

Environmental Management Programme (EMPR) in respect of Borrow Pit A of the Kopanong Local Municipality property, situated in the Magisterial District of Trompsburg (Rev 1)

Report Prepared for

**South African National Roads Agency
SOC Limited**



Report Number 445678/10

DMR Reference Number: FS 30/5/1/1/2/0022 BP

Report Prepared by

 **srk** consulting

August 2014

Environmental Management Programme (EMPR) in respect of Borrow Pit A of the Kopanong Local Municipality, situated in the Magisterial District of Trompsburg (Rev 1)

Environmental Management Programme

Report Prepared for

South African National Roads Agency SOC Limited

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Definitions

Environment	The external circumstances, conditions and objects that affect the existence and development of an individual, organism or group. These circumstances include biophysical, social, economic, historical and cultural aspects.
Basic Assessment	An assessment of the positive and negative effects of a proposed development on the environment. The process involves collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of an application for environmental authorisation. A simpler process than EIA, that is subject to one phase (Basic Assessment).
Environmental Impact Assessment (EIA)	An assessment of the positive and negative effects of a proposed development on the environment. The process involves the collecting, organising, analysing, interpreting and communicating of information that is relevant to the consideration of an application for environmental authorisation. A full EIA is subject to a Scoping phase and EIA phase.
Interested and Affected Party	Any person, group of persons or organisation interested in or affected by an activity and any organ of state that may have jurisdiction over any aspect of the activity.
Public Participation Process	A process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to, specific matters relating to a proposed development.

Abbreviations

ASAPA	Association of South African Professional Archaeologists
BAR	Basic Assessment Report
BID	Background Information Document
DEA	Department of Environmental Affairs (National)
DEDTEA	Department of Economic Development, Tourism and Environmental Affairs (Free State Province)
DWA	Department of Water Affairs
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
ECPHRA	Eastern Cape Provincial Heritage Resources Authority
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ER	Environmental Representative
IAP	Interested and Affected Party
NEMA	National Environmental Management Act
PPP	Public Participation Process
RoD	Record of Decision
SAHRA	South African Heritage Resources Agency

SANRAL	South African National Roads Agency SOC Limited
SRK	SRK Consulting
+ve	Positive
-ve	Negative

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NAME OF APPLICANT: South African National Roads Agency SOC Limited
(SANRAL)

REFERENCE NUMBER: FS 30/5/1/1/2/0022 BP

**ENVIRONMENTAL IMPACT
ASSESSMENT
AND
ENVIRONMENTAL MANAGEMENT
PROGRAMME**

**SUBMITTED FOR AN APPLICATION
FOR A MINING RIGHT
IN TERMS OF SECTION 39 AND OF
REGULATIONS 50 AND 51 OF THE MINERAL
AND PETROLEUM RESOURCES DEVELOPMENT
ACT, 2002,
(ACT NO. 28 OF 2002) (the Act)**



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

STANDARD DIRECTIVE

All applicants for mining rights are herewith, in terms of the provisions of Section 29 (a) and in terms of section 39 (5) of the Mineral and Petroleum Resources Development Act, directed to submit an environmental Impact Assessment, and an Environmental Management Programme strictly in accordance with the subject headings herein, and to compile the content according to all the sub items to the said subject headings referred to in the guideline published on the Departments website, within 30 days of notification by the Regional Manager of the acceptance of such application.

SECTION 1

ENVIRONMENTAL IMPACT ASSESSMENT

REGULATION 50 (a).

1. Description of the baseline environment

- 1.1. Concise description of the environment on site relative to the environment in the surrounding area.

As part of the South African National Roads Agency SOC Limited (SANRAL) rehabilitation of the N1 Section 14 (N1S14), located within the Kopanong Local Municipality between the Trompsburg interchange and Fonteintjie, Two additional Borrow Pits have been identified on the northern outskirts of Trompsburg. The proposed activities for the rehabilitation of the N1S14 require approximately an additional 500,000 cubic metres of material (in addition to the material available from the three approved Borrow Pits - Reference numbers (FS 30/5/1/1/2 (00010) BP) and (FS 30/5/1/1/2 (00014) BP).

This application is for Borrow Pit A, (BP A), situated to the East of the R717, about 2 km north of Trompsburg, on Kopanong Local Municipality Property. A separate application has been submitted for the second additional Borrow Pit, BP B.

(Refer to Appendix A1 - Locality Plan)

(Refer to Appendix A2 - Property Details)

(Refer to Appendix A3 - Locality Plan of associated borrow pits).

BP A covers 4.7 hectares and is part of an existing borrow pit, currently in use by the Kopanong Local Municipality. BP A is to be extended to the North and West of the existing mined area

Refer to Appendix B3 - Mining Plan Layout - BP A).

The land use in the area is a mix of commercial agriculture and infrastructure associated with the N1 road, the railway line running parallel to the road, and the towns of Trompsburg and Edenburg.

The proposed site consists of open veld as well as an existing mining area with material being mined by the local municipality for use in infrastructure developments in the area.

The area in which the proposed borrow pit is to be located can generally be described as flat, dotted with small koppies and steeper slopes located at rocky outcrops. Drainage of the region is mainly in an east-west direction.

(Refer to Appendix A4 - Description of the Environment)

Sedimentary bedrock in the area is made up of alternating layers of Late Permian sandstone, siltstone and mudstone of the Adelaide Subgroup (Pa, Beaufort Group, Karoo Supergroup).

