SCOPING REPORT

FOR LISTED ACTIVITIES ASSOCIATED WITH MINING RIGHT AND/OR BULK SAMPLING ACTIVITIES INCLUDING TRENCHING IN CASES OF ALLUVIAL DIAMOND PROSPECTING.


NAME-OF-APPLICANT: Rietvlei Mining Company (Pty) Ltd
TEL NO: +27 11 638 3721
FAX NO: ******
POSTAL-ADDRESS: PO Box 62419, Benmore
PHYSICAL-ADDRESS: Vunani House Block C, Atholl Ridge Office Park, 151 Katherine Str, Sandton, 2196, South Africa
FILE-REFERENCE NUMBER: SAMRAD: MP30/5/1/22/1010SMR
IMPORTANT NOTICE

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

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

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

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

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

1) The objective of the scoping process is to, through a consultative process—

(a) identify the relevant policies and legislation relevant to the activity;
(b) motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
(c) identify and confirm the preferred activity and technology alternative through an impact and risk assessment and ranking process;
(d) identify and confirm the preferred site, through a detailed site selection process, which includes an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified alternatives focusing on the geographical, physical, biological, social, economic, and cultural aspects of the environment;
(e) identify the key issues to be addressed in the assessment phase;
(f) agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site; and
(g) identify suitable measures to avoid, manage, or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.
2). Contact Person and correspondence address

   a) Details of:
      i) The EAP who prepared the report

Name of the Practitioner: Anri Scheepers
Tel No.: 011 300 6089
Fax No.: 011 361 1381
E-mail address: Anri.Scheepers@wspgroup.co.za

   ii) Expertise of the EAP
      1) The qualifications of the EAP
         (With evidence attached as Appendix 1)

Anri graduated from the University of Johannesburg with a BA honours in Geography in 2007, and has eight years work experience. Anri is a senior environmental consultant and is in the process of acquiring her MSc in Environmental Management from the North West University, Potchefstroom.

Anri’s roles and responsibilities include the management of Basic Assessment Processes, Scoping and Environmental Impact Assessment Reporting Processes, Water Use Licence Application Processes and Waste Licencing Processes and the implementation of ISO 14000 and 9000 systems.

Professional Qualifications

- Current - MSc in Environmental Management from the North West University, Potchefstroom.
- 2009 - IEMA Approved Foundation Course in Environmental Auditing (South Africa).
- 2007 - B.A Geography Honours, University of Johannesburg.

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

The different projects that Anri has worked on are indicated in Table 1.

Table 1: Anri Scheepers’s Project Experience

<table>
<thead>
<tr>
<th>Sector</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stakeholder Engagement</td>
<td>2009, Stakeholder Engagement for Mooi-Mgeni Transfer Scheme Phase 2: Department of Water Affairs and Forestry (DWAF), Project No 14/2/V200/10/2</td>
</tr>
<tr>
<td></td>
<td>This project involved undertaking the public participation process for the Mooi-Mgeni Trasfer Scheme Phase 2, which will primarily encompass the construction of the proposed Spring Grove Dam and an associated transfer pipeline from the proposed dam to the Mpofana River.</td>
</tr>
<tr>
<td>Water Use Licence Applications</td>
<td>2008, Samancor Manganese (Pty) Ltd Metalloys Operations Water Use Licence Application</td>
</tr>
<tr>
<td></td>
<td>This project involved compiling and submitting water use licence applications for all water use licence activities being undertaken at Metalloys. Subsequently a water use licence amendment process was also undertaken.</td>
</tr>
<tr>
<td>Environmental Authorisation</td>
<td>2010, Hotazel Manganese - Mamatwan Mine: Proposed new Sinter Plant</td>
</tr>
<tr>
<td></td>
<td>This project included an environmental impact assessment, environmental</td>
</tr>
<tr>
<td>Sector</td>
<td>Project</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Processes</td>
<td>management programme report addendum and water use license application as well as the public participation process for a proposed sinter plant at the Mamatwan Mine in the Northern Cape.</td>
</tr>
</tbody>
</table>
|                         | **2011, Basic Assessment Process for the Proposed Expansion and Upgrading of the Raw Materials Stockyard at Samancor Manganese (Pty) Ltd Metalloys**  
|                         | The project included the undertaking of an environmental authorisation process, by way of a basic assessment process, and the amendment application of an atmospheric emissions licence. The project involved the expansion and upgrading of the existing Raw Materials Stockyard at the Samancor Meyerton Works (Metalloys site). |
|                         | **2012, Samancor Manganese (Pty) Ltd Metalloys M14 Furnace Environmental Authorisation**  
|                         | The project entailed undertaking an environmental authorisation, including an atmospheric emissions licence application process, in terms of the National Environmental Management Act (No. 107 of 1998) for the construction of an 81MVA furnace that will produce Ferromanganese and Silicomanganese. |
|                         | **2014, Environmental Authorisation for Blue Sphere Investments and Trading 103 (Pty) Ltd**  
|                         | This project includes an environmental impact assessment, environmental management programme report, water use license application, waste management license application and an atmospheric emissions licence application as well as the public participation process for the existing and proposed processes for Blue Sphere in Nigel. |
|                         | **2014, Environmental Authorisation for the Proposed Construction and Operation of Two Furnaces and Associated Infrastructure at Transalloys (Pty) Ltd**  
|                         | The project entailed undertaking an environmental authorisation (by way of a scoping and environmental impact reporting process), including an atmospheric emissions licence application and waste management licence application process for the construction of two new 75MVA submerged arc furnaces that will primarily produce silicomanganese. |
|                         | **2014, Much Asphalt (Pty) Ltd, Section 24G Rectification Process for the Storage of Dangerous Goods**  
|                         | Much Asphalt was required to undertake a Section 24G Rectification Process for the unlawful storage of dangerous goods on a number of their sites. Zaffar was involved in the compilation of the Section 24G application forms. |
| Environmental Management Programme Reports | **2014, Anglo Gold Ashanti Vaal River and West Wits Operations EMPR Updates**  
|                         | The alignment of the West Wits (WW) and Vaal River (VR) Operations Environmental Management Programme Reports (EMPR) in accordance with the requirements of the Mineral and Petroleum Resources Development Act (No. 28 of 2002) (MPRDA). |
|                         | The EMPR consolidation and alignment process combined the original EMPR and authorised EMPR amendments into a complete and comprehensive document, which will become the overarching EMPR for the mine lease area and will be used as a concise management tool for all employees operating within mine lease area. |

b) **Description of the property.**

<table>
<thead>
<tr>
<th>Farm Name:</th>
<th>Rietvlei 397 JS Portion 1, Rietvlei 397 JS Remaining Extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application area (Ha)</td>
<td>2225,3012</td>
</tr>
<tr>
<td>Magisterial district:</td>
<td>Middelburg</td>
</tr>
<tr>
<td>Distance and direction from nearest town</td>
<td>23 km northeast of the town of Middelburg</td>
</tr>
<tr>
<td>21 digit Surveyor General Code for each farm portion</td>
<td>TOJS000000000039700000 TOJS0000000039700001</td>
</tr>
</tbody>
</table>
Contact Details

Details of Proponent
The details of the applicant are shown in Table 2 below.

Table 2: Details of the Proponent

<table>
<thead>
<tr>
<th>Name of Proponent:</th>
<th>Rievlei Mining Company (Pty) Ltd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Person:</td>
<td>Mark Myatt</td>
</tr>
<tr>
<td>Postal Address:</td>
<td>PO Box 652419</td>
</tr>
<tr>
<td></td>
<td>Benmore</td>
</tr>
<tr>
<td></td>
<td>2010</td>
</tr>
<tr>
<td>Telephone:</td>
<td>+27 11 2639505</td>
</tr>
<tr>
<td>Fax:</td>
<td>+27 11 638 4608</td>
</tr>
<tr>
<td>E-mail:</td>
<td><a href="mailto:markm@butsananienergy.co.za">markm@butsananienergy.co.za</a></td>
</tr>
</tbody>
</table>

Details of Environmental Assessment Practitioner
The details of the Environmental Assessment Practitioner are shown in Table 3 below.

Table 3: Details of the Environmental Assessment Practitioner

<table>
<thead>
<tr>
<th>Name of Consultant:</th>
<th>WSP Environmental (Pty) Ltd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Person:</td>
<td>Anri Scheepers</td>
</tr>
<tr>
<td>Postal Address:</td>
<td>P O Box 98867</td>
</tr>
<tr>
<td></td>
<td>Sloane Park</td>
</tr>
<tr>
<td></td>
<td>2152</td>
</tr>
<tr>
<td>Telephone:</td>
<td>011 300 6089</td>
</tr>
<tr>
<td>Fax:</td>
<td>011 361 1381</td>
</tr>
<tr>
<td>E-mail:</td>
<td><a href="mailto:Anri.Scheepers@wspgroup.co.za">Anri.Scheepers@wspgroup.co.za</a></td>
</tr>
</tbody>
</table>

c) Locality map
(show nearest town, scale not smaller than 1:250 000 attached as Appendix 3).

d) Description of the scope of the proposed overall activity.
i) Listed and specified activities
Provide a plan drawn to a scale acceptable to the competent authority but not less than 1: 10 000 that shows the location, and area (hectares) of all the aforesaid main and listed activities, and infrastructure to be placed on site and attach as Appendix 4.
### NAME OF ACTIVITY
(All activities including activities not listed)
(E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport Water supply dams and boreholes, accommodation, offices, ablution, stores workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)

<table>
<thead>
<tr>
<th>Aerial extent of the Activity Ha or m²</th>
<th>LISTED ACTIVITY Mark with an X where applicable of affected</th>
<th>APPLICABLE LISTING NOTICE (GNR 983, GNR 984 OR GNR 985)/NOT LISTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal processing plant and associated infrastructure:</td>
<td>Plant area = 302.6ha</td>
<td>X</td>
</tr>
<tr>
<td>-Power supply</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>-Water Supply</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>-Pollution Control Dams</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>-Buildings, Offices and Change Houses</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>-Fuel Storage and Dispensing Area</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>-Coal Discard Stockpile</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>-Sewage Plant</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>-Water Treatment Facility</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Provincial Road D1433 Upgrade and Diversion</td>
<td>Approximately 14km</td>
<td>X</td>
</tr>
<tr>
<td>Plant Roads and Haul Roads</td>
<td>Various distances within the plant and pit areas = 1102.6ha</td>
<td>X</td>
</tr>
<tr>
<td>Open Cast Pit</td>
<td>Pit area = 800ha</td>
<td>X</td>
</tr>
</tbody>
</table>

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**ii) Description of the activities to be undertaken**

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

The Proposed Project is located approximately 50km northeast of the town of Emalahleni and 22km northeast of Middelburg in the Mpumalanga Province. It is linked to Middelburg by the R555. The
The proposed mining area lies within a farming area within the larger Witbank Coalfield and is bordered by private properties on all sides.

The mine boundary covers an area of 2 225.30ha; of this approximately 800ha will be mined. The proposed mining method is opencast operation utilising conventional truck and shovel mining methods. Mining will progress from box cuts in a northerly and southerly direction. The following facilities/activities are applicable to the Proposed Project:

- Coal processing plant;
- Power supply;
- Water supply;
- Road infrastructure (including haul roads and the Pan Siding road diversion);
- Offices and associated buildings (including a clinic);
- Warehouse and workshop (including a vehicle washing area);
- Overburden Stockpiles;
- Tailing and effluent dams;
- Sewage plant; and
- Storage and handling of hazardous waste.

The mining method will be a standard truck and shovel application where the topsoil is removed and stored. Thereafter; softs will be removed and stored at the designated material stockpiles. Drilling and blasting of the hard material will then take place. Following the blasting process of the hard material, this material will be dozed into the void after the coaling operation is concluded.

The remainder of the hard material will be loaded, trucked out of the pit and dumped over the high wall into the void created by the mining operation. Coaling will then commence and the process repeated on a strip-by-strip basis. Material (apart from the topsoil) will then be rolled over into the void created by the removal of the coal in the previous bench with discards forming the base, followed by hard and parting material, then softs, levelled and finally topsoil will be placed and seeded.

The construction phase should be completed within 18 months, whilst operational life will be 20 years producing an average of 2.5 million tonnes per annum (Mtpa) of run of mine (RoM) coal. Opencast strip mining will occur with concurrent rehabilitation. The decommissioning and closure phase should take an additional two years to complete.

The Rietvlei opencast operation will consist of one pit. The pit will be divided into northern and southern sections by a single box cut situated toward the centre of the opencast pit. The box cut has been designed to be 80m wide, which is double the width of a standard mining strip (Figure 1 to Figure 3). This will ensure sufficient volume for the adjacent second and subsequent strip of hard material volumes to fit into the void created.
Figure 1: Schematic Section through Box cut looking North (Mindset, 2013)

Figure 2: Schematic Section through Ramp Parallel to Box cut (Mindset, 2013)
The coal processing will be accomplished using dense medium separation (DMS) cyclone technology. The design of the DMS Section will be based on modular concepts for simplicity and ease of operation. The Sections are designed to provide sufficient capacity for 2.5Mtpa of ROM coal.

Run-off water collected from disturbed areas will be collected and stored in holding ponds located near the pits. The water will be routed to the holding area, utilising a series of diversion berms. Collected water will be used for the mining and treatment processes. All water generated by the mining activities will be stored in a high density polyethylene-lined pollution control dam and re-used in the beneficiation plant as well as for dust-control purposes on the haul roads. **Figure 4** shows the proposed surface water management infrastructure.

