Final Basic Assessment Report

12/1/9/1- M101

Final Basic Assessment report for the expansion of production facilities at Bosveld Phosphates with the construction of a Single Superphosphates plant on the farm Wegsteek 30 LU in the Phalaborwa Local Municipality, Limpopo Province

Prepared for: **Bosveld Phosphates (Pty) ltd**

May 2015

Document version 2.0 – Final

Compiled by HP Jannasch

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Final Basic Assessment report for the expansion of production facilities at Bosveld Phosphates with the construction of a Single Superphosphates plant on the farm Wegsteek 30 LU in the Phalaborwa Local Municipality, Limpopo Province

May 2015

Conducted on behalf of:

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Attention:

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REPORT DISTRIBUTION LIST

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Me TL Moyana	Department of Economic Development, Environment and Tourism (LEDET) (5 copies)
	Registered I&AP's

DOCUMENT HISTORY

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12/1/9/1-M101	April 2015	1.0	Draft
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1 GENERAL INFORMATION

AGES Limpopo (Pty) Ltd, was appointed by Bosveld Phosphates (Pty) Ltd to conduct an Environmental Impact Assessment to obtain the necessary authorisation for proposed expansion of die Bosveld facilities to include an Single Superphosphates production unit at the Bosveld Phosphates site in Phalaborwa. The site is located on the farm Wegsteek 30 LU in the jurisdiction of the Phalaborwa Local Municipality in Limpopo Province. (Appendix A).

1.1 Project Objective

The Basic Assessment Report was done with the objective to supply the Limpopo Department of Economic Development, Environment and Tourism, with the necessary environmental information and to comply with the requirements of the environmental regulations, R543 and R544, promulgated on 18 June 2010. These regulations are promulgated in terms of Section 24(5) of the National Environmental Management Act, Act 107 of 1998. The proposed development is classified under activity 28, namely "*The expansion of or changes to existing facilities for any process or activity where such expansion or changes to will result in the need for a permit or license in terms of national or provincial legislation governing the release of emissions or pollution, excluding where the facility, process or activity is included in the list of waste management activities published in terms of section 19 of the National Environmental Management : Waste Act (Act 59 of 2008) in which case that Act will apply.*", of the mentioned regulations.

2 PROJECT DESCRIPTION

2.1 Project Locality

The project is located within the Phalaborwa Local Municipality area of jurisdiction. The proposed project is situated approximately 4 km south west of the town of Phalaborwa and directly south of the heavy industrial area of Phalaborwa on the farm Wegsteek 30 LU. See Map in Appendix A.

2.2 Nature of Activity

The proposed project entails the construction of facilities to produce single superphosphates (SSP) fertiliser from phosphate rock and sulphuric acid, two products that are already used and available on the Bosveld phosphates site. The design and technical details of the facility is shown in the facility drawings in Appendix C of the Basic

Assessment Report.

3 DESCRIPTION OF THE AFFECTED ENVIRONMENT

3.1 Land Use

The proposed location for the SSP production facility construction is located on a site where the main land use is fertiliser production. The Schalk Agricultural small holdings to the west and south of the Bosveld Phosphates site with the heavy industrial area to the north and Palabora Mining Company to the east of the site are other land uses in the area.

The site itself is mainly used for the production of Phosphate fertilizers from phosphate rock and sulphuric acid. There are still large natural areas left on the site.

3.2 Climate

Mean annual precipitation for the project area ranges from about 400 - 600mm. Aspects like topography, slope and altitude may result in differences in precipitation and water availability to plants within the study area. High temperatures are registered during the summer and frost is generally non-existent in the winter. The monthly maximum and minimum temperatures for the Phalaborwa area is 38.4˚C and 5.7˚C for January and July respectively

3.3 Surface drainage

The site is located within the B72K quaternary catchment and is situated in the Olifants Water Management Area. The study area is drained mainly by means of surface run-off (i.e. sheetwash), with water collecting along drainage channels and flowing in the Selati River to the west and south west of the development. The slope of the area is very gentle.

3.4 Groundwater

No groundwater for the development will be used on the site. There are however a large number of boreholes on the larger Bosveld Phosphates site which is used for the monitoring of groundwater quality.

Sewage disposal will be to a sewage treatment facility on the Bosveld Phosphates site and the treated water is re-used in the fertiliser production processes on the site.

3.5 Air Quality

An air quality impact assessment was done which is appended to the report in Appendix D. An Air Emissions License (AEL) application for the amendment of the AEL of Bosveld Phosphates was submitted to LEDET on 13 April 2015.

4 PUBLIC PARTICIPATION PROCESS

4.1 PROCESS FOLLOWED

4.1.1 Newspaper Advertisement

The proposed project was advertised in two local newspapers namely the "Phalaborwa Herald" and the "Review" on the 28th of November 2014 to inform people about the project and request them to identify environmental issues of concern. It also contained an invitation to respond to environmental issues and concerns of the proposed development. An example of both these adverts is attached in Appendix E.

4.1.2 Site Notice

Site advertisements in English were put up at the entrance to the site (Bosveld Phosphates), the Local municipality offices as well as the library on 27 November 2014. An example of these notices as well as photos of placement of the notices are attached in Appendix E.

4.1.3 Background Information Notices.

The directly adjoining property owners and interested and affected parties who indicated an interest in the project where notified by fax, e-mail or hand delivery of the proposed development by means of a background information document.

Background information documents were also sent to:

- Limpopo Department of Economic Development, Environment and Tourism
- Department of Water Affairs.
- National Department of Agriculture.
- Ba Phalaborwa Municipality.
- Mopani District Municipality
- SANPARKS
- Department of Defence, 5 Recce Unit
- Transnet

Comments on the background information notice was received from the Ba-Phalaborwa Municipality. The comments covered the following issues:

- Environmental issues like disaster management plan Hazmat plan, preventative measures for soil and water pollution like what happened in the December 2013 disaster.
- Socio-Economic issues like job creation for local people
- Safety and security –water safety, minimised air pollution and general preservation of the environment.
- Cultural/historical issues like National or provincial protected species and tree removal in terms of the Ba-Phalaborwa tree Policy.

A response was sent to the Municipality and the comments as well as the response to it is included in the comments and response report in Appendix E.

An example of the background information document is included in Appendix E.

4.1.4 Draft Basic Assessment Report

A draft Basic Assessment Report (BAR) was sent out for public review and the report was available for comments for 40 days. Comments were received from the Department of Water and Sanitation. The comments covered the following issues:

- Mitigation measures to be followed in the EMPr
- Water use licensing issues
- Water pollution issues
- Waste management issues.

A response was sent to the DWS and the comments as well as the response to it is included in the comments and response report in Appendix E.

Comments was also received from the Department of Agriculture, Forestry and Fisheries (DAFF). The comments covered the following issues:

- Utilisation of Wetlands
- Regulating the flow pattern of run-off water
- Restoration and reclamation of eroded land and preservation of topsoil
- Control of ***Category 1*** plants

A response was set to the DAFF and the comments as well as the response to it is

included in the comments and response report in Appendix E.

4.1.5 Site visit by LEDET

A site visit was conducted by LEDET on 23 April 2015. The applicant as well as AGES was also present at the site visit.

5 CONCLUSIONS AND RECOMMENDATIONS

The Department is therefore respectfully requested to evaluate this Basic Assessment report, as part of an application that has been lodged in terms of section 24(5) of the National Environment Management Act, 1989, (Act no 107 of 1998), in respect of the activities identified in regulation R 544 of 18 June 2010 of the said act.

6 REFERENCES

DEAT (2002) Stakeholder Engagement, Integrated Environmental Management, Information Series 3, Department of Environmental Affairs and Tourism (DEAT), Pretoria

DEAT (2002) Screening, Information Series 1, Department of Environmental Affairs and Tourism (DEAT), Pretoria

DEAT (2004) Criteria for determining Alternatives in EIA, Integrated Environmental Management, Information Series 11, Department of Environmental Affairs and Tourism (DEAT), Pretoria

DEAT (2004) Cumulative Effect Assessment, Integrated Environmental Management, Information Series 7, Department of Environmental Affairs and Tourism (DEAT), Pretoria

DEAT (2004) Environmental Management Plans, Integrated Environmental Management, Information Series 12, Department of Environmental Affairs and Tourism (DEAT), Pretoria

DEAT (2004) Review in Environmental Impact Assessment, Integrated Environmental Management, Information Series 13, Department of Environmental Affairs and Tourism. (DEAT), Pretoria.