The study area hydrology is characterised by the upper catchment areas of the Nama Karoo Eco-region that drains into the Orange River. Flows within the study area sites are limited to periods with high rainfall. The Van Zylspruit River, a dominant river in the landscape, is followed by the Twee Zusters River, north of Trompsburg in terms of size and complexity. BP A is not situated close to these rivers and is in excess of 100 m from other streams and rivers, it is therefore not expected to have a major impact on this system.

Specialist heritage input was obtained from Frans Prins of Active Heritage whereby no visible cultural or archaeological sites were identified within the proposed sites for the borrow pit , and no heritage resources that are protected by the National Heritage Resources Act (Act No. 25 of 1999) are known to occur on site.

(Refer to Appendix A5 - Archaeological Impact Assessment Report).

As per the requirements of SAHRA a Palaeontological Impact Assessment was carried out for this project by Lloyd Rossouw. According to the specialist, BP A is located on intrusive dolerite bedrock. Dolerite does not contain fossils and is not considered palaeontologically significant, except where contact metamorphic zones adjacent to dolerite intrusions may be affected. Potential for palaeontological impact at BP A, on the whole, is considered to be very low.

(Refer to Appendix A6 - Palaeontological Impact Assessment Report).

- 1.2. Concise description of each of the existing environmental aspects both on the site applied for and in the surrounding area which may require protection or remediation.

No features were identified at the Borrow Pit site that requires protection, remediation, management or avoidance.

- 1.3. Concise description of the specific land uses, cultural and heritage aspects and infrastructure on the site and neighbouring properties/farms in respect of which the potential exists for the socio-economic conditions of other parties to be affected by the proposed mining operation.

The N1 is one of the most important routes in the country and is used by a high number of heavy vehicles. It is the main route between Gauteng (Johannesburg) and the Western Cape (Cape Town), as well as to the Eastern Cape (Port Elizabeth).

According to the Kopanong Annual Report (Kopanong, 2012) the road network in the region needs to be maintained. The road condition is deteriorating rapidly and very little maintenance is done due to lack of funding. It is important to maintain and upgrade main routes in order to continue the flow of traffic through the area. Failure to rehabilitate the road before it becomes a major problem would therefore result in significant adverse effects to the National Economy as well as to the safety of all those that use the road.

- 1.4. Annotated map showing the spatial locality and aerial extent of all environmental, cultural/heritage, infrastructure and land use features identified on site and on the neighbouring properties and farms.

No specific environmental, cultural/heritage or landuse features were identified; as such no additional map was drawn up.

(Refer to Appendix A1 - Locality Map; which shows the position of BP A in relation to the N1).

Appendix A3 - Locality Map of associated borrow pits shows the position of BP A in relation to the other proposed additional borrow pit (BP B) and the three borrow pits that have already been authorised.

(Refer to Appendix A3 - Locality Map of associated borrow pits).

- 1.5. Confirmation that supporting documents in the form of specialist studies are attached as appendices.

(Refer to Appendix A5 - Archaeological Impact Assessment Report).

(Refer to Appendix A6 - Palaeontological Impact Assessment Report).

2. The proposed mining operation.

- 2.1. The mineral to be mined.

The material in this borrow pit consists of weathered dolerite. The weathered dolerite material is suitable for use in the selected subbase layers (C4/C3) as well as for SSG and Fill layers (G5/G6).

- 2.2. The mining method to be employed at the level of opencast, underground, stoping, stooping, total extraction, bord and pillar, block caving, shrinking, dredging, pumping, monitoring, etc. and provide a concise description of the intended magnitude thereof, in terms of volumes, depth and aerial extent.

Opencast mining will be employed at the borrow pit to obtain the required materials.

(Refer to Appendix B1 - Description of the proposed mining operations)

An initial borrow pit investigation was conducted by means of a 22 ton excavator which showed that an estimated yield of 93,600 m³ of weathered dolerite could be expected.

A percussion drilling exercise was done to determine to what depth the weathered dolerite extends in order to increase the yield of this borrow pit. The results of the exercise showed that the yield could be increased to 190,000 m³ based on the weathered dolerite only. The weathered dolerite becomes denser at deeper levels – light blasting may be necessary.

The total area to be demarcated for mining activities is a maximum of 7.2 hectares. The ultimate depth of the proposed mining operations below ground level varies due to the excavations that have taken place at the site to date; the maximum depth is approximately 6 m below ground level with an average depth of 2.6 m. The borrow pit is estimated to yield a total of approximately 193,400 m³ of material.

(Refer to Appendix B3 - Mining Layout Plan BP A)

- 2.3. List of the main mining actions, activities, or processes, such as, but not limited to, access roads, shafts, pits, workshops and stores, processing plant, residue deposition sites, topsoil storage sites, stockpiles, waste dumps, access roads dams, and any other basic mine design features.

The main mining actions/activities or processes at the proposed borrow pit site is as follows:

- Borrow Pit**
- Stockpiles & Topsoil Storage sites**

(Refer to Appendix B2 - Mining Works Plan)

- 2.4. Plan showing the location and aerial extent of the aforesaid main mining actions, activities, or processes as required to calculate the financial provision in accordance with the Department's published guideline. (Reg. 51 (b) (v)).