The only buildings to be constructed on the site is an office complex to accommodate the full-time mine personnel, with a floor space of 365 square metres ($m^2$), a plant office at the plant site and a separate guard room at the mine entrance.
Figure 4: Proposed Surface Water Management Infrastructure for the Plant Area (Indicated as blue lines)
### Policy and Legislative Context

<table>
<thead>
<tr>
<th>Appllicable Legislation and Guidelines Used to Complete the Report</th>
<th>Reference Where Applied</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Constitution of South Africa (No. 108 of 1996)</td>
<td>The Constitution cannot manage environmental resources as a stand-alone piece of legislation hence additional legislation has been promulgated in order to manage the various spheres of both the social and natural environment. Each promulgated Act and associated Regulations are designed to focus on various industries or components of the environment to ensure that the objectives of the Constitution are effectively implemented and upheld on an on-going basis throughout the country. In terms of Section 7, a positive obligation is placed on the State to give effect to the environmental rights.</td>
</tr>
</tbody>
</table>
| Minerals and Petroleum Resources Development Act (No. 28 of 2002) | In terms of Section 5 of the MPRDA no person may mine any area without:  
  - A mining right;  
  - An approved environmental management programme (EMPR); and  
  - Notifying and consulting with the landowner.  
Therefore, to ensure that mining within the study area is lawful the applicant must:  
  - Lodge a mining right application with the DMR in terms of Section 22 of the MPRDA; and  
  - Must simultaneously apply for environmental authorisation in terms of the NEMA. |
| National Environmental Management Act (No. 107 of 1998)        | In terms of Section 24(2) of the NEMA the Minister of the DEA may identify activities which may not commence without prior authorisation from the Minister or member of the Executive Committee (MEC) and may also identify geographical areas in which specified activities may not commence without prior authorisation from the Minister or MEC.  
The Minister of the DEA thus published GNR 983 (Listing Notice 1), 984 (Listing Notice 2) and 985 (Listing Notice 3) (4 December 2014) listing activities that may not commence prior to authorisation from the Minister or MEC. The regulations outlining the procedures required for authorisation are published in GNR 982 (EIA Regulations) (4 December 2014). Listing Notice 1 identifies activities that require a Basic Assessment (BA) process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 2 identifies activities that require an S&EIR process to be undertaken, in terms of the EIA Regulations. |
<table>
<thead>
<tr>
<th><strong>APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPLETE THE REPORT</strong> (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process);</th>
<th><strong>REFERENCE WHERE APPLIED</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulations, prior to commencement of that activity. Listing Notice 3 identifies activities within specific areas that require a BA process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. WSP undertook a detailed analysis of the listed activities contained in Listing Notice 1, 2 and 3 in order to ascertain which of the activities are relevant to the Proposed Project. The activities, potentially applicable to the Proposed Project are as follows:  ■ GNR 983: Activities 9, 10, 12xii, 14, 19, 24, 25, 28; and  ■ GNR 984: Activities 4, 6, 12x, iv, xii, 15, 16, 17, 19, 20, 21, 25, 28. The result of the analysis indicated that an S&amp;EIR process is required.</td>
<td>National Environmental Management Waste Act (No. 59 of 2008) Section 20 of the NEM:WA states that no person may commence, undertake or conduct a waste management activity except in accordance with a WML. A list of waste management activities that require a WML was published in GNR 921 (29 November 2013). GNR 921 states that a person who wishes to commence with a waste management activity must undertake the required basic assessment or Scoping and EIA process in accordance with GNR 982 stipulated under NEMA. WSP undertook a detailed analysis of the listed activities contained in GNR 921 in order to ascertain which of the activities are relevant to the Proposed Project. The activities potentially applicable to the Proposed Project are as follows:  ■ GNR 921 – Category B – Activity 7 and 11. The result of the analysis indicated that an S&amp;EIR process is required. GNR 926 of 2013 under the NEM:WA provides a set of national norms and standards for the storage of waste, which apply, to any person who stores general or hazardous waste in a waste storage facility. The purpose of these norms and standards is to:  ■ Provide a uniform national approach relating to the management of waste storage facilities;  ■ Ensure best practice in the management of waste storage facilities; and  ■ Provide minimum standards for the design and operation of new and existing waste storage facilities.</td>
</tr>
</tbody>
</table>
**APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPLETE THE REPORT** (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process);

**REFERENCE WHERE APPLIED**

<table>
<thead>
<tr>
<th>Reference Where Applied</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste Amendment Act (No. 26 of 2014)</td>
<td>Amendment Act (No. 26 of 2014) (NEM:WAA) was promulgated on 2 June 2014 with an effective date of 2 September 2014. In terms of the proposed project the most notable amendments were the change in the definition of waste and the inclusion of Schedule 3. Waste is now defined as follows: &quot;any substance, material or object, that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether or not such substance, material or object can be re-used, recycled or recovered and includes all wastes as defined in Schedule 3 to this Act&quot;</td>
</tr>
</tbody>
</table>

Schedule 3 provides a list of defined wastes categorised as either hazardous (Category A) wastes or general (Category B) wastes. An important inclusion in Category A is the inclusion of residue deposits and residue stockpiles as waste. Prior to the promulgation of NEM:WAA, residue deposits and stockpiles were dealt with under the MPRDA and not considered waste. Residue deposits and stockpiles include wastes resulting from exploration, mining, quarrying and physical and chemical treatment of minerals.

The fact that residue deposits and stockpiles are now considered wastes, compliance to the following is now required:

- Waste Classification and Management Regulations (GNR 634);
- National Norms and Standards for the Assessment of Waste for Landfill Disposal (GNR 635); and
- National Norms and Standards for Disposal of Waste to Landfill (GNR 636).

As part of the Proposed Project a coal discard stockpile is proposed. In terms of NEM:WAA the coal discard is now considered to be a waste. The following are important to note:

**Waste Classification:**

Residue deposits and stockpiles are defined under Schedule 3 of the NEMWAA. Based on our current understanding, the coal discard (mining residue) is recognised as hazardous under Schedule 3. Wastes either defined or listed do not require classification in terms of South African National Standard (SANS) 10234:2008 ‘Globally Harmonised System of Classification and Labelling of Chemicals (GHS)’ |
<table>
<thead>
<tr>
<th>APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPLETE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process);</th>
<th>REFERENCE WHERE APPLIED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Disposal Requirements:</strong></td>
<td>(SANS 10234).</td>
</tr>
<tr>
<td>Coal discard is categorised as hazardous waste, due to the fact that this is a greenfield site, there was no coal discard available for profiling to determine the disposal/containment requirements (with specific reference to the landfill design) in terms of GNR 635 and GNR 636. Therefore, the Proponent made the decision to complete the lining design to fulfil the Class C lining requirements.</td>
<td></td>
</tr>
<tr>
<td>National Environmental Management Air Quality Act (No. 39 of 2004)</td>
<td>The NEM:AQA requires the Minister of the DEA to publish a list of activities which results in atmospheric emissions which may have a detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage. Section 22 of NEM:AQA requires that an Atmospheric Emissions Licence (AEL) be obtained for such listed activities. In terms of GNR 893 (22 November 2013), category 5 (mineral processing, storage and handling), subcategory 5.1 (storage and handling of ore and coal) requires an AEL only in the event that these facilities are “not situated on the premises of a mine or works as defined in the Mines Health and Safety Act 29/1996”. This is therefore not applicable for the Proposed Project.</td>
</tr>
<tr>
<td>National Water Act (No. 36 of 1998)</td>
<td>Section 22(1) of the NWA states that a person may only use water if the water use is authorised by a licence under NWA or if the responsible authority has dispensed with a licence requirement if it is satisfied that the purpose the NWA will be met by the granting of a licence, permit or other authorisation under any other law. A person may only use water without a licence if the water use is permissible:</td>
</tr>
<tr>
<td>A water use licence (WUL) is required in terms of Section 41 of the NWA for activities listed in Section 21 of the said Act. The water uses potentially applicable to the Proposed Project include:</td>
<td></td>
</tr>
<tr>
<td>■ Under Schedule I of NWA;</td>
<td></td>
</tr>
<tr>
<td>■ As a continuation of an existing lawful use; and</td>
<td></td>
</tr>
<tr>
<td>■ In terms of a general authorisation issued under Section 39 of NWA.</td>
<td></td>
</tr>
<tr>
<td>A water use licence (WUL) is required in terms of Section 41 of the NWA for activities listed in Section 21 of the said Act. The water uses potentially applicable to the Proposed Project include:</td>
<td></td>
</tr>
<tr>
<td>■ Section 21(a): Taking of water from a water resource;</td>
<td></td>
</tr>
<tr>
<td>■ Section 21(c): Impeding or diverting the flow of water in a water course;</td>
<td></td>
</tr>
<tr>
<td>■ Section 21(g): Disposing of water in a manner which</td>
<td></td>
</tr>
</tbody>
</table>
**APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPLETE THE REPORT** (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process);

<table>
<thead>
<tr>
<th>REFERENCE WHERE APPLIED</th>
</tr>
</thead>
<tbody>
<tr>
<td>may detrimentally impact on a water resource;</td>
</tr>
<tr>
<td>■ Section 21(i): Altering the bed, bank, course or characteristics of a watercourse; and</td>
</tr>
<tr>
<td>■ Section 21(j): Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people.</td>
</tr>
<tr>
<td>GNR 704 (4 June 1999) under the NWA provides regulations on the use of water for mining and related activities aimed at the protection of water resources (requirements for clean and dirty water separation). GNR 704 requires <em>inter alia</em> the following:</td>
</tr>
<tr>
<td>■ Separation of clean (unpolluted) water from dirty water;</td>
</tr>
<tr>
<td>■ Collection and confinement of the water arising within any dirty area into a dirty water system;</td>
</tr>
<tr>
<td>■ Design, construction, maintenance and operation of the clean water and dirty water management systems so that it is not likely for either system to spill into the other more than 1:50 years;</td>
</tr>
<tr>
<td>■ Design, construction, maintenance and operation of any dam that forms part of a dirty water system to have a minimum freeboard of 0.8m above full supply level, unless otherwise specified in terms of Chapter 12 of the NWA; and</td>
</tr>
<tr>
<td>■ Design, construction, and maintenance of all water systems in such a manner as to guarantee the serviceability of such conveyances for flows up to and including those arising as a result of the maximum flood with an average period of recurrence of 1:50 years.</td>
</tr>
<tr>
<td>GNR 704 also stipulates that no person in control of a mine or activity may-</td>
</tr>
<tr>
<td>■ Locate or place any residue deposit, dam, reservoir, together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100m from any watercourse or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked;</td>
</tr>
<tr>
<td>■ Place or dispose of any residue or substance which</td>
</tr>
<tr>
<td>APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPLETE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process);</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>causes or is likely to cause pollution of a water resource, in the workings of any underground or opencast mine excavation, prospecting diggings, pit or any other excavation; and</td>
</tr>
<tr>
<td>■ Use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any watercourse or estuary.</td>
</tr>
<tr>
<td>National Environmental Management Biodiversity Act (No. 10 of 2004)</td>
</tr>
<tr>
<td>National Environmental Management Protected Areas Act (No. 57 of 2003)</td>
</tr>
</tbody>
</table>
### APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPLETE THE REPORT
(a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process);

<table>
<thead>
<tr>
<th>Reference Where Applied</th>
</tr>
</thead>
<tbody>
<tr>
<td>prospecting or mining activities in a:</td>
</tr>
<tr>
<td>■ Special nature reserve or nature reserve;</td>
</tr>
<tr>
<td>■ Protected environment without the written permission of the Minister and the Cabinet member responsible for minerals and energy affairs; and</td>
</tr>
<tr>
<td>■ Protected area referred to in Section 9:</td>
</tr>
<tr>
<td>‣ (b) World heritage sites; or</td>
</tr>
<tr>
<td>‣ (d) Specially protected forest areas, forest nature reserves and forest wilderness areas declared in terms of the National Forests Act (No. 84 of 1998).</td>
</tr>
</tbody>
</table>

No protected areas were identified within the vicinity of the site.

### National Heritage Resources Act (No. 25 of 1999)

Section 34 and 38 of the NHRA detail specific activities that require an approved heritage impact assessment by the SAHRA. The heritage activities identified as potentially applicable for the Proposed Project are as follows:

- 1(a) - The construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- 1(c) - Any development or other activity which will change the character of a site:
  - Exceeding 5 000m² in extent; or
  - Involving three or more existing erven or subdivisions.
- 1(d) - The re-zoning of a site exceeding 10 000m² in extent;
- 2 - Any development of the site where “development” means any physical intervention, excavation, or actions, other than those caused by natural forces, which results in a change to the nature, appearance or physical nature of a place, or influences its stability and future well-being, including:
  - Construction, alteration, demolition, removal or change of use of a place or a structure at a place; or
  - Carrying out any works on or over or under a place; or
  - Any change to the natural or existing condition or topography of land; or
  - Any removal or destruction of trees, or removal of

<table>
<thead>
<tr>
<th>Reference Where Applied</th>
</tr>
</thead>
<tbody>
<tr>
<td>prospecting or mining activities in a:</td>
</tr>
<tr>
<td>■ Special nature reserve or nature reserve;</td>
</tr>
<tr>
<td>■ Protected environment without the written permission of the Minister and the Cabinet member responsible for minerals and energy affairs; and</td>
</tr>
<tr>
<td>■ Protected area referred to in Section 9:</td>
</tr>
<tr>
<td>‣ (b) World heritage sites; or</td>
</tr>
<tr>
<td>‣ (d) Specially protected forest areas, forest nature reserves and forest wilderness areas declared in terms of the National Forests Act (No. 84 of 1998).</td>
</tr>
</tbody>
</table>

No protected areas were identified within the vicinity of the site.
<table>
<thead>
<tr>
<th>APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPLETE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process);</th>
<th>REFERENCE WHERE APPLIED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>vegetation or topsoil. Section 48(2) requires a permit from the SAHRA to perform such actions at such time and subject to such terms, conditions and restrictions or directions as may be specified in the permit.</td>
</tr>
<tr>
<td>Conservation of Agricultural Resources Act (No. 43 of 1983)</td>
<td>In terms of the amendments to the regulations under the CARA, landowners are legally responsible for the control of alien species on their properties. Various Acts administered by the DEA and DWA, as well as other laws (including local by-laws), spell out the fines, terms of imprisonment and other penalties for contravening the law. Although no fines have yet been placed against landowners who do not remove invasive species, the authorities may clear their land of invasive alien plants and other alien species entirely at the landowners cost and risk. Specific management measures for the conservation of agricultural resources have been included in the project and the areas disturbed from mining activities will be rehabilitated to a predefined land use.</td>
</tr>
<tr>
<td>National Forest Act (No. 84 of 1998)</td>
<td>The specialist consultant, Scientific Aquatic Services (SAS), was responsible for assessing the study area and identifying any protected tree species. No protected trees were identified within the boundaries of the Proposed Project site.</td>
</tr>
<tr>
<td>Fencing Act (No. 31 of 1963)</td>
<td>Section 17 requires that any person erecting a boundary fence may clean any bush along the line of the fence up to 1.5 metres on each side thereof and remove any tree standing in the immediate line of the fence. However, this provision must be read in conjunction with the environmental legal provisions relevant to the protection of flora.</td>
</tr>
<tr>
<td>Hazardous Substances Act (No. 15 of 1979)</td>
<td>Dangerous substances contained on-site during the construction phase of the Proposed Project will need to be managed in accordance with the Act and material safety data sheets (MSDS) will need to accompany all dangerous goods (hydrocarbon fuels, cleaning chemicals, paints, etc.).</td>
</tr>
</tbody>
</table>

f) Need and desirability of the proposed activities.