DEAT (2004) Environmental Impact Reporting, Integrated Environmental Management, Information Series 15, Department of Environmental Affairs and Tourism (DEAT), Pretoria.

DEAT (2002) Impact Significance, Integrated Environmental Management, Information Series 5, Department of Environmental Affairs and Tourism (DEAT), Pretoria.

Municipal Demarcation Board: http://www.demarcation.org.za/

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
ECONOMIC DEVELOPMENT, ENVIRONMENT & TOURISM

BASIC ASSESSMENT REPORT - EIA REGULATIONS, 2010

Basic Assessment report in terms of the Environmental Impact Assessment Regulations, 2010, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

File Reference Number:	
	(For official use only)
NEAS Reference Number:	
Date Received:	
Due date for acknowledgement:	
Due date for acceptance:	
Due date for decision	

Kindly note that:

1. The report must be compiled by an independent Environmental Assessment Practitioner.

2. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.

3. Where applicable **tick** the boxes that are applicable in the report.

4. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the Department of Economic Development, Environment and Tourism as the competent authority (Department) for assessing the application, it may result in the rejection of the application as provided for in the regulations.

5. An incomplete report may be returned to the applicant for revision.

6. Unless protected by law, all information in the report will become public information on receipt by the department. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.

7. The Act means the National Environmental Management Act (No. 107 of 1998) as amended.

8. Regulations refer to Environmental Impact Assessment (EIA) Regulations of 2010.

9. The Department may require that for specified types of activities in defined situations only parts of this report need to be completed. No faxed or e-mailed reports will be accepted.

10. This application form must be handed in at the offices of the Department of Economic Development, Environment and Tourism:-

Postal Address:	**Physical Address**:
Central Administration Office Environmental Impact Management P. O. Box 55464 **POLOKWANE** 0700	Central Administration Office Environmental Affairs Building Cnr Suid and Dorp Streets **POLOKWANE** 0699

Queries should be directed to the Central Administration Office: Environmental Impact Management:-

For attention: Mr E. V. Maluleke

Tel: (015) 290 7138/ (015) 290 7167

Fax: (015) 295 5015

Email: malulekeev@ledet.gov.za

View the Department's website at http://www.ledet.gov.za/ for the latest version of the documents.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?	■	NO

If YES, please complete the form entitled "Details of specialist and declaration of interest" or appointment of a specialist for each specialist thus appointed:

Any specialist reports must be contained in Appendix D.

1. ACTIVITY DESCRIPTION

Describe the activity, which is being applied for, in detail[1]:

The project entails the expansion of production facilities at Bosveld Phosphates in Phalaborwa with the construction of a Single Super Phosphates (SSP) production plant.

Raw materials to be used will be sulphuric acid (11400 t/a) and phosphate rock fines (24 000 t/a). Both these raw products are available locally. Ground phosphate rock and acid are mixed in a reaction vessel, held in an enclosed area for about 30 minutes until the reaction is partially completed, and then transferred, using an enclosed conveyer known as the den, to a storage pile for "curing" (the completion of the reaction). About 2400 t/a of water will be used in the process. See also the process flow diagram in the Air quality report in Appendix D of this report.

After this process the fine product (SSP) is granulated and bagged for distribution. There will be 30 000 t/a of single superphosphates produced per year. Approximately 70 trucks will enter and exit the facility per month.

The sulphuric acid and phosphate fines are stored on site for other processes already.

Sources of emissions at a super phosphate plant include raw material unloading and feeding, mixing operations (in the reactor), storage (in the curing building), and fertilizer handling operations. Unloading, handling and feeding generate particulate emissions of phosphate rock dust. The mixer, den and curing building emit gases in the form of sulphur dioxide, silicon tetrafluoride (SiF4), hydrogen fluoride (HF) and particulates composed of fluoride and phosphate material. Fertilizer handling operations release fertilizer dust.

Air quality will be managed by an effective air wet scrubbing system for the mixer and the den. The emissions from the unloading, handling and feeding operations are controlled by a bag house.

The fluoride which is in the phosphate ore, reacts with the sulphuric acid to form HF gas. To remove the fluoride from the process which evolves from the reactor, the gases are passed through a water scrubbing plant which contains lime. The lime neutralises the fluoride and captures it in the form of calcium fluoride, a very insoluble material which is filtered out and can be sold as a value product for the manufacture of fluoro plastics and other fluoride containing industrial products. The solubility of the calcium fluoride is extremely low and exist in nature as a mineral. It is the only by-product of this process.

2. FEASIBLE AND REASONABLE ALTERNATIVES

[1] Please note that this description should not be a verbatim repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description.

"alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives 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.

Describe alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the Department may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Paragraphs 3 – 13 below should be completed for each alternative.

3. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

List alternative sites, if applicable.

Alternative:	**Latitude (S):**			**Longitude (E):**		
Alternative S1[2] (preferred or only site alternative)	23˚	58'	42"	31˚	06'	18"
Alternative S2 (if any)	°	'	"	°	'	"
Alternative S3 (if any)	°	'	"	°	'	"

In the case of linear activities:

Alternative:	**Latitude (S):**			**Longitude (E):**		
Alternative S1 (preferred or only route alternative)						
• Starting point of the activity	°	'	"	°	'	"

[2] "Alternative S.." refer to site alternatives.

• Middle/Additional point of the activity	°	'	"	°	'	"
• End point of the activity	°	'	"	°	'	"

Alternative S2 (if any)

• Starting point of the activity	°	'	"	°	'	"
• Middle/Additional point of the activity	°	'	"	°	'	"
• End point of the activity	°	'	"	°	'	"

Alternative S3 (if any)

• Starting point of the activity	°	'	"	°	'	"
• Middle/Additional point of the activity	°	'	"	°	'	"
• End point of the activity	°	'	"	°	'	"

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:	**Size of the activity:**
Alternative A1[3] (preferred activity alternative)	1700 m^2
Alternative A2 (if any)	m^2
Alternative A3 (if any)	m^2

or,

<u>for linear activities:</u>

Alternative:	**Length of the activity:**
Alternative A1 (preferred activity alternative)	m
Alternative A2 (if any)	m
Alternative A3 (if any)	m

Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:	**Size of the site/servitude:**
Alternative A1 (preferred activity alternative)	m^2

[3] "Alternative A.." refer to activity, process, technology or other alternatives.

Alternative A2 (if any)	m^2
Alternative A3 (if any)	m^2

5. SITE ACCESS

Does ready access to the site exist?	**YES**	■
If NO, what is the distance over which a new access road will be built	m	

Describe the type of access road planned:

The site is part of an established fertiliser factory site with all roads on the site already constructed.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

6. SITE OR ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

6.1 the scale of the plan which must be at least a scale of 1:500;
6.2 the property boundaries and numbers of all the properties within 50 metres of the site;
6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
6.4 the exact position of each element of the application as well as any other structures on the site;
6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
6.6 all trees and shrubs taller than 1.8 metres;
6.7 walls and fencing including details of the height and construction material;
6.8 servitudes indicating the purpose of the servitude;
6.9 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):
- rivers;
- the 1:100 year flood line (where available or where it is required by Department of Water Affairs);
- ridges;
- cultural and historical features;

- areas with indigenous vegetation (even if it is degraded or invested with alien species);

6.10 for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and

6.11 the positions from where photographs of the site were taken.

7. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this form**.** It must be supplemented with additional photographs of relevant features on the site, if applicable.

8. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

9. ACTIVITY MOTIVATION

9(a) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R800 000
What is the expected yearly income that will be generated by or as a result of the activity?	R54 m
Will the activity contribute to service infrastructure?	[redacted] NO
Is the activity a public amenity?	[redacted] NO
How many new employment opportunities will be created in the development phase of the activity?	15
What is the expected value of the employment opportunities during the development phase?	R120 000
What percentage of this will accrue to previously disadvantaged individuals?	70 %
How many permanent new employment opportunities will be created during the operational phase of the activity?	0
What is the expected current value of the employment opportunities during the first 10 years?	R36 m
What percentage of this will accrue to previously disadvantaged individuals?	90 %

9(b) Need and desirability of the activity

Motivate and explain the need and desirability of the activity (including demand for the activity):

NEED:

i.	Was the relevant municipality involved in the application?	■	NO
ii.	Does the proposed land use fall within the municipal Integrated Development Plan?	YES	■
iii.	If the answer to questions 1 and / or 2 was NO, please provide further motivation / explanation:		
	Bosveld Phosphates is a private company involved with the production of fertilizers on their site. This project is an expansion of their activities.		

