easily accessible fire extinguisher and in good working condition            | Leave food lying around  |
| Use areas designated for food preparation  | Remove, cut or damage protected and threatened trees on site without a permit/license. |
| Only emergency repairs of construction vehicles are allowed on the construction site | Clear vegetation on the areas earmarked as open space                                  |
| Use all safety equipment and comply with all safety procedures                       | Damage Eskom's apparatus   |
| Prevent excessive dust and noise   |  |

## 5.7 RECORD KEEPING

There must be an up to date filing system at the site office for the duration of the project whereby EA, EMPr, method statements, environmental incidents report, training records, audit reports and public complaints register are kept. It is advised that photographs of the site must be taken pre-, during and post-construction as a visual reference. These records must be kept for a minimum of 2 years after completion of the project.



## 5.8 PENALTIES

In cases of transgressions and non-compliance regarding the EMPr by the contractor, they must be liable to a penalty fine. Transgressions should be recorded in a dedicated register and be kept at the site office for the duration of the project.

The resident engineer will issue the penalties in terms of the severity of the environment; however, *Table 2* below may be used as a guideline.

**Table 2: Penalties for Transgressions**

| TRANSGRESSION  | PENALTY   |
|--|---|
| Littering and defecation in the surrounding areas    | R1000   |
| Concrete mixing on the ground                        | R2000   |
| Spillages  | R1000-R10 000 depending on the magnitude)           |
| Soil erosion   | R2000   |
| Veld fires   | R5000   |
| Felling, cutting, removal or damaging protected tree | R5000 (DEFF may be contacted for penalty fee)       |
| Damage to Eskom's apparatus                          | To be determined by Eskom Free State Operating Unit |

The penalty could be donated to an environmental charity in the area or any need for environmental protection/rehabilitation.

## 5.8. COMPLIANCE WITH ENVIRONMENTAL LEGISLATION

The compliance to the applicable Environmental Legislation must be undertaken before commencement of construction activities as shown in *Table 3* below.

| LEGISLATION   | APPLICABLE |    |     | OBTAINED |    |
|---|------------|----|-----|----------|----|
|   | YES        | NO | N/A | YES      | NO |
| Environmental Authorisation in terms of Section 24 of National Environmental Management Act (Act 107 of 1998) | X          |    |     |          |    |
| Water Use License in terms of Section 21(c) and (i) of the National Water Act (Act 36 of 1998)                | X          |    |     |          | X  |
| Permit in terms of National Environmental Management Act: Biodiversity Act (Act 10 of 2004)                   | X          |    |     |          | X  |
| Section 35 and 38 of National Heritage Resources Act (Act 25 of 1999)   | X          |    |     | X        |    |
| Mineral Resources Development Act (Act 29 of 2002)  |            | X  |     |          |    |
| Waste Management License in terms of National Environmental Management: Waste Management Act (Act 59 of 2008) |            |    | X   |          |    |

**Table 3: Applicable Environmental Legislation**



## 5.9. IMPACT AND MITIGATION

The EMPr is outlined in *Table 4* below and Adherence to this plan during construction will ensure that the environmental impacts associated with the proposed development will be mitigated, thus promoting sustainable development. The commitment and co-operation of the identified responsible person (s) will ensure effective implementation of the EMPr during pre-construction and post-construction. It is therefore imperative that there be a file dedicated for Environmental Documentation.

**Table 4: Environmental Management Programme**

| ASPECT                           | POSSIBLE IMPACT       | MITIGATION PLAN   | RESPONSIBLE PERSON (S)         | OBJECTIVES   | FREQUENCY  |
|----------------------------------|-----------------------|---|--------------------------------|--|--|
| <b>1. PRE-CONSTRUCTION PHASE</b> |                       |   |                                |  |  |
| Project Contract and Programme   | Adherence to the EMPr | <ul style="list-style-type: none"> <li>◇ The environmental responsibilities must be formalized, and environmental awareness must be taught to the labourers in their preferred language as part of the toolbox talks.</li> </ul>  | <b>RE/CONTRACTOR &amp; MLM</b> | Ensure that EMPr is adhered to   | <u>Frequency</u><br>Prior to construction activities |
| <b>MANAGEMENT ACTION</b>         |                       | Environmental File in place with records for environmental awareness training and EMP presentation.<br>Appointment of ECO and DEO   |                                |  |  |
| Location of Camp and Depot       | Environmental damage  | <ul style="list-style-type: none"> <li>◇ The camp depot must be in an area where the neighbouring residents will not be inconvenienced.</li> <li>◇ The contractor must provide the RE with the layout plan of the camp depot for approval before commencement of the construction phase. The plan must include site offices, temporary fencing boundary, sanitation facilities, waste, stockpiling areas, etc. The parking of vehicles, storage of equipment and materials must strictly be confined to designated areas.</li> <li>◇ The surrounding undeveloped areas, the area must not be used to establish camp depot/site office.</li> </ul> | <b>RE/CONTRACTOR &amp; MLM</b> | Prevent environmental damage and disturbance of neighboring land users | <u>Frequency</u><br>Once off                         |
| <b>MANAGEMENT ACTION</b>         |                       | A camp depot must be approved by the Resident Engineer ("RE"). Agreement should be in place between contractor and the landowner prior to commencement of construction phase. Photographs of the approved area prior to establishment and after completion of rehabilitation.   |                                |  |  |

| ASPECT                   | POSSIBLE IMPACT  | MITIGATION PLAN  | RESPONSIBLE PERSON (S)                 | OBJECTIVES   | FREQUENCY                            |
|--------------------------|--|--|--|--|--------------------------------------|
| Flora and Fauna          | Potential destruction of Nationally and Provincially protected species | <ul style="list-style-type: none"> <li>◇ A walkthrough ecological assessment must be conducted by an experienced and qualified Ecologist prior to site preparation.</li> <li>◇ The 32m protective buffer zone for the drainage lines must be excluded from construction activities, <i>i.e.</i>, marked as no-go areas prior to commencement of construction.</li> <li>◇ A flora permit application must be obtained before the removal of <i>Helichrysum nudifolium</i> individuals.</li> </ul> | RE/CONTRACTOR & MLM                    | <p>To protect identified (no-go areas) sensitive areas within the layout.</p> <p>To comply with legislation applicable to removal or destruction protected species</p> | Once-Off                             |
| <b>MANAGEMENT ACTION</b> |  | Appointment Letter of an Ecologist, Provincial Flora Permits in the Environmental File and Photographs before and after construction   |  |  |                                      |
| Water Supply             | Source of water during the construction phase.                         | <ul style="list-style-type: none"> <li>◇ Potable water must be available at the camp depot, office site and construction site.</li> </ul>  | RE, CONTRACTOR & MLM OR WATER SUPPLIER | To provide the workforce with clean and reliable potable water.  | Frequency<br>Duration of the project |
| <b>MANAGEMENT ACTION</b> |  | A written agreement between the contractor and water supplier must be in place.  |  |  |                                      |
| Access Control           | Hazards to livestock and stealing of construction materials            | <ul style="list-style-type: none"> <li>◇ A Fenced or suitably secure main site office and material storage area must be established.</li> <li>◇ Unauthorized entry must be prohibited.</li> </ul>  | RE & CONTRACTOR                        | Keep the site secure from trespassing or theft and keep the livestock out.   | Frequency<br>Duration of the project |
| <b>MANAGEMENT ACTION</b> |  | Access control/Security, Site access register and complaints book must be in place.  |  |  |                                      |