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

The Broad Based Socio Economic Empowerment Charter for the South African Mining Industry, hereafter referred to as “the Mining Charter”, is a government instrument designed to effect
sustainable growth and meaningful transformation of the mining industry. The Mining Charter seeks to achieve the following objectives:

- To promote equitable access to the nation’s mineral resources to all the people of South Africa
- To substantially and meaningfully expand opportunities for Historically Disadvantaged South Africans (HDSA) to enter the mining and metals industry and to benefit from the exploitation of the nation’s mineral resources
- To utilise and expand the existing skills base for the empowerment of HDSA and to serve the community
- To promote employment and advance the social and economic welfare of mine communities and major labour sending areas
- To promote beneficiation of South Africa’s mineral commodities
- Promote sustainable development and growth of the mining industry

To this end, the Rietvlei Coal Mine project has been earmarked by Anglo American Operations (Pty) Limited as a project to be developed, operated, and owned by a Black Economic Empowerment (BEE) company. RMC has been identified as the BEE company and forms part of Anglo American Operations (Pty) Limited’s strategy to assist emerging Black-owned companies to develop mining projects.

Coal from the Rietvlei Coal Mine will be sold on to Eskom, and thus contribute to the reliable provision of electricity which is critical to energy security, industrial development and poverty alleviation initiatives in the country.

The mining activity will also realise several advantages for the community. The mining activity will provide an income generation for the area, as well as a cash injection into the country’s economy. The employment of local labour will decrease the unemployment rate in the area, as well as allow for the upliftment of these workers (through the implementation of the Social and Labour Plan (SLP)).

The implementation of the SLP will competent to the empowerment of both the workforce (through the SLP’s Human Resources Development Programme) and local community (through the SLP’s Local Economic Development Programme). It is estimated that for every one job created by direct employment, five are created by indirect employment.

g) **Period for which the environmental authorisation is required**

The construction phase should be completed within 18 months, whilst operational life will be approximately 20 years.

h) **Description of the process followed to reach the proposed preferred site.**

NB!! – This section is not about the impact assessment itself; It is about the determination of the specific site layout having taken into consideration (1) the comparison of the originally proposed site plan, the comparison of that plan with the plan of environmental features and current land uses, the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout as a result.
i) Details of all alternatives considered.

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

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

Alternatives Considered

Location Alternatives

Due to the fact that the location of the mining operation is determined by the viability of the coal reserve, there is no alternative location. Internal mine layouts have been optimised to take into account environmental constraints such as the pans and wetlands.

Linear Alternatives

A portion of the road between the Middelburg and Stoffberg road and the Afgri Pan Siding will be impacted by the proposed mining activities and will therefore be required to be diverted. The road in question, currently in a state of disrepair, joins the R555 (tar road from Middelburg to Stoffberg) to the Afgri Pan Siding and to the R104 (tar road from Middelburg to Wonderfontein). The road is currently used by local farmers and inhabitants of the area. The upgrade and diversion will take this into consideration. The local community will still have access to the road and the mine will need to ensure that all signage and road safety warnings are adequate to safeguard other road users about the danger of heavy vehicles on the road.

The road from the R555 to the mine entrance is in a serviceable condition and will be maintained as such. The upgrade is to ensure that coal can be transported from the plant to the siding economically and safely. Figure 5 indicates the proposed road diversion from Rietvlei to the siding.
Figure 5: The proposed road diversion from Rietvlei to the Pan siding

Design Alternatives

Mining method
Underground mining is not considered as a viable alternative, as the two target seams are simply too shallow (average depth of 40m) for underground mining. Moreover, an underground operation will be too capital extensive. Opencast mining is considered the preferred mining method and will be investigated in more detail during the EIR phase.

Discard disposal
The construction of discard disposal will increase the mine’s footprint, and pose a potential dust source. In order to prevent the ingress of pollutants into the groundwater, the tailings dam will need to be lined. The washing of the coal by a third party obviously negates the necessity of discard disposal on-site. However, due to the location of the reciprocal third party, the transport costs will add a significant cost to the project. The necessity of discard disposal will be investigated in more detail during the EIR phase.

Siding
There are two potential sidings available for use by the mine, however, the Arnot Siding is located further east of the much closer Afgri Siding. The costs associated with the Arnot Siding will add a significant cost to the project. The Afgri Siding is considered to be the preferred option and will be investigated in more detail during the EIR phase.

No-go Alternative
The ‘no-go’ option will be a scenario in which there will be no mining. The reserves will not be mined, and no income generation will be realised. The area will remain a predominantly agricultural area.

South Africa has a recent history of power outages, and as such requires coal for the generation of power. The Rietvlei project has been earmarked for such a supply and the ‘no-go’ scenario will result in such supply not being realised.

The establishment of the mining operation will result in a cash injection into secondary industries such as contractors, manufacturers and suppliers. These secondary industries will not benefit if there is no mining. In addition to this, the SLP will not be implemented. This will result in no investment within the local community, and as a result there will be a loss in the potential for community upliftment.

ii) Details of the Public Participation Process Followed
Describe the process undertaken to consult interested and affected parties including public meetings and one on one consulting. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings. (Information to be provided to affected parties must include sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land.
Public participation is understood to be a series of inclusive and culturally appropriate interactions aimed at providing stakeholders with opportunities to express their views, so that these can be considered and incorporated into the S&EIR decision-making process. Effective public participation requires the prior disclosure of relevant and adequate project information to enable stakeholders to understand the risks, impacts, and opportunities of the Proposed Project.

The objectives of the public participation process can be summarised as follows:

- Identify relevant individuals, organisations and communities who may be interested in or affected by the Proposed Project
Clearly outline the scope of the Proposed Project, including the scale and nature of the existing and proposed activities

Identify viable Proposed Project alternatives that will assist the relevant authorities in making an informed decision

Identify shortcomings and gaps in existing information

Identify key concerns, raised by Stakeholders that should be addressed in the subsequent specialist studies

Highlight the potential for environmental impacts, whether positive or negative

To inform and provide the public with information and an understanding of the Proposed Project, issues and solutions

The Roles and Responsibilities of the Stakeholder

Registered stakeholders have the right to bring to the attention of the competent authority any issues that they believe may be of significance to the consideration of the application. The rights of stakeholder are qualified by certain obligations, namely:

- Stakeholders must ensure that their comments are submitted within the timeframes that have been approved, or within any extension of a timeframe agreed by the Proponent, EAP or competent authorities
- Serve a copy of the comments submitted directly to the competent authorities, the Proponent or the EAP
- Disclose to the EAP any direct business, financial, personal or other interest that they might have in the approval or refusal of the application

Role of Stakeholders

The roles of stakeholders in a public participation process usually include one or more of the following:

- Assisting in the identification and prioritisation of issues that need to be investigated
- Making suggestions on alternatives and means of preventing, minimising and managing negative impacts and enhancing Proposed Project benefits
- Assisting in or commenting on the development of mutually acceptable criteria for the evaluation of decision options
- Contributing information on public needs, values and expectations
- Contributing local and traditional knowledge
- Verifying that their issues have been considered

Responsibility of Stakeholders

In order to participate effectively, stakeholders should:

- Become involved in the process as early as possible
- Register as a stakeholder
- Advise the EAP of other stakeholders who should be consulted
- Contribute towards the design of the public participation process (including timeframes) to ensure that it is acceptable to all stakeholders
- Follow the process once it has been accepted
■ Read the material provided and actively seek to understand the issues involved
■ Give timeous responses to correspondence
■ Be respectful and courteous towards other stakeholders
■ Refrain from making subjective, unfounded or ill-informed statements
■ Recognise that the process is confined to issues that are directly relevant to the application

**Approach to Public Participation**

Our approach to stakeholder engagement is based on the following principles:

■ Undertake meaningful and timely participation with stakeholders
■ Focus on important issues during the S&EIR process
■ Undertake due consideration of alternatives
■ Take accountability for information used
■ Encourage co-regulation, shared responsibility and a sense of ownership over the Proposed Project lifecycle
■ Apply "due process" particularly with regard to public participation as provided for in the EIA Regulations
■ Consider the needs, interests and values of stakeholders

**Methodology**

The following activities are undertaken as part of the Scoping phase and subsequent stakeholder engagement:

■ Stakeholder identification
■ Authority notification
■ Stakeholder notification
■ Stakeholder meetings
■ Compilation of an Issues Trail
■ Public review of the DSR
■ Public review of the FSR

**Stakeholder Identification**

The identification and registration of stakeholders is an ongoing activity during the course of the S&EIR Process. It should be noted however that only a registered stakeholder is entitled to comment, in writing, on all written submissions made to the competent authority by the applicant or the EAP managing an application, and to bring to the attention of the competent authority any issues which that party believes may be of significance to the consideration of the application, provided that comments are submitted within the timeframes that have been approved or set by the competent authority or any extension of a timeframe agreed to by the applicant or EAP.

Stakeholders were identified and will continue to be identified through several mechanisms. These include:

■ Utilising existing databases from other projects in the area
■ Networking with local business owners, non-governmental agencies, community based organisations, and local council representatives
- Field work in and around the project area
- Advertising in the press
- Placement of community notices
- Distribution of background information documents
- Discussions with local community and relevant ward councillors
- Completed comment sheets
- Attendance registers at meetings

All Stakeholders identified to date have been registered on the project stakeholder database. The EAP endeavoured to ensure that individuals/organisations from referrals and networking were notified of the Proposed Project. Stakeholders were identified at the horizontal (geographical) and vertical extent (organisations level). Refer to Appendix 5 for a list of stakeholders captured in the project database.

**Authority Notification**
WSP consulted with the Department of Mineral Resources on 4 May 2015 and 18 August 2015. The minutes of these meetings are included in Appendix 6.

WSP notified a number of other national, provisional and local authorities of the Proposed Project via a notification letter at the start of the public participation process. No comment has been received from these authorities to date however communication lines will remain in place for the duration of the Proposed Project should the authorities wish to comment on the Proposed Project and the EA processes undertaken.

**Stakeholder Notification**

**Newspaper Advertisements**
In accordance with the requirements of GNR 982, the Proposed Project was advertised in local newspapers. The purpose of the advertisement was to notify the public about the Proposed Project and to invite them to register as stakeholders (see Appendix 7). The relevant advertisement dates undertaken are listed in Table 2 below.

**Table 4: Date on which the Adverts were published**

<table>
<thead>
<tr>
<th>Newspaper</th>
<th>Publication Date</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Witbank News</td>
<td>7 February 2014</td>
<td>English</td>
</tr>
<tr>
<td>Middelburg Observer</td>
<td>7 February 2014</td>
<td>Afrikaans</td>
</tr>
</tbody>
</table>

**Site Notices**
The official site notices were erected as per GNR 982 on the proposed site.

**Table 5** provides the detail concerning these locations. Copies of the site notices are included in Appendix 8.
Table 5: Site Notice Locations

<table>
<thead>
<tr>
<th>Location</th>
<th>Co-ordinate</th>
<th>Photographs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S 25 39’ 00.3” E 29 39’ 55.6”</td>
<td><img src="image1" alt="Photographs" /></td>
</tr>
<tr>
<td></td>
<td>S 25 39’ 13.9” E 29 39’ 57.1”</td>
<td><img src="image2" alt="Photographs" /></td>
</tr>
<tr>
<td></td>
<td>S 25 41’ 43.1” E 29 40’ 02.1”</td>
<td><img src="image3" alt="Photographs" /></td>
</tr>
<tr>
<td></td>
<td>S 25 42’ 03.4” E 29 39’ 54.7”</td>
<td><img src="image4" alt="Photographs" /></td>
</tr>
</tbody>
</table>

In addition, general project notices, announcing the Proposed Project and inviting stakeholders to register, were placed at the following locations in and around the project area (Table 6).

Table 6: General Project Notice Locations

<table>
<thead>
<tr>
<th>Location</th>
<th>Photographs</th>
</tr>
</thead>
</table>
1.1.1.1 **Background Information Document**

The purpose of a background information document (BID) is to provide stakeholders with introductory information on the applications, the S&EIR process and the public participation process. The BID also provides stakeholders who are interested in the Proposed Project with the opportunity to register by way of completing the registration sheet distributed with the BID. Information on the registration sheet...
will be used to register stakeholders on a database so that they will receive all future project-related information and invitations to meetings. The registration sheet includes a Section for comments and issues, which allows stakeholders an opportunity to provide the EAP with written comments and feedback. A copy of the BID is contained in Appendix 9.

This mechanism of notification is suitable for most stakeholder groupings however, in order to ensure an encompassing notification, email, and fax notifications were sent to all registered stakeholders (Appendix 10) and copies of the BID were distributed at the following locations:

- Gerard Sekoto Library (Middelburg)
- Middelburg Chamber of Commerce
- Emalahleni Library

![Figure 6: Background Information Documentation left at the above-mentioned locations](image)

### 1.1.2 One-on-one stakeholder meetings

One-on-one stakeholder meetings will be held, as required, in order to present the Proposed Project to key stakeholders and to ask the stakeholder to raise concerns or queries. The one-on-one stakeholder meetings were facilitated at appropriate venues. WSP facilitated the meetings and was accompanied by the proponent where applicable.

### 1.1.3 Comment and Response Report

All concerns, comments, viewpoints and questions (collectively referred to as ‘issues’) have been documented and responded to adequately in a Comment and Response Report (Appendix 11). The Comment and Response Report records the following:

- List of all issues raised
- Record of who raised the issues
- Record of where the issues were raised
- Record of the date on which the issue was raised
- Response to the issues

### 1.1.4 Public Review of the Draft Scoping Report

The DSR will be placed on public review for a period of 30 days from 8 September 2015 to 9 October 2015, at the following venues:

- Gerard Sekoto Library (Middelburg)
- Middelburg Chamber of Commerce
- Emalahleni Library
All registered stakeholders and authorising/commenting state departments will be notified of the public review period as well as the locations of the DSRs via fax and email and post. The abovementioned plan, for notification and provision of reports, will also be utilised for the review of the EIR once the EIR phase has commenced.

### 1.1.4.1 Site Notices

In addition, general project notices, announcing the scoping report review period, were placed at the following locations in and around the project area:

- Gerard Sekoto Library (Middelburg)
- Middelburg Chamber of Commerce
- Emalahleni Library

### 1.1.4.2 Public Meetings

**Table 7** outlines the meetings that were held. The meetings outlined the details of the Proposed Project and provided opportunities for stakeholders to raise issues, concerns and queries. The meetings also established lines of communication between stakeholders and the project team. The meetings were facilitated by WSP’s EIA team and were attended by RMC representatives. Invitations to the meetings were sent out in the form of faxes, telephone calls, emails and site notices. The minutes to the meetings are included in Appendix 12.