DESIRABILITY:			
i.	Does the proposed land use / development fit the surrounding area?	YES	■
ii.	Does the proposed land use / development conform to the relevant structure plans, Spatial development Framework, Land Use Management Scheme, and planning visions for the area?	YES	■
iii.	Will the benefits of the proposed land use / development outweigh the negative impacts of it?	YES	■
iv.	If the answer to any of the questions 1-3 was NO, please provide further motivation / explanation:		
v.	Will the proposed land use / development impact on the sense of place?	■	NO
vi.	Will the proposed land use / development set a precedent?	■	NO
vii.	Will any person's rights be affected by the proposed land use / development?	■	NO
viii.	Will the proposed land use / development compromise the "urban edge"?	■	NO
ix.	If the answer to any of the question 5-8 was YES, please provide further motivation / explanation.		

BENEFITS:			
i.	Will the land use / development have any benefits for society in general?	YES	■
ii.	Explain: There is an acute shortage of both phosphate and sulphur as fertilizers in the Limpopo region, farmers are unable to access sufficient fertilizer to keep their farms and orchards producing at an efficient rate, if this shortage continues incomes of farmers in the area will fall and cause a loss of farm jobs.		

iii.	Will the land use / development have any benefits for the local communities where it will be located?	YES	■
iv.	Explain: It will provide jobs in an area with a high percentage of jobless people.		

10. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline:	Administering authority:	Date:
Constitution of South Africa (Act 108 of 1996)	National Government	1996
National Environmental Management Act (Act no 107 of 1998)	LEDET	1998
National Environmental Management Air quality Act (Act no 39 of 2004)	LEDET	2004
National Water Act (Act no 36 of 1998)	DWA	1998
National Heritage Resources Act (Act 25 of 1999)	SAHRA	1999

11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

11(a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	YES	■
If yes, what estimated quantity will be produced per month? (6 Months)	400 m^3	

How will the construction solid waste be disposed of (describe)?

It will be delivered to the Phalaborwa solid waste site

Where will the construction solid waste be disposed of (describe)?

Phalaborwa Solid waste disposal site

Will the activity produce solid waste during its operational phase?	YES	■
If yes, what estimated quantity will be produced per month?	2m^3	

How will the solid waste be disposed of (describe)?

A contract with a local recycling operator is in place to separate and recycle all domestic waste. All waste will be recycled. Appointment of contractor attached in Appendix G

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

A contract with a local recycling operator is in place to separate and recycle all domestic waste. All waste will be recycled

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the department to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?	■	NO

If yes, inform the department and request a change to an application for scoping and EIA.

Is the activity that is being applied for a solid waste handling or treatment facility?	■	NO

If yes, then the applicant should consult with the Department to determine whether it is necessary to change to an application for scoping and EIA.

11(b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	■	NO
If yes, what estimated quantity will be produced per month?		m^3
Will the activity produce any effluent that will be treated and/or disposed of on site?	■	NO

If yes, the applicant should consult with the Department to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility?	■	NO

If yes, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

11(c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere?	YES	■
If yes, is it controlled by any legislation of any sphere of government?	YES	■

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.
If no, describe the emissions in terms of type and concentration:

Sources of emissions at a super phosphate plant include raw material unloading and feeding, mixing operations (in the reactor), storage (in the curing building), and fertilizer handling operations. Unloading, handling and feeding generate particulate emissions of phosphate rock dust. The mixer, den and curing building emit gases in the form of Sulphur dioxide, silicon tetrafluoride (SiF_4), hydrogen fluoride (HF) and particulates composed of fluoride and phosphate material. Fertilizer handling operations release fertilizer dust.
It is unlikely that the process independently, would result in annual average PM_{10} concentrations above the national standard of 40µg/m^3 at receivers further than 500m from the plant boundary.
Air quality will be managed by an effective air wet scrubbing system for the mixer and the den. The emissions from the unloading, handling and feeding operations are controlled by a bag house (See Air quality report in Appendix D.
The air quality impact of the SSP plant separately is relatively small but it adds to the impact of the total Bosveld Phosphates site. These impacts separately and as part of the Bosveld site is rated in the Air Quality Impact Report in Appendix D.

11(d) Generation of noise

Will the activity generate noise?	YES	■
If yes, is it controlled by any legislation of any sphere of government?	■	NO

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.
If no, describe the noise in terms of type and level:

The noise is generated by the operation of the plant. It will be intermittent noises of the revolving drums and vehicles loading and unloading at the site. The noise generated on site is similar in character to the rest of the factory noises.

12. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es)

municipal	~~water board~~	groundwater	river, stream, dam or lake	other	the activity will not use water

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate

the volume that will be extracted per month:		240 000Litres
Does the activity require a water use permit from the Department of Water Affairs?	■	NO

If yes, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this application if it has been submitted.

13. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

The will be generators to generate power in the case of power cuts by the service provider.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C Copy No. (e.g. A):

2. Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section? NO

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed:

All specialist reports must be contained in Appendix D.

Property description/physical address:	Farm Wegsteek 30 LU, Phalaborwa
	(Farm name, portion etc.) Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application.
	In instances where there is more than one town or district involved, please attach a list of towns or districts to this application.
Current land-use zoning:	Industrial

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to , to this application.

Is a change of land-use or a consent use application required?	NO
Must a building plan be submitted to the local authority?	NO

Locality map:

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.) The map must indicate the following:

- an indication of the project site position as well as the positions of the alternative sites, if any;
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection)

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

Flat						

Alternative S2 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S3 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

2.1 Ridgeline		2.6 Plain	**X**
2.2 Plateau		2.7 Undulating plain / low hills	
2.3 Side slope of hill/mountain		2.8 Dune	
2.4 Closed valley		2.9 Seafront	

2.5 Open valley	

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following (tick the appropriate boxes)?

	Alternative S1:		Alternative S2 (if any):		Alternative S3 (if any):	
Shallow water table (less than 1.5m deep)	[redacted]	NO	YES	NO	YES	NO
Dolomite, sinkhole or doline areas	[redacted]	NO	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)	[redacted]	NO	YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil	[redacted]	NO	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)	[redacted]	NO	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	[redacted]	NO	YES	NO	YES	NO
Any other unstable soil or geological feature	[redacted]	NO	YES	NO	YES	NO
An area sensitive to erosion	[redacted]	NO	YES	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. (Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted).

4. GROUNDCOVER

Indicate the types of groundcover present on the site:

The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	Paved surface	Building or other structure	[redacted]

If any of the boxes marked with an "E "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

5. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that does currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

5.1 Natural area	X	5.22 School	
5.2 Low density residential		5.23 Tertiary education facility	
5.3 Medium density residential		5.24 Church	
5.4 High density residential		5.25 Old age home	
5.5 Medium industrial [AN]		5.26 Museum	
5.6 Office/consulting room		5.27 Historical building	
5.7 Military or police base/station/compound		5.28 Protected Area	
5.8 Spoil heap or slimes dam [A]	X	5.29 Sewage treatment plant [A]	X
5.9 Light industrial		5.30 Train station or shunting yard [N]	X
5.10 Heavy industrial [AN]	X	5.31 Railway line [N]	X
5.11 Power station		5.32 Major road (4 lanes or more)	
5.12 Sport facilities		5.33 Airport [N]	
5.13 Golf course		5.34 Harbour	
5.14 Polo fields		5.35 Quarry, sand or borrow pit	
5.15 Filling station [H]		5.36 Hospital/medical centre	
5.16 Landfill or waste treatment site		5.37 River, stream or wetland	
5.17 Plantation		5.38 Nature conservation area	
5.18 Agriculture		5.39 Mountain, koppie or ridge	
5.19 Archaeological site		5.40 Graveyard	
5.20 Quarry, sand or borrow pit		5.41 River, stream or wetland	
5.21 Dam or Reservoir	X	5.42 Other land uses (describe)	

If any of the boxes marked with an "[N] "are ticked, how will this impact / be impacted upon by the proposed activity?

The rails and railway shunting yard is used for the industrial sites The development wil not influence negatively on the railway lines or station In fact one of the railway lines is located close to the site and is used for loading the product

If any of the boxes marked with an "[An]" are ticked, how will this impact / be impacted upon by the proposed activity?

If YES, specify and explain:	
If NO, specify:	It will not impact the activitiy.it is part of the same site and operations are similar

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity.