The mining plan layout for the proposed borrow pit has been attached as appendix B3.

(Refer to Appendix B3 - Mining Plan Layout BP A)

- 2.5. Listed activities (in terms of the NEMA EIA regulations) which will be occurring within the proposed project.

The NEMA EIA regulation listings make provision for the construction of the road associated with the borrow pits and not the borrow pits themselves.

- 2.6. Indication of the phases (construction, operational, decommissioning) and estimated time frames in relation to the implementation of these actions, activities or processes and infrastructure.

Construction / Pre-mining Phase

During this phase the clearing of the vegetation (where required) will take place, as well as the stripping of the topsoil and overburden in order to expose the underlying material to be utilised. The topsoil will be cleared by means of a bulldozer and stockpiled adjacent to the active mining area, as indicated on the mining plan layout. Topsoil stockpiles will be positioned separately from the overburden stockpiles and will not be compacted. The stockpiles will be no more than 2 m in height and will be positioned so as to not cause damming of water run-off.

Before any activities commence, the mining operations area is to be demarcated and a standard stock fence is to be erected to prevent unlawful entry to the mining area as well as for safety reasons. Access to the proposed mining area must be controlled and the gate must remain locked.

To ensure road safety 'heavy vehicle' signs must be erected at the access points to the mining areas as per the provisions of the Road Traffic Act. Traffic safety measures will be implemented at the exit points of the Borrow Pit.

Operational / Mining Phase

During this phase the material required for construction will be mined (as per the mining plan layout) and transported to the relevant point of use. The material required will be mined/ excavated by a track excavator; however, due to the denseness of the dolerite deposits investigated, below certain depths, light blasting and processing of these materials will be required. Temporary batter boards will be erected as required as mining proceeds to indicate the sideways and downward limits of mining. Road construction material mined from the borrow pit will be collected by trucks and transported to the point of use. The average depth of the borrow pit will be approximately 3m below ground level and the final dimensions of the borrow pit will be approximately 340m x 225m.

The construction and operation phases are to take place within a two year period.

Decommissioning / Closure Phase

During this phase all equipment and temporarily erected structures will be removed from the site. Suitable earthmoving machinery will be utilised to profile the sides of the borrow pit to an 18° slope as per specification in the mining layout plan, as well as to slope the floor of the borrow pit so that the borrow pit area will be free draining. All remaining dumps, piles and slopes are to be sufficiently shaped so as to blend in with the surrounding landscape (as feasibly as possible). Spoil material will be used to profile the borrow pit areas and assist in the rehabilitation process. All materials from the remaining dumps are

to be used for rehabilitation in order to avoid dumps and piles after closure.

Once the landscaping process is completed, topsoil will be returned (where available) and spread over the mined areas and re-vegetated. All compacted areas and temporary access roads are to be ripped/scarified to facilitate re-vegetation. All the re-vegetated areas are to be maintained and monitored up until such time as all of the disturbed areas initiate succession and create a sustainable cover, as per the the rehabilitation plan.

Other structures, such as fences and stormwater control measures that may have been implemented must be removed before the closure of the mining area can be granted by the DMR, and on consultation with the landowner.

If mining is to be terminated, either temporarily or permanently, the DMR must be notified 14 days prior to cessation of mining. When the holder of the mining permit intends closing down the mining operations, an environmental risk report shall accompany the application for closure.

After all operations and rehabilitation has taken place on site, a closure certificate will be issued. This phase is anticipated to take place within a period of one year.

2.7. Confirmation if any other relevant information is attached as appendices.

Appendix B1 - Description of the proposed mining operations

Appendix B2 - Mining Works Plan

Appendix B3 - Mining Layout Plan BP A

3. The potential impacts

3.1. List of the potential impacts, on environmental aspects separately in respect of **each** of the aforesaid main mining actions, activities, processes, and activities listed in the NEMA EIA regulations.(include all the items to be included in the list referred to in the concomitant section of the guideline posted on the official website of the Department)

The identification of potential impacts is based on:

- The legal requirements;
- The nature of the proposed activity; and
- The nature of the receiving environment.

After consideration of these aspects, the following potential impacts were identified and have been addressed by SRK in consultation with the project team consultants, engineers and specialists (where applicable).

- Visual impacts (Impacts V1 and V2);
- Ecology impacts (Impacts E1, E2, and E3)

- Air quality impacts (impacts A1 and A2);**
- Noise impacts (Impact N1);**
- Storm water and erosion impacts (impacts SW1 and SW2);**
- Waste management impacts (Impact W1);**
- Safety Impacts (Impacts S1, S2 and S3); and**
- Heritage Impacts (Impacts H1 and H2).**

(Refer to Section 1 of Appendix C1 - Identification of Potential Impacts)

- 3.2. List of all potential cumulative environmental impacts.

The cumulative impacts associated with the proposed project are as follows:

- Traffic impacts**

(Refer to Section 2 of Appendix C1 - Identification of Potential Impacts)

- 3.3. State specifically whether or not there is a risk of acid mine drainage or potential groundwater contamination associated with the mineral to be mined. (If such a risk is associated with the mineral to be mined provide a summary of the findings and recommendations of a specialist geo-hydrological report in that regard).

There is no risk of acid mine drainage or potential groundwater contamination associated with the mineral to be mined.