**Table 7: Meetings held to date**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Venue</th>
<th>Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Thursday, 27 March 2014</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:00 – 12:00</td>
<td>(Authorities Meeting)</td>
<td>Middelburg Chamber of Commerce</td>
<td>Attended by a number of local and district authorities.</td>
</tr>
<tr>
<td>13:00 – 15:00</td>
<td>(Community Meeting)</td>
<td>On site</td>
<td>Postponed on request of the Landowner.</td>
</tr>
<tr>
<td>17:30 to 19:00</td>
<td>(Public Open Day)</td>
<td>Middelburg Chamber of Commerce</td>
<td>No attendance.</td>
</tr>
<tr>
<td>19:00 to 20:30</td>
<td>(Public Meeting)</td>
<td>On site</td>
<td>No attendance.</td>
</tr>
<tr>
<td><strong>Thursday, 24 April 2014</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:00 to 11:30</td>
<td>(Community Meeting)</td>
<td>On site</td>
<td>Postponed on request of the community representatives. Meeting to be re-scheduled after consultation with the Landowner and community representatives.</td>
</tr>
</tbody>
</table>

### 1.1.5 Final Scoping Report Submission

All issues raised during the Scoping phase of the Proposed Project will be incorporated into the FSR and will be addressed during the EIR phase. Once a decision has been reached, the stakeholders will be informed of the next phase of the public participation process.

### 1.1.6 Ongoing Consultation and Engagement

In addition to the public documents distributed to stakeholders, there will be ongoing communication between the proponent, WSP and stakeholders throughout the S&EIR process. These interactions include the following:
In addition to the project announcement letters, a letter will be sent out to all registered stakeholders providing them with an update of the Proposed Project once the FSR has been approved.

Interactions with stakeholders will take place in English and Afrikaans as required.

Feedback to stakeholders, individually and collectively.

Written responses (email, faxes or letters) will be provided to stakeholders acknowledging issues and providing information requested (dependent on availability).

As per the GNR 982, particular attention will be paid to landowners, and neighbouring communities, specifically where literacy levels and language barriers may be an issue.

The consultation with all stakeholders will continue into the EIR phase. Consultation will continue and will include:

- Distribution of all project information and findings to stakeholders
- Review of the draft EIR
- EIA feedback open days and public meetings
- Information in the media and press

**Analysis of Stakeholders**

**Breakdown of the Stakeholders**

Issues that were raised to date by stakeholders have been analysed within this section. **Table 8** provides a breakdown of stakeholders currently registered on the database where as **Figure 7** illustrates such.

**Table 8: Breakdown of Stakeholders Currently Registered on the Database**

<table>
<thead>
<tr>
<th>Representative sector</th>
<th>Further explanation</th>
<th>No. of stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government departments</td>
<td>All tiers of government, namely, national, provincial, and local government. Also inclusive of parastatal organisations such as Transnet, Eskom, SANRAL and Telkom</td>
<td>92</td>
</tr>
</tbody>
</table>
| Business and consultants | ■ Local and neighbouring businesses in the area.  
                              ■ Representatives of consulting organisations that provide services in the area | 35                  |
| Non-governmental organisations (NGOs) and community based organisations | Agricultural unions, churches, and environmental NGOs                             | 4                   |
| General public          | Local communities, farmers, and other such individuals who may have an interest in the project | 32                  |
Figure 7: Pie chart showing the Breakdown of the Stakeholders currently Registered on the Database

Key Issues and Concerns
The following key issues and concerns raised by stakeholders have been recorded in the Comment and Response Report (Appendix 11):

- Job creation
- The impact on water quality
- The cumulative impact of mining
- The impact on existing infrastructure
- The impact on agriculture
- The impact on safety and security
- The impact on air quality
- The impact on noise

iii) Summary of issues raided by I&APs
(Complete the table summarising comments and issues raided, and reaction to those responses)

All concerns, comments, viewpoints and questions (collectively referred to as ‘issues’) have been documented and responded to adequately in a Comment and Response Report (Appendix 11). The Comment and Response Report records the following:

- List of all issues raised
- Record of who raised the issues
- Record of where the issues were raised
- Record of the date on which the issue was raised
- Response to the issue
iv) The Environmental attributes associated with the sites

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

Geology¹

Regional Description

The mine is located in the Karoo Sequence (Vryheid Formation). The Vryheid Formation comprises mudrock, shales, rhythmite, siltstone and fine- to coarse-grained sandstone (pebbly in places). The Formation contains up to five (mineable) coal seams. The different lithofacies are mainly arranged in upward coarsening deltaic cycles. Since the shales are very dense, they are often overlooked as significant sources of groundwater. The permeability of these sandstones is also usually very low. The main reason for this is that the sandstones are usually poorly sorted, and that their primary porosities have been lowered considerably by diagenesis. These sedimentary formations have been extensively intruded by dolerite dykes.

The Karoo dolerite, which includes a wide range of petrological facies, consists of an interconnected network of dykes and sills and it is nearly impossible to single out any particular intrusive or tectonic event. Dolerite dykes are vertical to sub-vertical discontinuities that, in general, represent thin, linear zones of a lower permeability sandwiched between fracture zones. These fracture zones can have a relatively higher permeability and can therefore act as channels for groundwater flow within the aquifer. The dykes on the other hand may also act as semi- to impermeable barriers to the movement of groundwater. The dykes are commonly expressed on the surface as a line of green bushes, which can be readily observed during the dry season. The geology of the area is shown in Figure 8.

¹ The geology information was provided by Aqua Earth Consulting
Site Description
The geology forms part of the Ecca Group of the Karoo. Major lithologies are shale, shaly sandstone, grit, sandstone and conglomerate with coal in places near the base and top. Five coal seams are developed in the Karoo strata, four are of economic importance. The second seam from the bottom, on average 6m thick, is the most productive (Figure 8).

There are numerous fractures within the study area - these fractures can form conduits for groundwater flow. The depth of the coal seam is on average 40 metres above ground level (mbgl). Figure 8 depicts a typical borehole log of the area.
Figure 8: Regional Geology
Regional Description

The proposed Rietvlei opencast mining area is located in the Mpumalanga Highveld Region approximately 1 600m above sea level. Overall, the climate of this region is described as a summer rainfall area, where summers are mild to warm, whilst winters are cool to cold and dry. The area experiences an average of 8.3 hours of sunshine per day.

The mean annual temperature is approximately 20.5ºC (Figure 10). During the warm summer season of October to March, the average maximum temperature is 29.5ºC, while the average minimum temperature in winter is approximately 9.7ºC. Temperatures have been recorded to drop below 0ºC.

The area falls into the summer rainfall region, with the most rain occurring between October and March (Figure 11). The average monthly rainfall is 72mm.

---

2 The climate information was provided by Airshed Planning Professionals
Figure 10: Average monthly temperatures (data source: http://www.myweather2.com/City-Town/South Africa/Mpumalanga/climate-profile.aspx)

Figure 11: Average monthly rainfall (data source: http://www.myweather2.com/City-Town/South-Africa/Mpumalanga/climate-profile.aspx)
**Topography**

**Site Description**

The Rietvlei mining area ranges in elevation from approximately 1 170 metres above sea level (masl) (in the west along the drainage lines) to about 1 900masl in the east.

The topography is classed as moderately undulating plains and pans and the landscape is characterised by relatively little topographic variation. Small drainage lines meander through the landscape resulting in shallow incisions.

![Figure 12: Topographic map of the Rietvlei Colliery](image)

**Soil and Land Capability**

**Site Description**

The majority of the study area, 95.14% (614.69ha), consists of well-drained, red and yellow brown, loamy sand to sandy clay loam soils with arable land capability and high agricultural potential. A total of ten soil types, based on dominant soil form, effective soil depth, internal drainage, terrain unit and slope percentage, were identified during field observations and include:

- Hu - Hutton - Very deep, red, well-drained soils
- Gf - Griffin- Very deep, yellow brown to yellowish red, well-drained soils
- Cv1 - Clovely - Very deep, yellow brown, well-drained soils
- Cv2 - Clovely - Deep, yellow brown, well-drained soils

---

3 The soil and land capability information was provided by Rehab Green Environmental and Rehabilitation Monitoring Consultants
- Cv3 - Clovely - Moderately deep, yellow brown, well-drained soils
- Ct/Lo - Constantia - Greyish yellow to yellow brown, imperfectly drained soils
- Lo1 - Longlands - Grey, imperfectly to poorly drained, sandy soils
- Fw – Fernwood - Grey, poorly drained, sandy soils
- Fw-Exc - Fernwood - Disturbed, grey, imperfectly drained, sandy soils
- Kd-w - Kroonstad - Grey, saturated, sandy soils underlain by gleyed clay

The extent of the soil types is shown in Figure 13.

Figure 13: Detailed soil map of the proposed Rietvlei opencast mining area
**Land Use**

**Site Description**

The majority of the pre-mining land use, approximately 83.61% of the surveyed area within the updated proposed opencast footprint is utilized for forestry (Eucalyptus trees), 9.94% for cultivation (soybeans) and 6.45% are vacant spots where forestry or cultivation could not take place due to wetness (i.e. wetland areas). Some mining activity is evident along the railway line (to the east of the site), the R555 (to the west and north-east of the site) and the R104 (to the south-west of the site). The Vuna Colliery lies less than 2.5km east of the proposed site. This mining is predominantly opencast coal mining similar to that proposed for the site. Other industrial land uses within the study area include railway lines and power lines. **Figure 14** and **Figure 15** indicate the land uses and linear infrastructure on site respectively.

**Figure 14**: Locality map indicating the various land uses on site
Flora\textsuperscript{4}

Site Description

There are three habitat units identified in this region; wetlands, grasslands and transformed habitats, all of which have characteristics of historic disturbance. Exotic floral species were more abundant in the seasonal zones for the wetlands due to the adjacent plantations and agricultural activities. The permanent and seasonal wetland feature has seen some vegetation transformation.

Due to past and present human-driven disturbances, the grassland habitat unit is considered to be of low ecological importance. The grassland unit is affected and transformed by alien floral encroachment, especially the Eucalyptus (blue gum) species.

The areas outside the wetland and grassland habitat units have been transformed by either crop cultivation or timber plantation activities. As a result, the floral community structure has been altered to the extent that it is, in some cases, completely irreversible. This means there is a small likelihood of Red Data List (RDL) species occurring here. Thus, this habitat unit is not regarded as sensitive and does not provide an ecologically important function.

The vegetation is species-rich, wiry, sour grassland alternating with low sour shrubland on rocky outcrops and steeper slopes. The most common grasses on the plains belong to the genera \textit{Themeda, Eragrostis, Heteropogon} and \textit{Elionurus}. Another typical feature is the high diversity of herbs, many of which belong to the \textit{Asteraceae} family. Rocky hills and ridges carry sparse woodlands.

\textsuperscript{4} The flora information was provided by Scientific Aquatic Services
with *Protea caffra* subsp. *caffra*, *P. Welwitschii*, *Acacia caffra* and *Celtis africana*, accompanied by the rich suit of shrubs among which the genus Searsia is most prominent. Key indicator species of this vegetation type are outlined in Table 9.

### Table 9: Key Indicator Species of the Sour Grassland Vegetation Type

<table>
<thead>
<tr>
<th>Vegetation Group</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Succulent Herbs</strong></td>
<td></td>
</tr>
<tr>
<td>Low Shrub</td>
<td><em>Anthospermum rigidum</em> subsp. <em>pumilum</em>, <em>Indigofera comosa</em>, <em>Rhus magalismontana</em>, <em>Stoebe plumose</em></td>
</tr>
<tr>
<td>Succulent Shrub</td>
<td><em>Lopholaena corifolia</em></td>
</tr>
<tr>
<td>Geoxylic Suffritex</td>
<td><em>Elephantorrhiza elephantine</em></td>
</tr>
<tr>
<td>Geophytic Herbs</td>
<td><em>Boophane disticha</em>, <em>Cheilanthes hirta</em>, <em>Haemanthus humilis</em> subsp. <em>humilis</em>, <em>Hypoxis rigidula</em> var. <em>pilosissima</em>, <em>Ledebouria ovatifolia</em>, <em>Oxalis corniculata</em></td>
</tr>
</tbody>
</table>

### Fauna

#### Site Description

No RDL or protected reptilian species were encountered in the study area. Only one reptile species – the Common Brown Water Snake (*Lycodonmorphus rufulus*) was identified during the assessment. The amphibian habitat is abundant and in a relatively good condition in most parts of the wetland and pan systems. No RDL or protected amphibian species were encountered, although the Giant African Bullfrog (*Pyxicephalus adspersus*), which is listed as vulnerable on the IUCN Red Data List, has a significant probability of occurring in the study area.

The invertebrate survey yielded common and widespread species. No RDL or protected invertebrate species were encountered, although the Marsh Sylph (*Metisella meninx*) which is listed as vulnerable on the IUCN Red Data List has a high probability of occurring in the study area based on distribution patterns for the species. No *Leersia hexandra* grass was observed during the survey and the probability of occurrence of *M meninx* is considered to be low. No RDL avifaunal species were recorded during the field survey of this region.

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5 The fauna information was provided by Scientific Aquatic Services
Surface Water

Regional Description

The proposed Rietvlei opencast mining area is situated in the B32B, B12E, B12D and B12C quaternary catchments that form part of the Upper Olifants primary catchment area (Table 10). Numerous farm dams and wetlands are situated along the drainage lines. Different sized pans are irregularly spaced on the higher lying areas. During the rainy seasons, the pans hold water, but are usually dry in winter. Rietvlei forms the headwaters of:

- The Olifants River in B12D: A number of small sized dams intercept the South-West furrows that feed into Olifants River
- The Selons River in B32B which flows North-West into Olifants River
- The Keerom stream which flows West-South-West into Olifants River number of small sized dams intercept the South-West furrows that feed into Keerom stream

Table 10: Information concerning quaternary catchments

<table>
<thead>
<tr>
<th>Catchment</th>
<th>B12D</th>
<th>B12E</th>
<th>B32B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area (km²)</td>
<td>362.3</td>
<td>435.8</td>
<td>613.8</td>
</tr>
<tr>
<td>Mean annual runoff (mm/a)</td>
<td>38</td>
<td>53</td>
<td>51</td>
</tr>
<tr>
<td>Groundwater contribution to baseflow (mm/a)</td>
<td>7</td>
<td>18</td>
<td>16</td>
</tr>
</tbody>
</table>

Site Description

Rietvlei forms the headwaters of the Selons River which flows to the northwest and joins the Olifants River. The landscape slopes gently towards the river, to the northeast. A number of small sized dams are located on the streams feeding onto major rivers within the area. Local surface run-off catchments with the associated local drainage are shown together with the mining layout in Figure 16. The way that such local drainage is connected to the pans on the prospecting area is also illustrated.

---

6 The surface water information was provided by Aqua Earth Consulting and Scientific Aquatic Services
Figure 16: Local surface runoff catchments and drainage with mining layout

Rain gauge and flow gauge data is required for calibration of surface run-off modelling purposes. The closest flow and rainfall station in the vicinity that had daily records available was used in the initial site assessment. It has been determined that the only hydrological response units (HRU) that will be affected by this Project Area will be HRU10, as indicated in Figure 17. The assessment also indicated that no influence of any storm water activity outside of HRU10 will have an effect on any of the other catchment areas.

To setup a rainfall run-off model for B32B a rainfall and flow record over the same time period was required for calibration. The closest flow gauge to the site on the Selons River is B3H019 and is shown in Figure 17.