If YES, specify and explain:	
If NO, specify:	

6. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including	[redacted]	NO
Archaeological or palaeontological sites, on or close (within 20m) to the site?	[redacted]	
If YES, explain:		
If uncertain, conduct a specialist investigation by a recognised specialist in the field to establish whether there is such a feature(s) present on or close to the site.		
Briefly explain the findings of the specialist:	No management or mitigation measures are required. No *other significant heritage resources* such as archaeological or historical material or places of social or religious significance were found on the site of the proposed development. *From a heritage resources management point of view, there is no objection with regard to the development*.-HIA report in Appendix D	
Will any building or structure older than 60 years be affected in any way?	[redacted]	NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	[redacted]	NO
If yes, please submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.		

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

(a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the department) at a place conspicuous to the public at the boundary or on the fence of—

  (i) the site where the activity to which the application relates is or is to be undertaken; and

  (ii) any alternative site mentioned in the application;

(b) giving written notice to—

(i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;

(ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;

(iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;

(iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;

(v) the municipality which has jurisdiction in the area;

(vi) any organ of state having jurisdiction in respect of any aspect of the activity; and

(vii) any other party as required by the department;

(c) placing an advertisement in—

(i) one local newspaper; or

(ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;

(d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the local municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and

(e) using reasonable alternative methods, as agreed to by the department, in those instances where a person is desiring of but unable to participate in the process due to—

(i) illiteracy;

(ii) disability; or

(iii) any other disadvantage.

2. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

(a) indicate the details of the application which is subjected to public participation; and

(b) state—

(i) that the application has been submitted to the department in terms of these Regulations, as the case may be;

(ii) whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation;

(iii) the nature and location of the activity to which the application relates;

(iv) where further information on the application or activity can be obtained; and

(v) the manner in which and the person to whom representations in respect of the application may be made.

3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the department in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of these Regulations.

Advertisements and notices must make provision for all alternatives.

4. DETERMINATION OF APPROPRIATE MEASURES

The practitioner must ensure that the public participation is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate. Please note that public concerns that emerge at a later stage that should have been addressed may cause the department to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

5. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before the application is submitted. The comments and responses must be captured in a comments and response report as prescribed in these Regulations and be attached to this application. The comments and response report must be attached under Appendix E.

6. AUTHORITY PARTICIPATION

Please note that a complete list of all organs of state and or any other applicable authority with their contact details must be appended to the basic assessment report or scoping report, whichever is applicable.

Authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input.

Name of Authority informed:	**Comments received (Yes or No)**
LEDET	No
DWA	No

Lepelle Northern Water	No
Ba-Phalaborwa Local municipality	Yes
Mopane District Municipality	No
Kruger National Park	No

7. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for linear activities, or where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that subregulation to the extent and in the manner as may be agreed to by the department.

Proof of any such agreement must be provided, where applicable.

Has any comment been received from stakeholders?

YES	■

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

Mr E v Vollenstee from Spoornet:

- **Soil and water pollution**

The storage of all phosphate rock and curing product will be on concrete slabs and covered by a roof. Any water emanating from these areas are channelled to the Pollution control dams already on the premises. A new pollution control dam for polluted rainwater from the terrain is also in planning and the studies for the authorisation to construct it are underway.

- **More security needed as there will be more crime**

The security system at Bosveld Phosphates is up to date and will manage all the security issues on the terrain. The SSP plant will form an integral part of the Bosveld Phosphates site which is all guarded by the Bosveld security system. If any problems are experienced, the head of security at Bosveld Phosphates can be contacted

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

- Soil and water pollution
- More crime as there will be more people
- Need disaster management plan with risk assessment
- Need full response protocol plan (HAZMAT)
- Job creation for local people
- Water safety, minimize air pollution, preserve the environment

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached to this report as Annexure E):

- Soil and water pollution will be managed as part of the Bosveld pollution control plans already in place on the site
- There is strict security at the site and it will be kept that way
- A disaster management plan and a HAZMAT plan will be attached to the report.
- Local people will be favoured in the creation of jobs at the factory
- Preservation of the environment and prevention of pollution is part of the operational procedures at the factory.

2. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

List the potential direct, indirect and cumulative property/activity/design/technology/operational alternative related impacts (as appropriate) that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed.

ENVIRONMENTAL IMPACT DETERMINATION AND EVALUATION

An environmental impact is defined as a change in the environment, be it the physical/chemical, biological, cultural and or socio-economic environment. Any impact can be related to certain aspects of human activities in this environment and this impact can be either positive or negative. It could also affect the environment directly or indirectly and the effect of it can be cumulative.

METHODOLOGY TO ASSESS THE IMPACTS

To assess the impacts on the environment, the process will be divided into two main phases namely the Construction phase and the Operational phase. The activities, products and services present in these two phases will be studied to identify and predict all possible impacts. In any process of identifying and recognising impacts, one must recognise that the determination of impact significance is inherently an anthropocentric concept. Duinker and Beanlands, (1986) in DEAT 2002. Thompson (1988), (1990) in DEAT 2002 stated that the significance of an impact is an expression of the cost or value of an impact to society. However, the tendency is always towards a system of quantifying the significance of the impacts so that it is a true representation of the existing situation on site. This will be done by using where ever possible, legal and scientific standards which are applicable

The significance of the aspects/impacts of the process will be rated by using a matrix derived from Plomp (2004) and adapted to some extent to fit this process. These matrixes use the consequence and the likelihood of the different aspects and associated impacts to determine the significance of the impacts.

The *consequence matrix* use parameters like *severity*, *duration* and *extent* of impact as well as *compliance* to standards. Values of 1-5 are assigned to the parameters that are added and averaged to determine the overall consequence. The same process is followed with the *likelihood* that consists of two parameters namely *frequency* and *probability*. The overall consequence and the overall likelihood are then multiplied to give values ranging from 1 to 25. These values as shown in the following table are then used to rank the significance. It must be said however that in the end, a subjective judging of an impact can still be done, but the reasons for doing so must be qualified.

Table 1 : Significance ratings (Plomp 2004)

Significance	Low	Low-Medium	Medium	Medium-High	High
Overall Consequence X Overall Likelihood	1-4.9	5-9.9	10-14.9	15-19.9	20-25

Description of the parameters used in the matrixes

Severity

Low	Low cost/high potential to mitigate. Impacts easily reversible, non harmful insignificant change/deterioration or disturbance to natural environments
Low-medium	Low cost to mitigate Small/ potentially harmful Moderate change/deterioration or disturbance to natural environment.
Medium	Substantial cost to mitigate. Potential to mitigate and potential to reverse impact. Harmful Significant change/ deterioration or disturbance to natural environment
Medium-high	High cost to mitigate. Possible to mitigate Great/Very Harmful Very significant change/deterioration or disturbance to natural environment

High	Prohibitive cost to mitigate. Little or no mechanism to mitigate. Irreversible. Extremely Harmful Disastrous change/deterioration or disturbance to natural environment

Duration

Low	Up to one month
Low-medium	One month to three months
Medium	Three months to one year
Medium-high	One to ten years
High	Beyond ten years

Extent

Low	Footprint area
Low-medium	Bosveld Phosphates
Medium	Adjacent properties
Medium-high	Extension 5 of Phalaborwa
High	Ba-Phaborwa and Limpopo areas

Frequency

Low	Once/more a year or once/more during operation
Low-medium	once/more in 6 months
Medium	once/more a month
Medium-high	Once/more a week
High	Daily

Probability

Low	Almost never/almost impossible
Low-medium	Very seldom/highly unlikely
Medium	Infrequent/unlikely/seldom
Medium-high	Often/Regularly/Likely/Possible
High	Daily/Highly likely/definitely

Compliance

The following criteria are used during the rating of possible impacts.

Low	Best Practice
Low-medium	Compliance
Medium	Noncompliance/conformance to Policies etc-Internal
Medium-high	Non-compliance/conformance to Legislation etc-External
High	Directive, prosecution of closure or potential for non-renewal of licences or rights

ASPECTS, RELATED IMPACTS, SIGNIFICANCE AND PROPOSED MITIGATION MEASURES

In this section, all the possible impacts that can be predicted in both the construction and operational phases will be addressed. Specific mitigation measures will be proposed and the significance of these impacts will be given with and without mitigation measures.