REGULATION 50 (b)

4. The alternative land use or developments that may be affected.

- 4.1. Concise description of the alternative land use of the area in which the mine is proposed to operate.

The land use in the area where the proposed borrow pit is to be located consist of an existing borrow pit as well as open veld used for grazing.

No other alternative land use or development has been identified for the area.

- 4.2. List and description of all the main features and infrastructure related to the alternative land uses or developments.

N/A

- 4.3. Plan showing the location and aerial extent of the aforesaid main features of the alternative land use and infrastructure related to alternative land developments identified during scoping.

N/A

5. The potential impacts of the alternative land use or development

- 5.1. List of the potential impacts **of each** of the aforesaid main features and infrastructure related to the alternative land use or development and related listed activities.

N/A

- 5.2. Description of all potential cumulative impacts of the main features and infrastructure related to the identified alternative land uses or developments.

N/A

REGULATION 50 (c)

6. Identification of potential social and cultural impacts.

- 6.1. List of potential impacts of the proposed mining operation on the socio-economic conditions of other parties' land use activities. .(include all the items to be included in the list referred to in the concomitant section of the guideline posted on the official website of the Department)

The following potential impacts were identified:

- Land Capability Impacts (Impact LC1):**
- Socio-Economic Impacts (Impact SE1 and SE2):**

(Refer to Section 3 of Appendix C1 - Identification of Potential Impacts)

- 6.2. Description of the cultural aspect that will potentially be affected, and describe the potential impact on such cultural aspect. .(In cases where such features are not applicable the applicant must still include the item in the list and describe it as not applicable).

Cultural Impacts - Not Applicable

- 6.3. Description of heritage features and the potential impact on such heritage feature. . (In cases where such features are not applicable the applicant must still include the item in the list and describe it as not applicable).

Archaeological and Paleontological Impact Assessment studies have been conducted in order to investigate the potential environmental/ heritage impacts associated with the proposed activities. The specialist studies conclude the following:

Archaeology (Impact H1)

- The archaeological impact assessment concluded that it is highly unlikely that there will be any impacts on the heritage environment as a result of this activity as no archaeology artefacts could be identified on site (refer to Appendix A5 for specialist report).**

Palaeontology (Impact H2)

The palaeontological impact assessment concluded that the palaeontological impact at BP A, on the whole, is considered to be very low (refer to Appendix A6 for specialist report).

(Refer to Section 4 of Appendix C1 - Identification of Potential Impacts)

6.4. Quantification of the impact on the socio-economic conditions of directly affected persons, as determined by the findings and recommendations of a specialist report in that regard.

6.4.1. The amount of the quantified potential impact on property or infrastructural assets.

N/A

6.4.2. State the amount of the quantified potential impact on commercial, economic or business activity which will be impacted upon as a result of the mining activity.

N/A

6.4.3. The sum of the amounts, referred to in paragraphs 6.6.1 and 6.6.2 above.

N/A

7. Assessment and evaluation of potential impacts.

7.1. List of each potential impact identified in paragraphs 3 and 6 above. (Include all the items to be included in the list referred to in the concomitant section of the guideline posted on the official website of the Department)

- Visual impacts (Impacts V1 and V2);**
- Ecology impacts (Impacts E1, E2, and E3)**
- Air quality impacts (impacts A1 and A2);**
- Noise impacts (Impact N1);**
- Storm water and erosion impacts (impacts SW1 and SW2);**
- Waste management impacts (Impact W1); and**
- Safety Impacts (Impacts S1, S2 and S3)**
- Heritage (Impact H1 and H2)**
- Land Capability Impacts (Impact LC1)**
- Socio-Economic (Impact SE1 and SE2)**
- Cumulative (Impact C1)**

7.2. Concomitant impact rating for each potential impact listed in paragraph 7.1 above in terms of its nature, extent, duration, probability and significance. (Provide a definition of the criteria used for each of the variables used for rating potential impacts and ensure that the potential impacts are rated specifically with the assumption that no mitigation measures are applied).

(Refer to Appendix C2 - Criteria for Assigning Significance; for a full description of these criteria).

(Refer to Appendix C3 - Significance of Potential Impacts; for a summary of the potential impacts of the proposed borrow pit and associated significance of the identified impacts).

- 7.3. Indication of the phases (construction, operational, decommissioning) and estimated time frames in relation to the potential impacts rated.

See paragraph 2.6 above

REGULATION 50 (d)

8. Identification of the alternative land uses which will be impacted upon. (Include all the items to be included in the list referred to in the concomitant section of the guideline posted on the official website of the Department)

A relatively small portion of agricultural grazing land will be temporarily lost due to the borrow pit and associated activities. However; this impact is not of a permanent nature and agricultural activities will be able to resume after rehabilitation and closure of the borrow pit. Additionally, the local municipality utilises the area for obtaining material for development in the area, the material utilised for the construction of the N1S14 will result in this material not being available for use by the municipality.