Based on the main drainage line and specific flow accumulation criteria, the delineated catchment is subdivided in the HRU or model entities. Typical model parameters such as land cover and slope is established. The B32B catchment is delineated in HRUs as shown in Figure 18.
Figure 17: Location of existing surface water flow gauge

Figure 18: Delineation of hydrological response units
**Wetlands and Pans**

A number of wetlands and pans have been identified on site (Figure 19). Mining through pans 2 and 3 (Figure 20) is unavoidable; however, the mine plan was altered to ensure pans 1 and 4 (Figure 21) are protected.

---

Figure 19: High level Ecological Sensitivity Mapping of the wetlands and pans located on site (SAS, 2011)
During a hydrocensus carried out in early 2011, two surface water points were visited and located. Water samples had been collected and sent to an accredited laboratory for analysis. Both samples showed a relatively neutral pH (7.12 and 7.46) and low electrical conductivity values (11mS/m and 13mS/m). The returned results indicated that all the major and minor constituents analysed fall within the recommended operational limits for drinking water (SANS 241; 2005) except for aluminium. The aluminium concentrations at both monitoring points exceeded the maximum allowable limit. It is postulated that the cause of the aluminium concentrations can be related to agricultural activities in the area and the effects of fertilizers.

**Groundwater**

**Site Description**

Groundwater occurrence is within pores in disintegrated/decomposed, partly decomposed rock and fractures which are principally restricted to a zone directly below the water table. The average depth to the groundwater level is at 10 to 2mbgl. The mean groundwater recharge is estimated at 35mm (Vegter, 1995).

Studies carried out in neighbouring mines with similar geology have indicated the presence of a deeper, fractured aquifer. The results of aquifer tests have shown that both the upper and lower aquifers do not possess the potential to yield large volumes of water (GCS, 1999, Golder 2004).

The water bearing strata is mainly the sandstone above the coal seams with the major flow path being on the contact between the sandstone and coal strata. The depth to groundwater is generally shallow averaging 8.5mbgl.

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7 The groundwater information was provided by Aqua Earth Consulting
A hydrocensus was carried out in early 2011 to familiarise with field conditions and collect as much relevant information as possible. The field team managed to locate and visit 29 boreholes and two surface water points. At the boreholes, physical parameters such as the static water level and GPS coordinates were measured and recorded. It was not possible to measure the static water level at fifteen of the boreholes as most of them were equipped and sealed. One borehole was infested by bees and one was artesian, with water freely flowing out of the top of the casing.

Measured static water levels in the boreholes ranged from artesian to 21.88mbgl. The general uses of groundwater from the boreholes range from domestic, irrigation to stock watering. All except three of the boreholes are fitted with wind pumps, mono pumps or submersible pumps. The owners of eighteen of the boreholes were able to provide borehole construction data, complete with information on borehole depths and water strikes. Water strikes were encountered at depths ranging from 8mbgl to 50mbgl. Reported airlift yields range from 0.33l/s to 7.5l/s with the majority of boreholes having yields of less than 3l/s.

**Air Quality**

**Site Description**

The main pollutant of concern associated with the proposed mining site is particulates. Particulates are divided into different particle size categories with total suspended particulates (TSP) associated with nuisance impacts and the finer fractions of PM$_{10}$ (particulates with a diameter less than 10µm) and PM$_{2.5}$ (diameter less than 2.5µm) linked with potential health impacts. Gaseous pollutants (such as sulphur dioxide, oxides of nitrogen, carbon monoxide etc.) will come from vehicle exhausts but are regarded as negligible in comparison to particulate emissions.

Sources identified as possibly impacting the air quality in the region include, but are not limited to:

- Industrial sources
- Fugitive dust sources
- Mining emission sources
- Domestic fuel combustion
- Biomass burning
- Vehicle tailpipe emissions

**Noise**

**Regional Description**

Existing noise sources include:

- Natural sounds of the bush
- Livestock and agricultural activity on surrounding land
- Local community and domestic noise
- Remote vehicles and other transport serving the local community
- Noise from traffic on the R555 road

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* The air quality information was provided by Airshed Planning Professionals
* The noise information was provided by JH Consulting
Site Description
In order to identify the noise sources as a result of the operations at the proposed mine, noise from an existing mine with processing equipment that is similar and operates in a similar manner to that expected at the Rietvlei mine was used. Possible noise sources from the site include:

- Mobile equipment
- Fixed plant noise (particularly crushing, drilling and loading operations)

Archaeology and Cultural Heritage

Regional Description

Stone Age
Stone Age sites are marked by stone artefacts that are found scattered on the surface of the earth or as parts of deposits in caves and rock shelters. The Stone Age is divided into the Early Stone Age (ESA) (covers the period from 2.5 million years ago to 250 000 years ago), the Middle Stone Age (MSA) (refers to the period from 250 000 years ago to 22 000 years ago) and the Late Stone Age (LSA) (the period from 22 000 years ago to 200 years ago).

Iron Age
The Iron Age is associated with the first agro-pastoralists or farming communities who lived in semi-permanent villages and who practised metal working during the last two millennia. The Iron Age is usually divided into the Early Iron Age (EIA) (covers the 1st millennium AD) and the Later Iron Age (LIA) (covers the first 880 years of the 2nd millennium AD).

The Historical Period
Historical towns closest to the Project Area include Witbank, Middelburg and Belfast.

Witbank came into being as the railway line between Pretoria and Lourenço Marques which was built in 1894 passed close to where Witbank is located today. The first Europeans who came to the area observed the abundance of coal, which was evident on the surface or in the beds of streams. A stage post for wagons close to a large outcrop of whitish stones (a ‘white ridge’) gave the town its name. Witbank was established in 1903 on a farm known as Swartbos which belonged to Jacob Taljaard.

Middelburg is one of the oldest towns that were established by the Voortrekkers in the previous Transvaal. The town was established on the farms of Klipfontein and Keerom on the banks of the Klein Olifants River in 1859. It is generally accepted that Middelburg’s name is derived from the fact that the Transvaal Republic established the town midway between Pretoria and Lydenburg.

Today Middelburg and Witbank are important centres where coal is mined and transported to Richards Bay from where it is exported all over the world. The 20th century also saw the introduction of large-scale irrigation and dry land farming on the Eastern Highveld. Today the economic activities of the area include diamond and coal mining, light and heavy industries as well as steel and vanadium operations.

Belfast was founded on 30 June 1890. Farmer Richard O’Neil bought the farm Tweefontein near where the expected railway line between Pretoria and Lourenço Marques in Mozambique would run. He set up a store and applied for permission to lay out a village. He named it Belfast in honour of the

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10 The heritage information was provided by Dr J Pistorius
city in Ireland from where his father had immigrated. The railway reached the village in 1894 and the first village council took office in 1902.

**A Coal Mining Heritage**

Coal mining on the Eastern Highveld is now older than one century and has become the most important coal mining region in South Africa. Whilst millions of tonnes of high-grade coal are annually exported overseas more than 80% of the country’s electricity is generated on low-grade coal in Eskom’s power stations such as Duvha, Matla and Arnot situated near coalmines on the Eastern Highveld.

The first exploitation for coal was probably in KwaZulu Natal as documentary evidence refers to a wagon load of coal brought to Pietermaritzburg to be sold in 1842. In 1860 the coal trade started in Dundee when a certain Pieter Smith charged ten shillings for a load of coal dug by the buyer from a coal outcrop in a stream. In 1864 a coal mine was opened in Molteno. The explorer, Thomas Baines mentioned that farmers worked coal deposits in the neighbourhood of Bethal (Transvaal) in 1868. Until the discovery of diamonds in 1867 and gold on the Witwatersrand in 1886, coal mining only satisfied a very small domestic demand.

With the discovery of gold in the Southern Transvaal and the development of the gold mining industry around Johannesburg came the exploitation of the Boksburg-Spring coal fields, which is now largely worked out. By 1899, at least four collieries were operating in the Middelburg-Witbank district, also supplying the gold mining industry. At this time coal mining also started in Vereeniging. The Natal Collieries importance was boosted by the need to find an alternative for imported Welsh anthracite used by the Natal Government Railways.

By 1920 the output of all operating colliers in South Africa attained an annual figure of 9.5 million tonnes. Total in-situ reserves were estimated to be 23 billion tonnes in Witbank-Springs, Natal and Vereeniging. The total in-situ reserves today are calculated to be 121 billion tonnes. The largest consumers of coal are Sasol, ArcelorMittal and Eskom.

**Site Description**

Five graveyards were found in the proposed mining area. The graveyards occur in open spaces in the Eucalyptus forests. These areas are devoid of any building rubble or other ecological indicators which suggest that small groups of people have lived in the plantations in the past.

**Visual Aspects**

**Site Description**

**Visual Receptors**

When looking at an environment, different viewers (visual receptors) experience different views of the visual resource and value it differently. The visual receptors for the proposed mining area include:

- Residents of rural and agricultural settlements and homesteads
- Commuters travelling along national, arterial and secondary routes
- Recreational users, tourists and sightseers

The incidence of visual receptors in the Proposed Project area is expected to be the highest along the national road (the N4) and to a lesser extent along the arterial roads (the R555 and R105) and secondary roads. Commuters and tourists using these roads could be negatively impacted upon by visual exposure to the proposed mine. Other than along the above roads, viewer incidence within a 10km radius of the proposed mine is concentrated in the relatively high number of rural and agricultural homesteads and settlements.

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11 The visual information was provided by Outline Landscape Architects
**Viewer Sensitivity**

Residents of rural and agricultural settlements and homesteads within the affected environment are classified as visual receptors of high sensitivity owing to their sustained visual exposure to the proposed development as well as their attentive interest towards their living environment.

Commuters (by vehicle and foot) are generally classified as visual receptors of moderate sensitivity due to their temporary view and experience of the proposed development. As a commuter’s speed increases (e.g. motorists), the sharpness of lateral vision declines and the commuter tends to focus on the line of travel (USDOT, 1981).

Recreational users of outdoor recreational facilities (such as the Middelburg Dam) and tourists visiting or passing through the area are classified as visual receptors of high sensitivity. Their attention is focused towards the landscape and essentially utilise it for enjoyment purposes and appreciation of the quality of the landscape. The incidence of tourists and sightseers off the N4 in close proximity to the proposed mine is expected to be relatively low.

**Socio-Economic**

**Population density, growth and location**

According to the 2011 Census, the Steve Tshwete Local Municipality had a total population of 229 831 people, of which the majority (73.6%) are black African (Table 11) and 70.7% of the population fall into the working age of 15 to 65 (Figure 22). The gender ratio is fairly equal, with 52% of the population male and 48% of the population female.

Table 11: Ethnic delineation

<table>
<thead>
<tr>
<th>Race</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black African</td>
<td>169 156</td>
</tr>
<tr>
<td>Coloured</td>
<td>5 976</td>
</tr>
<tr>
<td>Indian/Asian</td>
<td>3 677</td>
</tr>
<tr>
<td>White</td>
<td>50 103</td>
</tr>
<tr>
<td>Other</td>
<td>919</td>
</tr>
</tbody>
</table>

Figure 22: Age Groups (Stats SA Community Survey 2011)
Major economic activity and sources of employment

107 069 people are economically active (employed or unemployed but looking for work) and of these, 19.7% are unemployed. The majority of the 53 630 economically active youth (15 – 34 years) are employed, with only 27.1% being unemployed (Figure 23).

12.8% of the population have no household income, while the biggest income bracket (17%) have a household income of R38 201 – R76 400 (Figure 24).

Basic services provision

Water and sanitation

The provision of water within the municipality is detailed in Table 12. The majority of households (62.2%) have piped water available inside the dwelling, 23.5% of households have access to piped water in their yard and 1.8% have no access to piped water.
Table 12: Household water sources (Stats SA Community Survey 2011)

<table>
<thead>
<tr>
<th>Source of Water</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional/Local water scheme (operated by municipality or other water services provider)</td>
<td>90.7</td>
</tr>
<tr>
<td>Borehole</td>
<td>4.8</td>
</tr>
<tr>
<td>Spring</td>
<td>0.3</td>
</tr>
<tr>
<td>Rain-water tank</td>
<td>0.2</td>
</tr>
<tr>
<td>Dam/Pool/Stagnant water</td>
<td>0.6</td>
</tr>
<tr>
<td>River/Stream</td>
<td>0.2</td>
</tr>
<tr>
<td>Water vendor</td>
<td>0.3</td>
</tr>
<tr>
<td>Water tanker</td>
<td>1.6</td>
</tr>
<tr>
<td>Other</td>
<td>1.3</td>
</tr>
</tbody>
</table>

As seen in Figure 25, the sanitation type for 81.9% of the population is a flush toilet connected to sewerage, 8.8% make use of pit toilet sanitation facilities and 5.2% make use of other forms of sanitation such as bucket and chemical toilets. A minor 2.1% of the population has no access to any form of toilet sanitation facility.

Figure 25: Sanitation Types (Stats SA Community Survey 2011)

Refuse removal
The majority (84.7%) of the population in the municipality have their refuse removed on a regular basis by the local authority, whilst 11% utilise either a communal refuse dump or their own refuse dump as a means of refuse disposal. 2.4% of the population have no means of refuse disposal (Figure 26).
Electricity provision

The provision of energy in the municipality is shown in Figure 27 and details the energy sources used for cooking, heating and lighting. 90.8% of the population have access to electricity for lighting, while 81.7% use electricity for cooking.

Social services provision – housing

There are 64,971 households in the municipality, with an average household size of 3.3 persons per household and 29.4% of households are headed by females. The majority (88.7%) of the population live in an urban area and 11.3% of the population live on a farm (Figure 28).
Social services provision – education

The educational profile of the population within the municipality is described in Figure 29. Due to the low income range that the majority of the population are situated in, the majority of the population have only partially completed Primary and/or Secondary Education. 3.1% have not undergone any form of education (and are most likely illiterate).

(b) Description of the current land uses

The majority of the pre-mining land use, approximately 83.61% of the surveyed area within the updated proposed opencast footprint is utilized for forestry (Eucalyptus trees), 9.94% for cultivation (soybeans) and 6.45% are vacant spots where forestry or cultivation could not take place due to wetness (i.e. wetland areas). Some mining activity is evident along the railway line (to the east of the site), the R555 (to the west and north-east of the site) and the R104 (to the south-west of the site). The Vuna Colliery lies less than 2.5km east of the proposed site. This mining is predominantly
opencast coal mining similar to that proposed for the site. Other industrial land uses within the study area include railway lines and power lines. Figure 14 and Figure 15 indicate the land uses and linear infrastructure on site respectively.

(c) Description of specific environmental features and infrastructure on the site

Please refer to Section (iv)(1)(a) above.