AIR QUALITY AND NOISE

Construction Phase

The impact on air quality during construction will be from the clearing of site, possible burning of waste and noxious emissions from construction vehicles; little dust will be generated as the tarred road to the site already exists. Noise will be a factor

Operational phase

More impact on air quality can be expected from the gases that will be emitted into the atmosphere from the plant during operation. Sources of emissions at a fertilizer plant include raw material unloading and feeding, mixing operations (in the reactor), storage (in the curing building), and fertilizer handling operations. Unloading, handling, and feeding generate particulate emissions of phosphate rock dust. The mixer, den, and curing building emit gases in the form of silicon tetrafluoride (SiF_4), hydrogen fluoride (HF), and particulates composed of fluoride and phosphate material. Fertilizer handling operations release fertilizer dust.
About 93% of the atmospheric emissions from the process is in the form of CO_2. Sulphur dioxide (SO_2) is the criteria pollutant of consequence and accounts for about 3% of the total pollution load. Particulate matter (PM10), nitrogen dioxide (NO2), carbon monoxide (CO), ammonia (NH3), total fluorides and nuisance dust constitute the minor pollutants. It is unlikely that the process independently, would result in annual average PM_{10} concentrations above the national standard at receivers further than 500m from the plant boundary.
Exceedances of the daily SO_2 standard will most likely be limited to the industrial and mining receivers up to a distance of 1.5km north east of the process. Annual SO_2 concentrations will remain high on-site and significant (above 50% of the standard) up to a distance of 1km north west of the process.
Annual ambient concentrations of ammonia and total fluorides will most likely remain below 10% of the guidelines beyond the property boundary. Up to 1km from the sulphuric acid (H_2SO_4) production processes, ambient H_2SO_4 concentrations could exceed the adopted guideline. It is unlikely that nitrogen oxides, carbon monoxide and carbon dioxide will exceed 5% of the relevant ambient air quality standards based on current simulations.
A tarred access road to the site already exist therefore little dust can be expected from movement of vehicles during operation.

Project Phase	**Aspect: Air quality**								
	Activities that causes impacts	**Specific impact**	**Severity**	**Duration**	**Extent**	**Frequency**	**Probability**	**Significance**	
								With Mitigation	**Without Mitigation**
Construction	Site clearing	Dust dispersal in the atmosphere	Low	Low-medium	Medium	Medium	Medium-high	Low	Low-Medium
	Movement of vehicles	Smoke	Low	Low-medium	Low-medium	Medium	Low-medium	Low	Low
	Burning of waste	Air pollution	Low-medium	Low	Low-medium	Low	Low	Low	Low

Project Phase	Aspect: Air quality								
	Activities that causes impacts	Specific impact	Severity	Duration	Extent	Frequency	Probability	Significance	
								With Mitigation	Without Mitigation
Operation	Vehicle movement	Dust	Low-medium	Low	Low	Low	Low	Low	Low
	Movement of vehicles	Noise pollution	Low	Medium	Medium	Medium-high	Medium-high	Low	Low-medium
	Uncontrolled raw material and final product handling	Particulate emissions and fertiliser dust	Low-Medium	High	Low-medium	Medium-high	High	Low	Medium
	Operation of SSP Plant	PM_{10} release	Medium	High	Medium	Medium-High	Medium-High	Low-Medium	Medium
	Burning of waste	Air pollution: Smoke	Low-medium	Low-medium	Low-medium	Low	Low	Low	Low
	Operation of SSP Plant	Release of ammonia	Low-medium	High	Low	Low	Low-medium	Low	Low
	Operation of SSP Plant	Release of sulphuric acid	Medium	High	Low	Medium	Medium	Low	Low-Medium
	Emissions from the plant	Air pollution-Sulphur dioxide	High	High	Medium	Medium-High	Medium-high	Low-medium	Medium-High
	Emissions from the plant	Air pollution-Total fluoride	Medium	High	Medium	Medium	Medium	Low-Medium	Medium
Decomissioning	Burning of waste	Air pollution-Smoke	Low-medium	Low	Low-medium	Low	Low	Low	Low
	Vehicle movement	Dust and exhaust Fumes	Smoke	Low	Low-medium	Low-medium	Medium	Low-medium	Low
	Dismantling of plant	Dust	Low	Low-medium	Medium	Medium	Medium-high	Low	Low-Medium

Mitigation measures-Construction Phase

- Construction vehicles must be well serviced so that it does not produce excessive smoke and noise.
- Construction should only take place during the hours between sunrise and sunset on weekdays and Saturdays.
- No solid waste or vegetation may be burnt on the premises or surroundings. Keep waste in waste bins and dispose of once a week at a licensed dumping site.

Mitigation Measures-Operational Phase

- Wet Scrubber to be installed.
- The emissions released must be in compliance with the National Environmental Management Air Quality, Act 39 of 2004, and an Air Emissions License must be

obtained from LEDET.

- Heavy vehicles must be well serviced so that it does not produce excessive smoke and noise.
- Internal roads should be paved to minimise dust.
- Water unpaved roads used for this development.
- Speed limits and speed humps on the roads will keep speeds down and less dust will be the result.
- Raw materials and final product must be handled inside a bag house with bag filters so that particulate matter can be minimised. Bag house cloth filters have reported efficiencies of 99 percent under ideal conditions. Collected dust can be recycled.
- Continuous monitoring of ambient dust deposition rates on the process boundary.
- Boilers to be fitted with fine particulate matter emission control measures.
- Boilers to be fitted with gaseous emission control measures.
- Ambient fluoride concentrations should be monitored over a period of one year. Reported efficiencies for fluoride control range from less than 90 percent to over 99 percent, depending on inlet fluoride concentrations and the system employed.
- A once-off evaluation of scrubber efficiency should be conducted following commissioning of the process.
- Annual evaluation of scrubber efficiency should be conducted.
- Reduce impacts though applying available industry techniques.
- No solid waste or garden refuse may be burnt on the premises or surrounding areas.
- Strict monitoring of ambient air quality will assist effective air quality management and open communication to all stakeholders.
- Noise monitoring should be done to ensure that noise levels stay within accepted levels.
- .

Mitigation Measures-Decommissioning Phase

- Construction vehicles must be well serviced so that it does not produce excessive smoke and noise.
- Construction should only take place during the hours between sunrise and sunset on weekdays and Saturdays.
- No solid waste or vegetation may be burnt on the premises or surroundings. Keep waste in waste bins and dispose of once a week at a licensed dumping site.

GROUNDWATER AND SURFACE WATER QUALITY

Construction Phase

Lack of sanitation or malfunctioning sanitations systems could result in ground water pollution and associated health risks. Changes of the land to hard surface through paving result in increased runoff and possible floods, thus siltation of water bodies can be expected. Spillage of fuel and lubricants from construction vehicles could occur. Storm water contamination by solid waste could lead to groundwater and surface water pollution.

Operational Phase

Improper provision of sanitation facilities and sewage facilities has the potential to contaminate surface and groundwater. Storm water over open areas and roads can result in siltation of surface water bodies. Littering, illegal dumping, inadequate waste disposal facilities and

improper handling of hazardous waste could result in pollution of surface and groundwater. Sulphuric acid can be spilled that will result in water pollution. Fertilizers also contribute to contamination of water bodies. Storm water which flows through wasted fertilizer can pollute groundwater and surface water sources

Project Phase	Aspect: Surface and ground water quality								
	Activities that causes impacts	Specific impact	Severity	Duration	Extent	Frequency	Probability	Significance	
								With Mitigation	Without Mitigation
Construction	Solid waste disposal in freshwater resources	Water Pollution	Low-medium	Low	Low-Medium	Low-medium	Low	Low	Low
	Spillage of fuel and lubricants from the plant	Water Pollution	Medium	Low	Low	Low-Medium	Medium-high	Low	Low-Medium
	Spillage of fuel and lubricants from vehicles	Water Pollution	Low-medium	Low	Low-medium	Low-Medium	Medium	Low	Low
Operation	Solid waste disposal-freshwater resources	Water Pollution	Medium	Low	Low-Medium	Low	Low-medium	Low	Low
	Removal of soil cover and vegetation (sites and roads)	Siltation of watercourses by erosion	Low-medium	Low-medium	Low-medium	Low-medium	Low-medium	Low	Low-medium
	Collapse/ leaking of acid tanks	Water pollution	High	Medium-high	Low	Low	Low	Low	Low
	Storage of fertilizer	Water Pollution	Medium	Medium-high	Low-Medium	Medium	Medium	Low	Low-Medium
	Inadequate functioning of Sanitation system	Water Pollution	Medium	Low	Low-Medium	Low-Medium	Medium	Low	Low-Medium
Decommissioning	Water pollution by building rubble	Water Pollution	Low-medium	Low	Low-Medium	Low-medium	Low	Low	Low
	Surface Water: Siltation through storm water over open areas	Water pollution	Low	High	Low	Low	Low-Medium	Low	Low
	Spillage of fuel/oil by vehicles on soil or in water-Storm water wash it down to surface water sources	Surface Water Pollution	Water Pollution	Low-medium	Low	Low-medium	Low-Medium	Medium	Low

Mitigation measures-Construction Phase

- Construction personnel must use the existing sanitation facilities on site.
- Removal of vegetation to be limited to construction and road areas.