9. Listed results of a specialist comparative land use assessment. (Refer to the concomitant section of the guideline posted on the official website of the Department and attach the specialist study as an appendix)

N/A

REGULATION 50 (e)

10. List of all the significant impacts as identified in the assessment conducted in terms of Regulation 50 (c) (Include all the items to be included in the list referred to in the concomitant section of the guideline posted on the official website of the Department)

- Visual impacts (Impacts V1 and V2);**
- Ecology impacts (Impacts E1 and E2)**
- Air quality impacts (impacts A1 and A2);**
- Noise impacts (Impact N1);**
- Storm water and erosion impacts (impacts SW1 and SW2);**
- Safety Impacts (Impact S3)**
- Heritage (Impact H2)**
- Palaeontology (Impact H2)**
- Socio-Economic (Impact SE1 and SE2)**
- Cumulative (Impact C1)**

(Refer to Appendix C3 - Significance of Potential Impacts)

REGULATION 50 (f)

11. Identification of interested and affected parties. (Including the community, and list as identified according to the scoping report guideline and identified in the scoping report)

(Refer to Appendix D1 - Public Participation Process; for details on the the identification and list of registered Interested and Affected Parties (IAPs)).

12. The details of the engagement process. (Including the community, and list as identified according to the scoping report guideline and identified in the scoping report and any further consultation since the compilation of the scoping report)

The public participation process commenced on 15 June 2012, when Background Information Documents (BIDs) were distributed to identified Interested and Affected Parties (IAPs). An advertisement was placed in 'Die Volksblad' newspaper on 15 June 2012. An onsite poster was placed on site on 15 June 2012.

These informed the public of the details of the project and the Basic Assessment process to be undertaken by the proponent. The BID invited the public to register as IAP's and a 30-day comment period followed wherein IAPs could submit comments and raise issues and concerns around the development. The Executive Summary of the DBAR was sent to the registered IAPs for the project. The complete Draft Basic Assessment Report was made available for public viewing at the Trompsburg Public Library.

Subsequently, upon request by the Department of Mineral Resources, an advertisement was published in 'Die Volksblad' newspaper on 21 July 2014, notifying the public of the proposed activity. No communication was received in response to the advertisement.

A copy of the advertisement, as well as notification of the availability of the draft EMPr was sent to all registered and identified IAPs on 21 July 2014. IAPs were advised of the opportunity to comment on the content of the draft EMPR during the 30 day comment period, which expired on 21 August 2014. No comments regarding the draft EMPr was received.

(Refer to the following appendices:

- Appendix D1 - Public Participation Process**
- Appendix D2 - Background Information Document_Jun2012**
- Appendix D3 - Die Volksblad Advert Tearsheets_Jun2012 & July2014**
- Appendix D4 - Photos showing onsite poster**
- Appendix D5 - DBAR Executive Summary_Jul2012**
- Appendix D6 - Comment on DBAR_DWA_31Aug2012**
- Appendix D7 - Comment on DBAR_DAFF_24Apr2013**
- Appendix D8 - FBAR Executive Summary_Aug2013**
- Appendix D9 - Correspondence notifying IAPs and Stakeholders)**

Landowner consultation was undertaken by MottMacDonald/PDNA

(Refer to Appendix E - Landowner Consent)

13. **Details regarding the manner in which the issues raised were addressed.** (Include all the items to be included in the list referred to in the concomitant section of the guideline posted on the official website of the Department)

All comments received from IAPs have been addressed in the Basic Assessment Report, associated Environmental Management Plan and the mining Environmental Management Programme (this report).

(Refer to Section 3 of Appendix D1 - Public Participation Process; for the comments and response table).

REGULATION 50 (g)

14. **The appropriate mitigatory measures for each significant impact of the proposed mining operation.**

- 14.1. Adequacy of predictive methods utilised.
The predictive measures utilised in the identification and assessment of the impacts and mitigatory measures are deemed adequate by the Environmental Assessment Practitioner.
- 14.2. Adequacy of underlying assumptions
The underlying assumptions are deemed to be adequate by the Environmental Assessment Practitioner as this is not a new activity, borrow pits have been being mined for years and the associated impacts and mitigation measures are well known.
- 14.3. Uncertainties in the information provided.
This is not a new activity, borrow pits have been being mined for years and the associated impacts and mitigation measures are well known.

REGULATION 50 (h)

15. **Arrangements for monitoring and management of environmental impacts.**

- 15.1. List of identified impacts which will require monitoring programmes.
- Visual impacts (Impacts V1 and V2);**
 - Ecology impacts (Impact E2 and E3);**
 - Air quality impacts (impacts A1 and A2);**
 - Noise impacts (Impact N1);**
 - Storm water and erosion impacts (impacts SW1 and SW2);**
 - Waste Impacts (W1);**
 - Safety Impacts (Impact S1, S2 and S3);**
 - Heritage Impacts (Impact H2); and**
 - Palaeontology (Impact H2)**

(Refer to Appendix C3 - Significance of Potential Impacts)

15.2. Functional requirements for the said monitoring programmes

(Refer to Appendix F1 - Impacts Requiring Monitoring Programmes)

15.3. Roles and responsibilities for the execution of the monitoring programmes.

The following roleplayers have been identified for the execution of the management programmes as described in this report:

- 1 - The Proponent;**
- 2 - Project Manager;**
- 3 - The Contractor; and**
- 4 - The Environmental Control Officer (ECO)**

(Refer to Appendix F2 - Responsibilities and duties; for a detailed description)

15.4. Time frames for monitoring and reporting.

The Contractor is to conduct visual inspections daily during the course of operations with the project manager conducting a visual inspection of each of the site on a weekly basis.

An Environmental Control Officer (ECO) must be appointed to audit the contractor to ensure compliance to the EMP. The borrow pit is to be inspected by the contractor and the ECO on a monthly basis to ensure compliance to the EMP and other relevant regulations, requirements and best practices.

The audits shall aim at addressing environmental issues identified on site and to provide recommendations through the audit reports.

The audit reports shall be provided to SANRAL, the Project Managers/Engineers, and the Department of Mineral Resources (DMR) and a copy of the audit report shall be available on site at all times.

(Refer to Appendix F3 - Timeframes for monitoring and reporting)

REGULATION 50 (i)

16. Technical and supporting information.

(Refer to Appendix G - Report on Results of Consultation)

(Include all the items to be included in the list referred to in the concomitant section of the guideline posted on the official website of the Department)

SECTION 2

ENVIRONMENTAL MANAGEMENT PROGRAMME

Regulation 51 (a)

1. Description of environmental objectives and specific goals for mine closure.

1.1. Environmental aspects that describe the pre-mining environment.

The proposed site consists of mixed grazing land and a large existing borrow pit area whereby the local municipality are obtaining material for municipal infrastructure development in the area.

The land use in the area is a mix of commercial agriculture and infrastructure associated with the N1 road, the railway line running parallel to the road, and the towns of Trompsburg and Edenburg.

(Refer to Appendix A4 - Description of the Environment)

1.2. Measures required to contain or remedy any causes of pollution or degradation or the migration of pollutants, both for closure of the mine and post-closure.

N/A

2. Description of environmental objectives and specific goals for the management of identified environmental impacts emanating from the proposed mining operation. (As informed by the information provided in the EIA in terms of Regulation 50 (h)).

2.1. List of identified impacts which will require monitoring programmes.

- Visual impacts (Impacts V1, V2 and V3);**
- Ecology impacts (Impact E2 and E3);**
- Air quality impacts (impacts A1 and A2);**
- Noise impacts (Impact N1);**
- Storm water and erosion impacts (impacts SW1 and SW2);**
- Waste Impacts (W1);**
- Safety Impacts (Impact S1, S2 and S3); and**
- Heritage Impacts (Impact H2).**

(Refer to Appendix C3 - Significance of Potential Impacts)

2.2. List of the source activities that are the cause of the impacts which require to be managed.

Mining of the borrow pits and associated activities

- Stripping of topsoil;**
- Stockpiling of topsoil;**
- Excavation of material; and**
- Transportation of material to required point of use.**

2.3. Management activities which, where applicable, will be conducted daily, weekly, monthly, quarterly, annually or periodically as the case may be in order to control any action, activity or process which causes pollution or environmental degradation.

The Contractor / Environmental Representative is to conduct visual inspections daily during the course of operations with the project manager conducting a visual inspection of the site on a weekly basis.

An Environmental Control Officer (ECO) must be appointed to audit the contractor to ensure compliance to the EMP.

The borrow pit will be inspected by the contractor and the ECO on a monthly basis to ensure compliance to the EMP and other relevant regulations, requirements and best practices.

The audits shall aim at addressing environmental issues identified on site and to provide recommendations through the audit reports.

The audit reports shall be provided to SANRAL, the Project Managers/Engineers, and the Department of Mineral Resources (DMR) and a copy of the audit report shall be available on site at all times.

(Refer to Appendix F3 - Timeframes for monitoring and reporting)

2.4. The roles and responsibilities for the execution of the monitoring and management programmes.

The following roleplayers have been identified for the execution of the monitoring and management programmes as described in this report:

- 1 - The Proponent;**
- 2 - Project Manager;**
- 3 - The Contractor; and**
- 4 - The Environmental Control Officer (ECO)**

(Refer to Appendix F2 - Responsibilities and duties, and Appendix F3 - Timeframes for monitoring and reporting)

3. **Description of environmental objectives and specific goals for the socio-economic conditions as identified in the social and labour plan.** (Include all the items to be included in the list referred to in the concomitant section of the guideline posted on the official website of the Department)

Labourers on Site

- a) **Labourers from the nearby local communities should be appointed where possible.**
- b) **The contractor will implement management commitments with respect to noise, dust, safety and blasting, and comply with the relevant occupational health and safety requirements. Furthermore the contractor shall ensure that their staff is trained regarding the Safety Health and Environmental (SHE) procedures to be followed on site, HIV/AIDS awareness and any other relevant health and safety issues.**
- c) **The contractor shall ensure that the standard safety measures as stipulated in the Mine, Health and Safety Act are complied with.**
- f) **All employees and contractors shall be briefed about appropriate road safety measures.**

Other Affected Parties

- a) **Any complaints, if they arise, are to be timeously dealt with. This will require the joint formulation of compliance contracts and grievance procedures and project-specific communication mechanisms (for example keeping of a complaints register).**

b) Inadvertent access to dangerous construction areas shall be prevented. Such areas will be strictly controlled using fencing, warning signs and access control.

Prevention of Social Disruptions

a) Wherever “outsiders” are accommodated in borrow pit sites, the Contractor shall implement strict access control measures with only authorised personnel allowed at the camp site;

b) A complaints register shall be maintained as a mechanism for local community members to raise complaints regarding social disruptions resulting from the influx of labourers to the area and ensure they are adequately addressed. Communities must be informed of the complaints register and how to lodge a complaint.

4. Description of environmental objectives and specific goals for historical and cultural aspects.

An Archaeological Impact Assessment (Appendix A5) and a Palaeontological Impact Assessment (Appendix A6) was conducted. Item 4.1 below details the requirements as per these assessments.