(d) Environmental and current land use map

Figure 30: Locality map indicating the various land uses on site
Figure 31: Locality map indicating the various linear infrastructure on site

v) Impacts identified
(Provide a list of the potential impacts identifies of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties together with the significance, probability and duration of the impacts.

It is understood that the Proposed Project will cause impacts to the immediate, surrounding and regional biophysical and socio-economic environment. Specific environmental and socio-economic impacts will occur at different phases of the project during the life of mine. These phases include:

- Construction; including the planning and implementation phases, construction of associated infrastructure, mine/pit footprint, access ramps and roads, haul roads, waste (mineral and non-mineral), residue and product stockpiles, handling areas, water reticulation and electrical power
- Operation; including general mining activities, coal processing, coal transportation and concurrent rehabilitation activities
- Decommissioning; including scaling down of activities ahead of temporary or permanent closure, cessation of mining production, implementation of rehabilitation programme, monitoring and maintenance for prescribed period after cessation of operations
- Closure; including completion of rehabilitation goals, application for closure, transfer of liability to the State and agreed post-closure monitoring and maintenance

The impacts associated with each of these phases will be specific to the mineral commodity, environmental and socio-economic context, mining method, spatial and temporal aspects of the operation and stated rehabilitation goals. For the purpose of this report, anticipated/potential impacts have been identified, although this was distinguished from a desktop approach. This approach also
took into consideration typical impacts previously identified from similar projects that WSP has managed. WSP will assess the environmental and socio-economic impacts associated with the proposed mine during the EIR phase of the project.

Potential Impacts
The following potential environmental and socio-economic impacts associated with the Proposed Project have been assessed in this document. The impacts include all aspects of the mining and associated activities during the construction, operation, decommissioning and closure phases:

- Geology
- Topography
- Air quality
- Soil, land use and land capability
- Biodiversity
- Hydrology and geohydrology
- Noise
- Visual aspects
- Sites of archaeological, historic or cultural interest
- Socio-economic aspects

No mitigation measures have been included in this report, the proposed mitigation measures and recommendations will be included in detail in the ESIA Report. Impacts associated with the proposed opencast mine are included in Table 13.

Table 13: Potential Impacts that may occur due to the Proposed Project

<table>
<thead>
<tr>
<th>Environment</th>
<th>Anticipated Impact (without mitigation measures)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geology</td>
<td>The Proposed Project may have an impact on the rock masses that influence the groundwater and topography on the project site, and may impact post-mining slope stability</td>
</tr>
<tr>
<td></td>
<td>Excavation of rock for the box cuts will influence the underlying geology of the site as a void will be created, that may have a steep gradient or stepped highwalls</td>
</tr>
<tr>
<td></td>
<td>Resultant impacts from blasting and vibrations may impact on geology.</td>
</tr>
<tr>
<td></td>
<td>The extraction of coal and overburden from the opencast pit will result in the permanent impact on the geology</td>
</tr>
<tr>
<td></td>
<td>Apart from specific rock types or outcrops which are of scientific interest or cultural significance, the direct impact of mining on geology is seldom highly significant unless the long-term effects on groundwater or topography have important ramifications</td>
</tr>
<tr>
<td>Topography</td>
<td>The topographical impact on the mine in the study area may influence surface water and groundwater resources</td>
</tr>
<tr>
<td></td>
<td>Disturbance of topography as a result of the excavation of the box-cut, stockpiling of the resultant soil to create a foundation for the associated mining infrastructure and the stockpiling of the overburden to create visual berm</td>
</tr>
<tr>
<td></td>
<td>Potential aesthetic impact resulting from the plant area, overburden stockpiles, topsoil and product stockpiles and mine infrastructure (admin offices)</td>
</tr>
</tbody>
</table>
Site clearing and topsoil removal and establishment of initial box-cut and access ramps

**Air Quality**
- The generation of dust from the construction, operational and closure phases of the mine is anticipated (land clearing, drilling, blasting, processing, transport of product via road, stockpiling waste rock, overburden, topsoil and product, etc.)
  - Dust may impact on the health and safety of employees and the surrounding community through respiratory, visual and aesthetic impacts
  - Dust fallout can retard vegetation growth and reduces the palatability of plants to animals
- Drilling, blasting and abrasion of hard rock overburden may generate dust
- Vehicle activity associated with mining activities may generate dust
- Topsoil and overburden removal and stockpiling, drilling and blasting and overburden stockpiles may contribute to the generation of dust
- The transportation of coal product results in a release of volatile organic compounds (VOCs) from vehicle exhausts
- Methane gas may be produced as a result of the coal extraction activities
- Spontaneous combustion of coal produces CO₂, noxious gases and smoke which may impact on the receiving environment as well as the health and safety of the community
- Spontaneous combustion may cause safety impacts on the mine employees and could render the surface unusable, therefore impacting on soils, surface water, biodiversity and land use
- Demolition of infrastructure during decommissioning and closure may have an impact on the surrounding air quality (generation of dust)

**Soil, Land Use and Land Capability**
- Excavation and soil stockpiling during site preparation may result in the dilution of highly fertile organic components within the soil and may result in the loss of topsoil on the site
- Excavation and soil stockpiling may result in the ingress of alien invasive plant species to the area, impacting on the future sustainable land use potential and land capability after mining
- Mining activities may cause erosion (e.g. stormwater runoff), resulting in a loss of fertile topsoil resources that could impact on surrounding surface water bodies
- Compaction of soil may concentrate surface water runoff from the site, resulting in downstream erosion, flooding or loss of biodiversity
- Leachate from overburden or product stockpiles may contaminate soils from infiltration, resulting in surface and groundwater contamination
- Soil contamination may occur from spillages and leakages of hydrocarbons, contaminated water, plant runoff, etc. onsite
- Contamination from the poor management of wastes generated onsite
- Potential loss of cultivated agriculture and commercial forestry (land use) as a result of mining activities
- Potential acid mine drainage could result in acidic and saline soils, making conditions unsuitable for vegetation growth
- Subsidence of mine area may impact on the land capability and land use of the area
- Mining may not comply with land use potential and land capability of the area

**Biodiversity**
- The mining activities may have a potential loss of RDL that could occur within
Mining and associated activities may disturb indigenous fauna and flora in the area. Potential impact on habitat corridors, or isolation of sensitive areas may result in the degradation of indigenous flora and fauna species, and changes in populations reliant on movement or interchange between habitats. Potential impact on biodiversity through mismanagement of dangerous goods. Mining activities may result in the generation of alien vegetation, which may encroach and impact on the ecosystem. Mining activities may impact on the groundwater table, impacting sensitive areas such as wetlands within the study area. Contamination of surrounding biodiversity from the poor management of wastes generated onsite. Potential loss of habitats resulting from uncontrolled burning regimes. The accumulative effect of emissions into the air could have an adverse effect on the flora and fauna populations. Release, spillages and leakages of chemicals, hydrocarbons and sewage may competent to a depletion of the natural ecosystem. Impact of traffic and transport activities on flora and fauna species (construction, operation, decommissioning). Pumping of groundwater could have impacts on sensitive ecosystems such as wetlands, pans and resultant loss of flora and fauna species.

<table>
<thead>
<tr>
<th>Hydrology and geohydrology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impacts on surface water and groundwater recharge due to modification of infiltration rates from compaction of surfaces.</td>
</tr>
<tr>
<td>Impacts on surface water and groundwater recharge due to modification of infiltration rates from the alteration/removal of vegetation.</td>
</tr>
<tr>
<td>Impacts on wetlands within the area due to the mining activities. Two pans are located within the pit area and will be destroyed, while two additional pans have been accommodated within the mine layout.</td>
</tr>
<tr>
<td>Oxidisation of sulphur compounds (iron pyrite) in the ore result in acid mine drainage, which increases acidity. The runoff may affect surface water quality, groundwater and biodiversity in the area.</td>
</tr>
<tr>
<td>Potential impacts on surface water as a result of runoff contamination from the overburden stockpile, plant area and product stockpile area.</td>
</tr>
<tr>
<td>Potential surface and groundwater contamination from spillages and release of process water from plant areas that diffuse and infiltrate the surrounding environment.</td>
</tr>
<tr>
<td>Potential pollution or impact on the hydrology and geohydrology resulting from incorrect storage and management of dangerous goods (hazardous and chemical materials) and/or other contaminants.</td>
</tr>
<tr>
<td>Pumping of groundwater required for safe mining conditions may have a direct impact on the water table (reducing natural groundwater recharge).</td>
</tr>
<tr>
<td>Pumping of groundwater also increases the volume of discharge in the area, potentially altering downstream ecosystems and biota.</td>
</tr>
<tr>
<td>Release, spillages and leakages of chemicals, hydrocarbons and sewage (treated sewage) may competent to an impact on the surface and groundwater of the area.</td>
</tr>
</tbody>
</table>
| Physical disruptions of aquifers may occur from blasting, causing groundwater to
seep to lower aquifers, which could result in cross contamination of aquifer resources
- Potential impact from failures from mining activities and infrastructure (e.g. pollution control dam, sewage treatment plant, etc.)

| Noise and Vibrations | Noise will be generated from drilling, blasting, mining operations, transportation, processing, machinery etc. which may have a negative impact on the surrounding biophysical and socio-economic environment
- Construction and operational activities may competent to an increase in noise levels over the ambient environment levels
- Vibrations from blasting may impact on the underlying geology of the site, and could result in displacement of sensitive fauna species
- Vibrations could cause failure which could impact on the health and safety of employees, as well as the subsidence of topography |

| Traffic | There may be an increase in traffic within the immediate area which would result in the generation of dust, noise, air emissions and hydrocarbon spillages
- Increase traffic could cause road deterioration and have a negative impact on the movement of affected parties in the region (all phases of the project) |

| Visual | The mining and associated activities may have an impact on the aesthetics of the area and impact on the general ‘sense of place’
- The generation of dust and smoke may have visual impact within the surrounding area, resulting in associated health and safety impacts |

| Archaeology, Historic and Cultural | The proposed mine may have an impact on sites of archaeological, historic and cultural importance/significance
- Identified and unidentified graves may be impacted on from mining related activities and subsidence in the area |

| Socio-economic | Coal may be directly supplied to Eskom where it will be burnt to generate electricity which is distributed throughout Southern Africa. Due to increased development and demand for electricity, there is an increased need for coal mines to continue to produce coal for supply to Eskom; some coal will also be exported
- Job opportunities may be made available to the surrounding local citizens
- Training may be provided to employees resulting in an improvement of the local skills base
- The mine may invest in social capital by undertaking a Social and Labour Plan, and promote sustainable local economic development in the surrounding areas
- Support may be given to the local and national economy by the purchase of goods and services
- The proposed mine may have negative impacts on the health and safety of the surrounding community and future employees from the generation of dust, air emissions (noxious gases and smoke), noise, vibrations, traffic, and contamination of surface and groundwater on downstream water users
- The mine may have an aesthetic impact on the surrounding communities
- The ‘sense of place’ may be affected, thereby impacting on the surrounding community
- The project may have positive impacts on public infrastructure and services, such as upgrading roads, installing power lines, etc. The project may create social upliftment through the construction of educational facilities
- The project may create employment opportunities for the surrounding... |
Community

- Increase in economic growth and local economic development within the Nkangala District and Steve Tshwete Local Municipalities
- Training and skills development may be provided to unskilled labourers in the area, thereby expanding the local skills base
- There may be an increase in foreign workforce
- The mine may result in an increase of individuals into the area
- Increased individuals may result in the establishment of illegal settlements
- The increase in individuals in the area may impact on social pathologies, such as social ills, crime, etc.

Cumulative Impacts

The term cumulative impact can be used to describe the phenomenon of changes in the environment that result from the mining operation. Cumulative impacts have an incremental impact, and have a total effect on natural resources/ecosystems/human communities.

Secondary impacts can be defined as effects that are a result of the mining activity that occur “later in time or further removed in distance but are still reasonably foreseeable”. These impacts are caused by another action that has an established connection to the project.

The specialist studies have not yet been completed, and hence the extent and severity of the impacts cannot be properly assessed at this stage. The cumulative and secondary impacts on water quality remain the greatest concern. Unmitigated impacts from exposed pyrites will result in increasing pollutant loads that may contaminate both surface and groundwater. The loss of the 2 pans may also have a secondary impacts if it is shown that these have a regional ecological importance. Additional cumulative impacts may include air quality, noise and traffic impacts.

The severity and risk of these will be better quantified once the specialist studies are complete this will then be detailed more fully in the ESIR and EMPR to follow.

vi) Methodology used in determining the significance of environmental impacts

(Describe how the significance, probability, and duration of the aforesaid identified impacts that were identified through the consultation process was determined in order to decide the extent to which the initial site layout needs revision).

In accordance with GNR 982, promulgated in terms of Section 24 of the National Environmental Management Act, 1998 (Act 107 of 1998), specialists will be required to assess the significance of potential impacts in terms of the following criteria:

- Cumulative impacts
- Nature of the impact
- Significance of the impact
- Consequence of the impact
- Extent of the impact
- Duration of the impact
- Probability of the impact occurring
- Impact non-reversibility
Impact on irreplaceable resources

Confidence level

Issues are assessed in terms of the following criteria:

- The nature, a description of what causes the effect, what will be affected and how it will be affected
- The physical extent, wherein it is indicated whether:
  1. the impact will be limited to the site
  2. the impact will be limited to the local area
  3. the impact will be limited to the region
  4. the impact will be national
  5. the impact will be international
- The duration, wherein it is indicated whether the lifetime of the impact will be:
  1. of a very short duration (0–1 years)
  2. of a short duration (2-5 years)
  3. medium-term (5–15 years)
  4. long term (> 15 years)
  5. permanent
- The magnitude of impact on ecological processes, quantified on a scale from 0-10, where a score is assigned:
  0. small and will have no effect on the environment
  2. minor and will not result in an impact on processes
  4. low and will cause a slight impact on processes
  6. moderate and will result in processes continuing but in a modified way
  8. high (processes are altered to the extent that they temporarily cease)
  10 - very high and results in complete destruction of patterns and permanent cessation of processes
- The probability of occurrence, which describes the likelihood of the impact actually occurring. Probability is estimated on a scale where:
  1. very improbable (probably will not happen)
  2. improbable (some possibility, but low likelihood)
  3. probable (distinct possibility)
  4. highly probable (most likely)
  5. definite (impact will occur regardless of any prevention measures)
- The significance, which is determined through a synthesis of the characteristics described above (refer formula below) and can be assessed as low, medium or high
- The status, which is described as either positive, negative or neutral
- The degree to which the impact can be reversed
- The degree to which the impact may cause irreplaceable loss of resources
- The degree to which the impact can be mitigated

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

(Provide a discussion in terms of advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties)
The Impacts to determine whether they are positive or negative will be assessed based on the methodology provided above and will be incorporated into the EIR Phase.

viii) **The possible mitigation measures that could be applied and the level of risk.**
(With regard to the issues and concerns raised by affected parties provide a list of the issues raised and an assessment / discussion of the mitigations or site layout alternatives available to accommodate or address their concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered).