| ASPECT                          | POSSIBLE IMPACT  | MITIGATION PLAN   | RESPONSIBLE PERSON (S)               | OBJECTIVES   | FREQUENCY  |
|---------------------------------|--|---|--------------------------------------|--|--|
| Access route                    | Erosion and dilapidation of the access route             | <ul style="list-style-type: none"> <li>Proper maintenance of the existing access route must be done to ensure the quality of the road is not deteriorated.</li> </ul>   | RE & CONTRACTOR                      | Prevention of dilapidation of the existing access routes                   | <u>Frequency</u><br>Duration of the Project Implementation |
| <b>MANAGEMENT ACTION</b>        |  | Environment Control Officer ("ECO") Audit checklist, Photographs depicting road condition pre- and post-construction  |                                      |  |  |
| Power Supply                    | Excessive use of non-renewable energy                    | <ul style="list-style-type: none"> <li>No illegal electrical connections allowed.</li> <li>Labour intensive measures must be adopted where possible</li> </ul>  | RE/CONTRACTOR & ELECTRICITY SUPPLIER | Implement energy saving measures<br>Prevent illegal electrical connections | <u>Frequency</u><br>Duration of the Project Implementation |
| <b>MANAGEMENT ACTION</b>        |  | Reliable power usage  |                                      |  |  |
| Solid Waste                     | Littering/ Pollution of environment with waste materials | <ul style="list-style-type: none"> <li>Refuse bins with lids must be provided for different waste streams.</li> <li>System for regular waste removal must be set up.</li> <li>A Serviced Provider with the necessary accreditation to transport and dispose hazardous waste must be appointed.</li> </ul> | RE, CONTRACTOR & MLM                 | Implement proper handling of different streams of waste.                   | <u>Frequency</u><br>Once Off                               |
| <b>MANAGEMENT ACTION</b>        |  | Method Statement for storing, handling, and disposal of waste and Record keeping of all records. Letter of Agreement for Handling of Hazardous Waste between Contractor and Service Provider.   |                                      |  |  |
| Sewage/Grey water or wash water | Pollution of environment by waste materials              | <ul style="list-style-type: none"> <li>Provide adequate sanitation facilities</li> <li>Letter of consent from a registered waste facility to allow the contractor to empty the toilets in their sewer system must be in the environmental document.</li> </ul>  | RE/ CONTRACTOR & MLM                 | Prevent environmental pollution  | <u>Frequency</u><br>Duration of the project                |

|                                 |  |  |                                     |  |   |
|---------------------------------|--|--|-------------------------------------|--|---|
| <b>MANAGEMENT ACTION</b>        |  | Record keeping copies for emptying of chemical toilets. Written agreement between contractor and facility and letter of consent from the facility must be submitted to DWS.  |                                     |  |   |
| Social & Socio-Economic Aspects | Dissatisfaction  | <ul style="list-style-type: none"> <li>◇ A PSC must be established then convened to discuss details of the project.</li> <li>◇ Community Liaison Officer ("CLO") appointed</li> </ul>  | <b>RE/MLM</b>                       | Ensure satisfaction of workers and neighbouring land users   | <u>Frequency</u><br>Monthly                 |
| <b>MANAGEMENT ACTION</b>        |  | CLO appointed and PSC in place prior to commencement of construction activities.   |                                     |  |   |
| Wayleave and Servitudes         | Possible encroachment or damage to the Eskom servitude | <p>Eskom shall at all time retain unobstructed access to and egress from its servitudes and services</p> <p>No construction or excavation work shall be executed within 11 metres from any powerline structure and/or within 11 metres from any stay wire.</p> <p>All work within the servitude areas shall comply with the relevant Eskom standards in force at the time.</p> <p>No house or structures occupied or frequented by human beings will be erected under the powerlines, within the servitude area.</p> | <b>MLM and appointed Contractor</b> | To prevent damage to Eskom lines and disruption of services  | <u>Frequency</u><br>Duration of the project |
| <b>MANAGEMENT ACTION</b>        |  | Written wayleave agreement between MLM and Eskom Free State Operating Unit   |                                     |  |   |
| Health & Safety                 | Danger to the workforce and residents                  | <ul style="list-style-type: none"> <li>◇ A Safety Officer must be appointed.</li> </ul>  | <b>RE, CONTRACTOR &amp; MLM</b>     | To avoid endangering of the people who works on site or live in the vicinity of the construction site. | <u>Frequency</u><br>Duration of the project |
| <b>MANAGEMENT ACTION</b>        |  | Appointment letter of a Safety officer and a safety file in place  |                                     |  |   |

| ASPECT  | POSSIBLE IMPACT                               | MITIGATION PLAN  | RESPONSIBLE PERSON                   | OBJECTIVES  | FREQUENCY                                    |
|---|---|--|--------------------------------------|---|--|
| <b>2. CONSTRUCTION PHASE</b>                                    |   |  |                                      |   |  |
| Flora   | Loss of vegetation                            | <ul style="list-style-type: none"> <li>◇ Adequately cordon off the development footprint to ensure construction activities must be confined to the development footprint.</li> <li>◇ No construction activities including storage of construction materials must be allowed on the neighbouring undeveloped areas in the vicinity of the development area.</li> <li>◇ Mechanical tools should be used for vegetation clearance where possible.</li> <li>◇</li> </ul> | <b>RE, CONTRACTOR, DEO &amp; ECO</b> | Prevent destruction of areas not included in the development footprint. | <u>Frequency</u><br>Once off                 |
| Fauna   | Disturbance to fauna in the area              | <ul style="list-style-type: none"> <li>◇ No hunting, snaring, shooting, nest raiding or egg collection by the construction staff must be allowed.</li> <li>◇ Toolbox talks must include handling of animals.</li> </ul>  | <b>RE, CONTRACTOR, DEO &amp; ECO</b> | Prevent killings of animals   | <u>Frequency</u><br>Duration of the contract |
| Areas of Paleontological, Cultural and/or Historical Importance | Disturbance of important scientific artefacts | <ul style="list-style-type: none"> <li>◇ Should fossil remains be discovered during any phase of construction, either on the surface or exposed by fresh excavations, the Chace Finds Protocol outlined in <b>Appendix C</b>.</li> <li>◇ If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves Unit must be notified</li> <li>◇ Ongoing Heritage Monitoring must be carried out.</li> </ul>   | <b>RE, CONTRACTOR, DEO &amp; ECO</b> | Prevent disturbance of scientific heritage and/or cultural artefacts.   | <u>Frequency</u><br>Duration of the Contract |