- Cleared areas to be re-vegetated or paved as soon as practicable to limit the effect of erosion and siltation. Indigenous plant species to be given preference in re-vegetation areas
- Hazardous substances/material must be handled and kept in bunded areas to prevent any spillages.
- A bund wall must be constructed around the acid storage tank (capacity of 1.5x the volume of the tank), so that it can contain all the acid if the tank would collapse or leak**.**
- A bund wall must be constructed around the reactor to contain any spills.
- The fertilizer drying area must be covered and protected against storm water.
- Construction vehicles must be well serviced and maintained to prevent oil and fuel leaks.
- Vehicles must be refuelled only at an existing filling station or drip pans to be used when refilling vehicles or machines on –site.
- Ensure strict compliance that no foreign matter is deposited into trenches.
- Solid waste must be kept in adequate animal proof bins and disposed of regularly at the correct and licensed site.
- Building rubble must be stockpiled on high point on terrain (further than 100m from any watercourse) and then removed to a licensed disposal site on a regular basis.
- Solid waste may not be burned or buried on site or on surrounding terrain.
- Waste must be sorted and recycled (glass, plastic, metal, paper and wet waste).

Mitigation measures-Operational Phase

- Sanitation system operation should be inspected weekly to ensure proper operation. The surrounding area must be checked to ensure that no leaks or undue seepage occurs.
- Oils and chemicals must be stored and handled in a lined bunded area to prevent leaks and spills and to contain accidental spills.
- No industrial effluent shall be allowed to flow into the sewage system.
- Solid waste must be kept in adequate animal proof waste bins and will be collected on a weekly basis by the Phalaborwa municipality and dumped at their landfill site.
- The bund wall around the acid storage tank must be properly maintained at all times.

Mitigation measures-Decommissioning Phase

- Construction personnel must use the existing sanitation facilities on site.
- Cleared areas to be re-vegetated or paved as soon as practicable to limit the effect of erosion and siltation. Indigenous plant species to be given preference in re-vegetation areas
- Hazardous substances/material must be handled and kept in bunded areas to prevent any spillages.
- Construction vehicles must be well serviced and maintained to prevent oil and fuel leaks.
- Vehicles must be refuelled only at an existing filling station or drip pans to be used when refilling vehicles or machines on –site.
- Ensure strict compliance that no foreign matter is deposited into trenches or excavations.
- Solid waste must be kept in adequate animal proof bins and disposed of regularly at the correct and licensed site.

- Building rubble must be stockpiled on high point on terrain (further than 100m from any watercourse) and then removed to a licensed disposal site on a regular basis.
- Solid waste may not be burned or buried on site or on surrounding terrain.
- Waste must be sorted and recycled (glass, plastic, metal, paper and wet waste).

WATER USE/WATER QUANTITY

Construction phase

During this phase water consumption will be minimal because it will be utilized mainly for dust abatement and construction purposes.

Operational phase

The water needs of the development will be sourced from the municipal water supply lines.

Project Phase	Aspect: Water use								
	Activities that causes impacts	Specific impact	Severity	Duration	Extent	Frequency	Probability	Significance	
								With Mitigation	Without Mitigation
Construction	Construction process	Depletion of water resources: Water consumption	Low-	Medium	Medium	Low-Medium	Medium	Low	Low-Medium
Operation	Industrial use & sanitation	Depletion of water resources: Water consumption	Low-medium	High	Low	Low-Medium	Medium	Low-Medium	Low-Medium
Decommissioning	Operations cease	Less water use	Low-Medium	High	Low	Low-medium	Medium	Low-Medium	Low-Medium

Mitigation and Management measures

- Water consumption for industrial purposes is a given, but care must be taken not to waste any water. Half flush systems in the toilets as well as water aerators in all taps and showers must be installed to reduce water consumption.
- Water leaks must be repaired as soon as possible to save on water losses.
- None for the Decommissioning phase

ARCHAEOLOGICAL, CULTURAL AND SOCIAL FEATURES

Construction phase

The clearing of the site may have a negative impact on the archaeological features of the site. Care must be taken in the excavations and moving of soil to observe any archaeological feature of importance, which must be left and reported to the archaeological consultant for comments and actions.

Operational phase

Although no archaeological or historical attributes were identified on site, some of this attributes may be found/dug out during gardening

Project Phase	Aspect: Loss of Archaeological, Cultural and social features								
	Activities that causes impacts	Specific impact	Severity	Duration	Extent	Frequency	Probability	Significance	
								With Mitigation	Without Mitigation
Construction	Earth moving and soil clearance	Destroy archaeological evidence and heritage	Low-medium	Low	Low-Medium	Low	Low	Low	Low-
Decommis-sioning	Earth moving and soil clearance	Destroy archaeological evidence and heritage	Low-medium	Low	Low-Medium	Low	Low	Low	Low-

Mitigation measures

- Care must be taken during the construction/decommissioning process that anything of archaeological value that is unearthed must be recorded and reported to the archaeologist for comments.

BIODIVERSITY

Construction phase

Clearing of site for construction purposes could result in the destruction of faunal habitats, removal of indigenous, endangered or rare protected plant species. All mitigation measures should be adhered to, to ensure that the impact on the vegetation and habitats are kept to the minimum. Feeding of animals, will make animals dependant on humans while snaring and trapping will let animal numbers decline.

Operational phase

The operation of the development can have a negative impact on the bio-diversity if it is not managed correctly. Disposal of waste in the veld may lead to poisoning of animals that can result in loss of different faunal species via food chain.

Project Phase	Aspect : Biodiversity								
	Activities that causes impacts	Specific impact	Severity	Duration	Extent	Frequency	Probability	Significance	
								With Mitigation	Without Mitigation
Construction	Clearing of vegetation	Loss of plant species	Low	High	Low	Low	Low	Low	Low
	Clearing of vegetation	Loss of habitat	Low	High	Low	Low	Low	Low	Low
	Veldt fires	Destruction of flora/habitat	Low	Low	Low	Low	Low	Low	Low
	Poisoning/Killing /snaring of animals for food	Decline in animal numbers	Low	Medium	Low	Low	Low	Low	Low

Project Phase	Aspect : Biodiversity								
	Activities that causes impacts	Specific impact	Severity	Duration	Extent	Frequency	Probability	Significance	
								With Mitigation	Without Mitigation
	Vehicle movement	Animal Mortalities	Low	Low	Low	Low	Low	Low	Low
Operation	Clearing of vegetation	Loss of plant species	Low	Low	Low	Low	Low	Low	Low
	Clearing of vegetation	Loss of fauna habitats	Low	Low	Low	Low	Low	Low	Low
	Use of pesticides	Water Pollution	Low	Low	Low	Low	Low	Low	Low
	Lights at night	Insectivores being killed	Low-Medium	High	Low	Medium	Medium	Low	Low-Medium
	Solid waste /toxic substances	Deaths of animals	Medium	Low	Low-medium	Low-Medium	Low-Medium	Low	Low
	Putting out of poison	Deaths of animals	Medium	Low	Low-medium	Low	Low	Low	Low
	Veld fires	Destruction of flora/ & fauna habitats	Low	Low	Low-medium	Low	Low	Low	Low
Decommis-sioning	Poisoning/Killing /snaring of animals for food	Decline in animal numbers	Low	Medium	Low	Low	Low	Low	Low
	Solid waste /toxic substances	Deaths of animals	Medium	Low	Low-medium	Low-Medium	Low-Medium	Low	Low
	Veld fires	Destruction of flora/ & fauna habitats	Low	Low	Low-medium	Low	Low	Low	Low

Mitigation measures – Construction Phase

- Vegetation removal must be limited to the proposed site; unnecessary clearance of vegetation must be avoided.
- No protected or red data trees should be removed. If a protected tree has to be removed the necessary permits to do so must be obtained prior to the removal of the trees.
- Natural vegetation must be retained where possible.
- No poison should be used to control any plants without the input of an ecologist.