No mitigation measures have been included in this report, the proposed mitigation measures and recommendations will be included in detail in the ESIA Report.

ix) **The outcome of the site selection Matrix, Final Site Layout Plan**
(Provide a final site layout plan as informed by the process of consultation with interested and affected parties)

![Figure 32: The Proposed Mine Layout (Mindset, 2013)](image)

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

Due to the fact that the location of the mining operation is determined by the viability of the coal reserve, there is no alternative location. Internal mine layouts have been optimised to take into account environmental constraints such as the pans and wetlands.
xi) **Statement motivating the preferred site.**

(Provide a statement motivation the final site layout that is proposed)

Refer to the section x above.

i) **Plan of study for the Environmental Impact Assessment Process**

i) **Description of alternatives to be considered including the option of not going ahead with the activity.**

**Location Alternatives**
Due to the fact that the location of the mining operation is determined by the viability of the coal reserve, there is no alternative location. Internal mine layouts have been optimised to take into account environmental constraints such as the pans and wetlands.

**Linear Alternatives**
A portion of the road between the Middelburg and Stoffberg road and the Afgri Pan Siding will be impacted by the proposed mining activities and will therefore be required to be diverted. The road in question, currently joints the R555 (tar road from Middelburg to Stoffberg) to the Afgri Pan Siding and to the R104 (tar road from Middelburg to Wonderfontein). The road is currently used by local farmers and inhabitants of the area. The upgrade and diversion will take this into consideration. The local community will still have access to the road and the mine will need to ensure that all signage and road safety warnings are adequate to safeguard other road users about the danger of heavy vehicles on the road. The road from the R555 to the mine entrance is in a serviceable condition and will be maintained as such. The upgrade is to ensure that coal can be transported from the plant to the Siding economically and safely.

**Design Alternatives**

**Mining method**
Underground mining is not considered as a viable alternative, as the two target seams are simply too shallow (average depth of 40m) for underground mining. Moreover, an underground operation will be too capital extensive. Opencast mining is considered the preferred mining method and will be investigated in more detail during the EIR phase.

**Discard disposal**
The construction of discard disposal will increase the mine’s footprint, and pose a potential dust source. In order to prevent the ingress of pollutants into the groundwater, this tailings dam will need to be lined. The washing of the coal by a third party obviously negates the necessity of discard disposal on-site. However, due to the location of the reciprocal third party, the transport costs will add a significant cost to the project. The necessity of discard disposal will be investigated in more detail during the EIR phase.

**Siding**
There are two potential sidings available for use by the mine, however, the Arnot Siding is located further east of the closer Afgri Siding. The costs associated with the Arnot Siding will add a significant cost to the project. The Afgri Siding is considered to be the preferred option and will be investigated in more detail during the EIR phase.

**No-go Alternative**
The 'no-go' option will be a scenario in which there will be no mining. The reserves will not be mined, and no income generation will be realised. The area will remain a predominantly agricultural area.
South Africa has a recent history of power outages, and as such requires coal for the generation of power. The Rietvlei project has been earmarked for such a supply and the ‘no-go’ scenario will result in such supply not being realised.

The establishment of the mining operation will result in a cash injection into secondary industries such as contractors, manufacturers and suppliers. These secondary industries will not benefit if there is no mining. In addition to this, the SLP will not be implemented. This will result in no investment within the local community, and as a result there will be a loss in the potential for community upliftment.

**ii) Description of the aspects to be assessed as part of the environmental impact assessment process**

(The EAP must undertake to assess the aspects affected by each individual mining activity whether listed or not, including activities such as blasting, Loading, hauling and transport, and mining activities such as Excavations, stockpiles, discard dumps or dams, water supply dams and boreholes, accommodation, offices, ablation, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc…).

Refer to the project description.

**iii) Description of aspects to be assessed by specialists**

**Terms of Reference for Specialist Studies**

Table 14 provides a list of the Specialists that are involved in this study and their areas of expertise.

<table>
<thead>
<tr>
<th>Specialist Study</th>
<th>Organisation Responsible for the Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biodiversity Impact Assessment</td>
<td>Scientific Aquatic Services</td>
</tr>
<tr>
<td>Surface Water Impact Assessment</td>
<td>Aqua Earth Consulting</td>
</tr>
<tr>
<td>Hydrogeological Impact Assessment</td>
<td>Aqua Earth Consulting</td>
</tr>
<tr>
<td>Soils and Land Capability Impact Assessment</td>
<td>Environmental and Rehabilitation Monitoring Consultant</td>
</tr>
<tr>
<td>Socio-Economic Impact Assessment</td>
<td>WSP Environmental (Pty) Ltd</td>
</tr>
<tr>
<td>Heritage Impact Assessment</td>
<td>Dr Julius CC Pistorius</td>
</tr>
<tr>
<td>Air Quality Impact Assessment</td>
<td>Airshed Planning Professionals (Pty)Ltd</td>
</tr>
<tr>
<td>Noise Impact Assessment</td>
<td>JH Consulting</td>
</tr>
<tr>
<td>Visual Impact Assessment</td>
<td>Outline Landscape Architects</td>
</tr>
<tr>
<td>Traffic Impact Assessment</td>
<td>WSP Environmental (Pty) Ltd</td>
</tr>
<tr>
<td>Blasting and Vibrating Assessment</td>
<td>Blast Management and Consulting</td>
</tr>
</tbody>
</table>

All specialist studies will include a description of the baseline environment, the identification and assessment of potential impact (including cumulative impacts) and the provision of management and mitigation measures. The terms of reference for each of the above mentioned specialist studies during the EIR phase of the project are detailed below.

**Biodiversity Impact Assessment**

The Biodiversity Impact Assessment will be undertaken by a specialist team led by Stephen Van Staden from Scientific Aquatic Services.
The operation of the mine will likely have a significant ecological impact. An ecological investigation is required to determine the faunal and floral integrity of the area and how significant the impacts on the ecology will be. The assessment will also make recommendations on rehabilitation requirements to ensure an acceptable rehabilitated land use is obtained. The assessment will be conducted to best meet the Department of Environment's requirements for ecological assessments. The assessment will include the following methodology:

- Desktop study to determine background information on the site, including vegetation type, conservational status, geology, potential biodiversity
- Special emphasis will be placed on RDL fauna and flora which have a known distribution in the various areas
- A habitat evaluation in terms of ecological integrity and present status
- Floral assessment:
  - General ecological integrity
  - Exotic vegetation encroachment and status evaluation
  - RDL species identification and marking (if applicable) and potential habitat assessment
- A brief overview of the fauna at each site including:
  - Invertebrate assessment
  - Amphibians
  - Reptiles
  - Birds
  - Mammals
- Water quality analysis of the site (Includes a maximum of four samples)
- Mitigation measures will be recommended on completion of the study

Delineation of the riparian zone according to “DWAF, 2005: A practical Guideline Procedure for the Identification and Delineation of Wetlands and Riparian Zones” as Advocated by GDARD. Aspects such as soil morphological characteristics, vegetation types and wetness will be used to delineate the various zones of the wetland (permanent and temporary) according to the guidelines. The buffer zone will then be delineated around the wetland. The PES and wetland function and service provision will also be defined in terms of DWAF (1999) and Kotze et al (2005) respectively.

**Surface Water Impact Assessment**

The surface water study will be undertaken by Mr A Lombaard from Aqua Earth. The scope of work includes:

- Provide information for the creation of a mine storm water management plan
- Assess the mine’s impact on the surface water quality and quantity
- Create a preliminary mine water balance
- Outline the results of the preliminary environmental assessment of the various mining targets at Rietvlei Project Area and provide recommendations for the protection of the surface water resources that may be impacted once the mining activities starts.

**Hydrogeological Impact Assessment**

The groundwater study will be undertaken by Mr A Lombaard from Aqua Earth. The scope of work includes:
Desk top study and data evaluation
- Collection and review of existing data
- Conduct a hydrocensus to updated time dependent groundwater level data
- Develop progress report and data gap analysis

Testing of selected boreholes
- Boreholes will be drilled and tested for modelling purposes. Pump tests and water sampling of these is required for data inputs into the model

Development of mass flow transport models
- A conceptual model is developed based on the mining layout and raw data received in the field form the relative boreholes. The model will undergo a sensitivity analysis and simulate the impact of mining and development of extent of pollutions plumes. This will be used to quantify groundwater impacts

Groundwater environmental impact and management report based on results from the study:
- The findings of the study will be discussed in detail and management recommendations made. The management recommendations will include input into management practices during the life of the operations, the remediation plan, extension of the groundwater monitoring network, post-closure requirements

Soils and Land Capability Impact Assessment
The study will be undertaken by Mr P.I Steenekamp from Rehab Green. Opencast mining will disturb large areas of natural veld. Opencast rehabilitation must be undertaken to restore the area to a sustainable and acceptable land form. For costing purposes it was assumed the mine would not disturb more than 1000 ha.

To enable accurate surveying a fixed point grid with a density of 150 x 150 m will be generated for opencast areas and shaft areas. The soils will be surveyed by hand auger observations at each grid point. Coordinates of the observation points will be loaded onto a GPS to locate points in the field. Additional observations will be made in-between grid points where necessary to accurately locate soil boundaries. Auger observations will be made to the depth of the first restricting layer or to a maximum depth of 1500 mm.

The soil assessment will characterise the exiting soils conditions present on site. The deliverables of the study will include:
- A soil type and distribution map.
- A current land use map.
- A land capability map.
- A soil stripping and stockpile guide map.
- A wetland delineation map
- A report addressing the issues required in the Aide Mémoire, also following its style and numbering system.
- All data will be captured in shape file format and map compilations will be in mxd format. All data layers and will be exported to dxf format and all map compilations to Pdf and Jpeg formats. All database and shape files generated during the project will be included in the final product.

This will be used to determine rehabilitation practices that best suits soil conditions to obtain an acceptable post rehabilitation land use.
**Air Quality Impact Assessment**

The Air Quality Impact Assessment will be undertaken by Airshed Planning Professionals (Pty) Ltd. The terms of reference for the study comprise of two main components, viz, (i) a baseline assessment, and (ii) and air quality impact assessment.

The establishment of the baseline:

- Establishment of current air quality
- Establishment of meteorological conditions

The air quality impact assessment comprises the following:

- Quantification of fugitive dust emissions
  - Construction phase: This mainly pertains to the construction activities including drilling and blasting of the initial box cut areas and land clearing and construction activities associated with the infrastructure setup.
  - Operational phase: This mainly focuses on emissions from the both the proposed open pit, ore transfer points, crushing and screening operations, vehicle entrained dust from all unpaved roads, and wind-blown dust from the stockpiles.
  - Closure and Post-Closure phase: The closure and post-closure phase comprise of a qualitative assessment since of air quality related sources would have ceased.
- Simulation of ambient air pollutant concentrations (PM 10) and dust fallout rates (TSP) due to operational activities.
- Evaluation of predicted air pollutant concentrations on the basis of local ambient air quality standards and limits (specifically NAAQS limits) and international ‘good practice’ criteria (e.g. EC, WHO and WB).
- Recommendation on mitigation and management measures as part of an air quality management plan including:
  - Estimation of emission control efficiencies required for mining sources;
  - Identification of suitable pollution abatement measures, and possible contingency measures;
  - Specification of source-based performance indicators, targets and monitoring methods applicable for each source;
  - Recommendation of receptor-based performance indicators and targets; Recommendations pertaining to record keeping, environmental reporting and community liaison.

**Noise Impact Assessment**

The noise assessment will be undertaken by Mr J Hassall from JH Consulting Acoustics, Noise and Vibration Control. A noise assessment is required to determine the existing background noise elevations and to determine if the operations of the mine will fall within the legislated noise impact limits. The baseline noise study will be based on noise measurements in accordance with the SANS 10103:2004, SANS 10328 and SANS 10357. The noise impact will also investigate blasting/shock impacts expected from the mine’s future operations.

**Visual Impact Assessment**

The Visual Assessment will be undertaken by Mr G Griesel and Mandy van der Westhuizen form Outline Landscape Architects. Visual impacts will result from the mine’s operations, and an assessment will be undertaken to determine the extent of the visual impact and what mitigation measures can be affected to reduce the impact. The Scope of Work includes

- Identification of issues raised in Scoping phase, and site visit
Description of the receiving environment and the proposed project
Establishment of view catchment area, view corridors, viewpoints and receptors
Indication of potential visual impacts using established criteria
Inclusion of potential lighting impacts at night
Description of alternatives, mitigation measures and monitoring programmes

Traffic Impact Assessment
The Traffic Impact Assessment will be undertaken by Cornelia Hutchinson of WSP Group Africa. The assessment will be undertaken to observe and that travel patterns in the area, undertake traffic counts and undertake a traffic study including comment the following:

- The existing road network
- The pavement condition
- Trip generation and distribution and assignment
- Future traffic operating conditions
- Access requirements
- Public transport and pedestrian activities

Blasting and Vibrating Assessment
The Blasting and Vibration assessment will be undertaken by Danie Zeeman of Blast Management and Consulting. A detailed study will be prepared using accepted standards and prediction conditions. Applicable aspects will be presented as different Sections in a final report:

- Introduction
- Background information of the proposed site
- Mining operations and / or Blasting Operations Requirements
- Effects of Blasting operations: Ground vibration, Air blast, Fly rock, Noxious fumes
- Site specific aspects applicable: The following aspects are generally considered for projects in South Africa – some of these aspects may not be applicable to this project. Consideration will be given if applicable to this project as well.
- Ground vibration Prediction and Modelling
- Ground Vibration and human perception
- Vibration impacts on productivity of farm animals (cattle, chickens, pigs, etc.);
- Vibration impact on national and provincial roads
- Communication towers and equipment in the area sensitive to vibration
- Vibration will upset adjacent communities
- Cracking of houses and consequent devaluation
- Borehole collapse
- Muddying and pollution of borehole water
- Air blast Prediction and Modelling
- Fly-rock Prediction and Modelling
- Noxious fumes Information
- Risk Assessment
iv) Proposed method of assessing the environmental aspects including the proposed method of assessing alternatives

Impact Assessment Methodology
The objective of the assessment of impacts is to identify and assess all the significant impacts that may arise as a result of the proposed coal mine. The process of assessing the impacts of the project encompasses the following four activities:

- Identification and assessment of potential impacts
- Prediction of the nature, magnitude, extent and duration of potentially significant impacts
- Identification of mitigation measures that could be implemented to reduce the severity or significance of the impacts of the activity
- Evaluation of the significance of the impact after the mitigation measures have been implemented i.e. the significance of the residual impact

The possible impacts associated with the project were primarily identified in the Scoping phase through on-site and desktop study and public consultation. In the EIR phase, additional impacts will be identified through the more in-depth specialist investigations to be undertaken and through the ongoing consultation process with interested and affected parties.