| ASPECT            | POSSIBLE IMPACT  | MITIGATION PLAN   | RESPONSIBLE PERSON                             | OBJECTIVES  | FREQUENCY                    |
|-------------------|--|---|--|---|------------------------------|
| Sewerage          | Pollution of the receiving environment.                | <ul style="list-style-type: none"> <li>◇ Adequate sanitation facilities <i>i.e.</i>, 15 employees per facility must be provided within 50 metres from construction site and not within 32 metres of the significant drainage lines.</li> <li>◇ They must always be kept clean and hygienic.</li> <li>◇ Effluent must not be discharged into the natural environment and defecating in the bush/surrounding area is prohibited.</li> </ul> | <b>RE, CONTRACTOR, DEO, &amp; ECO</b>          | <p>Provide facilities for adequate and accessible sanitation facilities.</p> <p>Prevent soil pollution.</p> | <u>Frequency</u><br>Daily    |
| Water Supply      | Source of potable water during the construction phase. | <ul style="list-style-type: none"> <li>◇ Potable water must be made available at the camp site and construction site in clearly marked containers.</li> </ul>   | <b>RE/DEVELOPER, CONTRACTOR, DEO &amp; ECO</b> | To provide the workforce with clean water.  | <u>Frequency</u><br>Daily    |
| Power Supply      | Safety Impacts   | <ul style="list-style-type: none"> <li>◇ Limit the power supply cables &amp; ensure the safety of the workers.</li> <li>◇ No illegal electricity connections must be allowed.</li> </ul>  | <b>RE, CONTRACTOR, DEO &amp; ECO</b>           | Avoid safety impacts on the workers and neighbouring land users   | <u>Frequency</u><br>Daily    |
| Energy Efficiency | Conserving of fossil fuels                             | <ul style="list-style-type: none"> <li>◇ Manual labour must be used as much as is feasible in order to conserve fossil fuels.</li> </ul>  | <b>RE, CONTRACTOR, DEO &amp; ECO</b>           | Conserving fossil fuels by using manual labour.   | <u>Frequency</u><br>Daily    |
| Health Impact     | Increased chances of HIV/Aids transmission             | <ul style="list-style-type: none"> <li>◇ HIV/Awareness Training must be provided for the workforce by an accredited service provider.</li> </ul>  | <b>RE, CONTRACTOR, SAFETY OFFICER</b>          | To decrease the risk of HIV/Aids transmission   | <u>Frequency</u><br>Once-off |

| ASPECT | POSSIBLE IMPACT  | MITIGATION PLAN  | RESPONSIBLE PERSON                   | OBJECTIVES   | FREQUENCY                                   |
|--------|--|--|--------------------------------------|--|---|
| Safety | Danger to the workforce and surrounding landusers and owners | <ul style="list-style-type: none"> <li>◇ The Contactor must provide employees with suitable equipment to protect them from hazards being presented and that will allow them to work without risk to the health in a hazardous environment, e.g. hard hats, gloves, boots, etc.</li> <li>◇ An emergency preparedness plan should be compiled and approved by the resident engineer and ECO before construction commences. A list of all emergency telephone numbers, i.e. fire, ambulance, ECO, engineers, etc. should be available all the time at various construction sites.</li> <li>◇ A medical first aid kit should be available on site for duration of the project.</li> <li>◇ Eskom apparatus must be regarded as live and therefore dangerous.</li> <li>◇ Construction methods must adhere to the Occupational Health and Safety Act (Act 85 of 1993).</li> <li>◇ Excavations must be barricaded and must not be left open for long periods, e.g. more than 30 days.</li> </ul> | <b>RE CONTRACTOR, SAFETY OFFICER</b> | To avoid incidences due to unsafe working conditions and acts. | <u>Frequency</u><br>Duration of the Project |



| ASPECT         | POSSIBLE IMPACT         | MITIGATION PLAN   | RESPONSIBLE PERSON                       | OBJECTIVES  | FREQUENCY                                   |
|----------------|-------------------------|---|--|---|---|
| Solid Waste    | Littering/ Pollution    | <ul style="list-style-type: none"> <li>◇ Toolbox talks must include a component of waste management.</li> <li>◇ All waste must be appropriately separated, contained, and disposed of and be removed from the site to the registered landfill site in Brandfort.</li> <li>◇ Reduction, reuse, and recycling of waste must be introduced.</li> <li>◇ Illegal dumping must be forbidden.</li> <li>◇ No dumping of builders' rubble or other materials within the surrounding areas including the drainage lines.</li> <li>◇ Good housekeeping must always be practiced.</li> </ul>                                  | <b>RE, CONTRACTOR, DEO &amp; ECO</b>     | <p>Prevent littering and visual impact.</p> <p>Safeguard a healthy working environment.</p> | <u>Frequency</u><br>Weekly                  |
| Traffic Impact | Safety/ Traffic Impacts | <ul style="list-style-type: none"> <li>◇ Vehicle speed on the site must be limited speed to 40km/h.</li> <li>◇ Warning road signs must be in place.</li> <li>◇ Dedicated access route must be used, no detours allowed as the surrounding area is mostly used by pedestrians.</li> <li>◇ No movement of construction vehicles within the 32m protective buffer zone of the significant drainage lines.</li> <li>◇ Only drivers with valid licenses must be allowed to drive on the site.</li> <li>◇ In the event of abnormal vehicles, a permit must be obtained from the local Department of Traffic.</li> </ul> | <b>RE, DEO, ECO &amp; SAFETY OFFICER</b> | Minimize the disruption to road users   | <u>Frequency</u><br>Duration of the project |

| ASPECT  | POSSIBLE IMPACT | ◇ MITIGATION PLAN  | RESPONSIBLE PERSON                           | OBJECTIVES  | FREQUENCY                  |
|---------|-----------------|--|--|---|----------------------------|
| Topsoil | Loss of Topsoil | <ul style="list-style-type: none"> <li>◇ Exposure of bare ground will be minimized.</li> <li>◇ Topsoil stripping must be limited to the development footprint.</li> <li>◇ It must be stored separately from the subsoil, i.e. no mixing of soils.</li> <li>◇ In situ material must be removed to an average depth of 1000mm.</li> <li>◇ Cleared and grubbed topsoil must be stockpiled as a top layer of at least 150mm thickness for the backfilling of monopole holes and rehabilitation purposes.</li> <li>◇ Soil conservation measures such as berms, gabions and mats must be used on-site to help reduce erosion.</li> <li>◇ No stockpiling of topsoil within 32m of the significant the drainage line.</li> <li>◇ No topsoil stripping must be done on open space ervens.</li> <li>◇ Topsoil stockpiles must be kept free of weeds and litter free.</li> <li>◇ Topsoil stockpiles must not inconvenience the residents from accessing their properties without informing them prior if necessary.</li> <li>◇ Topsoil stockpiles must be bunded and protected against harsh weather elements.</li> </ul> | <b>RE,<br/>CONTRACTOR,<br/>DEO &amp; ECO</b> | Conserve and protect topsoil from deterioration and erosion | <u>Frequency</u><br>Weekly |

| ASPECT        | POSSIBLE IMPACT                              | MITIGATION PLAN  | RESPONSIBLE PERSON              | OBJECTIVES   | FREQUENCY  |
|---------------|--|--|---------------------------------|--|--|
| Topography    | Disturbing the natural topography            | <ul style="list-style-type: none"> <li>◇ Minimize the amount of excavation and earthworks needed by fitting the building or landscape design to the site topography rather than flatten the site to fit the building or landscape.</li> <li>◇ Restrict construction vehicle traffic to designated accesses to reduce damage to soils and vegetation.</li> </ul>                                    | RE,<br>CONTRACTOR,<br>DEO & ECO | Minimize the disturbance of topography   | <u>Frequency</u><br>Duration of the project  |
| Cement mixing | Pollution of soils, surface, and groundwater | <ul style="list-style-type: none"> <li>◇ Mixing of cement must be done on mortar boards or similar structures to contain surface run-off.</li> <li>◇ Cleaning of cement mixing equipment must be done on proper cleaning trays.</li> <li>◇ No cement or cement containers must be left lying around.</li> </ul>  | RE,<br>CONTRACTOR,<br>DEO & ECO | Avoid polluting the topsoil soil and water bodies around the designated servitude. | <u>Frequency</u><br>Duration of project  |
| Storm water   | Contamination of drainage system             | <ul style="list-style-type: none"> <li>◇ Storm water must be diverted away from the construction works.</li> <li>◇ Storm water control works must be constructed, operated, and maintained in a sustainable manner throughout the project.</li> <li>◇ Storm water leaving the construction site must not be contaminated by any substance produced, stored, dumped, or spilled on site.</li> </ul> | RE,<br>CONTRACTOR,<br>DEO & ECO | Avoid contamination of stormwater  | <u>Frequency</u><br>Duration of project  |
| Air Quality   | Nuisance and reduction in visibility         | <ul style="list-style-type: none"> <li>◇ Occasional wetting of the access routes and construction site must be done by means of a water tanker to keep the dust levels low and vehicles must be driven at 40km/h maximum speed.</li> <li>◇ Construction vehicles must be serviced regularly to ensure they are in good working conditions and function efficiently.</li> </ul>                     | RE/<br>CONTRACTOR,<br>DEO & ECO | To minimize the generation of dust from excavation work and vehicle emissions      | <u>Frequency</u><br>Twice a day or when required for dust<br>Vehicle servicing and maintenance regularly |

| ASPECT       | POSSIBLE IMPACT    | MITIGATION PLAN  | RESPONSIBLE PERSON                 | OBJECTIVES   | FREQUENCY                                    |
|--------------|--------------------|--|------------------------------------|--|--|
| Noise        | Nuisance           | <ul style="list-style-type: none"> <li>Construction must be limited to normal contractors' working days and working hours. Limit working hours of noisy equipment to daylight hours.</li> <li>Ensure that employees and staff conduct themselves in an acceptable manner while on site, both during work hours and after hours.</li> <li>Fit silencers to the noisier construction equipment.</li> </ul>   | RE,<br>CONTRACTOR,<br>DEO & ECO    | To avoid excessive noise generation from site operations | <u>Frequency</u><br>Duration of Construction |
| Soil erosion | Erosion            | <ul style="list-style-type: none"> <li>Exposure of bare ground must be minimized, and topsoil stripping limited to the development footprint, excluding open spaces.</li> <li>Vehicular activities to be confined to the development footprint and access roads.</li> </ul>  | RE,<br>CONTRACTOR,<br>DEO, AND ECO | Prevent Soil Erosion                                     | <u>Frequency</u><br>Weekly                   |
| Fire Hazard  | Risk of veld fires | <ul style="list-style-type: none"> <li>No open fires are permitted on the construction site, except under strictly controlled conditions subject to the National Veld and Forest Act, (Act No. 101 of 1998).</li> <li>The workforce must be informed and advised on the associated risks, dangers and damage of property caused by accidental fires and how to prevent them.</li> <li>Fire extinguishers must be made available at the construction site, and the laborers must be informed of their location and trained to use them.</li> <li>Restrict smoking activities to demarcated smoking activities.</li> </ul> | RE,<br>CONTRACTOR,<br>DEO & ECO    | Prevent veld fires.                                      | <u>Frequency</u><br>Daily                    |

| ASPECT                  | POSSIBLE IMPACT                                 | MITIGATION PLAN  | RESPONSIBLE PERSON (S)               | OBJECTIVES  | FREQUENCY                                   |
|-------------------------|---|--|--------------------------------------|---|---|
| Alien Invasive Species  | Prevent the spreading of alien invasive species | <ul style="list-style-type: none"> <li>◇ Implement an adequate Alien Invasive Species Establishment Management and Prevention Plan compiled by a suitably qualified and experienced ecologist must be implemented.</li> <li>◇ A designated person must be appointed to keep the construction site weed-free.</li> <li>◇ All Category 1b and 2 alien invasive species individuals currently within the project area, must be actively eradicated and adequately disposed of in accordance with the National Environmental Management: Biodiversity Act (Act 10 of 2004); Alien and Invasive Species Regulations, 2014.</li> <li>◇ Construction vehicles must be cleaned before entering the construction site.</li> </ul> | <b>RE, CONTRACTOR, DEO &amp; DEO</b> | Prevent unnecessary dissemination of alien invasive species | <u>Frequency</u><br>Duration of the Project |
| Vehicle Servicing Areas | Pollution                                       | <ul style="list-style-type: none"> <li>◇ Vehicle servicing must be done at the identified camp depot on impermeable surfaces to minimize the likelihood of petrochemical spills on the soil. In the case of accidents, polluted soil must be appropriately treated or taken away to an appropriate disposal site.</li> <li>◇ Used spares must be collected and disposed of in the correct manner. Oils must be drained into</li> </ul>   | <b>RE, CONTRACTOR, DEO &amp; ECO</b> | Prevent Soil pollution                                      | <u>Frequency</u><br>Daily                   |