4.1. Environmental objectives and goals in respect of historical and cultural aspects identified in specialist studies conducted during the EIA phase.

Archaeological Sites

a) If any evidence of archaeological sites or remains (e.g., remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, marine shell and charcoal/ash concentrations), unmarked human burials or other categories of heritage resources are found during mining activities, SAHRA APM Unit (Mariagrazia Galimberti / Nonofho Ndobochani, 021 462 4502) must be alerted immediately, and an accredited professional archaeologist must be contacted 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 might be necessary.

b) If an artefact on site is uncovered, work in the immediate vicinity shall be stopped immediately.

c) The contractor shall take reasonable precautions to prevent any person from removing or damaging any such article and shall immediately upon discovery thereof inform the Engineer of such discovery.

d) Work may only resume once clearance is given in writing by the archaeologist.

Graves

If a grave is uncovered on site, or discovered before the commencement of work, then all work in the immediate vicinity of the gravesite shall be stopped and the Engineer informed of the discovery. The following will be adhered to in the event of the discovery of graves during mining activities and the management of identified grave sites:

a) Where it is possible the area where the grave is located should not be disturbed, particularly in instances where exhumation cannot be undertaken or is deemed not permissible by SAHRA.

b) Where it is necessary to exhume and re-bury graves the contractor will apply for the necessary permissions. This will include acquisition of permits from SAHRA, national and provincial health departments, community (and next of kin) consultation, and collaboration with a forensic archaeologist if new graves are located during construction or operation.

- c) **Site preparation will be delayed until permission for exhumation is granted.**
- d) **The mine will adhere to the requirements as laid out in the Human Tissues Act (No 65 of 1983) and the National Heritage Resources Act (No 25 of 1999).**
- e) **Due respect will be given to the customs and beliefs of the affected relatives, and where requested exhumations will be conducted in the presence of the relatives or community representatives.**
- f) **Exhumations under the Human Tissues Act will be conducted under the supervision of an undertaker or specialist.**
- g) **Exhumations conducted under the National Heritage Resources Act will be conducted under the supervision of an archaeologist.**
- h) **Notify SAHRA in the event that additional graves are located during excavation and obtain permits for relocation of graves.**

Paleontological Sites

- a) **Newly uncovered paleontological material found during the course of excavation activities (if any) must be reported to SAHRA, and inspected in situ by a specialist. Possible intact findings may require a Phase 2 rescue operation at the cost of the developer.**

Regulation 51 (b) – Outline of the implementation programme

- 5. **The appropriate technical and management options chosen for each environmental impact, socio-economic condition and historical and cultural aspect in each phase of the mining operation, as follows;**

- 5.1. **Actions, activities or processes, including any NEMA EIA Regulation listed activities, which cause pollution or environmental degradation. (Include all the items to be included in the list referred to in the concomitant section of the guideline posted on the official website of the Department)**

Mining of the borrow pits and associated activities

- Stripping of vegetaion and topsoil;**
- Stockpiling topsoil;**
- Excavation of material; and**
- Transportation of material to required point of use.**

- 5.2. **Concomitant list of appropriate technical or management options chosen to modify, remedy, control or stop any action, activity, or process which will cause significant impacts on the environment, socio-economic conditions and historical and cultural aspects as identified. (attach detail of each technical or management option as appendices)**

This section describes how the environmental aspects identified above should be managed and the potential impacts be mitigated in the event of mining authorisation being granted.

(Refer to Appendix H1 - Environmental Management Programme (Mitigation Measures); for a full description of the description of the management plan and associated mitigation measures)

6. Action plans to achieve the objectives and specific goals contemplated in Regulation 50 (a).

17. Time schedules of deadlines for each action to be undertaken to implement each technical or management option chosen. (Include all the items to be included in the list referred to in the concomitant section of the guideline posted on the official website of the Department)

The specific mitigation measures for the pre-mining and mining phases are included in Appendix H1, while the rehabilitation plan and measures for closure are included in Appendix H2.

(Refer to Appendix H1 - Environmental Management Programme (Mitigation Measures); and Appendix H2 - Rehabilitation, Closure and Environmental Objectives)

7. Procedures for environmentally related emergencies and remediation

(An environmental emergency plan that includes all the items referred to in the concomitant section of the guideline posted on the official website of the Department)

All personnel on site are to be trained so that they understand their roles and responsibilities in achieving conformance with the environmental policy and procedures and with this EMP, including associated procedures and emergency preparedness and response requirements.

Any emergency or unforeseen impact is to be reported, as soon as possible, to the manager on site and the holder of the permit.

The role of the ECO is to advise the PM on remedial actions for the protection of the environment in the event of any accidents or emergencies during construction, and to advise on appropriate clean-up activities.

8. Planned monitoring and environmental management programme performance assessment.

- 8.1. Description of planned monitoring of the aspects of the environment which may be impacted upon. (Include all the items referred to in the concomitant section of the guideline posted on the official website of the Department)

The Contractor / Environmental Representative is to conduct visual inspections daily during the course of operations with the project manager conducting a visual inspection of each of the sites on a weekly basis.

An Environmental Control Officer (ECO) must be appointed to audit the contractor to ensure compliance to the EMP.