In accordance with GNR 982, promulgated in terms of Section 24 of the National Environmental Management Act, 1998 (Act 107 of 1998), specialists will be required to assess the significance of potential impacts in terms of the following criteria:

- Cumulative impacts
- Nature of the impact
- Significance of the impact
- Consequence of the impact
- Extent of the impact
- Duration of the impact
- Probability of the impact occurring
- Impact non-reversibility
- Impact on irreplaceable resources
- Confidence level

Issues are assessed in terms of the following criteria:

- The nature, a description of what causes the effect, what will be affected and how it will be affected
- The physical extent, wherein it is indicated whether:
  - 1 - the impact will be limited to the site
  - 2 - the impact will be limited to the local area
  - 3 - the impact will be limited to the region
- 4 - the impact will be national
- 5 - the impact will be international

The duration, wherein it is indicated whether the lifetime of the impact will be:
- 1 - of a very short duration (0–1 years)
- 2 - of a short duration (2–5 years)
- 3 - medium-term (5–15 years)
- 4 - long term (> 15 years)
- 5 - permanent

The magnitude of impact on ecological processes, quantified on a scale from 0-10, where a score is assigned:
- 0 - small and will have no effect on the environment
- 2 - minor and will not result in an impact on processes
- 4 - low and will cause a slight impact on processes
- 6 - moderate and will result in processes continuing but in a modified way
- 8 - high (processes are altered to the extent that they temporarily cease)
- 10 - very high and results in complete destruction of patterns and permanent cessation of processes

The probability of occurrence, which describes the likelihood of the impact actually occurring. Probability is estimated on a scale where:
- 1 - very improbable (probably will not happen)
- 2 - improbable (some possibility, but low likelihood)
- 3 - probable (distinct possibility)
- 4 - highly probable (most likely)
- 5 - definite (impact will occur regardless of any prevention measures)

v) The proposed method of assessing duration significance

The significance, which is determined through a synthesis of the characteristics described above (refer formula below) and can be assessed as low, medium or high
- The status, which is described as either positive, negative or neutral
- The degree to which the impact can be reversed
- The degree to which the impact may cause irreplaceable loss of resources
- The degree to which the impact can be mitigated
The significance is determined by combining the criteria in the following formula:

\[ S = (E+D+M) \times P \]

Where:
- \( S \) = Significance weighting
- \( M \) = Magnitude
- \( P \) = Probability
- \( E \) = Extent
- \( D \) = Duration

The significance weightings for each potential impact are outlined in Table 15.

### Table 15: Significance Weightings

<table>
<thead>
<tr>
<th>Points</th>
<th>Significance Weighting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 30 points</td>
<td>Low</td>
<td>Where this impact would not have a direct influence on the decision to develop in the area</td>
</tr>
<tr>
<td>31-60 points</td>
<td>Medium</td>
<td>Where the impact could influence the decision to develop in the area unless it is effectively mitigated</td>
</tr>
<tr>
<td>&gt; 60 points</td>
<td>High</td>
<td>Where the impact must have an influence on the decision process to develop in the area</td>
</tr>
</tbody>
</table>

vi) The stages at which the competent authority will be consulted

WSP consulted with the DMR on 4 May 2015 and 18 August 2015. The minutes of these meetings are included in Appendix 6.

The DSR will be submitted to the DMR for comment, where after the FSR will be submitted for authorisation. Once the Scoping Phase has been approved the DEIAR will be submitted to the DMR for comment, where after the FEIAR will be submitted for authorisation.

It is anticipated that an authority meeting will be held during the EIR phase.

The Department of Water Affairs (DWA) is the competent authority for the authorisation of the WUL and the Department of Mineral Resources (DMR) is the competent authority for the mining right application.

vii) Particulars of the public participation process with regard to the Impact Assessment process that will be conducted

1. Steps to be undertaken to notify interested and affected parties.
   (These steps must include the steps what will be taken to ensure consultation with the affected parties identified in (h) (ii) herein).

**Public Participation Process**

Public participation during the EIR phase revolves around the review and findings of the environmental impact assessment, which will be presented in the EIR. All stakeholders will be notified of the progress to date and availability of the EIR, via mail, email and advertisements in local newspapers. A legislated period of 60 consecutive days will be allowed for public comment. Reports will be made available in the following way:
- Distribution for comment at central public places, which were used during the Scoping phase.
- The document will be made available to download from the WSP website
- Copies of CDs will be made available on request

Either a public meeting or an open day (depending on specific requests) is proposed to be held during this phase (venue to be confirmed). The meeting/open day will be facilitated by key members of the project team. The purpose of the public meeting or open day will be to present the findings of the impact assessment. Focus group meetings will be held, if required, in accordance with topics of concern raised during the Scoping phase as well as the assessment phase. Stakeholders will be given the opportunity to debate and discuss key issues and concerns.

All comments received during the EIR phase will be recorded in the comments and response report, which will be included in the draft and final EIR. The final EIR will incorporate public comment received on the Draft EIR and will be made available for public review with hard copies distributed mainly to the authorities and key stakeholders.

2. **Details of the engagement process to be followed.**
   (Describe the process to be undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected partied must be specifically consulted regardless of whether or not they attended public meetings and records of such consultation will be required in the EIA at a later stage).

Refer to question vii)(1) above

3. **Description of the information to be provided to Interested and Affected Parties.**
   (Information to be provide must include site plan and sufficient detail of the intended operation and the typical impacts of each activity, to enable them to assess what impact the activities will have on them or on the use of their land).

Refer to question vii)(1) above

viii)**Description of the tasks that will be undertaken during the environmental impacts assessment process**

**Purpose of the Plan of Study**

This Section is intended to provide a summary of the key findings of the Scoping phase of the S&EIR process and to describe the activities to be undertaken in the EIR phase of the S&EIR. Legislatively, the Section is required to provide the following:

- A description of the environmental issues identified during Scoping phase that may require further investigation and assessment
- A description of the feasible design and placement alternatives identified during Scoping that may be further investigated
- An indication of additional information required to determine the potential impacts of the proposed activity on the environment
- A description of the proposed method of identifying these impact
- A description of the proposed criteria for assessing the significance of these impacts

The requirements of Appendix 2 of GNR 982 promulgated in terms of Section 24 of the NEMA have been reviewed in order to ensure compliance therewith. These requirements are as follows:
- A description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity;
- A description of the aspects to be assessed as part of the environmental impact assessment process;
- Aspects to be assessed by specialists;
- A description of the proposed method of assessing the environmental aspects, including a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists;
- A description of the proposed method of assessing duration and significance;
- An indication of the stages at which the competent authority will be consulted;
- Particulars of the public participation process that be conducted during the environmental impact assessment process;
- A description of the tasks that will be undertaken as part of the environmental impact assessment process; and
- Identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

Environmental Impact Reporting phase

Once the FSR and the PoS for the EIR phase have been submitted to and accepted by the DMR, the Proposed Project will proceed into the detailed EIR phase, which involves the detailed specialist investigations. WSP will produce a Draft EIR after the completion of the required specialist studies. The Draft EIR will provide an assessment of all the identified key issues and associated impacts from the Scoping phase. All requirements as contemplated in NEMA GNR 982 and MPRDA GNR 527, Regulation 50, will be included in the Draft EIR. The Draft EIR will contain, inter alia, the following:

- Details of the EAP who prepared the report and the expertise of the EAP to carry out the S&EIR process
- The location of the activity, including; the 21 digit Surveyor General code of each cadastral land parcel, where available, the physical address and farm name; and the coordinates of the boundary of the property or properties
- A plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale
- A description of the scope of the proposed activity, including all listed and specified activities triggered and being applied for; and a description of the associated structures and infrastructure related to the development
- A description of the policy and legislative context within which the development is located and an explanation of how the proposed development complies with and responds to the legislation and policy context
- A motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location
- A motivation for the preferred development footprint within the approved site
- A full description of the process followed to reach the proposed development footprint within the approved site, including:
  - Details of the development footprint alternatives considered
  - Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;
  - A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;
The environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;

The impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts can be reversed, may cause irreplaceable loss of resources and can be avoided, managed or mitigated;

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

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

The possible mitigation measures that could be applied and level of residual risk

If no alternative development locations for the activity were investigated, the motivation for not considering such

A concluding statement indicating the preferred alternative development location within the approved site

A full description of the process undertaken to identify, assess and rank the impacts the activity and associated structures and infrastructure will impose on the preferred location through the life of the activity

An assessment of each identified potentially significant impact and risk

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

An environmental impact statement

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

The final proposed alternatives which respond to the impact management measures, avoidance, and mitigation measures identified through the assessment

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

A description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed

A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation

Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required and the date on which the activity will be concluded and the post construction monitoring requirements finalised

An undertaking under oath or affirmation by the EAP

Where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts

An indication of any deviation from the approved scoping report, including the plan of study any specific information that may be required by the competent authority

Any other matters required in terms of section 24(4)(a) and (b) of the Act.
Way Forward

This Scoping Report contains:

- A description of the existing and proposed activities
- A description of the alternatives considered to date
- An outline of the proposed process to be followed
- Information on the proponent, EAP and stakeholders who have chosen to participate in the project
- An outline of the environment in which the projects fall
- Information on the potential environmental impacts to be studied in more detail during the EIR phase of the project
- Information on the proposed specialist studies to be undertaken

Based on the desktop studies undertaken to date no environmental fatal flaws have been identified that would prohibit the Proposed Project from continuing at this stage of the process. However, a number of potentially significant environmental impacts have been identified as requiring some more in-depth investigation and the identification of detailed mitigation measures. Therefore, a detailed EIA is required to be undertaken in order to provide an assessment of these potential impacts and recommend appropriate mitigation measures, where required.

The recommendation of this report is that detailed specialist studies are undertaken on the proposed site and the no-go alternative. The scope of work required in the EIR phase of the project is included in the PoS for EIA.

The DSR will be placed on public review for a period of 30 days from 8 September 2015 to 9 October 2015. All issues and comments must be submitted in writing to WSP and will be incorporated in the Comment and Repose Report.

The submission of the FSR to the delegated competent authorities responsible for authorising this project, in this case the DMR, will consider the findings in consultation with various other authorities and issue a decision to proceed onto the next phase, that being the EIR phase.

If you have any further enquiries, please feel free to contact:

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Tel: 011 300 6089
Fax: 011 361 1381
E-mail: Anri.Scheepers@wspgroup.co.za
ix) Measures to avoid, reverse, mitigate, or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>POTENTIAL IMPACT</th>
<th>MITIGATION TYPE</th>
<th>POTENTIAL FOR RESIDUAL RISK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whether listed or not listed. (E.g. Excavations, blasting, stockpiles, discard dumps, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.).</td>
<td>(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc…etc…)</td>
<td>(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. …etc.)</td>
<td>E.g. Modify through alternative method. Control through noise, control through management and monitoring through rehabilitation.</td>
</tr>
</tbody>
</table>

The Environmental Management Programme Report will be determined and incorporated into the EIR Phase.

I. Other Information required by the competent Authority

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

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

Socio-Economic Impact Assessment

The Socio-Economic Impact Assessment will be undertaken by WSP Environmental. This study will provide valuable socio-economic input for inclusion in the reporting associated with the environmental authorisation process. The socio-economic screening study will include a socio-economic profile of the study area. A profile of the communities and stakeholders potentially affected by the Proposed Project will be generated. The profile will be generated from a desktop review of existing data sources in order to contextualise the socio-economic environment in which the project is proposed; as well as the identification and description of socio-economic impacts associated with Proposed Project – these will be identified and described for inclusion in the impact assessment for the Proposed Project. Consideration will be given to both construction and operational impacts including direct and indirect job creation, local economic development opportunities, and potential secondary socio-economic impacts including security and health related aspects.

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

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

**Heritage Impact Assessment**

The study will be undertaken by Dr Julius Pistorius an archaeologist and heritage consultant. The assessment will be undertaken in accordance with requirements for such a study outlined in the NHRA. The objective of the assessment will be to identify heritage and cultural resources and the development of measures to manage the expected impact on such resources. Mining will disturb a large surface area. Section 38 of the NHRA requires that all developments exceeding 5000 m$^2$ shall undertake a heritage assessment.

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

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

**Alternatives Considered**

**Location Alternatives**

Due to the fact that the location of the mining operation is determined by the viability of the coal reserve, there is no alternative location. Internal mine layouts have been optimised to take into account environmental constraints such as the pans and wetlands.

**Linear Alternatives**

A portion of the road between the Middelburg and Stoffberg road and the Afgri Pan Siding will be impacted by the proposed mining activities and will therefore be required to be diverted. The road in question, currently joins the R555 (tar road from Middelburg to Stoffberg) to the Afgri Pan Siding and to the R104 (tar road from Middelburg to Wonderfontein). The road is currently used by local farmers and inhabitants of the area. The upgrade and diversion will take this into consideration. The local community will still have access to the road and the mine will need to ensure that all signage and road safety warnings are adequate to safeguard other road users about the danger of heavy vehicles on the road.

The road from the R555 to the mine entrance is in a serviceable condition and will be maintained as such. The upgrade is to ensure that coal can be transported from the plant to the siding economically and safely.

**Design Alternatives**

**Mining method**

Underground mining is not considered as a viable alternative, as the two target seams are simply too shallow (average depth of 40m) for underground mining. Moreover, an underground operation will be too capital extensive. Opencast mining is considered the preferred mining method and will be investigated in more detail during the EIR phase.

**Discard disposal**

The construction of discard disposal will increase the mine’s footprint, and pose a potential dust source. In order to prevent the ingress of pollutants into the groundwater, this tailings dam will need to be lined. The washing of the coal by a third party obviously negates the necessity of discard disposal on-site. However, due to the location of the reciprocal third party, the transport costs will add a significant cost to the project. The necessity of discard disposal will be investigated in more detail during the EIR phase.
**Siding**

There are two potential sidings available for use by the mine, however, the Arnot Siding is located further east of the Afgri Siding. The costs associated with the Arnot Siding will add a significant cost to the project. The Afgri Siding is considered to be the preferred option and will be investigated in more detail during the EIR phase.

**No-go Alternative**

The ‘no-go’ option will be a scenario in which there will be no mining. The reserves will not be mined, and no income generation will be realised. The area will remain a predominantly agricultural area.

South Africa has a recent history of power outages, and as such requires coal for the generation of power. The Rietvlei project has been earmarked for such a supply and the ‘no-go’ scenario will result in such supply not being realised.

The establishment of the mining operation will result in a cash injection into secondary industries such as contractors, manufacturers and suppliers. These secondary industries will not benefit if there is no mining. In addition to this, the SLP will not be implemented. This will result in no investment within the local community, and as a result there will be a loss in the potential for community upliftment.