|                          |  |  |  |  |  |
|--------------------------|--|--|--|--|--|
|                          |  | <p>a suitable container, transferred to a larger storage container, and then supplied to oil recycling companies.</p> <ul style="list-style-type: none"> <li>◇ Oil must under no circumstances be disposed off into the drainage lines or the ground.</li> <li>◇ Any spillages of any hazardous material must be reported immediately to DWS</li> </ul>  |  |  |  |
| <b>MANAGEMENT ACTION</b> |  | <p>Alien Invasive Species Establishment Management and Prevention Plan</p> <p>Records of waste disposal</p> <p>Records of cleaning and maintenance of chemical toilets</p> <p>Records of inspection of fire extinguishers</p> <p>Stormwater and Erosion Control measures in place</p> <p>Ongoing Monitoring by the DEO</p> <p>Careful planning of construction activities</p> <p>Implementation of the outlined mitigation measures</p> <p>Photographic History for the duration of the construction activities</p> <p>Environmental Compliance Monitoring Reports</p> |  |  |  |

| ASPECT                            | POSSIBLE IMPACT     | MITIGATION PLAN  | RESPONSIBLE PERSON                      | OBJECTIVES   | MONITORING ACTIONS AND FREQUENCY |
|-----------------------------------|---------------------|--|---|--|----------------------------------|
| <b>3. POST CONSTRUCTION PHASE</b> |                     |  |   |  |                                  |
| Aesthetic view of the area        | Aesthetic pollution | <ul style="list-style-type: none"> <li>◇ The site must be rehabilitated on completion of construction activities; therefore, a detailed rehabilitation plan must be provided by the contractor.</li> <li>◇ The site must be kept clear of litter and all waste must be removed and disposed of at the registered landfill site.</li> <li>◇ No burying of discarded material on site.</li> <li>◇ All stockpiles and spoils must be handled as directed by the engineers.</li> <li>◇ Soil heaps must be flattened to match the adjacent ground and to help prevent soil erosion and encourage natural revegetation.</li> <li>◇ All excavations must be backfilled, levelled and compacted.</li> <li>◇ All surfaces hardened due to construction must be ripped and material imported thereto removed.</li> <li>◇ The original site topography must be restored as much as possible.</li> </ul> | <b>RE, CONTRACTOR, DEO, ECO AND MLM</b> | <p>Prevent pollution</p> <p>Restore pre-construction conditions to a greater extent.</p> | <u>Frequency</u><br>Once-Off     |

|                           |                           |  |            |  |                              |
|---------------------------|---------------------------|--|------------|--|------------------------------|
|                           |                           | <ul style="list-style-type: none"> <li>◇ A final audit must be completed before the contractor may leave the site to determine whether all requirements were met.</li> <li>◇ A meeting must be held between the PSC and various stakeholders to ensure that the site has been restored to a satisfactory condition.</li> </ul>   |            |  |                              |
| <b>4. OPERATION PHASE</b> |                           |  |            |  |                              |
| Environmental Degradation | Impact on the environment | <ul style="list-style-type: none"> <li>◇ The municipality will provide basic services to the area, i.e. power supply, water provision, electricity, and refuse removal.</li> <li>◇ Prevent establishment of illegal dumping site.</li> <li>◇ Monitoring and routine maintenance of proper stormwater drainage system should be in place.</li> <li>◇ Routine maintenance of access and internal roads should be in place.</li> <li>◇ Implement alien control measures.</li> </ul> | <b>MLM</b> | <p>Maintenance of Bulk Infrastructure</p> <p>Prevent environmental degradation and pollution</p> | <u>Frequency</u><br>Infinite |



## **6 AUDIT AND MONITORING**

Compliance monitoring provides useful information for gauging environmental performance throughout the duration of the project. The information obtained can be used to gauge how effective the mitigation plans in the EMPr are and determine whether the corrective actions undertaken are adequate and whether some modifications are required. The resident engineer (project manager) must monitor the overall aspects of the project, e.g. labour issues and complaints raised by the local community, so they can be addressed in conjunction with the PSC. A DEO must be on site for the duration of the project to ensure that the conditions of the Environmental Authorization and EMPr are adhered to. The ECO must monitor construction activities at least once a month and the monthly reports must be compiled and presented to the PSC for discussion if needs be. On completion of the construction phase, post-rehabilitation, an environmental audit must be conducted by an experienced and qualified auditor to identify the gaps in the compliance to Environmental Legislation and Regulations and adherence to the EMPr and provide correlative action.

**APPENDIX A**  
**LAYOUT OF THE PROPOSED DEVELOPMENT**



**APPENDIX B**  
**CURRICULUM VITAE OF EAP**

**Name of Firm: NSVT Consultants**

**Present Position: Director/ Environmental Assessment Practitioner**

**Phone: 051 430 1041/2**

**Years with the Firm: 8 Years**

**Cell: 082 784 8259**

**Mailing Address: 1 Fourth Street, Office 1A, Arboretum, 9301**

**E-mail: lorato@nsvt.co.za**

**Date of Birth.: 1980-09-25**

**Nationality: South African**

**Education:**

| Name of Institution          | Degree Obtained   | Dates Attended |
|------------------------------|---|----------------|
| University of the Free State | BSc. Natural Science (Zoology)  | 1999-2002      |
|                              | BSc. Hons in Wildlife   | 2003-2004      |
|                              | Masters in Environmental Management (Incomplete: Mini-thesis Outstanding) |                |

**Professional Membership:**

| MEMBERSHIP  | MEMBERSHIP No.                      |
|---|-------------------------------------|
| Environmental Assessment Practitioners Association of South Africa-(EAPASA)     | 2020/2519                           |
| South Africa Council for Natural Scientific Professions (SACNASP)               | Environmental Scientist (400161/09) |
| International Association for Impact Assessment South Africa Affiliate (IAIASa) | Member (2191)                       |
| International Association for Public Participation Southern Africa Affiliate    | Member (2010/ZA/FS0001)             |

**Key Experience:** Lorato joined Geo Pollution Technologies (Free State) in 2003 and partnered with a Geohydrologist to set up Bokamoso Consultants as an environmental consultant, trading as NSVT Consultants. From 2004-2005 after completion of BSc Hons (Wildlife) she continued to study Master's in Environmental Management in 2006 but only completed the modules work and still have Mini-Dissertation. In 2011, she established ESVT Consultants. She has approximately 17 years in environmental consulting and have completed basic assessment, environmental impact assessment, waste management license and water use license applications for Free State, Northern Cape, North West, and Eastern Cape Provinces. She therefore has extensive knowledge regarding the competencies required to ensure implementation and alignment of environmental policy instruments such as EIA. For Continuous Professional Development, she has completed short courses in Planning for Effective Public Participation, Social Impact Assessment and Conflict Management, Introduction to Environmental Law, Introduction and Implementation of OHSAS 17001 and EMS 14001-2016 amongst other courses. Therefore, she possesses the technical expertise and scientific knowledge for conducting thorough environmental assessments. She has considerable public participation experience through her work in EIA and understand the importance of community/stakeholder participation. Through her involvement in various projects, she has acquired analytical, problem-solving, and excellent research skills

**Employment:**

**Duration:** March 2011 to date      **Organization:** NSVT Consultants-Environmental and Social Scientists

**Project:** Environmental Compliance Monitoring for the Upgrading of 31km of widening and rehabilitation of N9 Sec 7 between Wolwefontein and Colesberg as well as the construction of a new access interchange at Colesberg which required the utilization of 10 borrow pits.

**Client:** South African National Resources Agency SOC Limited Eastern Region

**Project:** Environmental authorisation applications for a new landfill sites in Mantsopa Local Municipality.

**Client:** Bigen Africa

**Project:** Environmental Authorisation application and Environmental Compliance Monitoring for a new interchange, overhead and pedestrian bridge.

**Client:** UWP Consulting Engineers

**Project:** Waste management license applications for development of new treatment plant.

**Client:** ISA & Partners

**Project:** Application for rectification for upgrading the treatment works without obtaining an Environmental Authorisation in Vredefort

**Client:** Sobek Engineering

**Project:** Environmental Authorisation application for development of new residential areas including associated infrastructure in Phumelela Local Municipality, Dihlabeng Local Municipality, Tswelopele Local Municipality.

**Client:** Phethogo Consulting Engineers

**Project:** Environmental Authorisation application for development of new residential area including associated infrastructure in Metsimaholo Local Municipality and Maluti-a-Phofung Local Municipality.

**Client:** YB Mashalaba & Associates

**Project:** Basic Assessment, Water use License and Environmental Compliance Monitoring, for the Ficksburg Pipeline from Meulspruit Dam to the water treatment plant.

**Client:** Flagg Consulting Engineers

**Project:** Environmental Impact Assessment for the proposed residential area in Mafube Local Municipality

**Client:** Pula Strategic Resource Management

**Project:** Environmental Compliance Monitoring for the Construction of a feeder pipeline to connect reservoir 8 with the existing water supply network, Section F, Botshabelo, Mangaung Metropolitan Municipality, Free State Province

**Client:** Flagg Consulting Engineers

**Project:** Basic Assessment for a new 132kV powerline from Rouxville substation to Melkspruit substation in Aliwal North

**Client:** Eskom Free State Operating Unit

**Position: Director and Environmental Specialists/Scientist**

**Responsibilities:** Business Operations, Marketing, Project Management, Community Facilitation, Internal EIA Evaluation and associated administration work including Determine whether the Basic Assessment or Environmental Impact Assessment is required, Initial assessment of site to identify potential environmental constraints, Initial screening (considering sensitivity/environmental flaws) of borrow pits and selection of suitable ones, Team co-ordination, Collate project information, i.e. civil reports and review, Consult with the Competent Authority to ensure the project is compliant with applicable national requirements and social legal requirements and policies, Consult with relevant Stakeholders per requirements of the National Environment Act of 1998, Undertake Site Investigation, Review of the Draft Environmental Management Plan and amendments following the confirmations of the route selection and alignment, Compilation of Progress Reports (Weekly or Monthly as required), Undertake public participation process, Compilation of construction EMP since no Basic Assessment/Environmental Impact Assessment was required, Compilation of EMPR as part of mining permit application for borrow pits, Approval of EMPRs and obtaining mining permit applications, Internal Review of Environmental Reports, Mentoring of Environmental Management Undergraduate Students

**Previous Employment:**

**Duration:** March 2004 to February 2011

**Organization:** Bokamoso Consultants-  
Environmental Scientists and Geohydrologist

**Project:** Environmental Impact Assessment for the upgrading of the wastewater treatment works in Dewetsdorp

**Client:** Ninham Shand Consulting Engineers

**Project:** Application for exemption from conducting EIA process for the upgrading of the treatment works in Marquard

**Application for exemption from conducting EIA process for the upgrading of the treatment works in Senekal**

**Client:** ISA & Partners Consulting Engineers

**Project:** Environmental Impact Assessment for a new access road in Mount Arthur

**Client:** Thuso Development Consultants

**Project:** Environmental Impact Assessment for the upgrading of D313 road from Morokweng to Vorstershoop

**Client:** Babereki Consulting Engineers

**Project:** Environmental Impact Assessment for the upgrading of the wastewater treatment plant in Jan Kempdorp

**Client:** Phokwane Local Municipality

**Project:** Environmental Impact Assessment for the upgrading of wastewater treatment works in Jagersfontein

**Client:** Phethogo Consulting Engineers

**Project:** Community facilitation and public participation process for the resettlement planning and environmental authorisation application for Khuis Community

**Client:** Regional Land Claims Commission Northern Cape

**Position:** Environmental Consultant

**Responsibilities:** Site visits, undertake public participation process and compile public participation report and/or comments and responses report, compilation of basic assessment and scoping report, compilation of environmental management plan, liaison with stakeholders and competent authorities, Water use License Applications, Waste Management License Applications, Environmental Compliance Monitoring,

**Duration:** March 2003 to February 2004

**Organization:** Geo Pollution Technologies  
(Bloemfontein)

**Project:** Application for rezoning and closure of the landfill site in Thaba Nchu and Botshabelo  
**Client:** Mangaung Local Municipality

**Project:** Environmental Impact Assessment for the wastewater treatment works in Ladybrand  
**Client:** Kwezi V3 Consulting Engineers

**Project:** Environmental Impact Assessment for the new reservoir in Ladybrand  
**Client:** Trubuild Consulting Engineers

**Position:** Junior Environmental Consultant

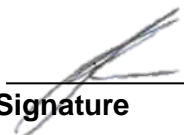
**Responsibilities:** Site visits, undertake public participation process and compile public participation report and/or comments and responses report, compilation of basic assessment and scoping report, compilation of environmental management plan, liaison with stakeholders and competent authorities.

**Reference:**

| CONTACT NAME       | ORGANISATION                  | TELEPHONE NUMBERS |
|--------------------|-------------------------------|-------------------|
| Mamofolo Matebele  | Babereki Consulting Engineers | 051 522 4865      |
| Solomon Munthali   | TS Consulting Engineers       | 071 875 8952      |
| Christiaan Vermaak | Tucana Solutions              | 082 703 5680      |

**Consent:**

I confirm that the above CV is an accurate description of my qualifications and experience in environmental management, waste management license applications, which included basic assessment and environmental impact assessment processes, water use license and mining permit and rights applications, and environmental compliance monitoring, and public participation, stakeholder engagement and social facilitation.

  
\_\_\_\_\_  
**Signature**

2020-11-12  
\_\_\_\_\_  
**Date**



**APPENDIX C**  
**CHANCE FINDS PROTOCOL**

## CHANCE FINDS PROTOCOL

A following procedure will only be followed in the event that fossils are uncovered during excavation.

### Palaeontology

Any excavations that *exceeds 1 m into bedrock*, will impact *in situ* sedimentary strata which could be palaeontologically sensitive in terms of potential impact on fossils. “Fossil” means the remains or traces of plants and animals that lived long ago which has been buried and dug up, and most fossils are found where they became buried in layers of sand or mud a long time ago (**Fig. 1 - 3**). “Strata” means layers. And “stratigraphy” is the study and working out of the sequence of the layers of sediment that settled into low-lying areas long ago. “Sediment” means of sand, mud, etc., which settled down. It may still be loose (**see Fig. 7**) or may have consolidated to form rock (**see Fig. 3**). In some fossils the original bone was not lithified. It disappeared completely but left an impression or mould in the sediment (**Fig. 4**). Sometimes leaf impressions are purely a kind of mould and/or cast of a leaf, but often some of the original leaf is left behind in a carbonized form in the impression (**Fig. 5**). Trace fossils, such as footprints, burrows, and trails footprints and tracks provide information such as animal gait, lifestyle, and social behavior (**Fig. 6**).

In this case Dr Ragna Redelstorff at SAHRA must be alerted accordingly since freshly exposed sedimentary rock will require contracting a professional palaeontologist for appropriate monitoring for fossil remains by during the construction phase. If any newly discovered palaeontological resources prove to be significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA;

If, in the event that localized fossil material is discovered exposed or eroding out of ***intact superficial overburden*** during the construction phase, it will in all probability resemble modern- looking, but more or less lithified animal bones and teeth and it will most likely be those belonging to bovids (Bovidae: the biological family of ruminant mammals that includes wildebeest, buffalo, antelopes, etc.) (**Fig. 7 - 9**).

In the unlikely event of fossil discovery within previously undisturbed Quaternary overburden, a professional palaeontologist must be called in immediately to confirm and record the finds.

If any newly discovered palaeontological resources prove to be significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA. The decision regarding the EA Application must be communicated to SAHRA and uploaded to the SAHRIS Case application.

In the meantime, *ex situ* remains must be wrapped in paper towels or heavy-duty tin foil and stored in a safe place. The material should not be washed or cleaned in any way. *In situ* material must be kept in place and protected from further damage by covering it with light but rigid object like a box, bucket, or metal sheet until further confirmation by the palaeontologist.

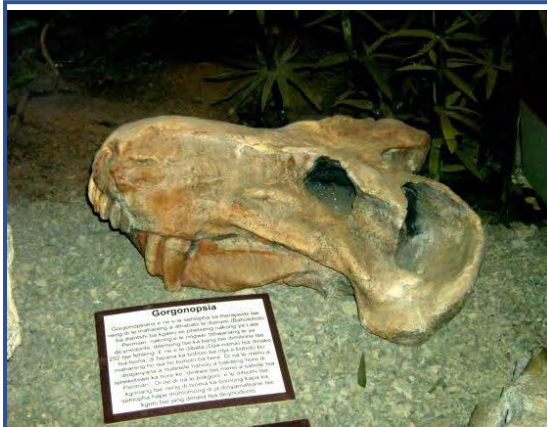
### Archaeology

If any evidence of archaeological sites or remains, e.g. stone tool artifacts (**Fig. 10 & 11**), ostrich eggshell fragments, charcoal and ash heaps, or remnants of stone-made structures (**Fig. 12**) or unmarked graves (**Fig. 13**) are found during the proposed development, the SAHRA APM Unit (Phillip Hine 021 462 5402) must be alerted.

In the meantime, *potential archaeological structures such as stone-build enclosures, buildings or graves* must be avoided by a no-go buffer zone until further confirmation by the archaeologist. Smaller *in situ* material must be kept in place and protected from further damage by covering it with light but rigid object like a box, bucket, or metal sheet.

If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit must be alerted immediately. A professional archaeologist must be contracted as soon as possible to inspect the findings.

If the newly discovered heritage resources prove to be of archaeological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA.



**Figure 1.** Fossilized skull of a Gorgonopsian, a carnivore which belonged to a large group of animals known as therapsids or “mammal-like reptiles” that died out during the End-Permian extinction about 252 million years ago (top left). Examples of fossilized skeletal remains as they usually appear in rock outcrop (top right & below).







**Figure 2.** Petrified tree trunks.



**Figure 3.** World's oldest known dinosaur egg of *Massospondylus* with perfectly preserved fossilized embryo, around 200 Ma years old, Golden Gate.





**Figure 4.** The original skull decomposed or dissolved, but left its shape in the sediments, forming a mould. Then sand or other minerals filled the mould and hardened to form an exact replica of the original. When the rock was chopped open, both mould and cast were revealed.



**Figure 5.** Fossilized leaf impression in mudrock.



**Figure 6.** Fossilized footprints and tracks provide information such as animal gait and social behaviour.



**Figure 7.** Example of intact bovid skeletal remains exposed within Quaternary overbank deposits (alluvium) from the Vaal River.



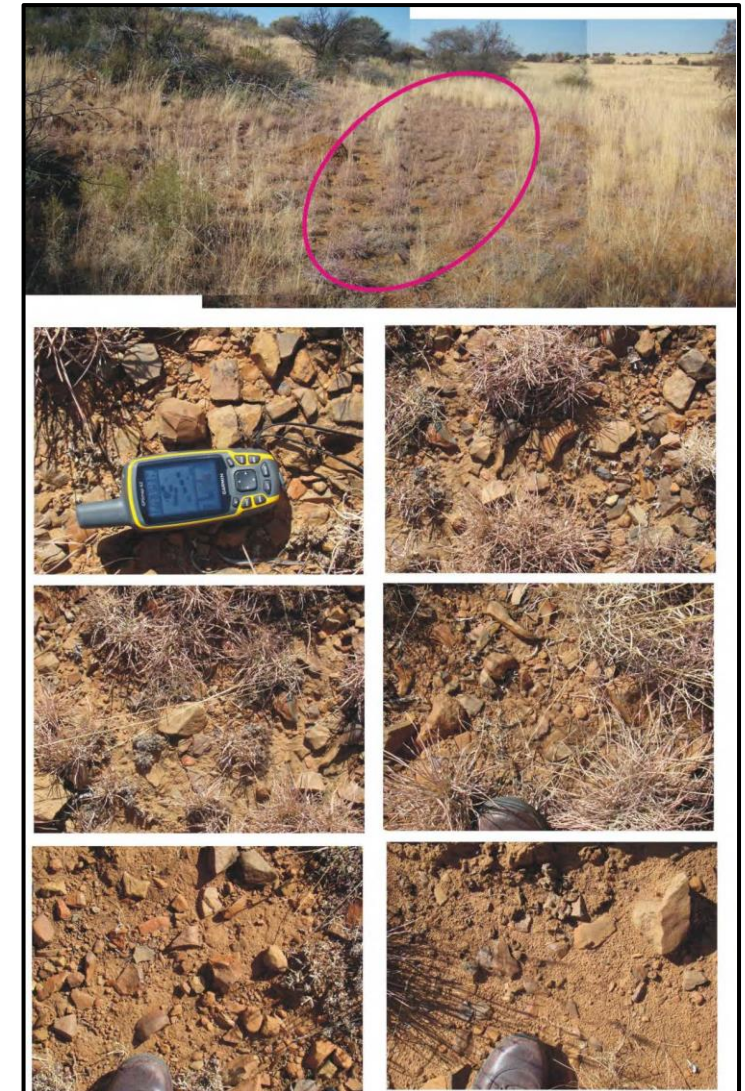
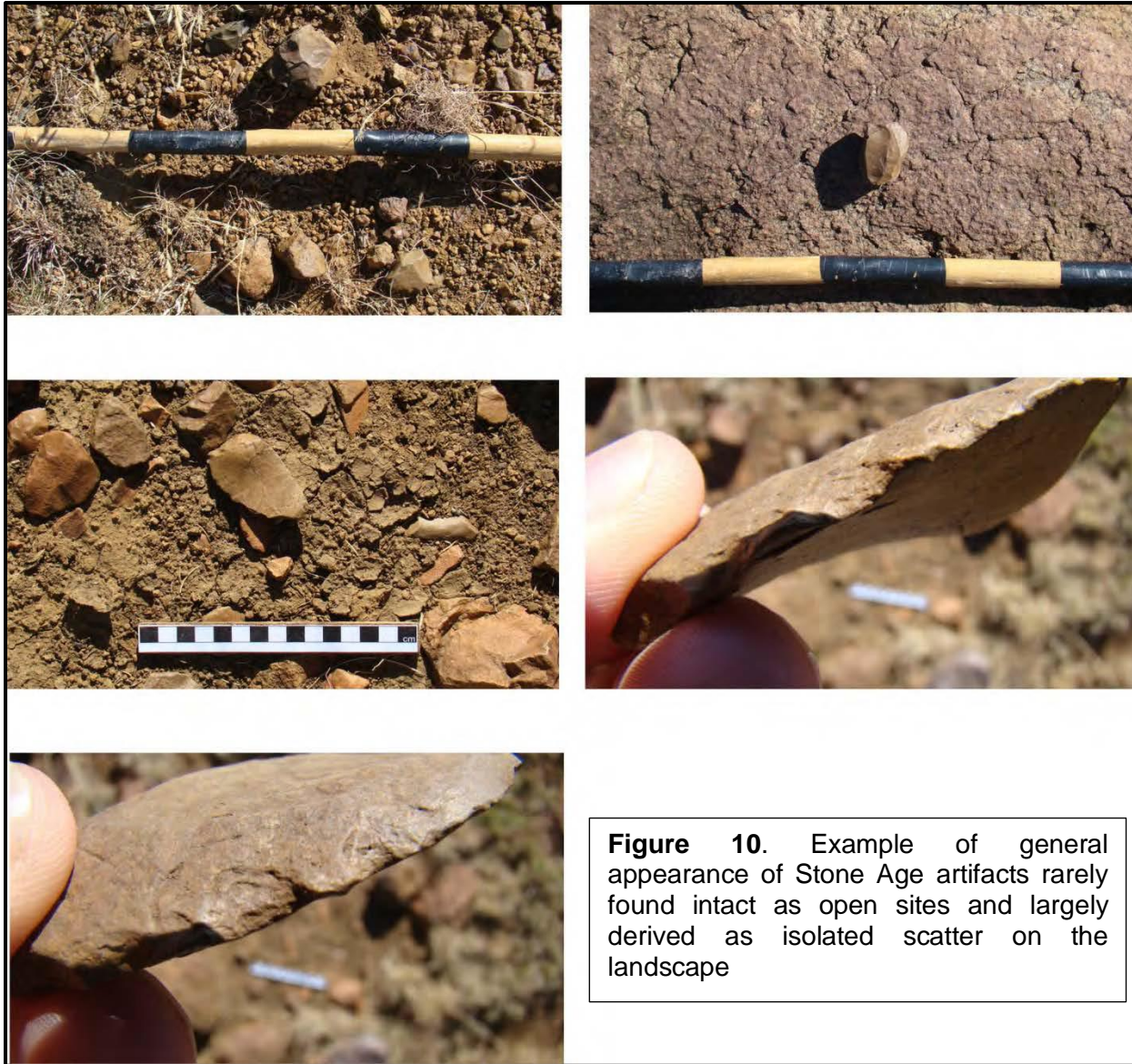


**Figure 8.** Side view (buccal view) of bovid lower dentition removed from jaw bone. Dentition is one of the most commonly preserved elements amongst Quaternary fossil remains.



**Figure 9.** Example of post-cranial bovid skeletal elements including from left to right: femur, humerus, radius, tibia, scapula and vertebrae (x 3).









**Figure 12.** Example of historical stone-build enclosure frequently found in the region.



**Figure 13.** Typical example of unmarked grave recorded around Bloemfontein - distinctive mound with occasional head markers and a characteristic **dolerite cobble** dome.