- The cleared vegetation must not be burnt as it causes a loss of nutrients and organic material. It also causes air pollution and a fire hazard.
- Fires should only be allowed in designated places and extra care should be taken to prevent veld fires.
- The use of poisons for the control of any animals or plant species may only be done with the written input from an ecologist.
- Wildlife should not be fed at all.
- Food should always be stored out of reach from animals.
- Cables or electric fences must be erected along open trenches, or around the whole construction area, to ensure that animals do not fall into trenches.

Mitigation measures – Operational Phase

- Only indigenous plant species must be allowed to be planted in gardens
- No snaring or hunting of animals unless permitted by the relevant authority.
- Waste must only be disposed of at an appropriate permitted disposal facility.
- Environmentally friendly herbicides must be used in garden.
- An ecologist should be consulted to determine alternative control methods. The use of any poisons for problem causing animal control should only be
- allowed after approved by an ecologist
- Solid waste or toxic substances should be handled with care and not left in the open so that animals can scavenge in or on it. Solid waste must be kept in adequate animal proof waste bins and disposed of regularly and at the Phalaborwa landfill site.
- Staff members and inhabitants should be discouraged from attempting to catch or kill any wildlife for use as food.
- Yellow lights must be used that do not attract insects.
- The plant and other buildings on site must be equipped with fire hydrants.
- Firebreaks should comply with the National Veld and Forest Fire Act, 1998 (Chapter 4: Duty to Prepare and maintain firebreaks).

Mitigation measures – Decommissioning Phase

- The use of poisons for the control of any animals or plant species may only be done with the written input from an ecologist.
- Fires should only be allowed in designated places and extra care should be taken to prevent veld fires.
- Wildlife should not be fed at all.
- Food should always be stored out of reach from animals.
- Cables or electric fences must be erected along open trenches, or around the whole construction area, to ensure that animals do not fall into trenches.
- Speeding on site and access roads must be strictly prohibited. Speed reducing measures like speed bumps should be constructed

SOIL/LAND DEGRADATION

Construction phase

Clearing of site will result in opening of previously inaccessible areas and topsoil being vulnerable to erosion by wind or runoff water. The improper handling of hazardous materials can cause contamination to the soil and surface water bodies. Digging and trenching also

expose topsoil to erosion. The storage of solid waste before it can be disposed of has the potential to pollute the soil and it is a public nuisance.

Operational phase

Inadequate installation and management of storm water drainage systems causes soil erosion. The potential spillage of hazardous materials or substances from vehicles has the potential to pollute/degrade the soil. Solid waste can be a nuisance and has the potential to pollute the soil before disposal.

Project Phase	Aspect: Soil degradation								
	Activities that causes impacts	Specific impact	Severity	Duration	Extent	Frequency	Probability	Significance	
								With Mitigation	Without Mitigation
Construction	Clearing of site	Loss of topsoil	Low	Medium	Low-medium	Low-Medium	Low-medium	Low	Low
	Operation of construction vehicles	Soil pollution: Oil/Diesel spillages	Low	Low	Low-medium	Low-Medium	Low-Medium	Low	Low
	Solid waste	Soil pollution & nuisance	Low-Medium	Low-Medium	Low-Medium	Low-Medium	Low-medium	Low	Low-medium
	Digging and trenching	Loss of topsoil : Erosion	Low	Low	Low	Medium	Low-Medium	Low	Low
	Storm water from roads and cleared areas	Loss of topsoil: Erosion	Low	Low-medium	Low-medium	Low-medium	Low	Low	Low
Operation	Solid waste	Soil pollution & nuisance	Low-medium	Low	Low-Medium	Low-Medium	Low	Low	Low
	Inadequate installation and management of storm water drainage systems	Increased runoff : siltation of water bodies	Low-medium	Low-Medium	Low-medium	Medium	Low	Low	Low
	Handling of hazardous materials or substances	Soil pollution	Medium	High	Low-Medium	Medium	Medium-high	Low	Medium
	Putting out of poison	Deaths of animals	Low-Medium	Low	Low-medium	Low	Low	Low	Low
	Collapse /leaking of acid tanks	Water pollution	MediumHigh	Low-Medium	Low	Low	Low	Low	Low
Decommis-sioning	Operation of construction vehicles	Soil pollution: Oil/Diesel spillages	Low	Low	Low-medium	Low-Medium	Low-Medium	Low	Low
	Storm water from roads and cleared areas	Loss of topsoil: Erosion	Low	Low-medium	Low-medium	Low-medium	Low	Low	Low
	Solid waste disposal in freshwater resources	Water Pollution	Low-medium	Low	Low-Medium	Low-medium	Low	Low	Low

Mitigation measures-Construction Phase

- Clearing of vegetation must be restricted to the proposed site; unnecessary clearance of vegetation must e avoided to reduce the soil erosion.
- Trenches must be rehabilitated immediately after construction.

- Construction vehicles must be well maintained and serviced to minimize leaks and spills. If any spills occur, spill sorb should be applied.
- Handling of hazardous substances must be done in bunded area only to contain any spillages.
- Solid waste must be kept in animal proof containers and disposed of on a weekly basis to a licensed disposal site in Phalaborwa.
- Any building rubble must be removed to a licensed disposal site after construction
- Storm water channels should be designed to prevent erosion on the roads and cleared areas.

Mitigation measures-Operational Phase

- Cleared areas should be re-vegetated with indigenous vegetation after the construction phase to prevent possible erosion.
- Erosion monitoring and management program should be compiled and implemented.
- Bund walls should be created around areas where hazardous waste is handled in order to contain spills.
- A bund wall must be constructed around the acid storage tank (1.5x the capacity of the tank), so that it can contain all the acid if the tank would collapse
- Maintenance vehicles must be well maintained and serviced to minimize leaks and spills. If any significant spills occur spill sorb should be applied
- Solid waste must be kept in adequate bins and be collected on a weekly basis and disposed of at a correct and licensed site.
- Waste containers must be covered at all times.
- Eco-friendly and biodegradable pesticides and herbicides must be used; organic pest control measures to be encouraged. A qualified ecologist should be consulted.
- Storm water drainage systems must be regularly and well maintained during the operation phase.
- Storm water control at roads must be managed so that erosion does not take place. Storm water dissipaters must be used.
- There must be an active program to separate the metals, bottles and plastics in the solid waste and send it to a reputable recycling program. This has the effect of reducing soil pollution while at the same time promotes the preservation of valuable resources by recycling and/or reusing the materials.

Mitigation measures-Operational Phase

- Construction vehicles must be well maintained and serviced to minimize leaks and spills. If any spills occur, spill sorb should be applied.
- Solid waste must be kept in adequate bins and be collected on a weekly basis and disposed of at a correct and licensed site.
- Any building rubble must be removed to a licensed disposal site after construction

VISUAL IMPACTS

Construction phase

The building of a new plant at the area will create a visual impact however the impact will be minimal as it will be in keeping with the surrounding area. Noise can be expected from the construction vehicles, machines and constructing labour during the construction.

Operational phase

The built up plant will be protected with security lights and an electrical fence which will create a visual impact during the operation period.

Project Phase	Aspect: Visual disturbance								
	Activities that causes impacts	Specific impact	Severity	Duration	Extent	Frequency	Probability	Significance	
								With Mitigation	Without Mitigation
Construction	Building (plant)	Visual	Low	Medium	Low	High	High	Low	Low-medium
	Lights	Nuisance	Low	Medium	Low	Medium	Medium	Low	Low-Medium
Operation	Buildings	Visual	Low	High	Low-Medium	High	High	Low-Medium	Medium
	Lights	Nuisance	Low	High	Low-medium	High	High	Low	Medium

Mitigation measures

- Lights should be positioned to face inwards and downwards in the development area.
- Plant indigenous evergreen trees on the perimeter of the site as a visual screen for the fertilizer plant.
- Stationary lights must be positioned in such a way not to cause any nuisance to people.

SAFETY, SECURITY AND FIRE HAZARDS

Construction phase

Construction activities such as excavating of trenches, the use of chemicals, movement of construction vehicles, the use of equipment and the congregation of workers and staff on site further can increase the risk of injury. The activities of construction personnel on site may contribute to an increase in the level of crime in the area and may also contribute to an increase in the risk for fires.

Operational phase

The daily use of chemicals by workers during the operation of the plant may result in health threats. The security measures (fences and guards) will improve safety in the area.