The borrow pit will be inspected by the contractor and the ECO on a monthly basis to ensure compliance to the EMP and other relevant regulations, requirements and best practices.

The audits shall aim at addressing environmental issues identified on site and to provide recommendations through the audit reports.

The audit reports shall be provided to SANRAL, the Project Managers/Engineers, and the Department of Mineral Resources (DMR) and a copy of the audit report shall be available on site at all times.

(Refer to Appendix F3 - Timeframes for monitoring and reporting)

- 8.2. Provide a description as to how the implementation of the action plans contemplated in regulation 51 (b) (ii) as described will be monitored as described in paragraph 6 of the EMP will be monitored.

As above

- 8.3. Frequency of proposed reporting for assessment purposes.

As above

9. Financial provision in relation to the execution of the environmental management programme:-

- 9.1. Plan showing the location and aerial extent of the aforesaid main mining actions, activities, or processes anticipated. (Include all the items referred to in the concomitant section of the guideline posted on the official website of the Department)

A Mining plan layout for the proposed borrow pit is attached as:

Appendix B3 - Mining Plan Layout BP A

- 9.2. Annual forecasted financial provision calculation (Refer to the concomitant section of the EIA and EMP guideline)

Financial provision is covered in the main construction project budget and is provided for as per the Memorandum of Understanding between DMR and SANRAL. Provision of approximately R1.2 million has been made available and is reserved for the rehabilitation of all relevant borrow pits and/or quarries upon completion of the works. The R1.2 million is apportioned per hectare with BPA amounting to approximately 7.1 Ha of a sum total of 30.2 Ha (Refer to Appendix K - Quantum of Financial Provision) (Refer to Appendix I - Letter of financial undertaking and MOU).

- 9.3. Confirmation of the amount that will be provided should the right be granted.

A letter of undertaking from SANRAL confirming the amount has been attached as Appendix I.

(Refer to Appendix I - Letter of financial undertaking)

- 9.4. The method of providing financial provision contemplated in Regulation 53.

(Refer to Appendix I - Letter of financial undertaking)

10. Environmental Awareness Plan (Section 39 (3) (c))

(Include all the items referred to in the concomitant section of the guideline posted on the official website of the Department)

Employee Communication Process

It is recommended that the contractor will inform employees of any environmental risks which may result from their work by compiling a risk assessment and discussing this at regular training sessions (including basic environmental awareness training at induction).

Description of Solutions to Risks

It is recommended that an Environmental Awareness Plan is to be compiled that describes how potential environmental pollution and degradation can be avoided by dealing with potential environmental risk. This Environmental Awareness Plan will be provided on site and discussed with the employees at regular training sessions (including basic environmental awareness training at induction).

Environmental Awareness Training

The ECO shall be responsible for compiling an Environmental Awareness Training Programme for all staff members that aims at explaining the mitigation measures described in this report. Before commencing with any work, all staff members shall attend the Environmental Awareness Training Programme. After attending the programme, all contractors and sub-contractors shall sign an Environmental Training register as proof of their training; which shall be kept as proof for auditing purposes. The environmental training should, as a minimum, include (but not be limited to) the following:

- a) The importance of conformance with all environmental policies;
- b) The environmental impacts, actual or potential, of the proposed activities;
- c) The environmental benefits of improved personal performance;
- d) Their roles and responsibilities in achieving conformance with the environmental policy and procedures and with this EMP, including associated procedures and emergency preparedness and response requirements;
- e) The potential consequences of departure from specified operating procedures; and
- f) The mitigation measures required to be implemented when carrying out their work activities.

(Refer to Appendix J - Environmental Awareness Programme)

11. Attachment of specialist reports, technical and supporting information.

(Provide a List)

Specialist Reports:

Appendix A5 - Archaeological Impact Assessment

Appendix A6 - Palaeontological Impact Assessment

Supporting Information:

Appendix C1 - Identification of Potential Impacts;

Appendix C2 - Criteria for Assigning Significance;

Appendix C3 - Significance of Potential Impacts;
Appendix E - Proof of landowners consent
Appendix F1 - Impacts requiring monitoring programmes;
Appendix F2 - Responsibilities and duties;
Appendix F3 - Timeframes for monitoring and reporting;
Appendix G - Report on Results of Consultation;
Appendix H1 - Environmental Management Plan - Mitigation measures;
Appendix H2 - Rehabilitation, Closure and Environmental Objectives;
Appendix I - Letter of Financial Undertaking;
Appendix J - Environmental Awareness Plan;
Appendix K - Quantum of financial provision
Appendix L: Environmental Liability.

12. SECTION 39 (4) (a) (iii), Capacity to manage and rehabilitate the environment

(Include all the items referred to in the concomitant section of the guideline posted on the official website of the Department)

(Refer to Appendix I - Letter of Financial Undertaking & Appendix L Environmental Liability)

13. UNDERTAKING

13.1. The Environmental Management Programme will, should it comply with the provisions of section 39 (4) (a) of the Act and the right be granted, be approved and become an obligation in terms of the right issued. As part of the proposed Environmental Management Programme, the applicant is required to provide an undertaking that it will be executed as approved and that the provisions of the Act and regulations thereto will be complied with.

Appendix L Environmental Liability)

14. IDENTIFICATION OF THE REPORT

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

Full Names and Surname	Logashri Sewnarain
Identity Number	7402280110082

-END-