Project phase	Aspect: Safety, security and fire hazards								
	Activities that causes impacts	Specific impact	Severity	Duration	Extent	Frequency	Probability	Significance	
								With Mitigation	Without Mitigation
Construction	Excavations	Risk on Safety of people	Medium-High	Medium	Low	Medium-High	Medium-High	Low	Medium
	Handling of chemicals	Potential occupational health and safety threat	Medium-High	Medium	Low	Low	Low	Low	Low
	Fire hazards	Loss of human life, bio-diversity, construction equipment etc.	Medium-High	Low	Low-Medium	Low	Low	Low	Low
Operation	Security	Elevated Crime levels	Medium-High	Medium	Medium	Low-Medium	Low	Low	Low-Medium
	Fire hazards	Loss of human life, bio-diversity, houses, infrastructure etc.	Medium-High	Low	Low-Medium	Low	Low	Low	Low
	Handling of acid	Injuries or death of employees	Medium-High	High	Low	Low	Low	Low	Low
	Handling of chemicals	Potential occupational health and safety threat	Medium-High	High	Low	High	Low	Low	Low-Medium
Decommis-sioning	Excavations	Risk on Safety of people	Medium-High	Medium	Low	Medium-High	Medium-High	Low	Medium
	Fire hazards	Loss of human life, bio-diversity, construction equipment etc.	Medium-High	Low	Low-Medium	Low	Low	Low	Low
	Security	Elevated Crime levels	Medium-High	Medium	Medium	Low-Medium	Low	Low	Low-Medium

Mitigation measures: Construction

- The Contractor shall conform to all the stipulations of the Occupational Health and Safety act (Act 85 of 1993) and the Regulations applicable at the time of the tender. The Act requires the designation of a Health and Safety representative when more than 20 employees are employed.
- Process and activities will be managed according to the Occupational Health and Safety Act 85 of 1993 and its regulations, as well as the National Road traffic act 93 0f 1996.
- Workers must be trained in the handling of hazardous substances and must always wear the appropriate **personal protective equipment**.
- A bund wall must be constructed around the acid storage tank, so that it can contain

all the acid if the tank would collapse.

- No construction workers should stay on site.
- Proper access control (I.D. cards) should be enforced to ensure that no unauthorised persons enter the site.
- No solid waste or vegetation may be burnt on the premises or surrounding areas.
- Firebreaks should comply with the National Veld and Forest Fire Act, 1998 (Chapter 4: Duty to Prepare and maintain firebreaks).
- Fires must only be allowed at designated areas to prevent veld fires.
- Fire extinguishers must be available.

Mitigation measures: Operation

- The Safety of the employees and plant, process and activities will be managed according to the Occupational Health and Safety Act 85 of 1993 and its regulations, as well as the National Road traffic act 93 0f 1996.
- A baseline risk assessment has identified that the main hazards which employees will be exposed to are related to the Transportation and handling of Sulphuric acid.
- A comprehensive safety plan is being developed which will focus specifically on minimizing potential exposure of employees to these specific hazardous situations.
- A contingency and safety/emergency plan must be available for all workers in order to minimize potential exposure of employees to hazardous situations.
- Transportation of acids must only take place according to the correct guidelines and safety procedures.
- No workers should stay on site.
- Proper access control (I.D. cards) should be enforced to ensure that no unauthorised persons enter the site.
- No solid waste or vegetation may be burnt on the premises or surrounding areas.
- Firebreaks should comply with the National Veld and Forest Fire Act, 1998 (Chapter 4: Duty to Prepare and maintain firebreaks).
- Dry chemical powder fire extinguishers must be available at the plant.

Mitigation measures: Decommissioning

- The Contractor shall conform to all the stipulations of the Occupational Health and Safety act (Act 85 of 1993) and the Regulations applicable at the time of the tender. The Act requires the designation of a Health and Safety representative when more than 20 employees are employed.
- Process and activities will be managed according to the Occupational Health and Safety Act 85 of 1993 and its regulations, as well as the National Road traffic act 93 0f 1996.
- Workers must be trained in the handling of hazardous substances and must always wear the appropriate **personal protective equipment**.
- No solid waste or vegetation may be burnt on the premises or surrounding areas.
- Firebreaks should comply with the National Veld and Forest Fire Act, 1998 (Chapter 4: Duty to Prepare and maintain firebreaks).
- Fires must only be allowed at designated areas to prevent veld fires.
- Fire extinguishers must be available.

- No construction workers should stay on site.
- Proper access control (I.D. cards) should be enforced to ensure that no unauthorised persons enter the site.

SOCIO-ECONOMIC ENVIRONMENT

Construction phase

The proposed activity will impact positively on the socio-economic environment of that area through employment opportunities and training and skills development.

Operational phase

Temporary and permanent employment will be created during this phase. The demand for fertilizers in the province will be reduced.

Project phase	Aspect: socio-economic issue								
	Activities that causes impacts	Specific impact	Severity	Duration	Extent	Frequency	Probability	Significance	
								With Mitigation	Without Mitigation
Construction	Construction of the plant	Job Creation	High Pos	High Pos	High Pos	High Pos	High Pos	N/A	High pos
Operation	Established fertilizer plant operation	Job Creation	High Pos	High Pos	High Pos	High Pos	High Pos	N/A	High pos

Mitigation measures: Construction and Operation phases

- Always use local people for temporary as well as permanent jobs at the factory as there is a high demand for jobs in the area.

3. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative A (preferred alternative)

The proposed project will take place at Bosveld Phosphates which is a fertiliser factory. The proposed process fits in with the activities already taking place on site. During construction there will be impacts like dust formation, noise generation, solid waste generation, water use, and a change to the visual environment. There will also be positive impacts in terms of the creation of job opportunities.

During the operational period, the impacts will be visual, water use, generation of solid waste,

air quality impacts and job creation. These impacts will definitely take place if the development will continue.

The management and mitigation measures proposed in the reports will mitigate the impacts to acceptable levels provided that the required and appropriate monitoring and measuring of air quality impacts and other impacts are done and the recommendations of the specialists are followed. The impacts on the air quality and on water use will not be as significant as a process (SSP production) separately but it can become more significant if determined together with the rest of the fertiliser production processes at Bosveld Phosphates. It can be managed more effectively together with the other processes on site if the site is managed as an integrated unit and as such the impacts can be mitigated effectively.

No-go alternative (compulsory)

If the development will not take place (NO-GO) then the opportunity to produce fertilisers for the agricultural sector in the country will be lost and there is a possibility that certain of the fertilisers will have to be imported. There will be a negative effect on possible job opportunities in the area where there apparently is a large shortage of jobs.

There will be less negative impacts on the environment if this development will not take place at Bosveld Phosphates as the discussed impacts to the environment as a result of this specific development will not take place.

Alternative B

Alternative C

For more alternatives please continue as alternative D, E, etc.

SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?

YES	■

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment):

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the department in respect of the application:

- The emissions released must be in compliance with the National Environmental Management Air Quality, Act 39 of 2004, and an Air Emissions License must be obtained from LEDET.
- Hazardous substances/material must be handled and kept in bunded areas to prevent any spillages.
- The fertilizer drying area must be covered and protected against storm water.
- Waste must be sorted and recycled (glass, plastic, metal, paper and wet waste).
- Workers must be trained in the handling of hazardous substances and must always wear the appropriate **personal protective equipment**.
- A contingency and safety/emergency plan must be available for all workers in order to minimize potential exposure of employees to hazardous situations.
- Always use local people for temporary as well as permanent jobs at the factory as there is a high demand for jobs in the area.
- The department has the right to visit the site at any time for environmental compliance monitoring.

Is an EMPr attached? The EMPr must be attached as Appendix F.	YES	■

SECTION F: APPENDIXES

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Comments and responses report

Appendix F: Environmental Management Programme (EMPr)

Appendix G: Other information

SECTION G: DECLARATION BY THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

I, **H.P. Jannasch** declare that I –

(a) act as the independent environmental practitioner in this application;
(b) do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2010;
(c) do not have and will not have a vested interest in the proposed activity proceeding;
(d) have no, and will not engage in, conflicting interests in the undertaking of the activity;
(e) undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the Environmental Impact Assessment Regulations, 2006;
(f) will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
(g) will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the Department in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the Department may be attached to the report without further amendment to the report;
(h) will keep a register of all interested and affected parties that participated in a public participation process; and
(i) will provide the Department with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not.

Signature of the Environmental Assessment Practitioner:

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Name of company:

Date: