

- A Waste Management License Application will be submitted to the waste management division of the Department of Environmental Affairs (DEA).

## **Environmental Consultants**

Synergistics Environmental Services (Pty) Ltd has been appointed as the independent environmental consultants responsible for undertaking the environmental work on behalf of Exxaro Resources (Pty) Ltd, as required by the applicable legislation, detailed above.

## **How you can be Involved in the Process**

Should you wish to register as an Interested and Affected Party (IAP) and receive further notification regarding the project, please fill in the response sheet attached and submit it to one of the contact points below:

Attention: Vivienne Vorster

Fax: 011 807 8226

Email: [Vivienne@synergistics.co.za](mailto:Vivienne@synergistics.co.za)

Postal Address: P.O Box 1822, Rivonia, 2128

## **Meeting**

An information sharing meeting will be held to give further details about the project:

**Place: DMR Boardroom**

**Date: Thursday 12<sup>th</sup> of August 2010**

**Time: 12:00 – 15:00pm**

**Physical Address: Department of Minerals and Regulations**

**101 Dorp Street**

**Polokwane**

# CHAR PLANT PROCESS

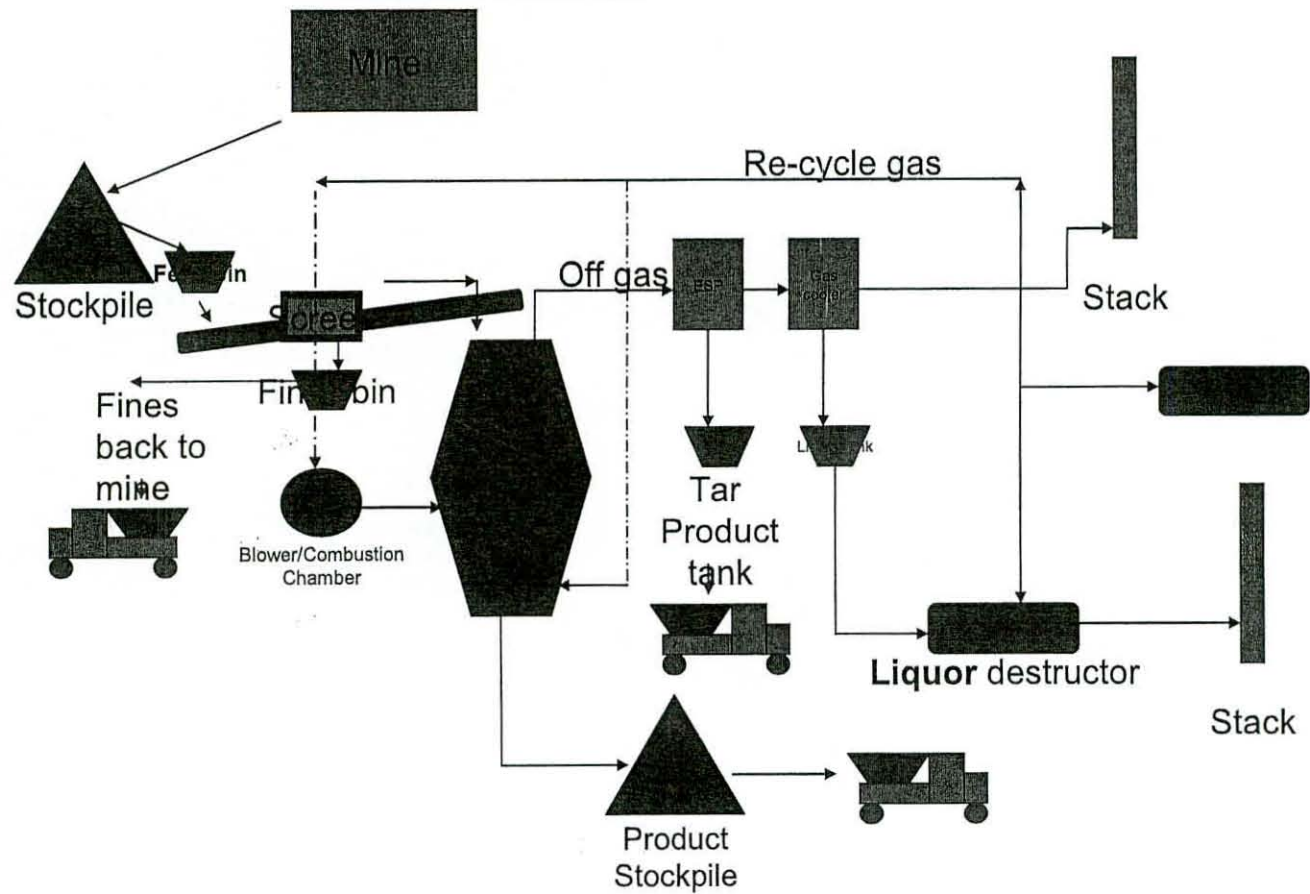


Figure 1: Process Flow Diagram for Existing Char Plant Process

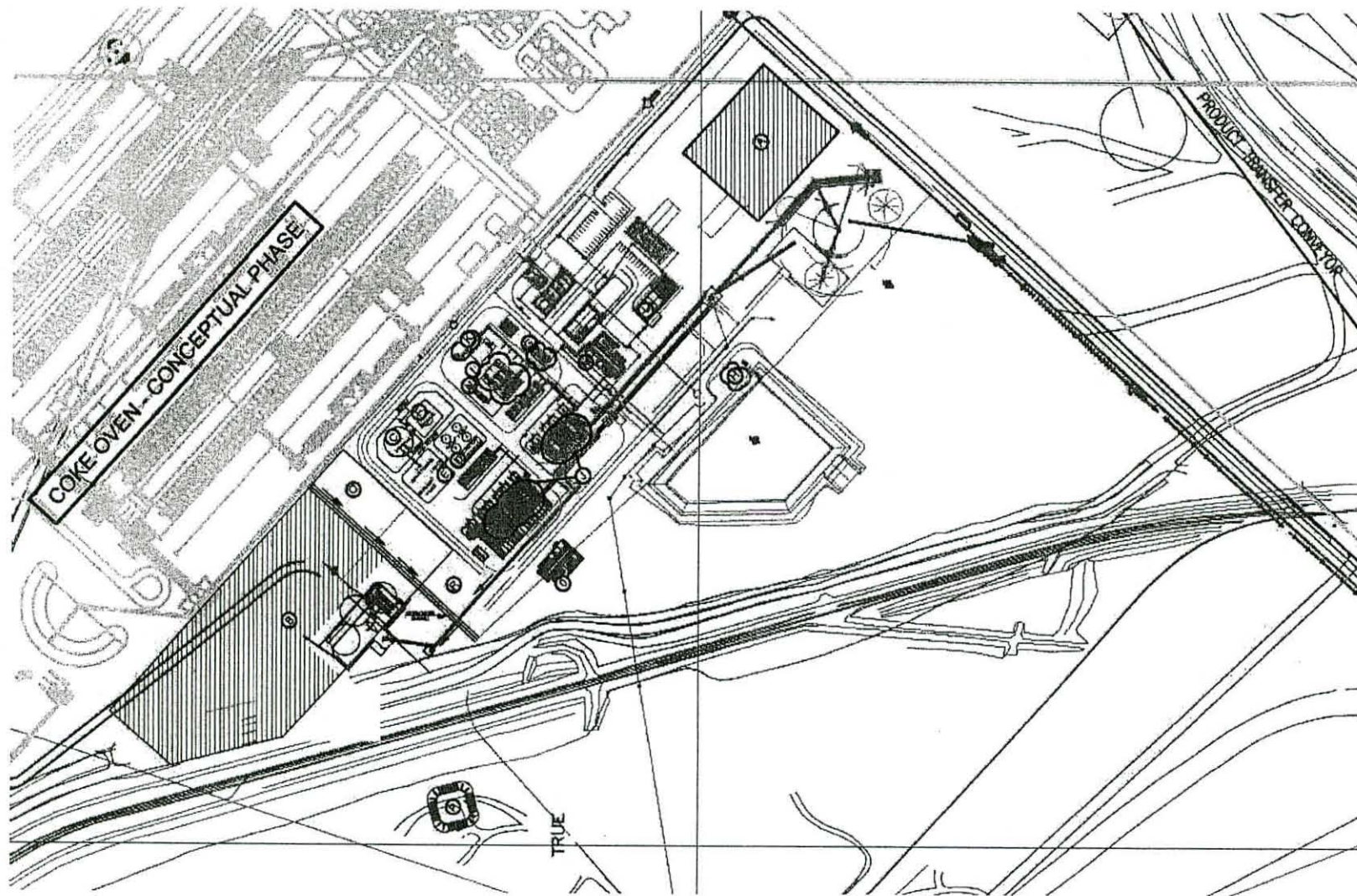
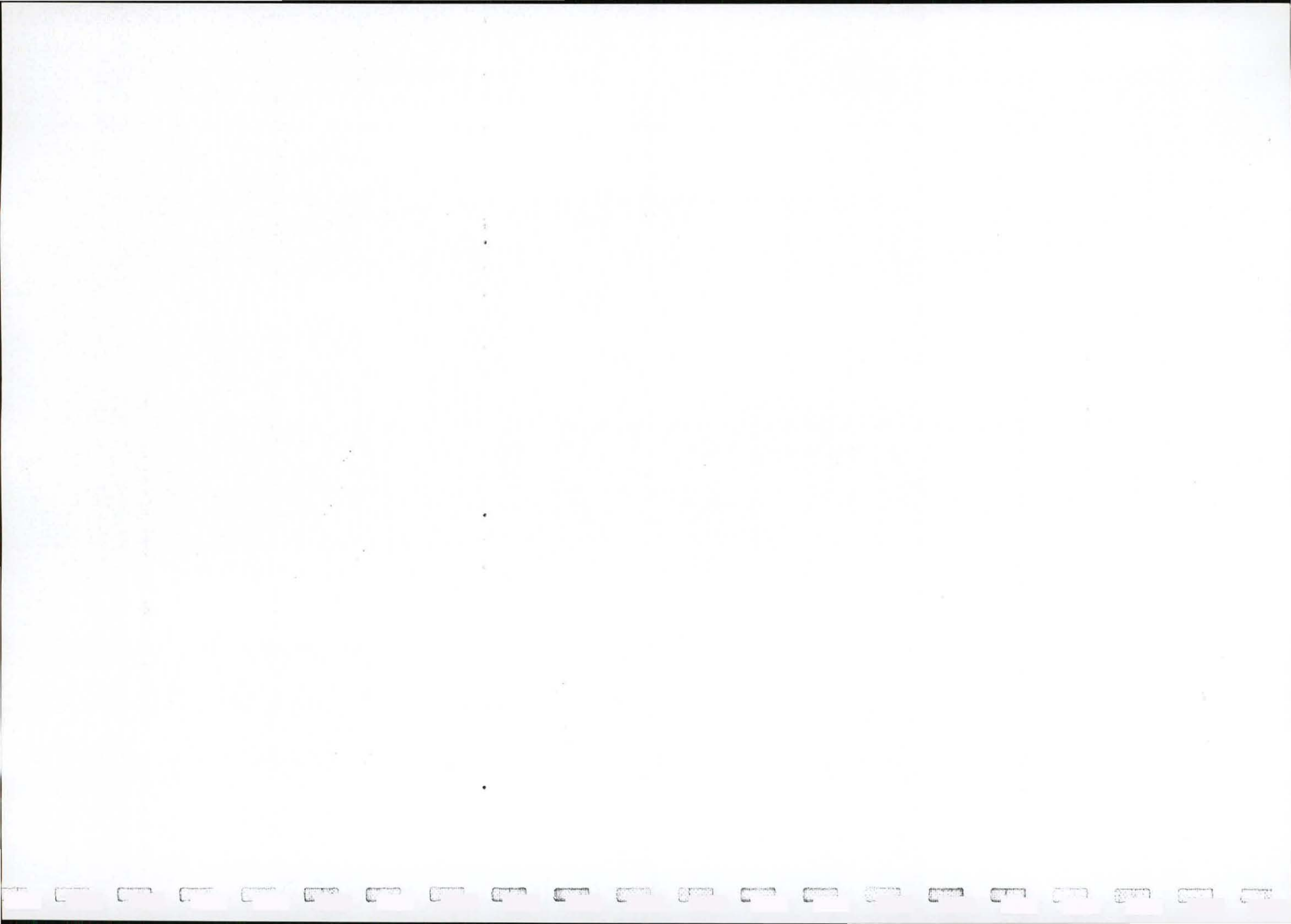


Figure 2: Conceptual Layout of the Char Plant Expansion Project (Blue is the existing char plant, while pink is the proposed expansion)









# **BACKGROUND INFORMATION DOCUMENT**

## **Environmental Impact Assessment (EIA) Amendment, Environmental Management Programme (EMP), Integrated Water Use License Application (IWULA) Amendment and Waste Management License Application for the Expansion of the Sintel Char Plant at Grootegeluk Mine**

### **Introduction**

A 4 retort Sintel Char Plant has been in operation on the farm Daarby 458 LQ, within the boundaries of the Grootegeluk Coal Mine since June 2009. The Char Plant is owned and operated by Exxaro Resources (Pty) Ltd and is therefore a separate entity to the Grootegeluk Mine (owned by Exxaro Coal). The existing plant covers an area of ~5.5ha.

The proposed expansion to the Sintel Char Plant involves increasing the number of retorts from 4 to a maximum of 10. The expansion would therefore involve the construction of an almost identical replica of the existing Chat Plant. The majority of the infrastructure associated with the Sintel Char Plant would therefore also be duplicated. The Char Plant expansion will be located directly adjacent to the existing plant and will occupy an area of ~5.5ha (See figure 2). The entire footprint area of the Sintel Char Plant and associated infrastructure covers an area of ~13.9ha.

### **Purpose of the Background Information Document**

The purpose of this document is to:

- Inform you about the proposed project;
- Provide you with the opportunity to register as a stakeholder;
- Provide you with the opportunity to ask questions or raise any queries you may have; and
- Provide information about the environmental process to be followed;

A stakeholder is classified as anyone who is interested and/or affected by the proposed project. Stakeholders are given the opportunity to register as an Interested and Affected Party (IAP) in order to receive further project information and have the opportunity to express any questions, comments or issues they may have regarding the project.

**Please register yourself as an IAP and submit your comments on the project to Synergistics on or before the 6<sup>th</sup> of October 2010**



## Brief Project Description

The Sintel Char Plant involves the conversion of lumpy dull coal blends to high quality carbon reductants through devolatilisation. The process takes place in a closed circuit and involves the re-application of gaseous heat in the absence of oxygen, which maximises the recovery of lumpy carbon.

Sintel Char is a metallurgical carbon reductant and is increasingly used to supplement market coke due to the limited availability of coking coal. The Char plant is therefore in a prime position, as it has access to suitable coal feedstock as well as being close to major consumers (ferro-chrome, ferro-manganese and platinum producers).

The existing plant operates 4 retorts and associated infrastructure for the production of the Char product. The expansion will involve increasing the number of retorts from 4 to a maximum of 10. The associated infrastructure required for the efficient functioning and operation of the Sintel Char Plant will therefore also be included as part of the expansion process.

Infrastructure associated with the Char Plant which will be required as part of the expansion includes:

- Gas Boosters;
- Electrostatic precipitators;
- Tar storage tanks;
- Liquor tanks;
- Liquor Destructors;
- Liquor destructor stacks;
- Retort vents; and
- Admin buildings

Additional infrastructure, not included within the existing Char Plant, but to be included in the expansion project includes:

- Oil and water separating plant;
- Tar conditioning facility;
- Briquetting plant;
- Spare store; and
- Tar storage and reclaiming facility (TSRF)



## **Simplified Char Plant Process**

The coal which is fed into the Char Plant comes from Grootegeluk Mine. The lumpy coal blends contain high levels of volatile gases and moisture. This coal is heated to temperatures of 950°C in the retorts, driving off the volatiles and remaining moisture. Tar, contained in the volatile gases, is extracted through electrostatic precipitators (ESP) and removed by a contractor who transports it by truck to a processing plant. The volatile gases are recycled and used in various processes such as the boilers, stacks and heating of the retorts. The plant currently incorporates 2 flare stacks into the process, which control the pressure of the recycled gas by burning off any excess gas when necessary. Condensates from the cooling system, gas booster fans and contaminated liquids are collected and stored in liquor tanks. They are pumped to the liquor destructor, which burns off the contaminated liquor. The Char product, after being quenched (cooled) in the retorts, is stockpiled for transportation to clients. (See process flow diagram in Figure 1)

## **Project Locality**

The Sintel Char Plant is located within the Old Middling Stockpile area, an area previously used for coal storage, within the boundaries of the Grootegeluk Coal Mine. The Mine is situated ~20km west of Lephalale in the Limpopo Province.

## **Enviro-Legal Requirements**

The key legislation applicable to the proposed project includes:

- The National Environmental Management Act (No. 107 of 1998) (NEMA);
- The Mineral and Petroleum Resources Development Act (No. 28 of 2002)
- The National Water Act (No. 36 of 1998) (NWA); and
- The National Environmental Management: Waste Act (No. 59 of 2008) (NEMWA)

There will be four key deliverables for the project, each of which will be submitted to the relevant government department for authorisation. These are:

- An Environmental Impact Assessment which will be submitted to the Limpopo Department of Economic Development, Environment and Tourism (LEDET) for activities that are listed in terms of the EIA Regulations under the NEMA;
- An Environmental Management Programme which will be submitted to the Limpopo Department of Mineral Resources for approval
- An amendment to the Integrated Water Use License Application (IWULA) will be submitted to the Department of Water Affairs (DWA); and

- A Waste Management License Application will be submitted to the waste management division of the Department of Environmental Affairs (DEA).

## **Environmental Consultants**

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## **How you can be Involved in the Process**

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Postal Address: P.O Box 1822, Rivonia, 2128

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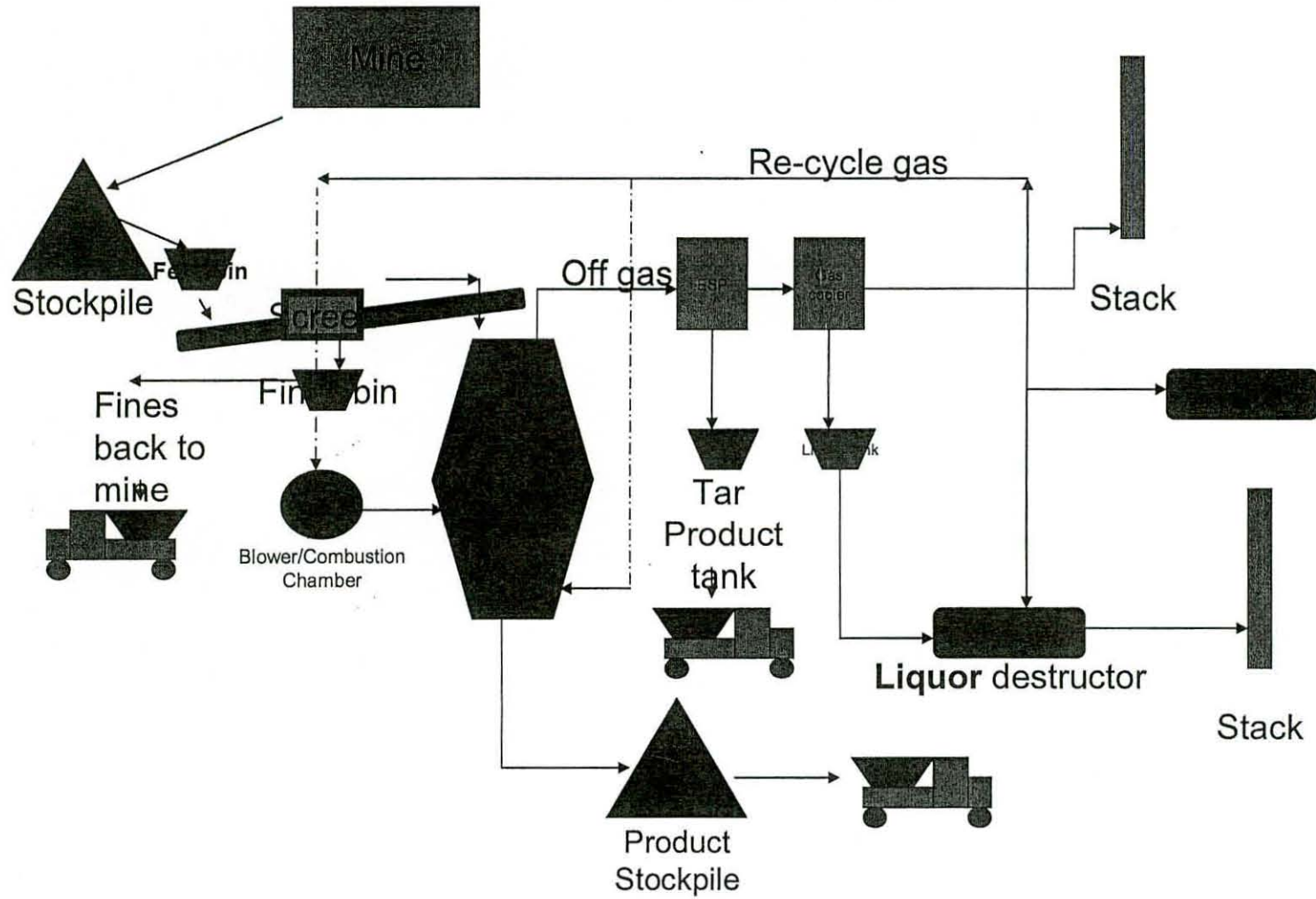


Figure 1: Process Flow Diagram for Existing Char Plant Process



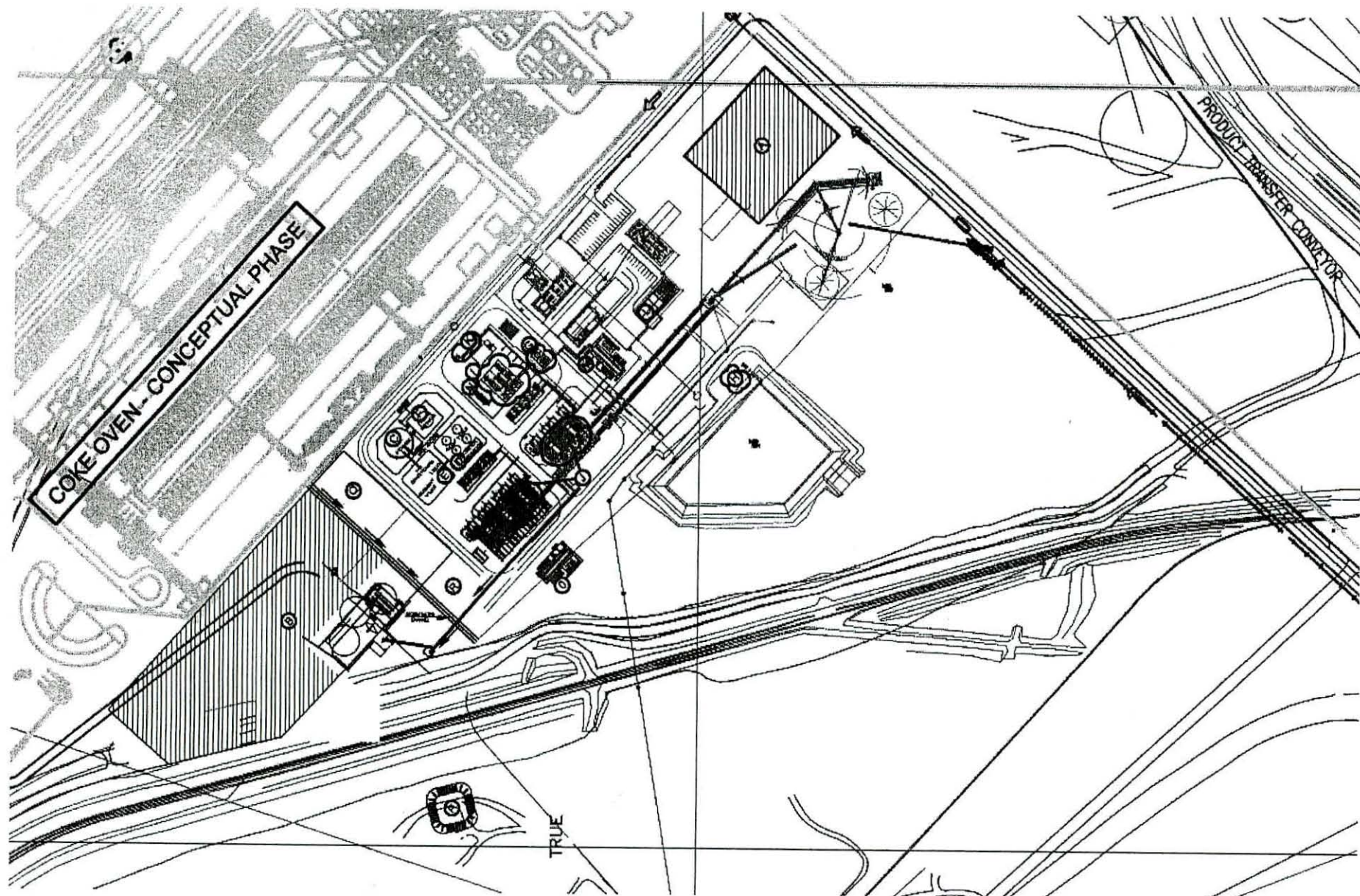
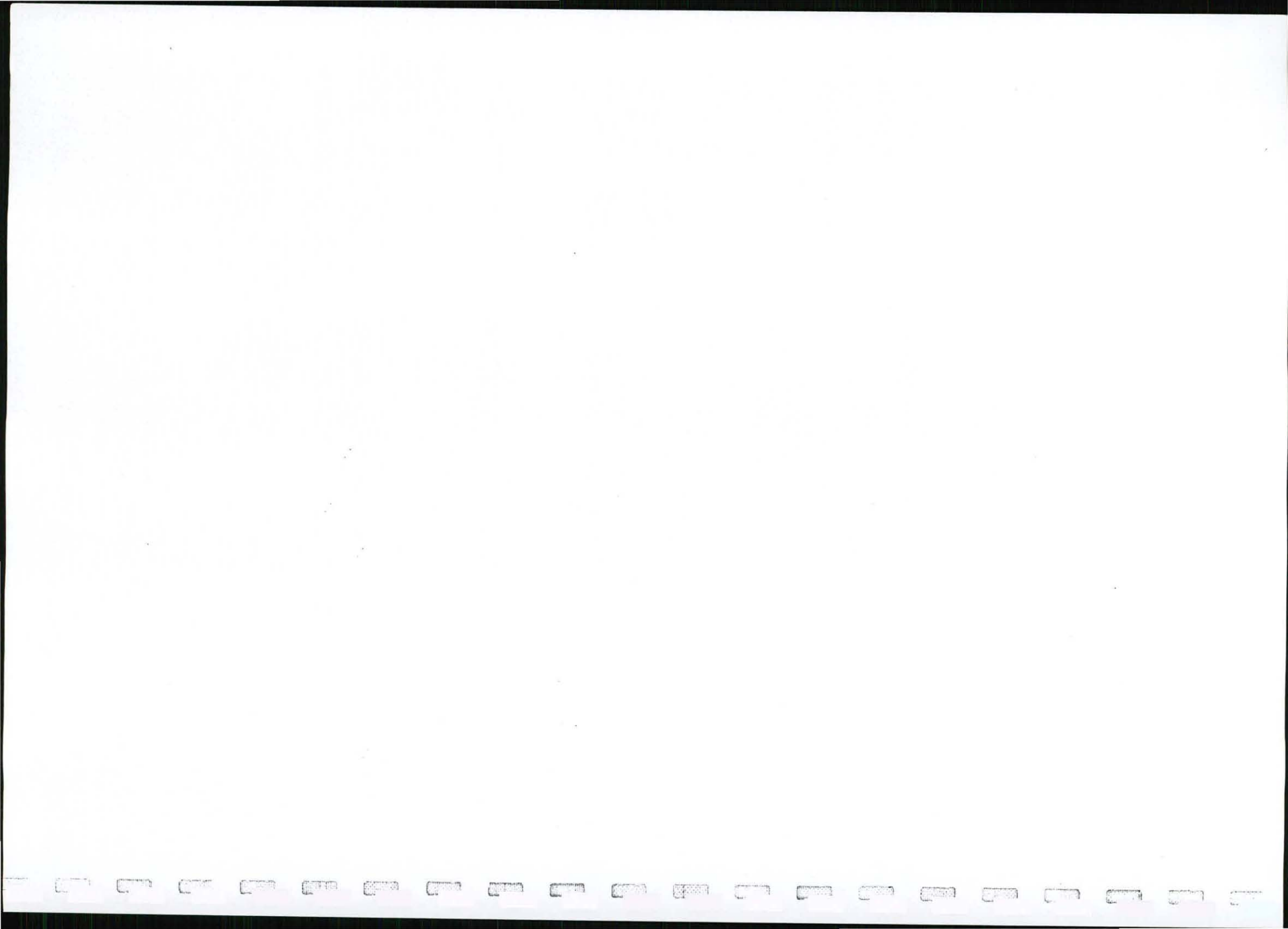


Figure 2: Conceptual Layout of the Char Plant Expansion Project (Blue is the existing char plant, while pink is the proposed expansion)







List of REGISTERED LETTERS

Lys van GEREGISTREERDE BRIEWE

(With an insurance option/met 'n versekeringsopsie)



Post Office  
Authority  
PPP

SO 342

Full tracking and tracing/Volledige volg en spoor

Name and address of sender  
Naam en adres van afseender

Synergistics Environmental  
Services

P.O. Box 1822, Rivonia, 2128

Enquiries/Navrae  
Toll-free number  
Tolvry nommer

0800 111 502

No	Name and address of addressee Naam en adres van geadresseerde	Insured amount Versekerde bedrag	Insurance fee Versekeringsgeld	Postage Posgeld	Service fee Diensgeld	Affix Track and Trace customer copy Plak Volg-en-Spoor-kliëntafskrif
1	Mr Johannes Mdepo P.O. Box 6207, Onverwacht, 0557					REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 398 297 399 ZA CUSTOMER COPY 301028R
2	Dr Andre Moolman P.O. Box 464, Ellistras, 0555					REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 398 297 734 ZA CUSTOMER COPY 301028R
3	Ms Susan Pretorius P.O. Box <del>5555</del> 6607, Onverwacht, 0557					REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 398 297 717 ZA CUSTOMER COPY 301028R
4	Mr Hennie Mills P.O. Box 73, Vorentoe, 0259					REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 398 297 456 ZA CUSTOMER COPY 301028R
5	Mr W Booysse P.O. Box 1000, Ellistras, 0555					REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 398 296 901 ZA CUSTOMER COPY 301028R
6	Mr Neels du Plooy P.O. Box 95, Ellistras, 0555					REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 398 296 915 ZA CUSTOMER COPY 301028R
7	Mr Gerrit Human P.O. Box 45, Ellistras, 0555					REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 398 297 425 ZA CUSTOMER COPY 301028R
8	Mr Herman de Lange P.O. Box 589, Ellistras, 0555					REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 398 296 708 ZA CUSTOMER COPY 301028R
9	Mr Sakkie Grabler P.O. Box 1460, 0555, Ellistras					REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 398 296 685 ZA CUSTOMER COPY 301028R
10	Mr Stoffel Pieterse P.O. Box 6477, Onverwacht, 0557					REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 398 297 442 ZA CUSTOMER COPY 301028R
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Number of letters posted  
Getal briewe gepos

10

Signature of client  
Handtekening van kliënt

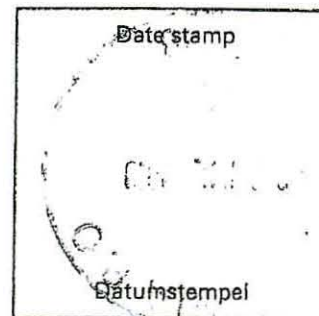
*[Handwritten signature]*

Signature of accepting officer  
Handtekening van aanneembeampte

*[Handwritten signature]*

The value of the contents of these letters is as indicated and compensation is not payable for a letter received unconditionally. Compensation is limited to R100,00. No compensation is payable without documentary proof. Optional insurance of up to R2 000,00 is available and applies to domestic registered letters only.

Die waarde van die inhoud van hierdie briewe is soos aangedui en vergoeding sal nie betaal word vir 'n brief wat sonder voorbehoud ontvang word nie. Vergoeding is beperk tot R100,00. Geen vergoeding is sonder dokumentêre bewys betaalbaar nie. Opsionele versekering van tot R2 000,00 is beskikbaar en is slegs op binnelandse geregistreerde briewe van toepassing.





# List of REGISTERED LETTERS Lys van GEREГИSTREERDE BRIEWE (With an insurance option/met 'n versekeringsopsie)



Post Office

**Full tracking and tracing/Volledige volg en spoor**

Name and address of sender  
Naam en adres van afsender..... Synergistics Environmental Services  
.....  
P.O. Box 1822, Rivonia, 2028

Enquiries/Navrae  
Toll-free number  
Tollvry nommer  
**0800 111 502**

No	Name and address of addressee Naam en adres van geadresseerde	Insured amount Versekerde bedrag	Insurance fee Versekeringsgeld	Postage Posgeld	Service fee Diensgeld	Affix Track and Trace customer copy Plak Volg-en-Spoorkliëntafskrif
1	<u>Mr. Dawie Jacobs</u> <u>P.O. Box 1617, Nigel, 1490</u>				X	REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 398 296 800 ZA CUSTOMER COPY 301028R
2	<u>Mr. J.L. Swanepoel</u> <u>P.O. Box 5140, Onderwacht, 0557</u>				✓	REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 398 296 787 ZA CUSTOMER COPY 301028R
3	<u>Mr. SM Gouws</u> <u>Wildekwepersteeg 176, Sinoville, 0182</u>				✓	REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 398 296 835 ZA CUSTOMER COPY 301028R
4	<u>Mr. Tony</u> <u>P.O. Box 5723, Onderwacht, 0557</u>				✓	REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 398 296 813 ZA CUSTOMER COPY 301028R
5	<u>Mr. Hardus Steenkamp</u> <u>P.O. Box 683, Ellisras, 0555</u>				✓	REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 398 296 795 ZA CUSTOMER COPY 301028R
6	<u>Mr. JJ Lambrecht</u> <u>P.O. Box 305, Ellisras, 0555</u>				✓	REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 398 296 844 ZA CUSTOMER COPY 301028R
7	<u>Mr. A Malherbe</u> <u>P.O. Box 689, Aucklandpark, JHB, 2006</u>				✓	REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 398 296 861 ZA CUSTOMER COPY 301028R
8	<u>Mr. Hennie Hills Magiel Erasmus</u> <u>P.O. Box 40 Ellisras, 0555</u>				✓	REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 398 296 858 ZA CUSTOMER COPY 301028R
	<u>Mr. Christo Van Niekerk (ESKOM)</u> <u>Private Bag X215, Lephalale, 0500</u>				✓	REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 398 296 606 ZA CUSTOMER COPY 301028R
10	<u>Mayor Megottane, Lephalale Municipality</u> <u>Private Bag X136, Lephalale, 0500</u>				✓	REGISTERED LETTER (with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za RD 398 296 583 ZA CUSTOMER COPY 301028R
		Total Totaal	R	R	R	R

Number of letters posted  
Getal briewe gepos ..... 10  
Signature of client  
Handtekening van kliënt..... [Signature]  
Signature of accepting officer  
Handtekening van aanneembeampte..... [Signature]

Date stamp  
2011 07 20  
Datumsstempel

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**Lys van GEREГИSTREERDE BRIEWE**  
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**Full tracking and tracing/Volledige volg en spoor**

Name and address of sender  
 Naam en adres van afsender.....

*Synergistics Environmental Services*

*P.O. Box 1822, Rivonia, 2128*

Enquiries/Navrae  
 Toll-free number  
 Tolvry nommer  
**0800 111 502**

No	Name and address of addressee Naam en adres van geadresseerde	Insured amount Versekerde bedrag	Insurance fee Versekeringsgeld	Postage Posgeld	Service fee Diensgeld	Affix Track and Trace customer copy Plak Volg-en-Spoor-kliëntafskrif
1	<i>Mr AP Henning P.O. Box 1081, Fochelström, 2520</i>				✓	REGISTERED LETTER <small>(with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za</small> RD 398 297 473 ZA
2	<i>Mr Gus Obes P.O. Box 1291, Silverton, 0127</i>				✓	CUSTOMER COPY 301028R REGISTERED LETTER <small>(with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za</small> RD 398 297 439 ZA
3	<i>Mr Basie Denter P.O. Box 5338, Onverwacht, 0557</i>				X	CUSTOMER COPY 301028R REGISTERED LETTER <small>(with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za</small> RD 398 297 408 ZA
4	<i>Mr Piet Sauer P.O. Box 540, Ellistras, 0555</i>				✓	CUSTOMER COPY 301028R REGISTERED LETTER <small>(with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za</small> RD 398 297 411 ZA
5	<i>Mr Swanefelder P.O. Box 736, Ellistras, 0555</i>				X	CUSTOMER COPY 301028R REGISTERED LETTER <small>(with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za</small> RD 398 297 460 ZA
6	<i>Mr Pieter P.O. Box 409, Ellistras, 0555</i>				✓	CUSTOMER COPY 301028R REGISTERED LETTER <small>(with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za</small> RD 398 297 487 ZA
7	<i>T. Pwier P.O. Box 5672, Onverwacht, 0557</i>				✓	CUSTOMER COPY 301028R REGISTERED LETTER <small>(with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za</small> RD 398 297 495 ZA
8	<i>Mr Louis Rossel P.O. Box 413, Ellistras, 0555</i>				X	CUSTOMER COPY 301028R REGISTERED LETTER <small>(with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za</small> RD 398 296 668 ZA
9	<i>Mr Jaco Breedt P.O. Box 13 Ellistras, 0555</i>				✓	CUSTOMER COPY 301028R REGISTERED LETTER <small>(with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za</small> RD 398 296 645 ZA
10	<i>Mr Willem Beukes P.O. Box 5222, Onverwacht, 0557</i>				X	CUSTOMER COPY 301028R REGISTERED LETTER <small>(with a domestic insurance option) ShareCall 0800 111 502 www.sapo.co.za</small> RD 398 296 711 ZA
		Total Totaal	R	R	R	R

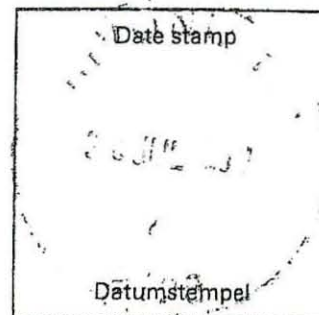
Number of letters posted  
 Getal briewe gepos ..... *10*

Signature of client  
 Handtekening van kliënt..... *[Signature]*

Signature of accepting officer  
 Handtekening van aanneembeampte..... *[Signature]*

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Name and address of sender  
 Naam en adres van afsender..... *Synergistics Environmental Services*  
 P.O. Box 1822, Rivonia, 2128

Enquiries/Navrae  
 Toll-free number  
 Tolvry nommer  
**0800 111 502**

No	Name and address of addressee Naam en adres van geadresseerde	Insured amount Versekerde bedrag	Insurance fee Versekeringsgeld	Postage Posgeld	Service fee Diensgeld	Affix Track and Trace customer copy Plak Volg-en-Spoor-kliëntafskrif
1	Mr. Erick Tau, Department of Land Affairs Private Bag 49312, Polokwane, 0770					REGISTERED LETTER (with domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 398 296 566 ZA
2	Mr. V. Mangwe, KEDET Private Bag 49484, Polokwane, 0770				@ office	CUSTOMER COPY 301028R REGISTERED LETTER (with domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 398 296 549 ZA
3	Mr. A. Mchabazi, Department of Minerals + Regulations Private Bag 49467, Polokwane, 0770				@ office	CUSTOMER COPY 301028R REGISTERED LETTER (with domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 398 296 623 ZA
4	Mr. Naidoo, Kephale Municipality Private Bag 4136, Kephale, 0500					CUSTOMER COPY 301028R REGISTERED LETTER (with domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 398 296 610 ZA
5	Mr. Tinyi, Ke.Malungani, KEDET Private Bag 49487, Polokwane, 0770				@ office	CUSTOMER COPY 301028R REGISTERED LETTER (with domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 398 296 597 ZA
6	Mr. Wim Diedericks, Grootegeluk Municipality P.O. Box 178, Kephale, 0500					CUSTOMER COPY 301028R REGISTERED LETTER (with domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 398 296 570 ZA
7	Mr. D. Mabasa, Department of Water Affairs + Forestry Private Bag 49506, Polokwane, 0770					CUSTOMER COPY 301028R REGISTERED LETTER (with domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 398 296 552 ZA
8	Mr. Mahlatji, Department of Agriculture P.O. Box 3620, Polokwane, 0770				X	CUSTOMER COPY 301028R REGISTERED LETTER (with domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 398 296 637 ZA
9	Mr. M. Mahlatji, Department of Water Affairs + Forestry Private Bag 49506, Polokwane, 0770					CUSTOMER COPY 301028R REGISTERED LETTER (with domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 398 296 889 ZA
10	Mr. Eben Badenhorst, Kephale Municipality P.O. Box 136, Kephale, 0555					CUSTOMER COPY 301028R REGISTERED LETTER (with domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 398 296 875 ZA
Total Totaal		R	R	R	R	

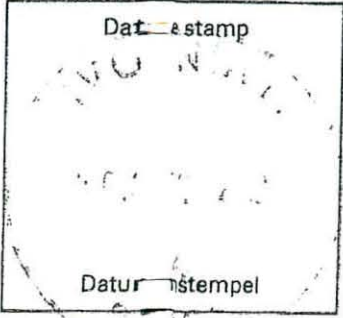
Number of letters posted  
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Signature of client  
 Handtekening van kliënt..... *[Signature]*

Signature of accepting officer  
 Handtekening van aanneembeampte..... *[Signature]*

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(With an insurance option/met 'n versekeringsopsie)



Post Office

### Full tracking and tracing/Volledige volg en spoor

Name and address of sender  
Naam en adres van afsender

Synergistics Environmental  
Services

P.O. Box 1822, Rivonia, 2128

Enquiries/Navrae  
Toll-free number  
Tolvry nommer

0800 111 502

No	Name and address of addressee Naam en adres van geadresseerde	Insured amount Versekerde bedrag	Insurance fee Versekeringsgeld	Postage Posgeld	Service fee Diensgeld	Affix Track and Trace customer copy Plak Volg-en-Spoor-klëntafskrif
1	Mr Koort Tuynsma P.O. Box 300, Ellistad, 0555				✓	REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 398 296 699 ZA CUSTOMER COPY 301028R
2	Tienie Nel P.O. Box 246, Ellistad, 0555				✓	REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 398 296 671 ZA CUSTOMER COPY 301028R
3	Mr J Van Rooyen P.O. Box 585, Ellistad, 0555				✓	REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 398 296 654 ZA
4	Mr Gideon Erasmus P.O. Box 228, Ellistad, 0555				✓	REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 398 296 742 ZA CUSTOMER COPY 301028R
5	Mr Johan Pistorius P.O. Box 31, Ellistad, 0555				✓	REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 398 296 756 ZA CUSTOMER COPY 301028R
6	Mr JP Lombard P.O. Box 11, Ellistad, 0555				✓	REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 398 296 725 ZA CUSTOMER COPY 301028R
7	Mr Ron Van Tonder P.O. Box 377, Ellistad, 0555				X	REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 398 296 739 ZA CUSTOMER COPY 301028R
8	Mr Hendrik Pieterse P.O. Box 5238, Onderwacht, 0557				✓	REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 398 296 773 ZA CUSTOMER COPY 301028R
	Mr Piet Nel P.O. Box 5791, Onderwacht, 0557				✓	REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 398 296 760 ZA CUSTOMER COPY 301028R
10	Ms Pat Van Rooyen P.O. Box 6182, Onderwacht, 0557				✓	REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 398 296 827 ZA CUSTOMER COPY 301028R
		Total Totaal	R	R	R	R

Number of letters posted  
Getal briewe gepos

10

Signature of client  
Handtekening van kliënt

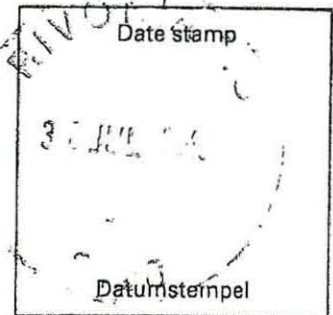
*(Signature)*

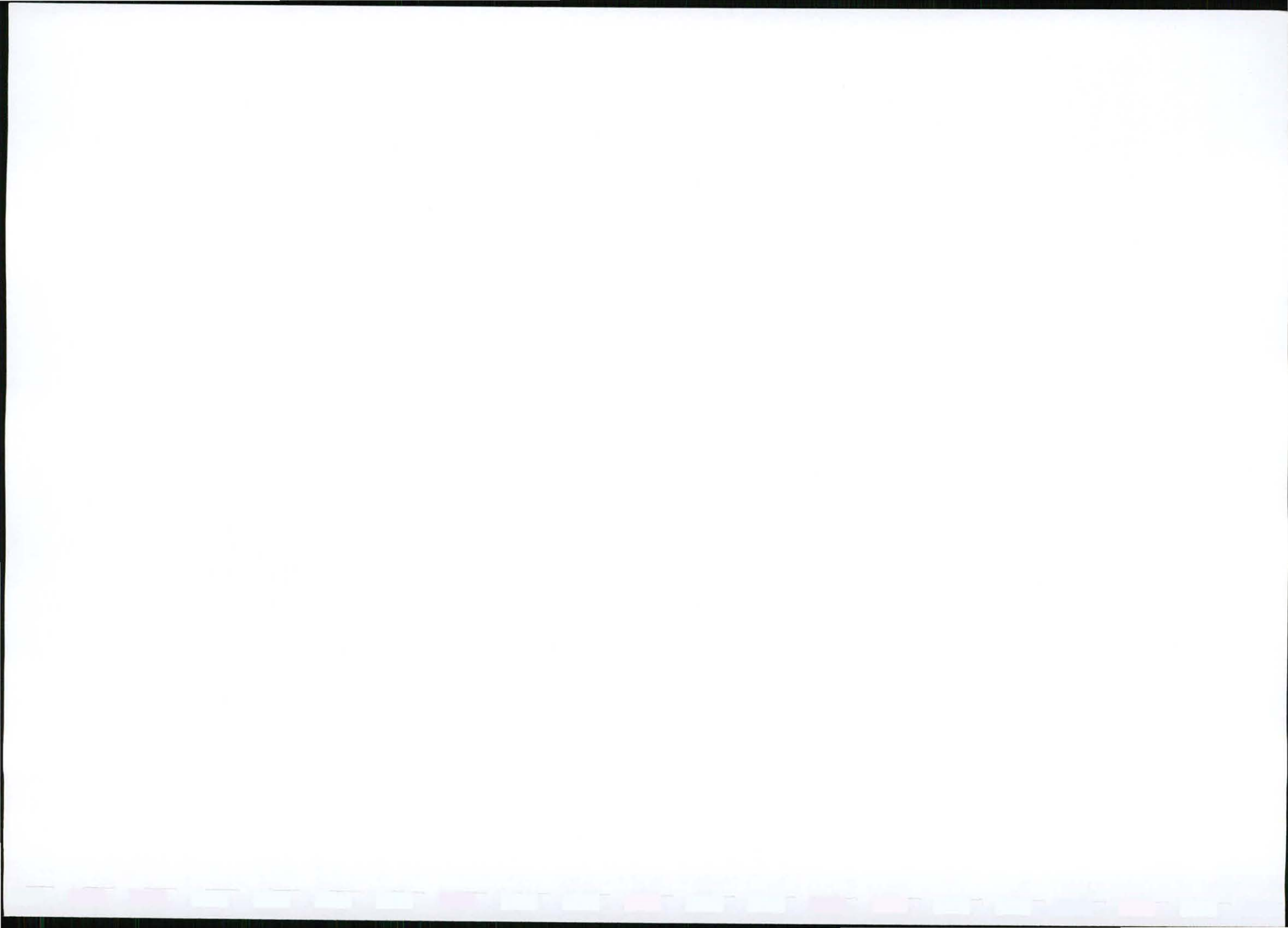
Signature of accepting officer  
Handtekening van aanneembeampte

*(Signature)*

The value of the contents of these letters is as indicated and compensation is not payable for a letter received unconditionally. Compensation is limited to R100,00. No compensation is payable without documentary proof. Optional insurance of up to R2 000,00 is available and applies to domestic registered letters only.

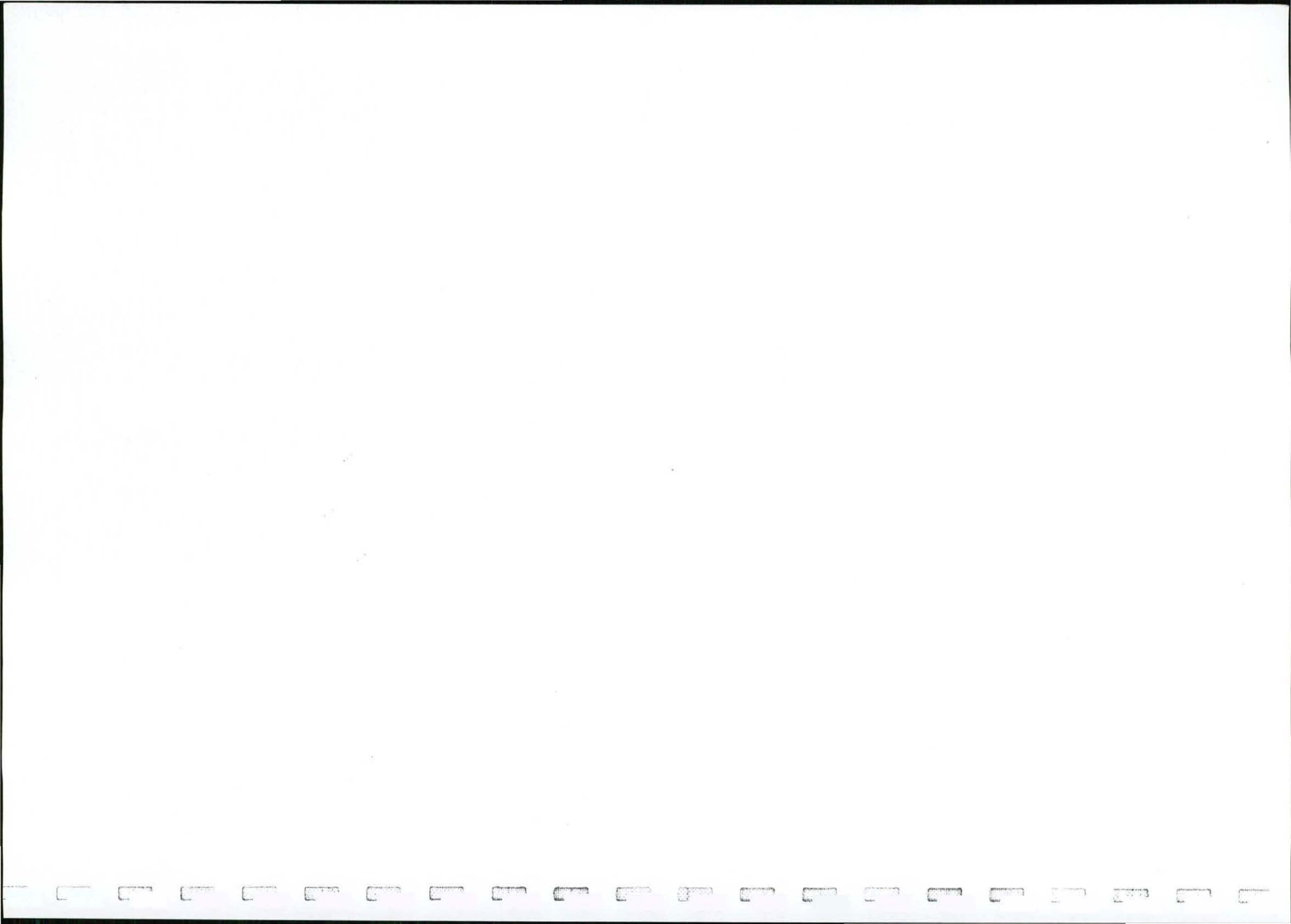
Die waarde van die inhoud van hierdie briewe is soos aangedui en vergoeding sal nie betaal word vir 'n brief wat sonder voorbehoud ontvang word nie. Vergoeding is beperk tot R100,00. Geen vergoeding is sonder dokumentêre bewys betaalbaar nie. Opsionele versekering van tot R2 000,00 is beskikbaar en is slegs op binnelandse geregistreerde briewe van toepassing.







March 2011



# BACKGROUND INFORMATION DOCUMENT

## Environmental Impact Assessment (EIA), Environmental Management Programme (EMP), Integrated Water Use License (IWUL) Amendment, Atmospheric Emissions License (AEL) and Waste Management License (WML) for the Expansion of the Char Plant at Grootegeluk Mine

### Introduction

A 4 retort Char Plant on the farm Daarby 458 LQ, within the boundaries of the Grootegeluk Coal Mine in Lephalale (Ellisras) (see figure 2), has been operational since June 2009. The Char Plant is owned and operated by Exxaro Resources (Pty) Ltd and is therefore a separate entity to the Grootegeluk Mine (owned by Exxaro Coal). The existing plant covers an area of approximately 5.5ha.

The proposed expansion to the Char Plant involves increasing the number of char retorts from 4 to 12. The expansion would therefore involve the construction of an almost identical replica of the existing Char Plant. The majority of the infrastructure associated with the Char Plant would therefore also be duplicated. The Char Plant expansion will be located directly adjacent to the existing plant and will occupy an area of approximately 5.5ha. The entire footprint area of the Char Plant and associated infrastructure covers an area of approximately 13.9ha.

### Brief Project Description

#### Char Plant Process

The coal which is fed into the Char Plant comes from Grootegeluk Mine. The lumpy coal blends contain high levels of volatile gases and moisture. This coal is heated to temperatures of 950°C in the retorts, driving off the volatiles and remaining moisture. Tar, contained in the volatile gases, is extracted through electrostatic precipitators (ESP) and removed by a contractor who transports it by truck to a processing plant. The volatile gases are recycled and used in various processes such as the boilers, stacks and heating of the retorts. The plant currently incorporates 2 flare stacks into the process, which control the pressure of the recycled gas by burning off any excess gas when necessary. Condensates from the cooling system, gas booster fans and contaminated liquids are collected and stored in waste liquor tanks. They are pumped to the liquor destructor, which burns off the contaminated waste liquor. The Char product, after being cooled in the retorts, is stockpiled for transportation to clients. (See process flow diagram in Figure 1).



Char is a metallurgical carbon reductant and is increasingly used to supplement market coke due to the limited availability of coking coal. The Char plant is therefore in a prime position, as it has access to suitable coal feedstock as well as being close to major consumers (ferro-chrome, ferro-manganese and platinum producers).

### **Plant Infrastructure**

The existing plant operates 4 retorts and associated infrastructure for the production of the Char product. The expansion will involve increasing the number of retorts from 4 to 12. The associated infrastructure required for the efficient functioning and operation of the Char Plant will therefore also be included as part of the expansion process. Infrastructure associated with the Char Plant which will be required as part of the expansion includes:

- Gas Boosters;
- Electrostatic precipitators;
- Tar storage tanks;
- Liquor tanks;
- Liquor Destructors;
- Liquor destructor stacks;
- Retort vents; and
- Admin buildings.

Additional infrastructure, not included within the existing Char Plant, but to be included in the expansion project includes:

- Oil and water separating plant;
- Tar conditioning facility;
- Briquetting plant;
- Spare store; and
- Tar storage and reclaiming facility (TSRF).

### **Project Locality**

The Char Plant is located within the Old Middling Stockpile area, an area previously used for coal storage, within the boundaries of the Grootegeluk Coal Mine (refer to figure 2). The Mine is situated approximately 20km west of Lephalale (Ellisras) in the Limpopo Province.

## **Enviro-Legal Requirements**

The key legislation applicable to the proposed project includes:

- The National Environmental Management Act (No. 107 of 1998) (NEMA);
- The Mineral and Petroleum Resources Development Act (No. 28 of 2002);
- The National Water Act (No. 36 of 1998) (NWA);
- The National Environmental Air Quality Act (Act No. 39 of 2004) (NEMAQA); and
- The National Environmental Management: Waste Act (No. 59 of 2008) (NEMWA).

There will be five key deliverables for the project, each of which will be submitted to the relevant government department for authorisation. These are:

- An Environmental Impact Assessment which will be submitted to the Limpopo Department of Economic Development, Environment and Tourism (LEDET) for activities that are listed in terms of the EIA Regulations under the NEMA;
- An Environmental Management Programme which will be submitted to the Limpopo Department of Mineral Resources for approval;
- An amendment to the integrated Water Use License Application will be submitted to the Department of Water Affairs (DWA);
- An amendment to the air pollution control certificate (as the process will involve activities which require an atmospheric emissions licence) will be submitted to LEDET; and
- A Waste Management License Application will be submitted to the waste management division of the Department of Environmental Affairs (DEA).

## **Environmental Consultants**

Synergistics Environmental Services (Pty) Ltd has been appointed as the independent environmental consultants responsible for undertaking the environmental work on behalf of Exxaro Resources (Pty) Ltd, as required by the applicable legislation, detailed above.

# CHAR PLANT PROCESS

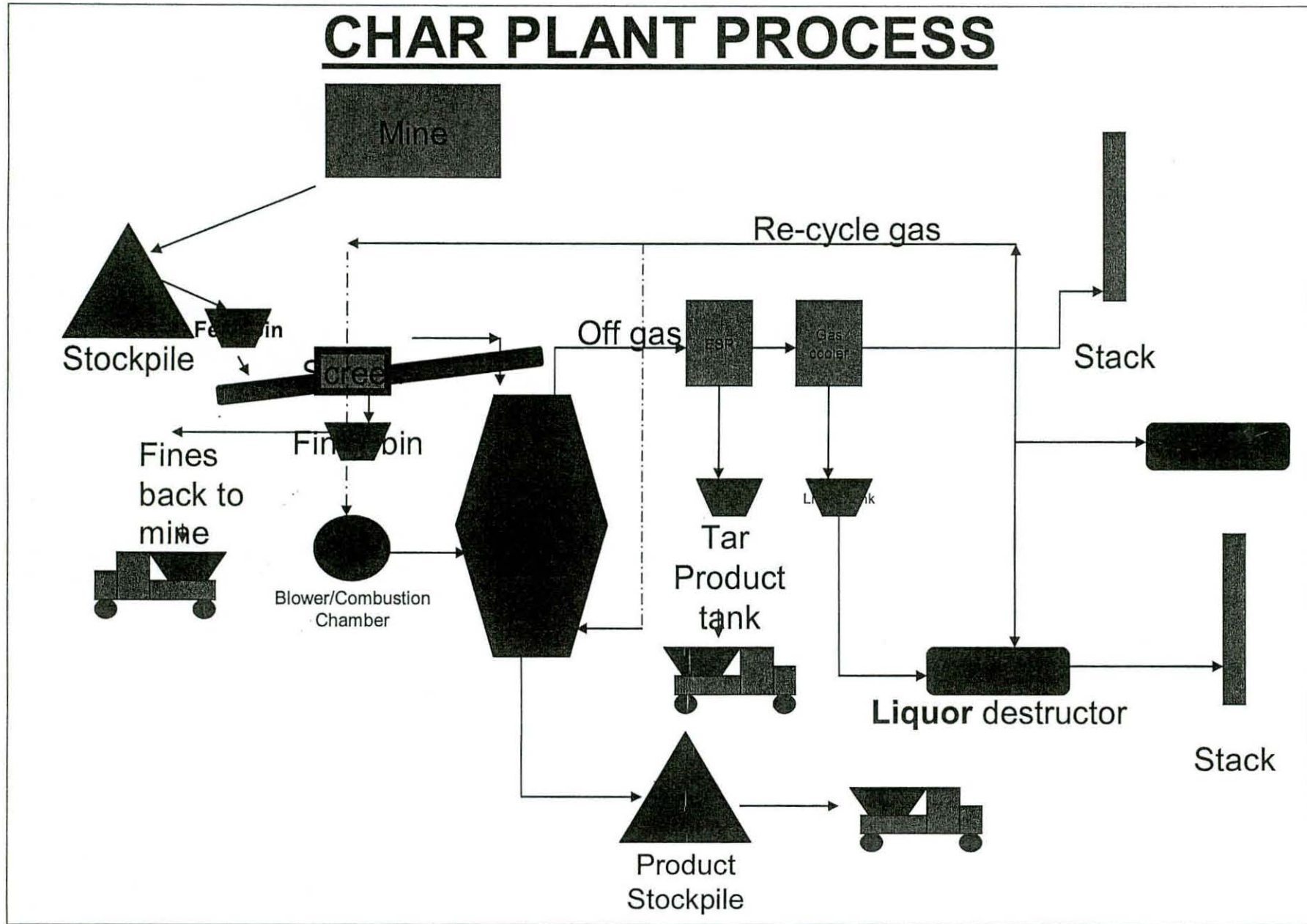
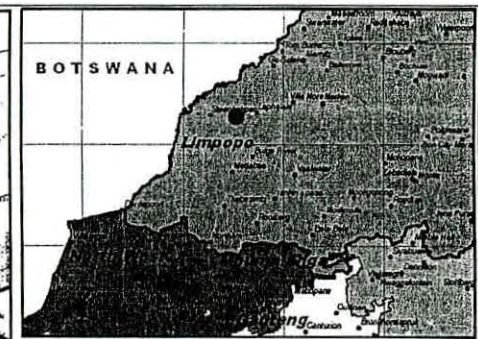
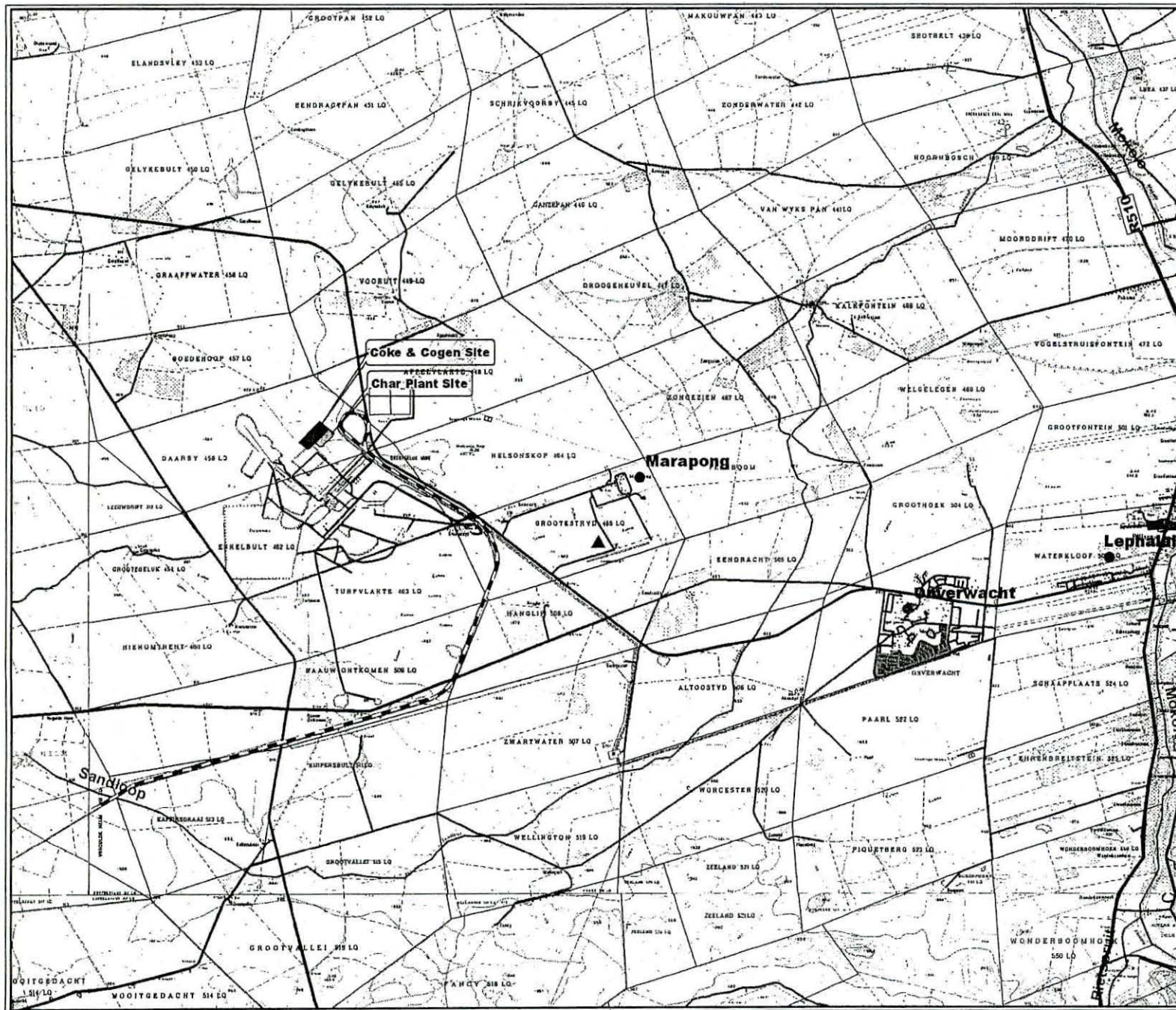


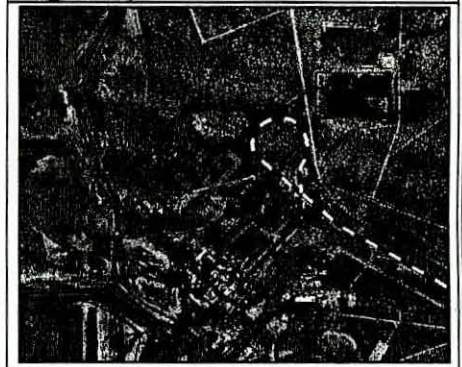
Figure 1: Process Flow Diagram for Existing Char Plant Process





**Legend**

- ▲ Matimba Power Station
- ~ Main Road
- ~ Other Access
- ~ Secondary Road
- ~ Street
- ~ Railway
- ~ River
- ▨ Char Plant
- Coke Plant

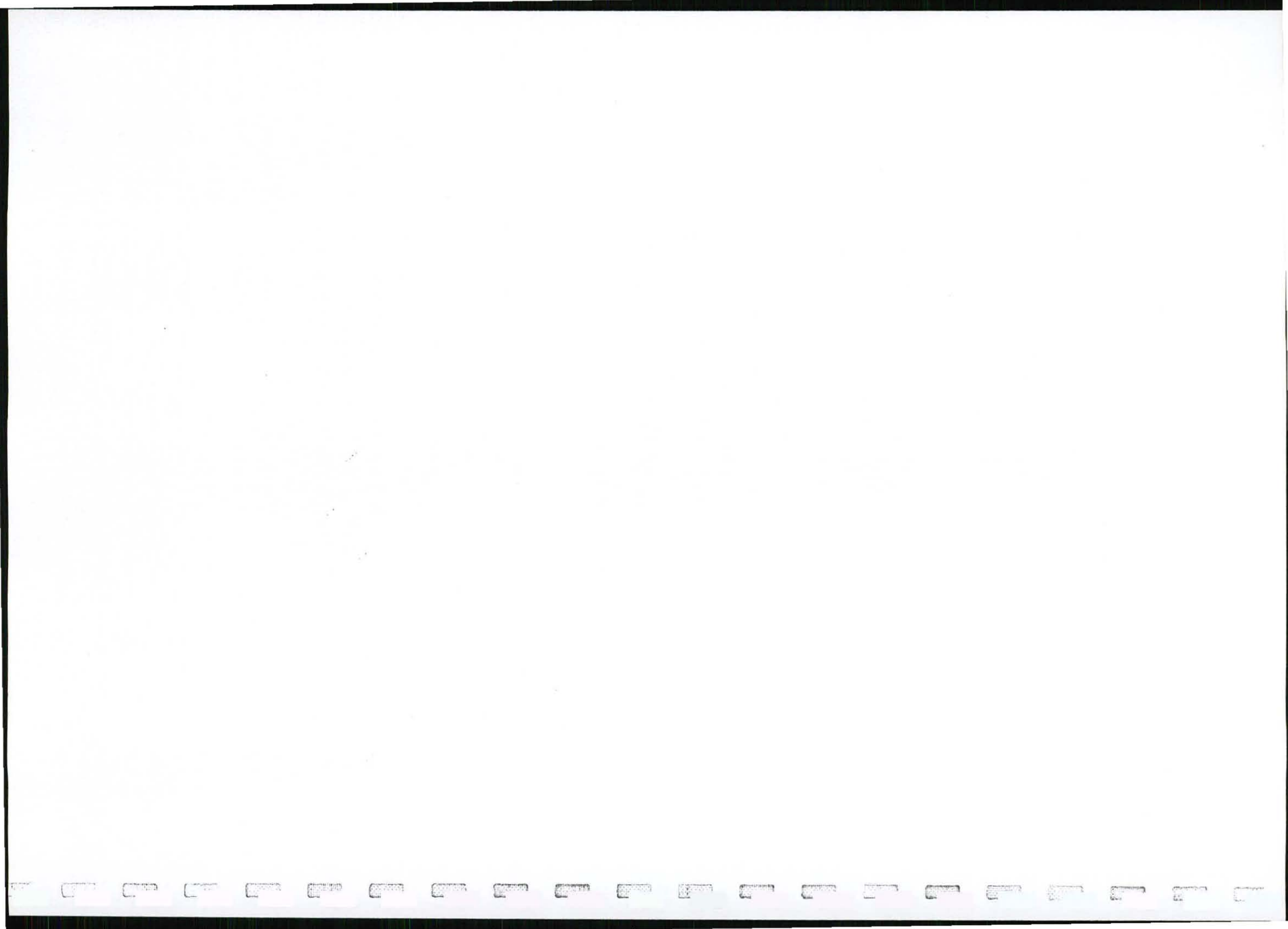


Kilometers


0      2      4

**Synergistics**  
Environmental Services

Figure 2: Location of the Char Plant Expansion Project, Grootegeluk Mine, Lephalale





<b>Date:</b>	9 March 2011	
<b>Ref:</b>	Char Plant, Coke and Co-generation Plant at Grootegeluk Mine	
<b>Attention:</b>	<b>J. Hlapa</b> <b>Lephalale Local Municipality</b> Fax: 014 7635662 No. pages: 10	
		<b>Johannesburg:</b> Tel: 011 807 8225, Fax: 011 807 8226 PO Box 1822, Rivonia, 2128 64 Wessels Road, Rivonia  <b>Eastern Cape:</b> Tel: 041 583 1156, Fax: 086 562 0165 Suite 71, P Bag X13130, Humewood, Port Elizabeth, 6013  <b>KwaZulu Natal:</b> Tel/Fax: 033 343 4642 15 Quarry Road, Hilton, 3201

Dear Mr Hlapa

**Environmental Impact Assessment, Environmental Management Programme, Integrated  
 Water Use License Amendment, Atmospheric Emissions License and Waste  
 Management License for the Expansion of the Char Plant and construction of a Coke and  
 Co-generation Plant at Grootegeluk Mine, Lephalale**

The emails that I've sent do not seem to be going through, so I've sent this fax with the relevant information we've discussed telephonically. As discussed, Exxaro Resources (Pty) Ltd, Exxaro Energy (Pty) Ltd and Synergistics Environmental Services would like to meet with you (and any other relevant Lephalale Municipality officials) to discuss the proposed expansion of the Char Plant and construction of a Coke and Co-generation Plant at Grootegeluk Mine, Lephalale (please refer to the attached information documents). These projects will involve various environmental authorisations.

We would like to introduce you to the projects and explain the processes which we will be following. We would also like to ask for your feedback regarding any issues which may arise.

As arranged telephonically, we would like to meet with you **at your offices in the Lephalale Civic Centre, next Thursday the 17<sup>th</sup> of March from 14:00 to 16:00pm.**

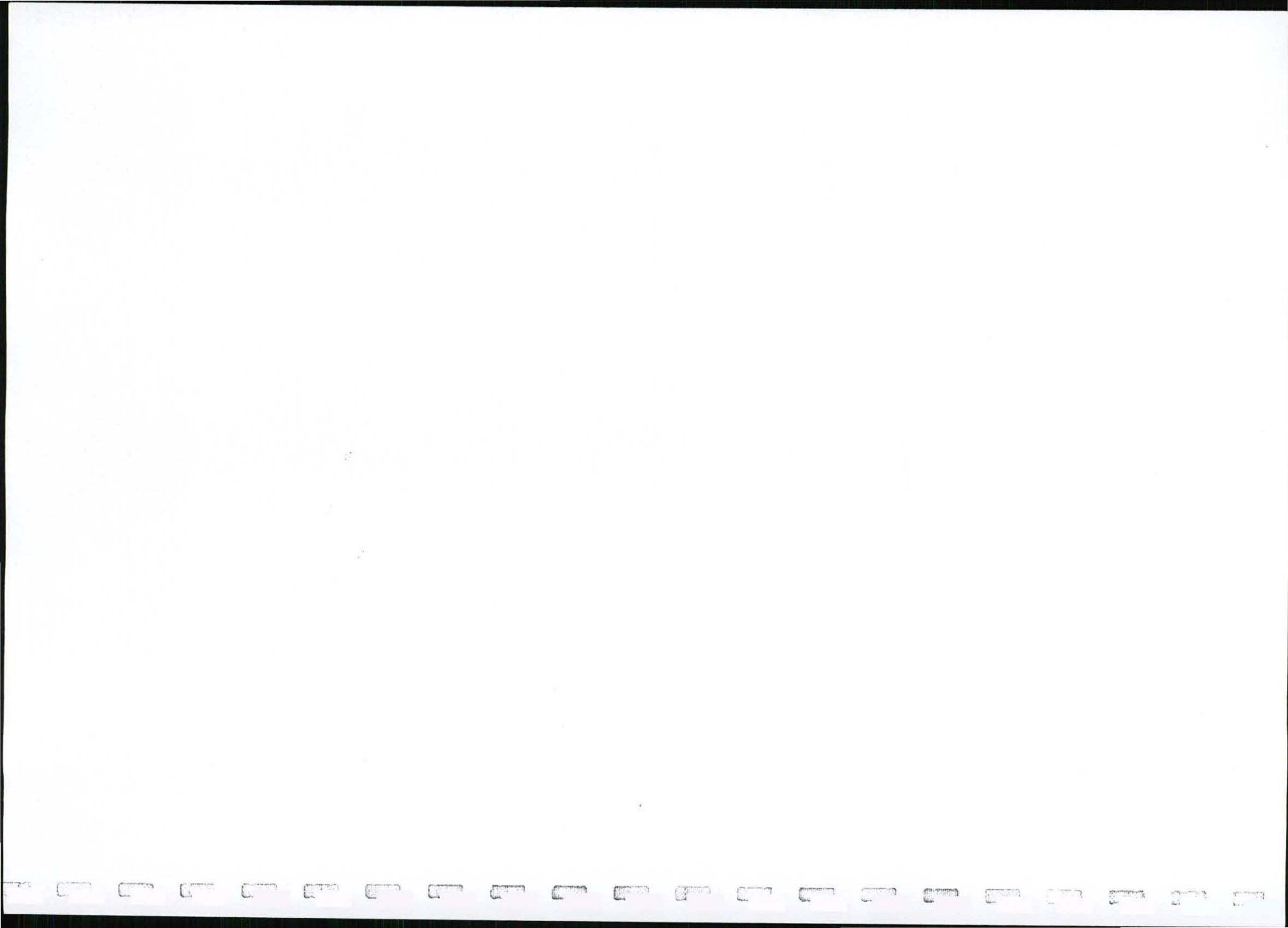
Please let me know if there are any problems or queries.

Thank you for your assistance with this matter.

Kind regards,



**SHELLEY HOLT**  
 B.Sc. Hons  
 Environmental Scientist





File Message

This message was sent with High importance.

From: Shelley Holt <[shelley@synergistics.co.za](mailto:shelley@synergistics.co.za)>  
To: violetB@nda.agric.za; malletsem@nda.agric.za; lekgaumah@nda.agric.za  
Cc:

Sent: Mon 2011/03/07 01:10 PM

Subject: Environmental Information for the Char Plant, Coke and Co-generation Plant at Grootegeluk Mine, Lephalale

Message  Grootegeluk Char Plant Background Info Doc ENG - 2011-3-4.pdf (1 016 KB)  Grootegeluk Coke Co-generation Plant Background Info Doc ENG - 2011-3-4.pdf (1 MB)

**Environmental Impact Assessment, Environmental Management Programme, Integrated Water Use License Amendment, Atmospheric Emissions License and Waste Management License for the Expansion of the Char Plant and construction of a Coke and Co-generation Plant at Grootegeluk Mine, Lephalale (Limpopo)**

Dear Department of Agriculture, Forestry and Fisheries

This letter serves to inform you as an interested or affected party, of the proposed expansion of the Char Plant and construction of a Coke and Co-generation Plant at Grootegeluk Mine, Lephalale (Ellisras)

The projects are being undertaken by Exxaro Resources (Pty) Ltd and Exxaro Energy (Pty) Ltd. This notice is served in terms of Regulation 54 under Government Notice 543 (18 June 2010) published under the National Environmental Management Act (No. 107 of 1998). Information on the proposed developments has been attached to this email for your perusal.

Synergistics Environmental Services (Pty) Ltd has been appointed as independent environmental consultants responsible for liaison with interested and affected parties. Please be so kind as to submit all questions, comments and concerns, before 1 April 2010, in writing to:

**Shelley Holt**  
Synergistics Environmental Services (Pty) Ltd  
Tel: 011 807 8225  
Fax: 011 807 8226  
Email: [shelley@synergistics.co.za](mailto:shelley@synergistics.co.za)  
Post: PO Box 1822, Rivonia 2128

Yours sincerely,

**SHELLEY HOLT**  
B.Sc. Hons  
Environmental Scientist

You forwarded this message on 2011/03/07 10:45 AM.  
This message was sent with High importance.

From: Shelley Holt <shelley@synergistics.co.za>  
To: morokanem@dwaf.gov.za; mahlatgim@dwaf.gov.za; mabadad@dwaf.gov.za  
Cc:  
Subject: URGENT: Meeting required with DWAF to discuss projects at the Grootegeluk Mine, Lephalale

Sent: Mon 2011/03/07 10:17 AM

Message Grootegeluk Char Plant Background Info Doc ENG AUTHORITIES - 2011-3-7.pdf (1 004 KB) Grootegeluk Coke & Co-generation Plant Background Info Doc ENG AUTHORITIES - 2011-3-7.pdf (1 016 KB)

**Environmental Impact Assessment, Environmental Management Programme, Integrated Water Use License Amendment, Atmospheric Emissions License and Waste Management License for the Expansion of the Char Plant and construction of a Coke and Co-generation Plant at Grootegeluk Mine, Lephalale (Limpopo Province)**

Dear Mr Morokane, Mr Mahlatgi, and Mr Mabada

As discussed, Exxaro Resources (Pty) Ltd, Exxaro Energy (Pty) Ltd and Synergistics Environmental Services would like to meet with you (and any other relevant DWAF officials) to discuss the proposed expansion of the Char Plant and construction of a Coke and Co-generation Plant at Grootegeluk Mine, Lephalale (please refer to the attached information documents). These projects will involve an amendment to the mine's existing water use license and other environmental authorisations.

We would like to introduce you to the projects and explain the processes which we will be following. We would also like to ask for your feedback regarding any issues which may arise

We would like to meet with you on either on the afternoon of Tuesday the 15<sup>th</sup> of March or on Wednesday the 16<sup>th</sup> of March.

I would appreciate your response as soon as it's convenient, so that we can finalise travel arrangements for the meeting.

Thanks for your assistance with this matter.

Kind regards,  
**Shelley Holt**  
B.Sc. (Hons) Zoology  
Environmental Scientist

for Synergistics Environmental Services  
Tel: +27 (0)11 807 8225  
Fax: +27 (0)11 807 8226  
Email: [shelley@synergistics.co.za](mailto:shelley@synergistics.co.za)  
Postal address: P.O. Box 1822, Rivonia, 2128, South Africa



You forwarded this message on 2011/03/08 09:35 AM.  
This message was sent with High importance.

From: Shelley Holt <shelley@synergistics.co.za>  
To: azwihangwisi.mulaudzi@dmr.gov.za  
Cc:

Sent: Mon 2011/03/07 10:21 AM

Subject: URGENT: Meeting required with DMR to discuss projects at the Grootegeluk Mine, Lephalale

Message Grootegeluk Char Plant Background Info Doc ENG AUTHORITIES - 2011-3-7.pdf (1 004 KB)

Grootegeluk Coke & Co-generation Plant Background Info Doc ENG AUTHORITIES - 2011-3-7.pdf (1 016 KB)

**Environmental Impact Assessment, Environmental Management Programme, Integrated Water Use License Amendment, Atmospheric Emissions License and Waste Management License for the Expansion of the Char Plant and construction of a Coke and Co-generation Plant at Grootegeluk Mine, Lephalale (Limpopo Province)**

Dear Mr Mulaudzi

As discussed, Exxaro Resources (Pty) Ltd, Exxaro Energy (Pty) Ltd and Synergistics Environmental Services would like to meet with you (and any other relevant DMR officials) to discuss the proposed expansion of the Char Plant and construction of a Coke and Co-generation Plant at Grootegeluk Mine, Lephalale (please refer to the attached information documents). These projects will involve an amendment to the mine's existing EMPR and other environmental authorisations.

We would like to introduce you to the projects and explain the processes which we will be following. We would also like to ask for your feedback regarding any issues which may arise

We would like to meet with you on either on the afternoon of Tuesday the 15<sup>th</sup> of March or on Wednesday the 16<sup>th</sup> of March.

I would appreciate your response as soon as it's convenient, so that we can finalise travel arrangements for the meeting.

Thank you for your assistance with this matter.

Kind regards,  
**Shelley Holt**  
B.Sc. (Hons) Zoology  
Environmental Scientist

for Synergistics Environmental Services  
Tel: +27 (0)11 807 8225  
Fax: +27 (0)11 807 8226  
Email: [shelley@synergistics.co.za](mailto:shelley@synergistics.co.za)  
Postal address: P.O. Box 1822, Rivonia, 2128, South Africa

File Message

This message was sent with High importance.

From: Shelley Holt <shelley@synergistics.co.za>

To: rudzani.mudogwa@dmr.gov.za

Cc:

Subject: URGENT: Meeting required with DMR to discuss projects at the Grootegeluk Mine, Lephalale

Sent: Mon 2011/03/07 02:34 PM

Message Grootegeluk Char Plant Background Info Doc ENG AUTHORITIES - 2011-3-7.pdf (1 004 KB)

Grootegeluk Coke & Co-generation Plant Background Info Doc ENG AUTHORITIES - 2011-3-7.pdf (1 016 KB)

**Environmental Impact Assessment, Environmental Management Programme, Integrated Water Use License Amendment, Atmospheric Emissions License and Waste Management License for the Expansion of the Char Plant and construction of a Coke and Co-generation Plant at Grootegeluk Mine, Lephalale (Limpopo Province)**

Dear Mr Mudogwa

Exxaro Resources (Pty) Ltd, Exxaro Energy (Pty) Ltd and Synergistics Environmental Services would like to meet with you (and any other relevant DMR officials) to discuss the proposed expansion of the Char Plant and construction of a Coke and Co-generation Plant at Grootegeluk Mine, Lephalale (please refer to the attached information documents). These projects will involve an amendment to the mine's existing EMPR and other environmental authorisations.

We would like to introduce you to the projects and explain the processes which we will be following. We would also like to ask for your feedback regarding any issues which may arise.

We would like to meet with you on Wednesday the 16<sup>th</sup> of March (or possibly late afternoon on Tuesday 15<sup>th</sup> March).

I would appreciate your response as soon as it's convenient, so that we can finalise travel arrangements for the meeting.

Thank you for your assistance with this matter.

Kind regards,

**Shelley Holt**

B.Sc. (Hons) Zoology  
Environmental Scientist

for Synergistics Environmental Services

Tel: +27 (0)11 807 8226

Fax: +27 (0)11 807 8226

Email: [shelley@synergistics.co.za](mailto:shelley@synergistics.co.za)

Postal address: P.O. Box 1822, Rivonia, 2128, South Africa





You forwarded this message on 2011/03/14 02:59 PM.  
This message was sent with High importance.

From: Shelley Holt <shelley@synergistics.co.za>  
To: Imokonyane@waterberg.gov.za; rmashego@waterberg.gov.za  
Cc:  
Subject: Meeting organised to discuss projects at the Grootegeluk Mine, Lephalale

Sent: Mon 2011/03/07 12:03 PM

Message Grootegeluk Char Plant Background Info Doc ENG AUTHORMIES - 2011-3-7.pdf (1 004 KB)

Grootegeluk Coke & Co-generation Plant Background Info Doc ENG AUTHORMIES - 2011-3-7.pdf (1 016 KB)

Dear Mr Mashego and Ms Mokonyane

**Environmental Impact Assessment, Environmental Management Programme, Integrated Water Use License Amendment, Atmospheric Emissions License and Waste Management License for the Expansion of the Char Plant and construction of a Coke and Co-generation Plant at Grootegeluk Mine, Lephalale (Limpopo Province)**

As discussed, Exxaro Resources (Pty) Ltd, Exxaro Energy (Pty) Ltd and Synergistics Environmental Services have arranged to meet with you (and any other relevant Waterberg Municipality officials) to discuss the proposed expansion of the Char Plant and construction of a Coke and Co-generation Plant at Grootegeluk Mine, Lephalale (please refer to the attached information documents). These projects will involve various environmental authorisations.

We would like to introduce you to the projects and explain the processes which we will be following. We would also like to ask for your feedback regarding any issues which may arise.

As discussed, we have arranged to meet with you **at your offices on Harry Gwala Street, Modimolle, on Thursday the 17<sup>th</sup> of March from 9:00 to 11:00.**

The following people will be in attendance from our side: Shelley Holt (the appointed independent Environmental Assessment Practitioner), Charles Linstrom (Exxaro Environmental Specialist) and Mike Plaskitt (Exxaro Technical Specialist for these projects).

Please let me know if you have any queries.

Thanks for your assistance with this matter

Kind regards,  
**Shelley Holt**  
B.Sc. (Hons) Zoology  
Environmental Scientist

for Synergistics Environmental Services  
Tel: +27 (0)11 807 8225  
Fax: +27 (0)11 807 8226  
Email: [shelley@synergistics.co.za](mailto:shelley@synergistics.co.za)  
Postal address: P.O. Box 1822, Rivonia, 2128, South Africa





You forwarded this message on 2011/03/08 01:44 PM.  
This message was sent with High importance.

From: Shelley Holt <shelley@synergistics.co.za>  
To: bob.naidoo@lephalale.gov.za; joshua.hlapa@lephalale.gov.za  
Cc:  
Subject: Meeting to discuss projects at the Grootegeluk Mine, Lephalale

Sent: Mon 2011/03/07 12:17 PM

Message Grootegeluk Char Plant Background Info Doc ENG AUTHORITIES - 2011-3-7.pdf (1 004 KB)

Grootegeluk Coke & Co-generation Plant Background Info Doc ENG AUTHORITIES - 2011-3-7.pdf (1 016 KB)

**Environmental Impact Assessment, Environmental Management Programme, Integrated Water Use License Amendment, Atmospheric Emissions License and Waste Management License for the Expansion of the Char Plant and construction of a Coke and Co-generation Plant at Grootegeluk Mine, Lephalale**

Dear Mr Naidoo and Mr Hlapa

Exxaro Resources (Pty) Ltd, Exxaro Energy (Pty) Ltd and Synergistics Environmental Services would like to meet with you (and any other relevant Lephalale Municipality officials) to discuss the proposed expansion of the Char Plant and construction of a Coke and Co-generation Plant at Grootegeluk Mine, Lephalale (please refer to the attached information documents). These projects will involve various environmental authorisations.

We would like to introduce you to the projects and explain the processes which we will be following. We would also like to ask for your feedback regarding any issues which may arise.

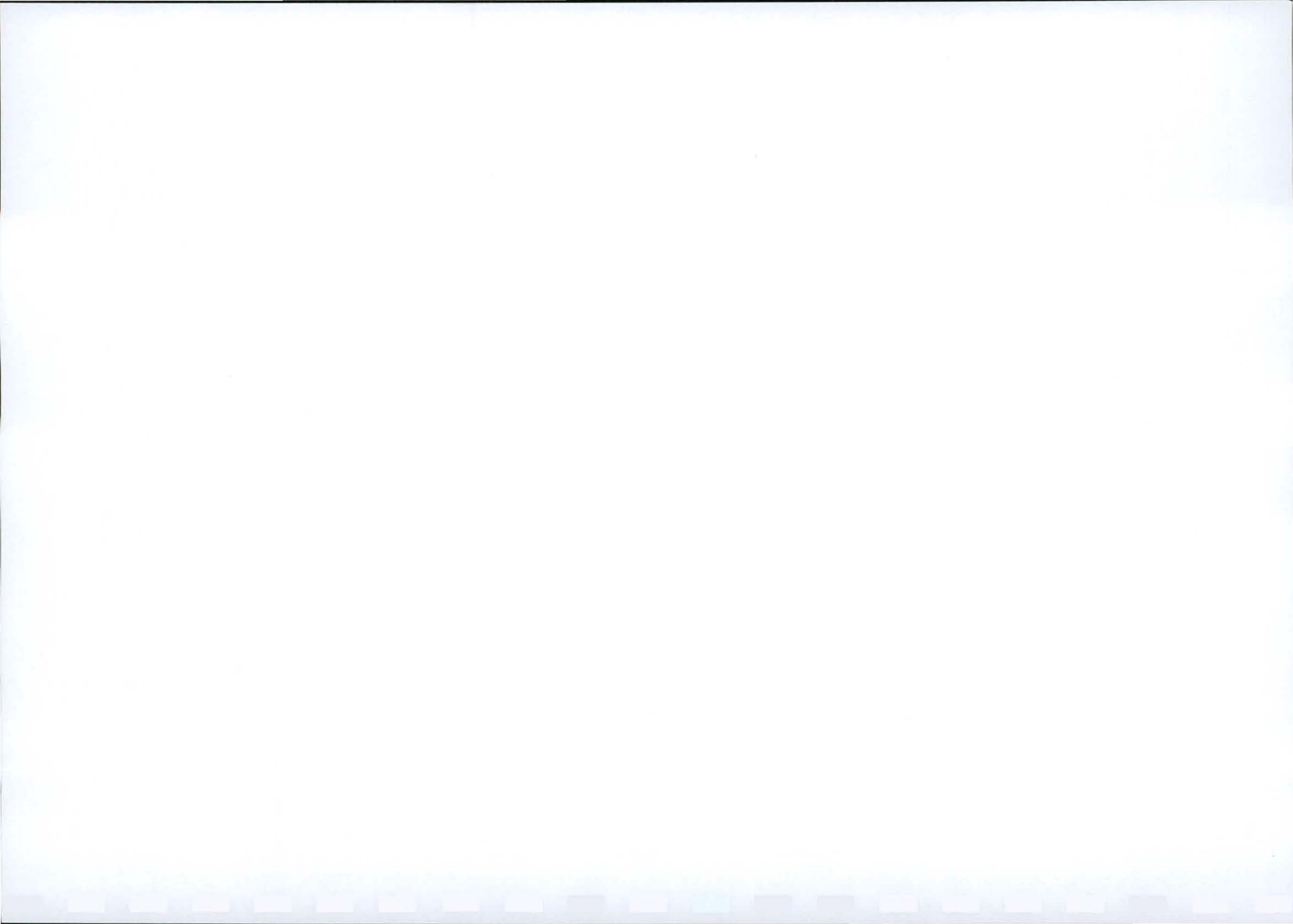
As arranged with Mr Hlapa, we would like to meet with you at your offices in the Lephalale Civic Centre, next Thursday the 17<sup>th</sup> of March from 14:00 to 16:00pm.

Please let me know if there are any problems or queries.

Thank you for your assistance with this matter.

Kind regards,  
**Shelley Holt**  
B.Sc. (Hons) Zoology  
Environmental Scientist

**for Synergistics Environmental Services**  
Tel: +27 (0)11 807 8225  
Fax: +27 (0)11 807 8226  
Email: [shelley@synergistics.co.za](mailto:shelley@synergistics.co.za)  
Postal address: P.O. Box 1822, Rivonia, 2128, South Africa





# AGTERGRONDINLICHTINGS-DOKUMENT

**Omgewingsimpakstudie (OIS), Omgewingsbestuursplan (OBP),  
Geïntegreerde Water Gebruik Lisensie (IWUL) wysiging,  
Atmosferiese Vrystellings Lisensie (AVL) en Afvalbestuur Lisensie  
(ABL) aansoek vir die uitbreiding van die Sintel aanleg by die  
Grootegelukmyn.**

## Inleiding

'n Vier retort Sintel aanleg is operasioneel sedert Junie 2009 op die plaas Daarby 458 LQ. Die aanleg is binne die grense van die Grootegeluk Steenkoolmyn in Lephalale (Ellisras) (Sien figuur 2). Die Sintel aanleg is besit en bedryf deur Exxaro Resources (Edms) bpk en is dus 'n aparte entiteit van die Grootegelukmyn (besit deur Exxaro Coal). Die bestaande aanleg beslaan 'n oppervlakte van ongeveer 5.5ha.

Die voorgestelde uitbreiding van die Sintel aanleg behels die verhoging van die aantal sintel retorte van 4 tot 12. Die uitbreiding behels die konstruksie van 'n byna identiese replika van die bestaande Sintel aanleg. Die meerderheid van die infrastruktuur wat verband hou met die Sintel aanleg sou dus ook gedupliseer word. Die uitbreiding sal gevestig word langs die bestaande aanleg en sal 'n area van ongeveer 5.5ha beslaan. Die area van die uitbreiding saam die huidige aanleg sal 'n oppervlakte van ongeveer 13.9ha beslaan.

## Doel van Hierdie Agtergrondinligtingsdokument

Die doel van hierdie dokument is om:

- U oor die voorgestelde projek in te lig;
- U die geleentheid gee om te registreer as 'n belanghebbende party;
- U die geleentheid te gee om vrae te vra aangaande die projek; en
- Om U te verskaf met inligting oor die omgewingsimpakstudie prosesse wat gevolg moet word.

'n Belanghebbende party is geklassifiseer as iemand wat belangstel en/of geaffekteer word deur die voorgestelde projek. Belanghebbende partye word die geleentheid gegee om te registreer as 'n Belangstellende en Geaffekteerde Party (B&GP) ten einde om verdere projek inligting te ontvang. B&GP's het die geleentheid om vrae te vra, kommentaar te lewer of kwessies wat hul rakende die projek het deur te gee.

**Indien U wil registreer as 'n B&GP en kommentaar lewer op die projek moet U Synergistics hiervan in kennis stel voor of op 1 April 2011.**



## Kort Projek Beskrywing

### Sintel Proses

Die steenkool wat in die Sintel aanleg gevoer word is afkomstig van die Grootegelukmyn. Die klonterig steenkool versnitte bevat 'n hoë konsentrasie van vlugtige gasse en vog. Hierdie steenkool word verhit tot temperature van 950° C in die retorte en verwyder dus die vlugtige gasse en die oorblywende vog. Teer, wat deel vorm van die vlugtige gasse, word onttrek deur middel van 'n elektrostatische presipitasie proses (ESP). Die produk word verwyder deur 'n kontrakteur wat dit vervoer met 'n vragmotor na 'n verwerkings aanleg. Die vlugtige gasse word herwin en hergebruik in verskeie prosesse byvoorbeeld die verhitting en stapelling van die retorte. Die aanleg gebruik tans twee vlam stapels in die proses. Die vlam stapels beheer die druk van die gas deur middel van die verbranding van oortollige gasse. Kondensate van die verkoelingstelsel, gas versterkings waaiers en besmette vloeistowwe word versamel en gestoor in steenkoolvloeistofafval tenks. Vloeistowwe is gepomp na die steenkoolvloeistofafval vernietiger, wat die steenkoolvloeistofafval verbrand. Die produk word, nadat dit afgekoel het in die retorte, gestapel en dan vervoer na kliënte toe. (Sien proses vloeidiagram in Figuur 1).

Sintel is 'n metallurgiese koolstof reduksie proses en word toenemend gebruik in die kooks mark as gevolg van die beperkte beskikbaarheid om kooks steenkool aan te vul. Die aanleg is geleë in 'n optimale posisie aangesien dit toegang het tot geskikte steenkool roumateriaal sowel as naby is aan groot verbruikers (ferro-chroom, ferro-mangaan en platinum produsente).

### Aanleg Infrastruktuur

Die bestaande aanleg funksioneer 4 retorte en verwante infrastruktuur vir die vervaardiging van die sintel produk. Die uitbreiding behels die vermeerdering van die aantal retorte van 4 tot 12. Die gepaardgaande infrastruktuur wat benodig word vir die doeltreffende funksionering en werking van die Sintel aanleg sal dus ook ingesluit word as deel van die uitbreiding proses. Infrastruktuur wat deel vorm van die uitbreiding tot die aanleg sluit in:

- Gas versterkings waaiers;
- Elektrostatische presipiterings toerusting;
- Teer stoor tenks;
- Steenkoolvloeistofafval tenks;
- Steenkoolvloeistofafval vernietigers;
- Steenkoolvloeistofafval vernietiger stapels;
- Retort gas uitlaat toerusting; en
- Administrasie geboue.



Bykomende infrastruktuur, wat nie ingesluit is by die huidige sintel aanleg sluit in 'n:

- Olie en water skeidings aanleg;
- Teer verwerkings fasiliteit;
- Brikette vervaardigings aanleg;
- Addisionele stoor; en
- Teer stoor en herwinning fasiliteit.

## **Projek Ligging**

Die Sintel aanleg is geleë in die ou middelmatig stokeer area. Hierdie area is 'n gebied wat voorheen gebruik was vir die stoor van steenkool en is binne die grense van die Grootegeluk Steenkoolmyn (verwys na figuur 2). Die myn is geleë ongeveer 20km wes van Lephalale (Ellisras) in die Limpopo Provinsie.

## **Omgewings-Wetlike Vereistes**

Die oorheersende wetgewing van toepassing op die voorgestelde projek sluit in:

- Die Wet op Nasionale Omgewingsbestuur (Nr. 107 van 1998) (NEMA);
- Die Minerale en Petroleum Hulpbronne Ontwikkelings Wet (Nr. 28 van 2002) (MPRDA);
- Die Nasionale Water Wet (Nr. 36 van 1998) (NWA);
- Die Nasionale Omgewingsbestuur Lugkwaliteit Wet (Nr. 39 van 2004) (NEMAQA); en
- Die Nasionale Omgewingsbestuur: Afval Wet (Nr. 59 van 2008) (NEMWA).

Aansoek vir omgewings goedkeuring van die projek behels die volgende:

- 'n Omgewingsimpakstudie wat aan die Limpopo Departement van Ekonomiese Ontwikkeling, Omgewing en Toerisme (LDEOOT) ingedien word vir aktiwiteite wat in terme van die OIB-regulasies kragtens die NEMA vermeld word;
- 'n Omgewingsbestuursplan wat aan die Limpopo Departement van Minerale Hulpbronne vir goedkeuring voorgelê moet word;
- 'n wysiging van die Geïntegreerde Water Gebruik lisensie aansoek sal voorgelê word aan die Departement van Waterwese (DWA);
- 'n wysiging van die lugbesoedeling beheer sertifikaat moet voorgelê word aan LDEOOT), en
- 'n Afvalbestuur lisensie aansoek sal voorgelê word aan die afvalbestuurs afdeling van die Departement van Omgewingsake (DEA).

## **Onafhanklike Omgewingskonsultante**

Synergistics Environmental Services (Edms) Bpk is aangestel as die onafhanklike omgewingskonsultante wat verantwoordelik is vir die uitvoering van die omgewings benodighede. Die omgewings goedkeurings is bespreek in die omgewings-wetlike gedeelte.

## **Hoe Kan U Betrokke Wees in die Proses**

Indien U wil registreer as 'n Belangstellende en Geaffekteerde Party (B&GP) en verdere kennisgewing wil ontvang aangaande die projek, vul asseblief die aangehegde terugvoer blad in en stuur dit aan Synergistics deur middel van een van die volgende metodes:

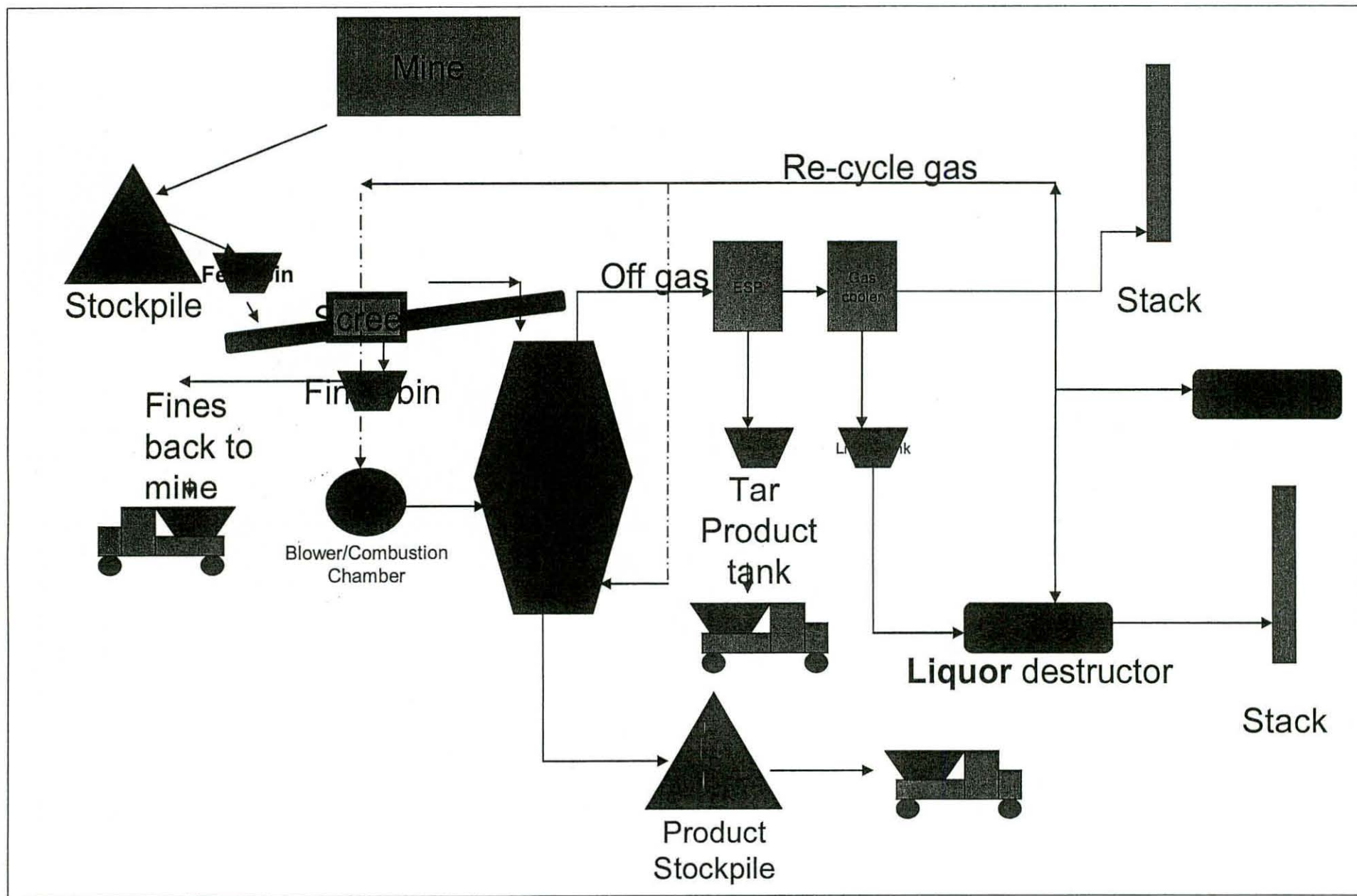
Aandag: Shelley Holt  
Faks: 011 807 8226  
Epos: shelly@synergistics.co.za  
Pos adres: Posbus 1822, Rivonia, 2128

## **Publieke Vergadering**

'n Inligtings vergadering sal gehou word om verdere besonderhede oor die projek deur te gee aan die publiek. Die vegadering sal gehou word as deel van die projek bekendstelling. Die vergadering sal ook die publiek die geleentheid gee om kommentaar te lewer en vrae te vra aangaande die projek. Die vergadering sal plaasvind soos volg:

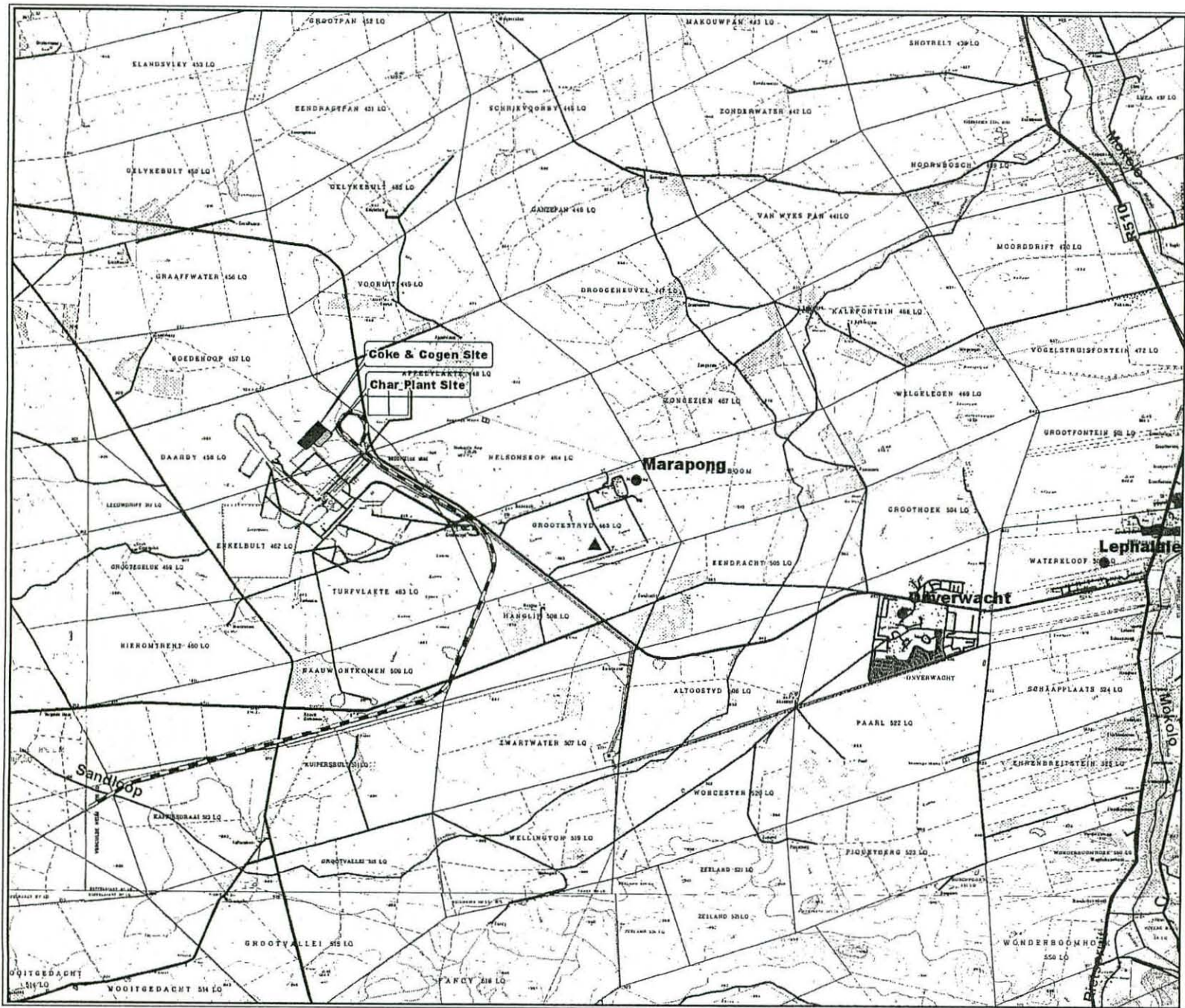
**Plek:** Medupi Konferensie Kamer  
**Datum:** Donderdag 17 Maart 2011  
**Tyd:** 17:00 – 19:00pm  
**Fisiese Adres:** Mogol Club Konferensie Sentrum,  
Hoek van Mogol Drive en Clubhouse Drive,  
Lephalale





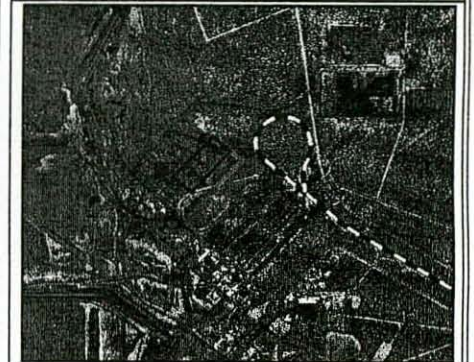
Figuur 1: Proses vloedigram vir Bestaande Sintel Aanleg Proses





**Legend**

- ▲ Matimba Power Station
- ~ River
- == Main Road
- Other Access
- ~ Secondary Road
- ~ Street
- ~ Railway
- ▨ Char Plant
- Coke Plant



Kilometers

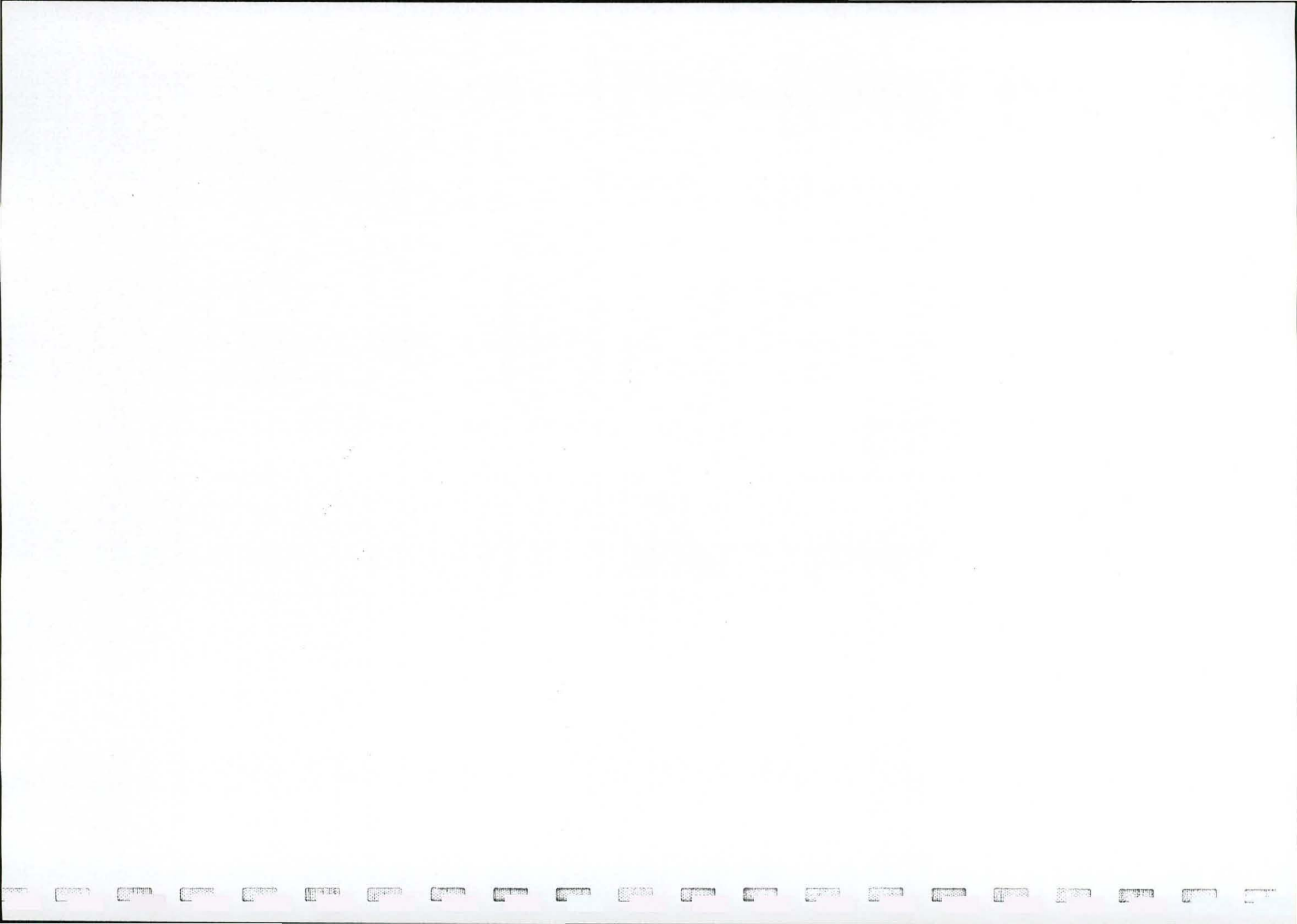
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Figuur 2: Ligging van die sintel aanleg uitbreiding projek, Grootegeluk Lephalale









# BACKGROUND INFORMATION DOCUMENT

## Environmental Impact Assessment (EIA), Environmental Management Programme (EMP), Integrated Water Use License (IWUL) Amendment, Atmospheric Emissions License (AEL) and Waste Management License (WML) for the Expansion of the Char Plant at Grootegeluk Mine

### Introduction

A 4 retort Char Plant on the farm Daarby 458 LQ, within the boundaries of the Grootegeluk Coal Mine in Lephalale (Ellisras) (see figure 2), has been operational since June 2009. The Char Plant is owned and operated by Exxaro Resources (Pty) Ltd and is therefore a separate entity to the Grootegeluk Mine (owned by Exxaro Coal). The existing plant covers an area of approximately 5.5ha.

The proposed expansion to the Char Plant involves increasing the number of char retorts from 4 to 12. The expansion would therefore involve the construction of an almost identical replica of the existing Char Plant. The majority of the infrastructure associated with the Char Plant would therefore also be duplicated. The Char Plant expansion will be located directly adjacent to the existing plant and will occupy an area of approximately 5.5ha. The entire footprint area of the Char Plant and associated infrastructure covers an area of approximately 13.9ha.

### Purpose of the Background Information Document

The purpose of this document is to:

- Inform you about the proposed project;
- Provide you with the opportunity to register as a stakeholder;
- Provide you with the opportunity to ask questions or raise any queries you may have; and
- Provide information about the environmental processes to be followed.

A stakeholder is classified as anyone who is interested and/or affected by the proposed project. Stakeholders are given the opportunity to register as an Interested and Affected Party (IAP) in order to receive further project information and have the opportunity to express any questions, comments or issues they may have regarding the project.

**Please register yourself as an IAP and submit your comments on the project to Synergistics on or before 1 April 2011.**



## **Brief Project Description**

### **Char Plant Process**

The coal which is fed into the Char Plant comes from Grootegeluk Mine. The lumpy coal blends contain high levels of volatile gases and moisture. This coal is heated to temperatures of 950°C in the retorts, driving off the volatiles and remaining moisture. Tar, contained in the volatile gases, is extracted through electrostatic precipitators (ESP) and removed by a contractor who transports it by truck to a processing plant. The volatile gases are recycled and used in various processes such as the boilers, stacks and heating of the retorts. The plant currently incorporates 2 flare stacks into the process, which control the pressure of the recycled gas by burning off any excess gas when necessary. Condensates from the cooling system, gas booster fans and contaminated liquids are collected and stored in waste liquor tanks. They are pumped to the liquor destructor, which burns off the contaminated waste liquor. The Char product, after being cooled in the retorts, is stockpiled for transportation to clients. (See process flow diagram in Figure 1).

Char is a metallurgical carbon reductant and is increasingly used to supplement market coke due to the limited availability of coking coal. The Char plant is therefore in a prime position, as it has access to suitable coal feedstock as well as being close to major consumers (ferro-chrome, ferro-manganese and platinum producers).

### **Plant Infrastructure**

The existing plant operates 4 retorts and associated infrastructure for the production of the Char product. The expansion will involve increasing the number of retorts from 4 to 12. The associated infrastructure required for the efficient functioning and operation of the Char Plant will therefore also be included as part of the expansion process. Infrastructure associated with the Char Plant which will be required as part of the expansion includes:

- Gas Boosters;
- Electrostatic precipitators;
- Tar storage tanks;
- Liquor tanks;
- Liquor Destructors;
- Liquor destructor stacks;
- Retort vents; and
- Admin buildings.

Additional infrastructure, not included within the existing Char Plant, but to be included in the expansion project includes:

- Oil and water separating plant;
- Tar conditioning facility;
- Briquetting plant;



- Spare store; and
- Tar storage and reclaiming facility (TSRF).

## **Project Locality**

The Char Plant is located within the Old Middling Stockpile area, an area previously used for coal storage, within the boundaries of the Grootegeluk Coal Mine (refer to figure 2). The Mine is situated approximately 20km west of Lephalale (Ellisras) in the Limpopo Province.

## **Enviro-Legal Requirements**

The key legislation applicable to the proposed project includes:

- The National Environmental Management Act (No. 107 of 1998) (NEMA);
- The Mineral and Petroleum Resources Development Act (No. 28 of 2002);
- The National Water Act (No. 36 of 1998) (NWA);
- The National Environmental Air Quality Act (Act No. 39 of 2004) (NEMAQA); and
- The National Environmental Management: Waste Act (No. 59 of 2008) (NEMWA).

There will be five key deliverables for the project, each of which will be submitted to the relevant government department for authorisation. These are:

- An Environmental Impact Assessment which will be submitted to the Limpopo Department of Economic Development, Environment and Tourism (LEDET) for activities that are listed in terms of the EIA Regulations under the NEMA;
- An Environmental Management Programme which will be submitted to the Limpopo Department of Mineral Resources for approval;
- An amendment to the Integrated Water Use License Application will be submitted to the Department of Water Affairs (DWA);
- An amendment to the air pollution control certificate (as the process will involve activities which require an atmospheric emissions licence) will be submitted to LEDET; and
- A Waste Management License Application will be submitted to the waste management division of the Department of Environmental Affairs (DEA).

## **Environmental Consultants**

Synergistics Environmental Services (Pty) Ltd has been appointed as the independent environmental consultants responsible for undertaking the environmental work on behalf of Exxaro Resources (Pty) Ltd, as required by the applicable legislation, detailed above.

## **How you can be Involved in the Process**

Should you wish to register as an Interested and Affected Party (IAP) and receive further notification regarding the project, please fill in the response sheet attached and submit it to one of the contact points below:

Attention: Shelley Holt  
Fax: 011 807 8226  
Email: [shelley@synergistics.co.za](mailto:shelley@synergistics.co.za)  
Postal Address: P.O Box 1822, Rivonia, 2128

## **Meeting**

An information sharing meeting will be held to give further details about the project:

**Place:** Matimba Conference Room  
**Date:** Thursday 17<sup>th</sup> March 2011  
**Time:** 17:00 – 19:00pm  
**Physical Address:** Mogol Club Conference Centre,  
Corner of Mogol Drive and Clubhouse Drive,  
Lephalale



# CHAR PLANT PROCESS

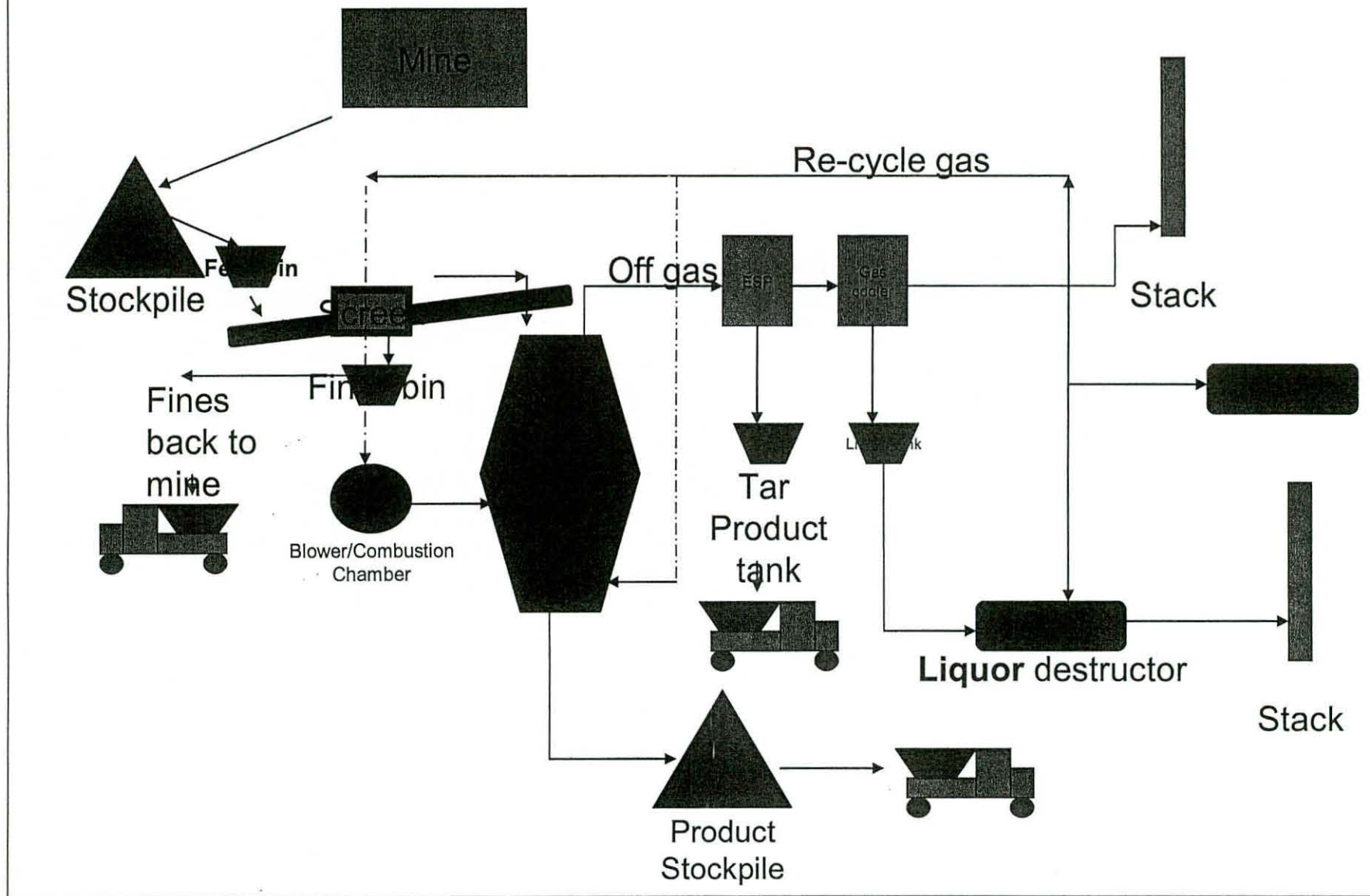
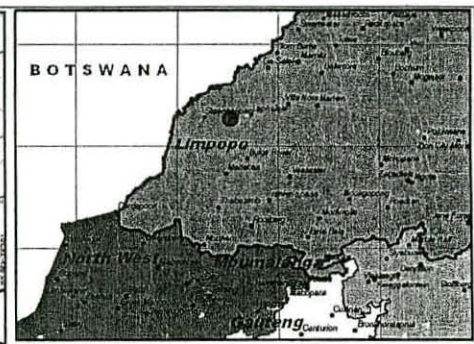
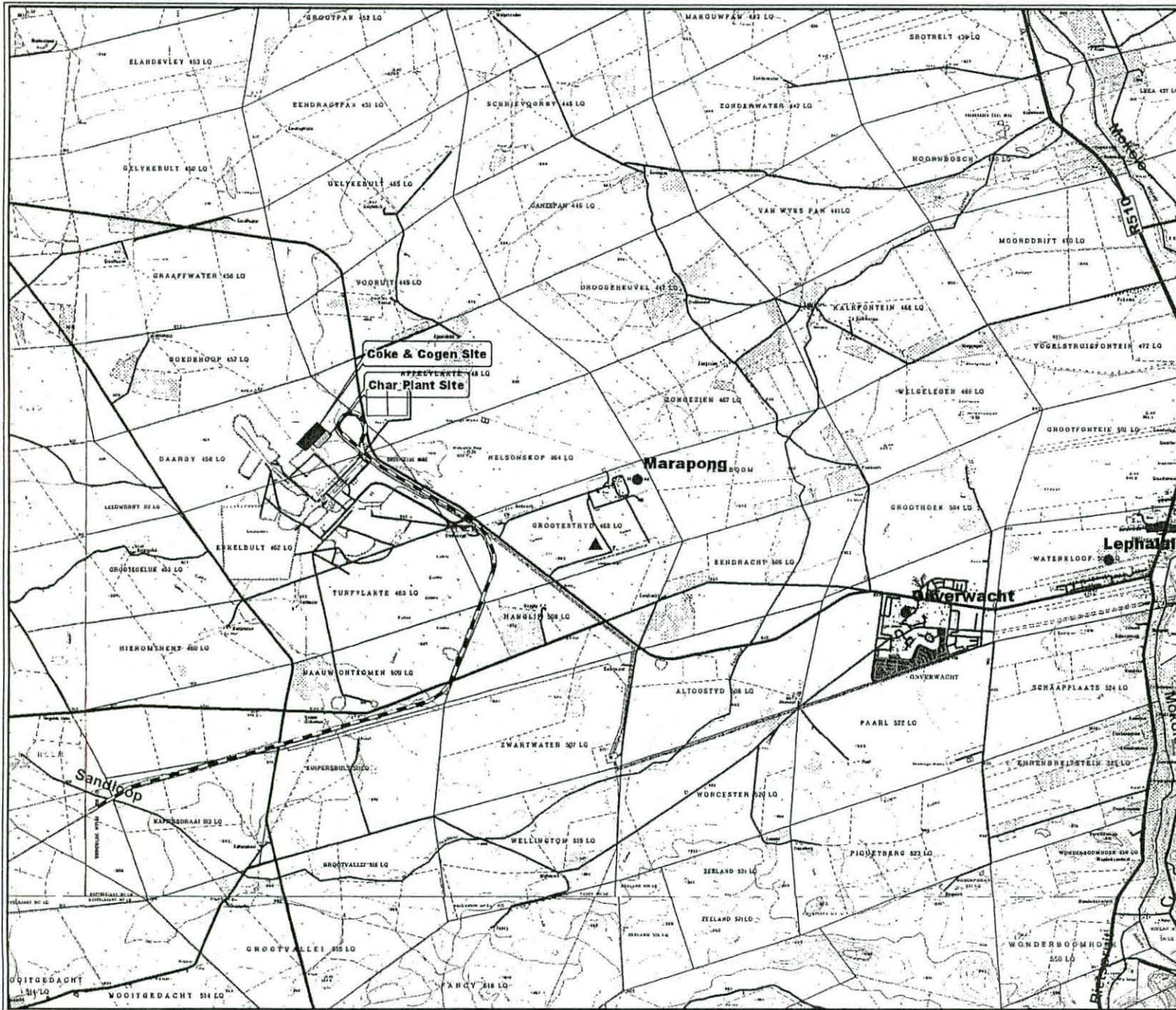


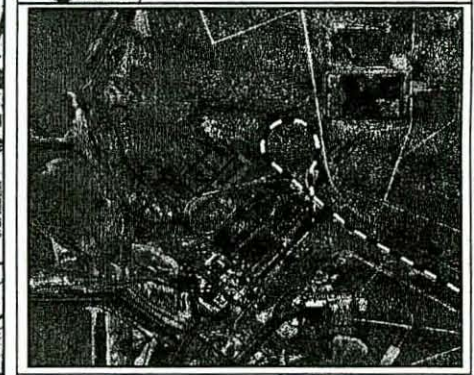
Figure 1: Process Flow Diagram for Existing Char Plant Process





**Legend**

- ▲ Matimba Power Station
- ~ River
- == Main Road
- Other Access
- Secondary Road
- Street
- Railway
- Char Plant
- Coke Plant



Kilometers

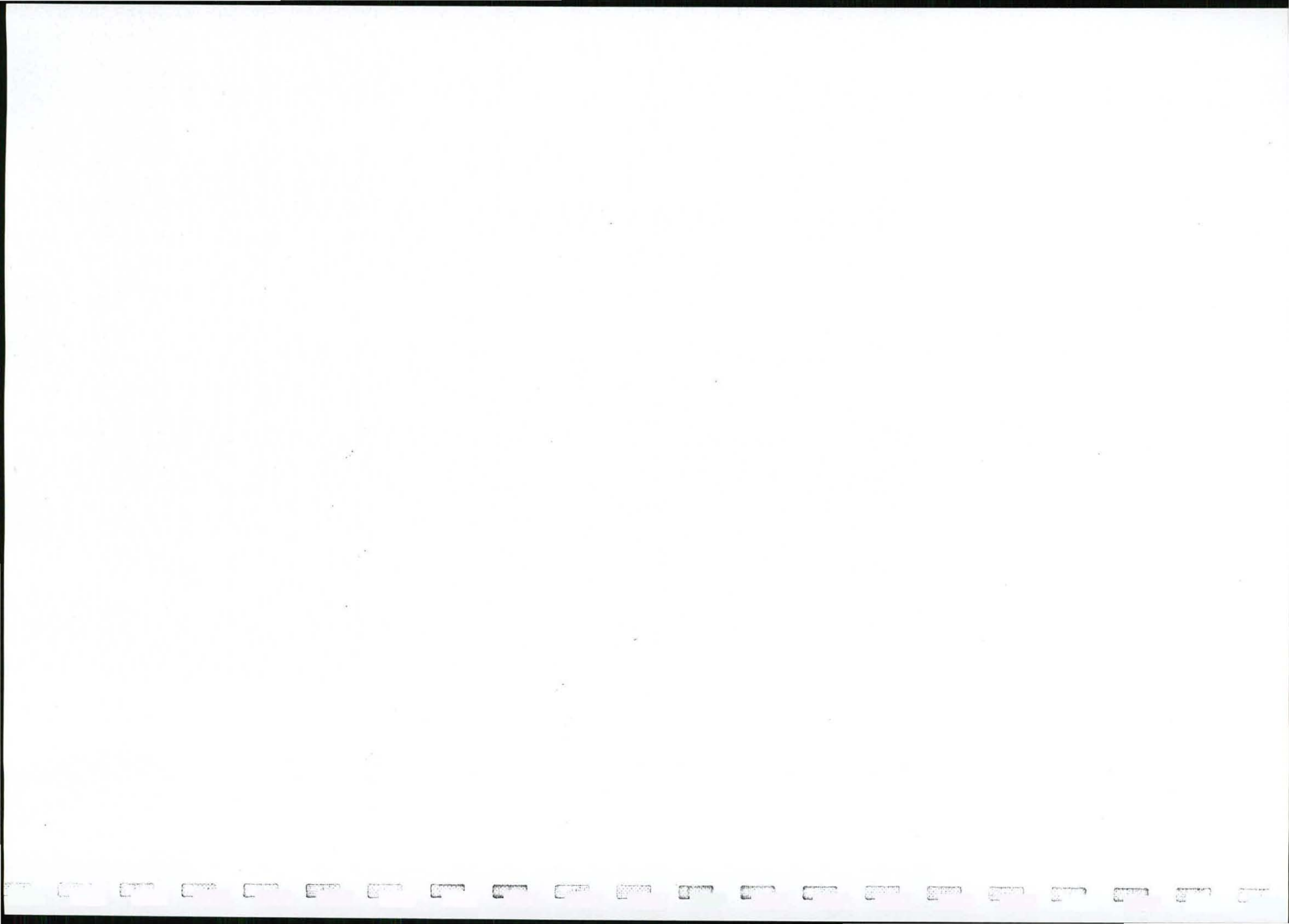
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Environmental Services

Figure 2: Location of the Char Plant Expansion Project, Grootegeluk Mine, Lephalale









<b>Datum:</b>	4 Maart 2011	
<b>Verw:</b>	Sintel aanleg, kooks vervaardiging kompleks en elektrisiteit opwekkeings aanleg by die Grootegeluk Myn	
<b>Aandag:</b>	Mnr Beukes PO Box 5522 Onverwacht 0557	

Geagte Mnr Beukes

**Omgewingsimpakstudie (OIS), Omgewingsbestuursplan (OBP), Geïntegreerde Water Gebruiks Lisensie wysiging, Atmosferiese Vrystellings Lisensie en Afvalbestuur Lisensie aansoeke vir die Uitbreiding van die Sintel aanleg, die ontwikkeling van 'n kooks vervaardiging kompleks en 'n 120 MW elektrisiteit opwekkeings aanleg by die Grootegeluk Myn, Lephalale**

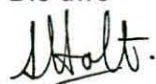
Hierdie brief dien om u as 'n geaffekteerde party in te lig van die voorgestelde uitbreiding van die Sintel aanleg, en die ontwikkeling van 'n kooks vervaardiging kompleks en elektrisiteit opwekkeings aanleg by die Grootegeluk Myn, Lephalale (Ellisras).

Die projekte word deur Exxaro Resources (Edms) Bpk en Exxaro Energy (Edms) Bpk onderneem. Hierdie kennisgewing word ingevolge Regulasie 54 kragtens Goewermentskennisgewing 543 (18 June 2010), gepubliseer kragtens die Wet op Nasionale Omgewingsbestuur (No. 107 van 1998), beteken. Inligting oor die voorgestelde ontwikkeling, die omgewingsimpakstudieproses, en 'n uitnodiging om 'n inligtingsvergadering by te woon, word word by hierdie dokument aangeheg sodat u dit kan deurlees.

Synergistics Environmental Services (Edms) Bpk is aangestel as onafhanklike omgewingskonsultante verantwoordelik vir skakeling met belanghebbende en geaffekteerde partye. Kan u asseblief enige vrae of kwellings aan Synergistics stuur voor 1 April 2011. Lê asseblief alle kommentaar skriftelik voor aan:

**Shelley Holt**  
Synergistics Environmental Services (Edms) Bpk  
Tel: 011 807 8225  
Faks: 011 807 8226  
Epos: shelly@synergistics.co.za  
Pos: Posbus 1822, Rivonia 2128

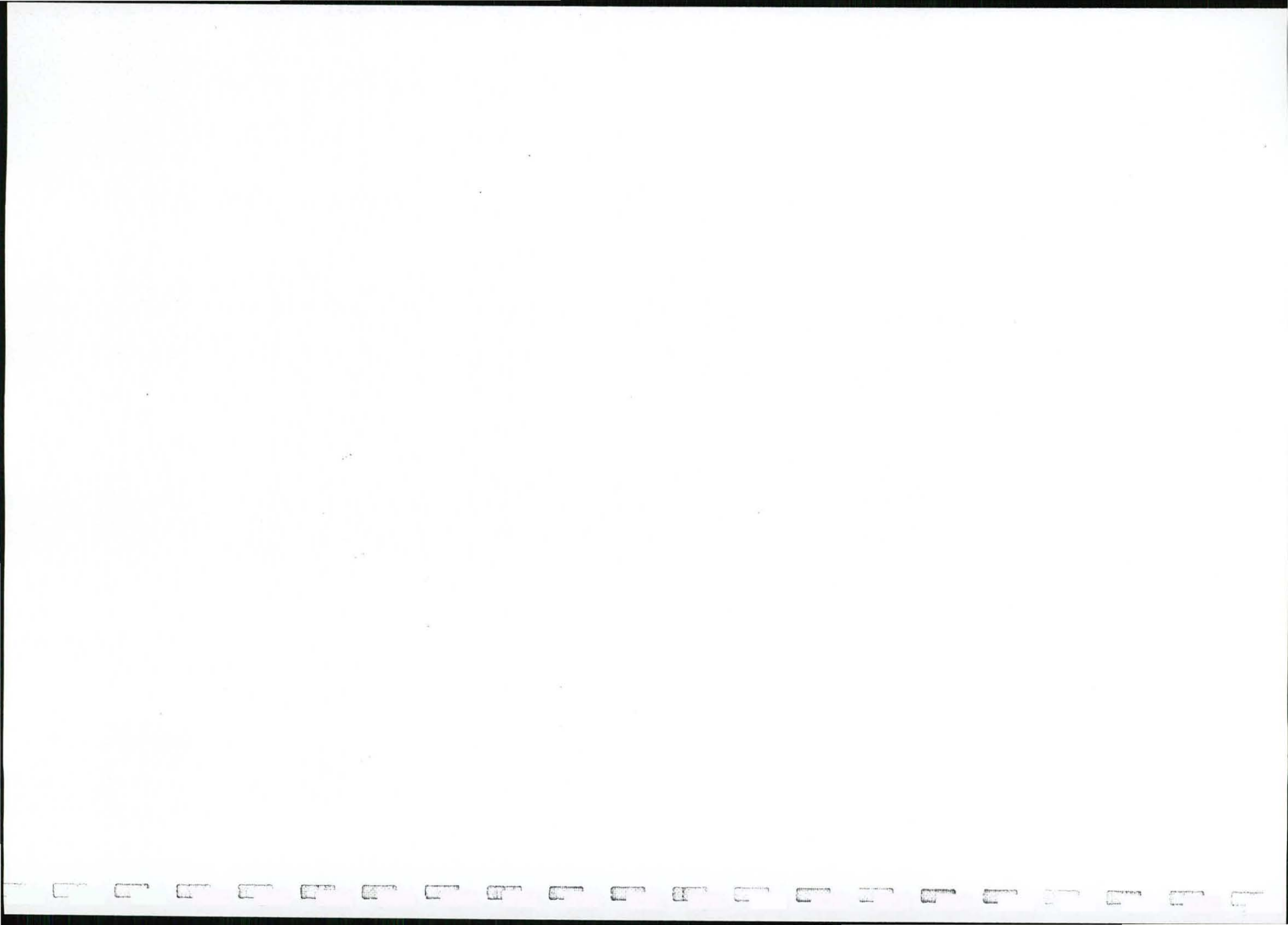
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**SHELLEY HOLT**

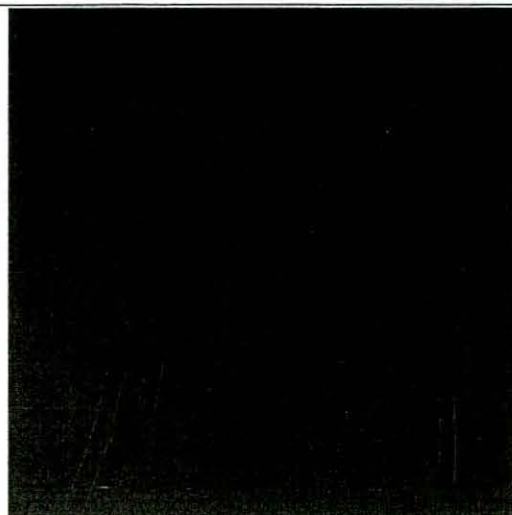
B.Sc. Hons

Omgewingswetenskaplike





<b>Date:</b>	4 March 2011
<b>Ref:</b>	Char Plant, Coke and Co-generation Plant at Grootegeluk Mine
<b>Attention:</b>	Johannes Molepo Private Bag X9506 Polokwane 0700



Dear Mr Molepo

**Environmental Impact Assessment (EIA), Environmental Management Programme (EMP),  
Integrated Water Use License (IWULA) Amendment, Atmospheric Emissions License  
(AEL) and Waste Management License for the Expansion of the Char Plant and  
construction of a Coke and Co-generation Plant at Grootegeluk Mine, Lephalale**

This letter serves to inform you as an affected party, of the proposed expansion of the Char Plant and construction of a Coke and Co-generation Plant at Grootegeluk Mine, Lephalale (Ellisras).

The projects are being undertaken by Exxaro Resources (Pty) Ltd and Exxaro Energy (Pty) Ltd. This notice is served in terms of Regulation 54 under Government Notice 543 (18 June 2010) published under the National Environmental Management Act (No. 107 of 1998). Information on the proposed developments, the environmental impact assessment process and an invitation to a public meeting has been attached to this document for your perusal.

Synergistics Environmental Services (Pty) Ltd has been appointed as independent environmental consultants responsible for liaison with interested and affected parties. Please be so kind as to submit all questions, comments and concerns, before 1 April 2010, in writing to:

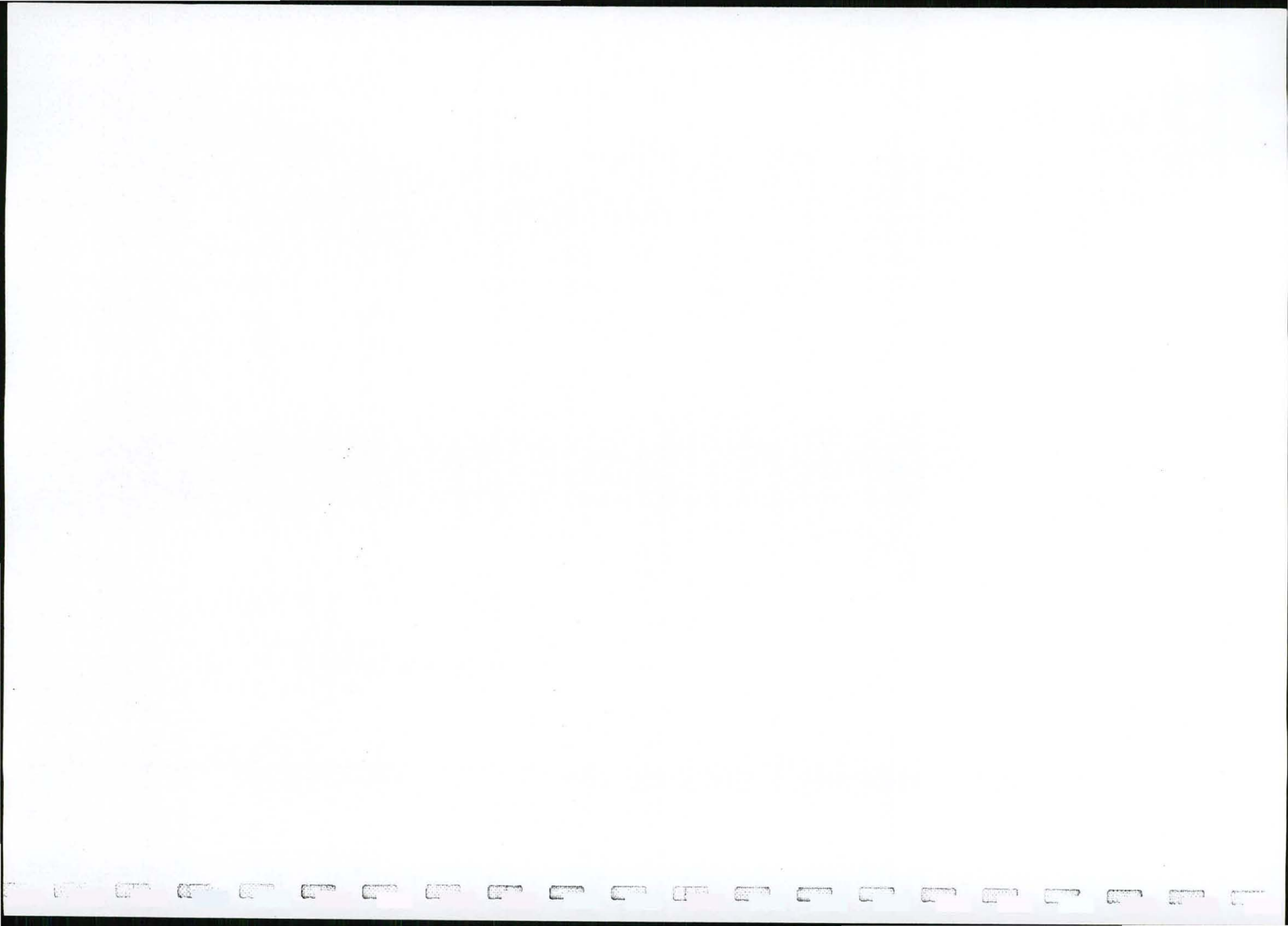
**Shelley Holt**  
Synergistics Environmental Services (Pty) Ltd  
Tel: 011 807 8225  
Fax: 011 807 8226  
Email: shelley@synergistics.co.za  
Post: PO Box 1822, Rivonia 2128

Yours sincerely

**SHELLEY HOLT**  
B.Sc. Hons  
Environmental Scientist



Directors: KC Fairley, ME Wolmarans & MG Hemming  
Synergistics Environmental Services (Pty) Ltd  
South Africa Registered No. 2003/030216/07







You forwarded this message on 07/03/2011 08:11 AM.  
This message was sent with High importance.

From: Shelley Holt <[shelley@synergistics.co.za](mailto:shelley@synergistics.co.za)>

To:

Cc:

Bcc: 'christo.vanwyk@spx.com'; 'radie.vanwyk@telkomsa.net'; 'geo@lanbc.co.za'; 'herman.delange@exxaro.com'; 'awabooyse@gmail.com'; 'spretorius@xsinet.co.za'; 'susan@cranbrook.co.za'; 'louis.rossel@lowveldPOBox.co.za'; 'willies@lanbc.net'; 'zaagput@hotmail.com'; 'johan.vrooyen@exxaro.com'; 'zax.lombard@gmail.com'; 'ggjacobs@telkomsa.net'; 'pgsteen@vodamail.co.za'; 'dirkva@nvet.co.za'

Subject: Omgewingsimpakstudieproses vir Sintel aanleg, kooks vervaardiging kompleks en elektrisiteit opwekkeings aanleg by die Grootegeluk Myn

Sent: Fri 04/03/2011 03:20 PM

Message Grootegeluk Char Plant Background Info Doc AFR - 2011-3-4.pdf (1 MB)

Grootegeluk Coke & Co-generation Plant Background Info Doc AFR - 2011-3-4.pdf (1 MB)

**Omgewingsimpakstudie (OIS), Omgewingsbestuursplan (OBP), Geïntegreerde Water Gebruiks Lisensie wysiging, Atmosferiese Vrystellings Lisensie en Afvalbestuur Lisensie aansoek vir die Uitbreiding van die Sintel aanleg, die ontwikkeling van 'n kooks vervaardiging kompleks en 'n 120 MW elektrisiteit opwekkeings aanleg by die Grootegeluk Myn, Lephale**

Geagte Belanghebbende en Geaffekteerde partye

Hierdie e-pos dien om u as 'n geaffekteerde party in te lig van die voorgestelde uitbreiding van die Sintel aanleg en die ontwikkeling van 'n kooks vervaardiging kompleks en elektrisiteit opwekkeings aanleg by die Grootegeluk Myn, Lephale (Ellisras)

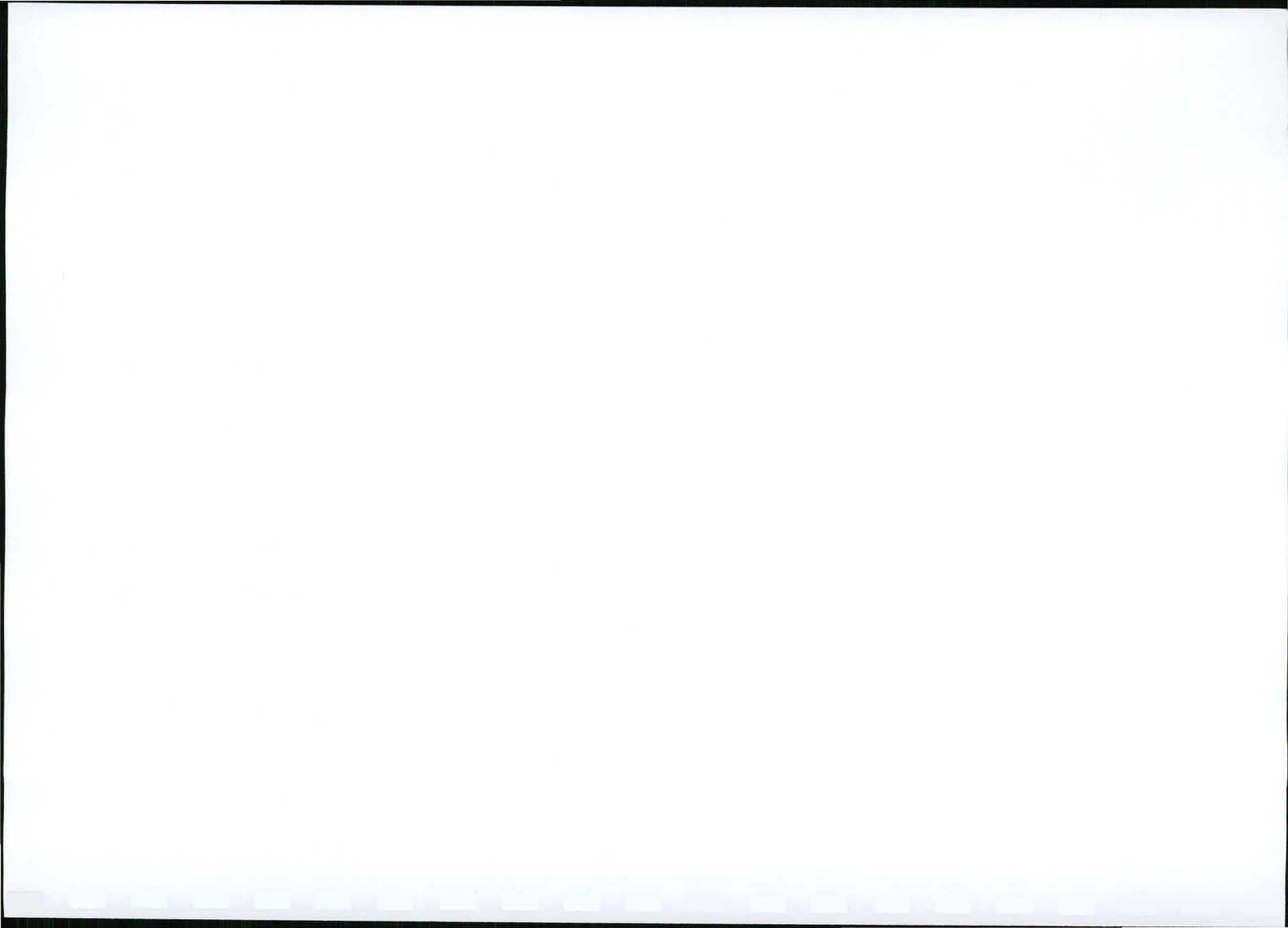
Die projekte word deur Exxaro Resources (Edms) Bpk en Exxaro Energy (Edms) Bpk ondemeem. Hierdie kennisgewing word ingeвоelge Regulasie 54 kragtens Goewermenskennisgewing 543 (18 June 2010), gepubliseer kragtens die Wet op Nasionale Omgewingsbestuur (No. 107 van 1998), beteken. Inligting oor die voorgestelde ontwikkeling, die omgewingsimpakstudieproses, en 'n uitnodiging om 'n inligtingsvergadering by te woon, word by hierdie dokument aangeheg sodat u dit kan deurlees. Hierdie dokumente is ook in Engels beskikbaar

Synergistics Environmental Services (Edms) Bpk is aangestel as onafhanklike omgewingskonsultante verantwoordelik vir skakeling met belanghebbende en geaffekteerde partye. Kan u asseblief enige vrae of kwellings aan Synergistics stuur voor 1 April 2011. Lê asseblief alle kommentaar skriftelik voor aan:

**Shelley Holt**  
Synergistics Environmental Services (Edms) Bpk  
Tel: 011 807 8225  
Faks: 011 807 8226  
Epos: [shelley@synergistics.co.za](mailto:shelley@synergistics.co.za)  
Pos: Posbus 1822, Rivonia 2128

Die uwe,

**SHELLEY HOLT**  
B.Sc. Hons  
Omgewingswetenskaplike





File Message

Ignore X Delete Reply Reply All Forward Meeting Internal To Manager Team E-mail Done Reply & Delete Create New

Move OneNote Mark Unread Categorize Follow Up Translate Find Related Select Zoom

Delete Respond Quick Steps Move Tags Editing Zoom

This message was sent with High importance.

From: Shelley Holt <shelley@synergistics.co.za>  
To:   
Cc: 'sarina.more@eskom.co.za'; 'VNekeFC@eskom.co.za'  
Subject: Environmental Information for the Char Plant, Coke and Co-generation Plant at Grootegeluk Mine, Lephalale

Sent: Fri 04/03/2011 03:24 PM

Message Grootegeluk Char Plant Background Info Doc ENG - 2011-3-4.pdf (1,016 KB) Grootegeluk Coke & Co-generation Plant Background Info Doc ENG - 2011-3-4.pdf (1 MB)

**Environmental Impact Assessment (EIA), Environmental Management Programme (EMP), Integrated Water Use License (IWULA) Amendment, Atmospheric Emissions License (AEL) and Waste Management License for the Expansion of the Char Plant and construction of a Coke and Co-generation Plant at Grootegeluk Mine, Lephalale**

Dear Interested and Affected Parties

This letter serves to inform you as an interested or affected party, of the proposed expansion of the Char Plant and construction of a Coke and Co-generation Plant at Grootegeluk Mine Lephalale (Ellisras)

The projects are being undertaken by Exxaro Resources (Pty) Ltd and Exxaro Energy (Pty) Ltd. This notice is served in terms of Regulation 54 under Government Notice 543 (18 June 2010) published under the National Environmental Management Act (No 107 of 1998) Information on the proposed developments, the environmental impact assessment process and an invitation to attend a public meeting has been attached to this document for your perusal. These documents are also available in Afrikaans

Synergistics Environmental Services (Pty) Ltd has been appointed as independent environmental consultants responsible for liaison with interested and affected parties Please be so kind as to submit all questions, comments and concerns, before 1 April 2010, in writing to:

**Shelley Holt**  
Synergistics Environmental Services (Pty) Ltd  
Tel: 011 807 8225  
Fax: 011 807 8226  
Email: [shelley@synergistics.co.za](mailto:shelley@synergistics.co.za)  
Post: PO Box 1822, Rivonia 2128

Yours sincerely,  
  
**SHELLEY HOLT**  
B.Sc. Hons  
Environmental Scientist



File Message



This message was sent with High importance.

From: Shelley Holt <shelley@synergistics.co.za>  
To: Filomaine Swanepoel (filomaine.swanepoel@exxaro.com); experience.nkwamba@exxaro.com; tendani.mufamadi@exxaro.com  
Cc:  
Subject: Environmental Information for the Char Plant, Coke and Co-generation Plant at Grootegeluk Mine, Lephalale

Sent: Fri 2011/03/11 11:42 AM

Message Grootegeluk Char Plant Background Info Doc ENG - 2011-3-4.pdf (1 016 KB) Grootegeluk Coke & Co-generation Plant Background Info Doc ENG - 2011-3-4.pdf (1 MB)

**Environmental Impact Assessment (EIA), Environmental Management Programme (EMP), Integrated Water Use License (IWULA) Amendment, Atmospheric Emissions License (AEL) and Waste Management License for the Expansion of the Char Plant and construction of a Coke and Co-generation Plant at Grootegeluk Mine, Lephalale**

Dear Grootegeluk Mine

As you are aware, the abovementioned projects are being undertaken by Exxaro Resources (Pty) Ltd and Exxaro Energy (Pty) Ltd. Information on the proposed developments, the environmental impact assessment process and an invitation to attend a public meeting has been attached to this document for your perusal.

Synergistics Environmental Services (Pty) Ltd has been appointed as independent environmental consultants responsible for liaison with interested and affected parties. Please be so kind as to submit all questions, comments and concerns, before 1 April 2010, in writing to:

**Shelley Holt**  
Synergistics Environmental Services (Pty) Ltd  
Tel: 011 807 8225  
Fax: 011 807 8226  
Email: [shelley@synergistics.co.za](mailto:shelley@synergistics.co.za)  
Post: PO Box 1822, Rivonia 2128

Yours sincerely,

**SHELLEY HOLT**  
B.Sc. Hons  
Environmental Scientist



List of REGISTERED LETTERS  
 lys van GEREGISTREERDE BRIEWE

Char, Luke + co juu



Post Office

(With an insurance option / met 'n versekeringsopsie)

Full tracking and tracing / Volledige volg-en-spoor

Name and address of sender  
 Naam en adres van afsender: **Environmental Services**  
 Company Reg No: 2003/030216/07  
 Tel: 011 807 8225 P.O. Box 1822  
 Fax: 011 807 8226 Rivonia  
 64 Wessels Street 2128

Enquiries / Navrae  
 Toll-free number  
 Tolvry nommer  
**0800 111 502**

No	Name and address of addressee Naam en adres van geadresseerde	Insurance amount Versekerde bedrag	South Africa fee Versekeringsgeld	Postage Posgeld	Service fee Diensgeld	Affix Track and Trace customer copy Plak Volg-en-Spoor-klëntafskrif
1	T. De Freitas P.O. Box 5723, Onverwacht, 0557					REGISTERED LETTER (with a domestic insurance option) RD 398 292 839 ZA A BOOK COPY
2	Johannes Molepo Private Bag X9506, Polokwane, 0700					REGISTERED LETTER (with a domestic insurance option) RD 398 292 856 ZA A BOOK COPY
3	Nennie Hoffs P.O. Box 5677, Onverwacht, 0557					REGISTERED LETTER (with a domestic insurance option) RD 398 292 842 ZA A BOOK COPY
	Mr. Tsepo P.O. Box 4282, Enkelbult, 0556					REGISTERED LETTER (with a domestic insurance option) RD 398 292 825 ZA A BOOK COPY
	Mr. Pistorius P.O. Box 31, Lephalele, 0555					REGISTERED LETTER (with a domestic insurance option) RD 398 292 887 ZA A BOOK COPY
	D. Van Alphen P.O. Box 73, Vorentoe, 0259					REGISTERED LETTER (with a domestic insurance option) RD 398 292 860 ZA A BOOK COPY
7	Mr. Lombaard P.O. Box 11, Lephalele, 0557					REGISTERED LETTER (with a domestic insurance option) RD 398 292 873 ZA A BOOK COPY
8	Mr. Beukes P.O. Box 5522, Onverwacht, 0557					REGISTERED LETTER (with a domestic insurance option) RD 398 293 057 ZA A BOOK COPY
	Mr. Rosset P.O. Box 413, Lephalele, 0555					REGISTERED LETTER (with a domestic insurance option) RD 398 293 030 ZA A BOOK COPY
	Mr. Sauer P.O. Box 540, Lephalele, 0555					REGISTERED LETTER (with a domestic insurance option) RD 398 293 043 ZA A BOOK COPY
		Total Totaal	R	R	R	R

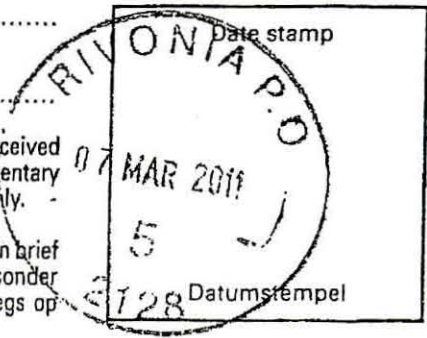
Number of letters posted  
 Aantal briewe gepos: 10

Signature of client  
 Ondertekening van kliënt: *(Signature)*

Signature of accepting officer  
 Ondertekening van aanneembeampte: *(Signature)*

The value of the contents of these letters is as indicated and compensation is not payable for a letter received conditionally. Compensation is limited to R100,00. No compensation is payable without documentary proof. Optional insurance of up to R2 000,00 is available and applies to domestic registered letters only.

Die waarde van die inhoud van hierdie briewe is soos aangedui en vergoeding sal nie betaal word vir 'n brief sonder voorbehoud ontvang word nie. Vergoeding is beperk tot R100,00. Geen vergoeding is sonder dokumentêre bewys betaalbaar nie. Opsionele versekering van tot R2 000,00 is beskikbaar en is slegs op landse geregistreerde briewe van toepassing.





Lys van GEREGISTREERDE BRIEWE

(With an insurance option/met 'n versekeringsopsie)



Past Office

Full tracking and tracing/Volledige volg en spoor

Name and address of sender  
Naam en adres van afsender

**Environmental Services**

Company Reg No: 2003/030216/07

Tel: 011 807 8225

P.O. Box 1822

Fax: 011 807 8226

Rivonia

64 Wessels Street

2128

Unit 5

Enquiries/Navrae

Toll-free number

Tolvry nommer

**0800 111 502**

No	Name and address of addressee Naam en adres van geadresseerde	South Africa amount Versekerde bedrag	Insurance fee Verseke- ringsgeld	Postage Postgeld	Service fee Diensgeld	Affix Track and Trace customer copy Plak Volg-en-Spoor- kliëntafskrif	
1	Mr Peterse P.O. Box 5238, Onverwacht, 0557					REGISTERED LETTER (with a domestic insurance option) RD 398 292 895 ZA A BOOK COPY	
2	Mr Obes P.O. Box 1291, Silverton, 0127					REGISTERED LETTER (with a domestic insurance option) RD 398 292 913 ZA A BOOK COPY	
3	Mr Swanfelder D. Box 409, Kephale, 0555					REGISTERED LETTER (with a domestic insurance option) RD 398 292 900 ZA A BOOK COPY	
4	JJ Lambrecht P.O. Box 305, Kephale, 0555					REGISTERED LETTER (with a domestic insurance option) RD 398 292 935 ZA A BOOK COPY	
5	Mr Tuynsma P.O. Box 300, Kephale, 0555					REGISTERED LETTER (with a domestic insurance option) RD 398 293 012 ZA A BOOK COPY	
6	Mr Swanepeel P.O. Box 5140, Onverwacht, 0557					REGISTERED LETTER (with a domestic insurance option) RD 398 293 026 ZA A BOOK COPY	
7	Mr Swanfelder P.O. Box 409, Kephale, 0555					REGISTERED LETTER (with a domestic insurance option) RD 398 293 009 ZA A BOOK COPY	
8	A. Malherbe P.O. Box 689, Aucklandpark, JHB, 2006					REGISTERED LETTER (with a domestic insurance option) RD 398 292 927 ZA A BOOK COPY	
9	Mr Human P.O. Box 45, Kephale, 0555					REGISTERED LETTER (with a domestic insurance option) RD 398 292 992 ZA A BOOK COPY	
10	Mr Henning P.O. Box 1081, Potchefstroom, 2520					REGISTERED LETTER (with a domestic insurance option) RD 398 292 975 ZA A BOOK COPY	
Number of letters posted Getal briewe gepos		Total Totaal		R	R	R	R

10

Total  
Totaal

R

R

R

R

Signature of client  
Landtekening van kliënt

Signature of accepting officer  
Landtekening van aanneembeampte

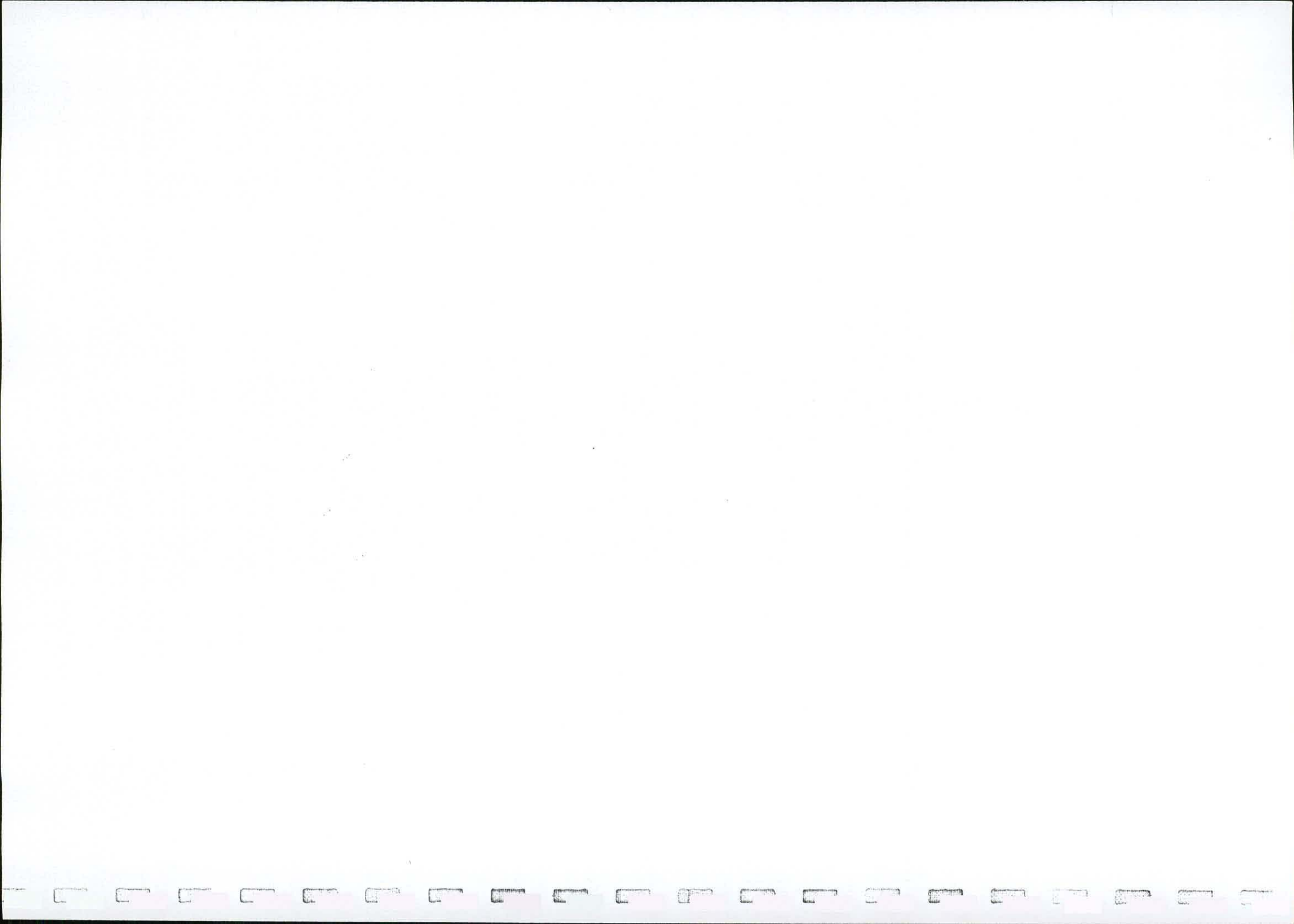


The value of the contents of these letters is as indicated and compensation is not payable for a letter received conditionally. Compensation is limited to R100,00. No compensation is payable without documentary proof. Optional insurance of up to R2 000,00 is available and applies to domestic registered letters only.

Die waarde van die inhoud van hierdie briewe is soos aangedui en vergoeding sal nie betaal word vir 'n brief wat sonder voorbehoud ontvang word nie. Vergoeding is beperk tot R100,00. Geen vergoeding is sonder dokumentêre bewys betaalbaar nie. Opsionele versekering van tot R2 000,00 is beskikbaar en is slegs op nlanadse geregistreerde briewe van toepassing.

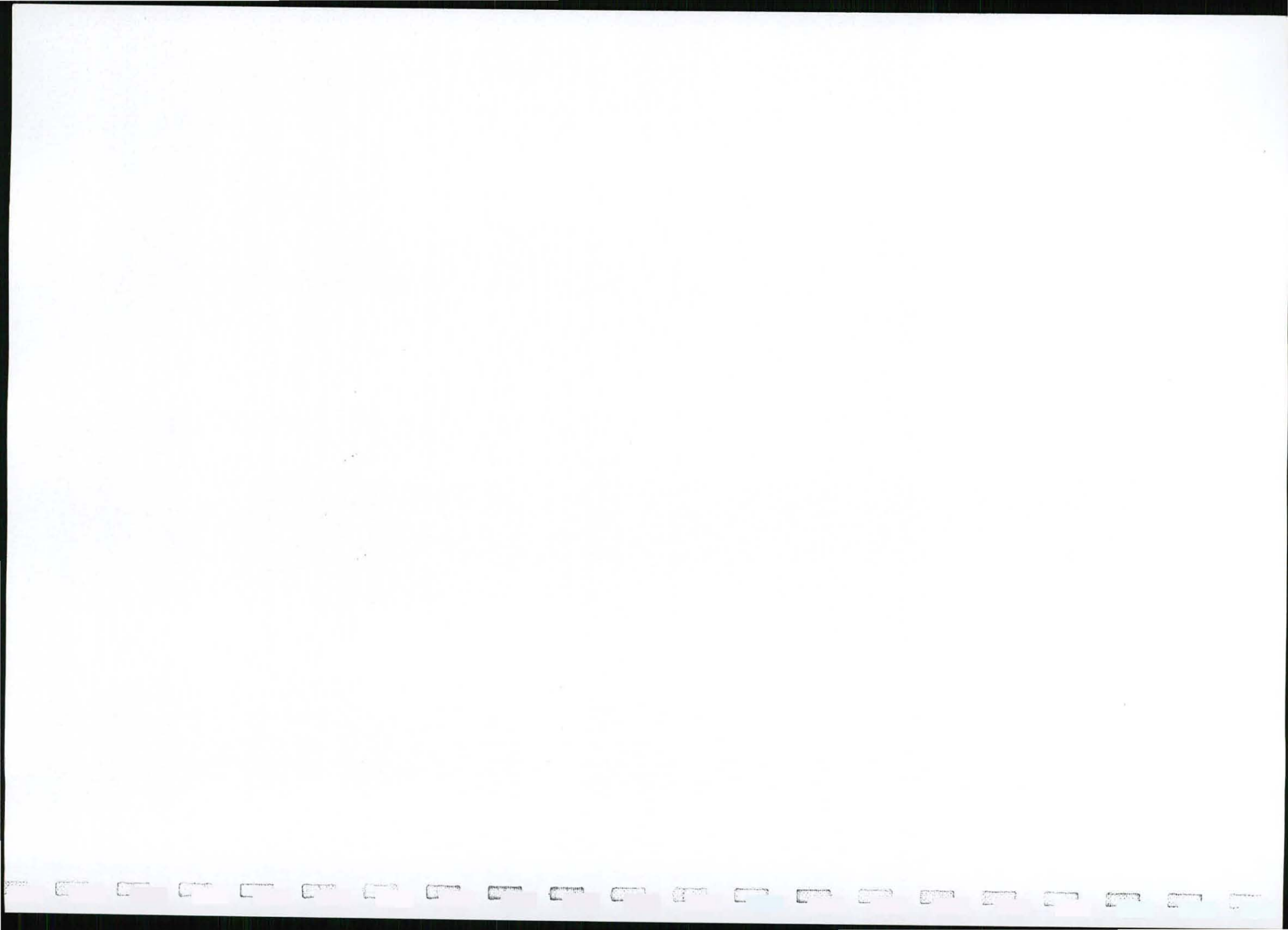








## Appendix 4: IAP comments received











# Response Sheet

Return completed sheet to: Vivienne Vorster  
 Synergistics Environmental Services  
 Fax: 011 807 8226  
 E-mail: vivienne@synergistics.co.za  
 PO Box 1822, Rivonia, 2128

Name and Surname:  
 Organisation:  
 Address:  
 Telephone:  
 Cell phone:  
 Fax:  
 E-mail:  
 Date:  
 Signature:

J.S. Pretorius	
OWNER FARM WORCESTER	
KRANSBERG STREET 2 ONDERWATER	
083 304 0211	
Susan@cranbrook.co.za	
2010-08-10	

What is your preferred language of correspondence (please tick)?

English  Afrikaans

If you know of someone who should be informed of the project, please provide us with their contact details:

Name and Surname:  
 Organisation:  
 Telephone:  
 Cell phone:  
 Fax:  
 E-mail:


## ISSUES, CONCERNS AND QUESTIONS

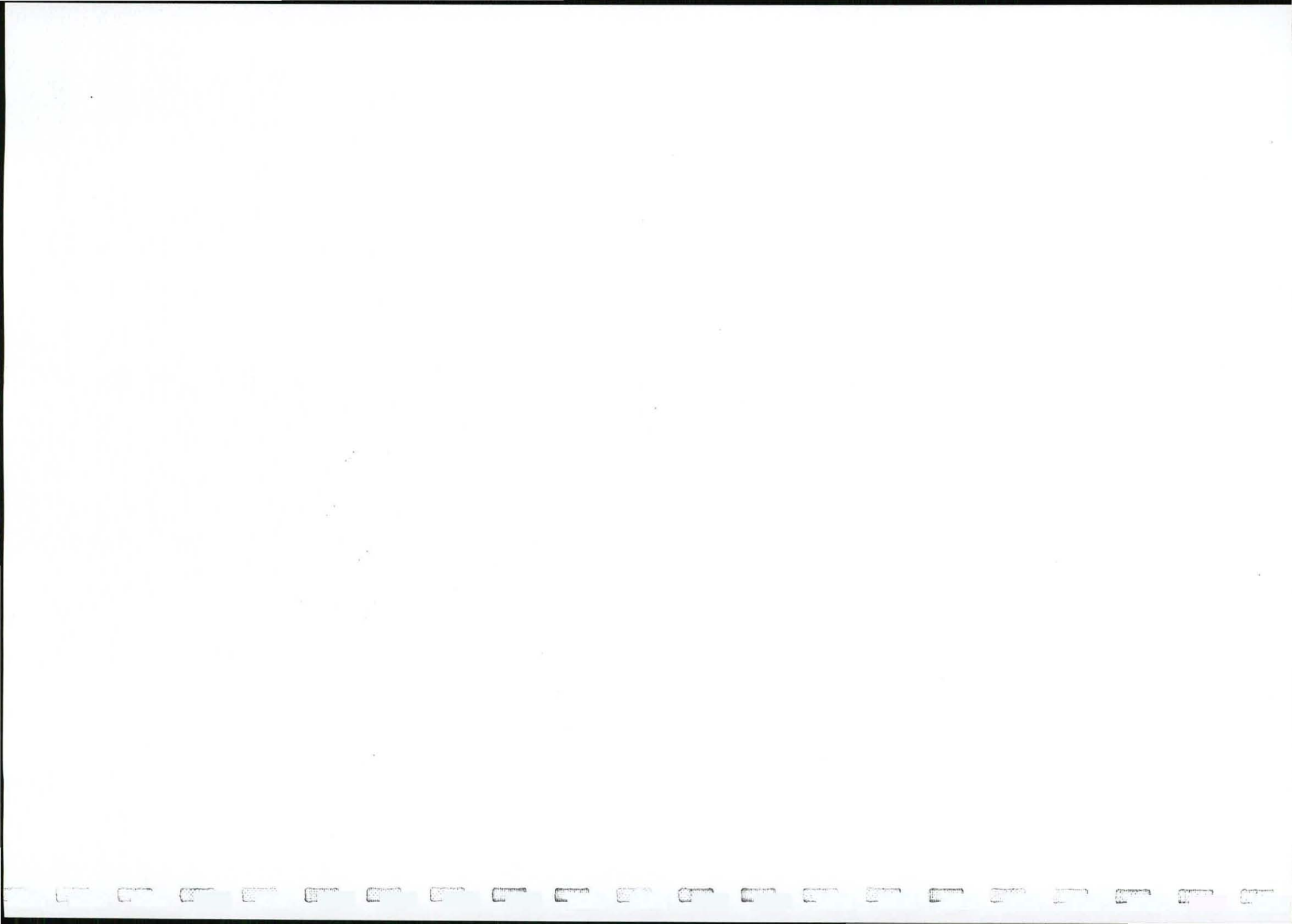
(use additional pages if required)

ALL COMMENTS MUST REACH US BY 6<sup>TH</sup> OF OCTOBER 2010

My concern is that the planned residential & industrial development in the Steenbop area are ignorant of the air quality studies indicating the air flow almost always from East to West.

The enlargement of the Char plant will add to the pollution of the existing mine, Maduba, Madupi & Co, other planned

industrial expansion





## Shelley Holt

---

**From:** Gideon Erasmus <zaagput@hotmail.com>  
**Sent:** 18 March 2011 09:32 PM  
**To:** shelley@synergistics.co.za  
**Subject:** RE: Omgewingsimpakstudieproses vir Sintel aanleg, kooks vervaardiging kompleks en elektrisiteit opwekkeings aanleg by die Grootegeluk Myn

**Categories:** S0476 - Lafarge - Bloemfontein & Polokwane EMP Amendments

Hallo Shelley

Ek wil net registreer as geaffekteerde party en sal daarom alle dokumentasie wat van belang is en vergaderings wat plaasvind van wil verneem.

Baie dankie

Gideon Erasmus  
Eienaar plaas Zaagput

---

From: [shelley@synergistics.co.za](mailto:shelley@synergistics.co.za)  
To: [shelley@synergistics.co.za](mailto:shelley@synergistics.co.za)  
Subject: Omgewingsimpakstudieproses vir Sintel aanleg, kooks vervaardiging kompleks en elektrisiteit opwekkeings aanleg by die Grootegeluk Myn  
Date: Fri, 4 Mar 2011 15:20:22 +0200

**Omgewingsimpakstudie (OIS), Omgewingsbestuursplan (OBP), Geïntegreerde Water Gebruiks Lisensie wysiging, Atmosferiese Vrystellings Lisensie en Afvalbestuur Lisensie aansoeke vir die Uitbreiding van die Sintel aanleg, die ontwikkeling van 'n kooks vervaardiging kompleks en 'n 120 MW elektrisiteit opwekkeings aanleg by die Grootegeluk Myn, Lephale**

Geagte Belanghebbende en Geaffekteerde partye

Hierdie e-pos dien om u as 'n geaffekteerde party in te lig van die voorgestelde uitbreiding van die Sintel aanleg, en die ontwikkeling van 'n kooks vervaardiging kompleks en elektrisiteit opwekkeings aanleg by die Grootegeluk Myn, Lephale (Ellisras).

Die projekte word deur Exxaro Resources (Edms) Bpk en Exxaro Energy (Edms) Bpk onderneem. Hierdie kennisgewing word ingevolge Regulasie 54 kragtens Goewermentskennisgewing 543 (18 June 2010), gepubliseer kragtens die Wet op Nasionale Omgewingsbestuur (No. 107 van 1998), beteken. Inligting oor die voorgestelde ontwikkeling, die omgewingsimpakstudieproses, en 'n uitnodiging om 'n inligtingsvergadering by te woon, word by hierdie dokument aangeheg sodat u dit kan deurlees. Hierdie dokumente is ook in Engels beskikbaar.

Synergistics Environmental Services (Edms) Bpk is aangestel as onafhanklike omgewingskonsultante verantwoordelik vir skakeling met belanghebbende en geaffekteerde partye. Kan u asseblief enige vrae of kwellings aan Synergistics stuur voor 1 April 2011. Lê asseblief alle kommentaar skriftelik voor aan:

**Shelley Holt**

Synergistics Environmental Services (Edms) Bpk  
Tel: 011 807 8225  
Faks: 011 807 8226  
Epos: [shelley@synergistics.co.za](mailto:shelley@synergistics.co.za)  
Pos: Posbus 1822, Rivonia 2128

Die uwe,

**SHELLEY HOLT**

B.Sc. Hons

Omgewingswetenskaplike

---

No virus found in this message.

Checked by AVG - [www.avg.com](http://www.avg.com)

Version: 10.0.1204 / Virus Database: 1498/3507 - Release Date: 03/14/11

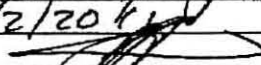
Internal Virus Database is out of date.



# Terugvoer Blad

Stuur voltooide vorm na:

Shelley Holt  
 Synergistics Environmental Services  
 Faks: 011 807 8228  
 Epos: shelley@synergistica.co.za  
 Pos: Posbus 1822, Rivonia, 2128

Naam en van:	SUSAN PRETORIUS
Plaas naam/organisasie:	WORCESTER 52010 & PROPERTY DEVELOPER
Adres:	KRANSBERG 2, PO BOX 6607, ONDERSWARTHO.
Telefoon nommer:	
Selfoon nommer:	0833040211.
Faks:	
E-pos:	ispretorius@xsinet.co.za.
U direkte besigheds, finansiële, persoonlike of ander belange in hierdie projek (indien van toepassing):	Property developer & owner of farm Worcester.
Datum:	3/2/2011
Handtekening:	

Wat is U taal van voorkeur vir korrespondensie (merk asstipies)?

English

Afrikaans

As U weet van verdere persone wat van die projek ingelig moet word vul gerus die onderstaande in:

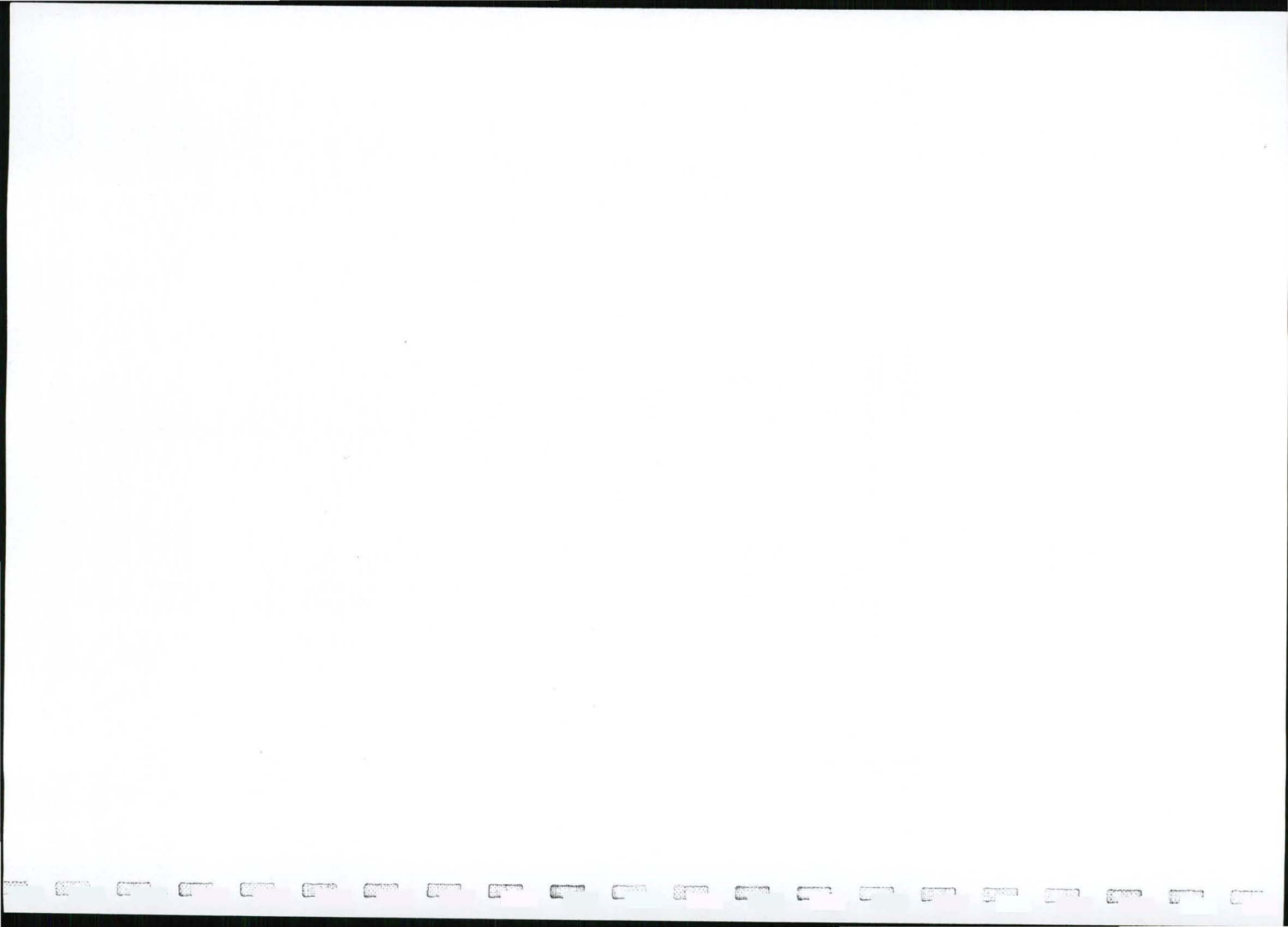
Naam en van:	
Plaas naam/organisasie:	
Adres:	
Telefoon nommer:	
Selfoon nommer:	
Faks:	

**Kwessies, Bekommernisse en Vrae**

(gebruik addisionele bladsye indien benodig)

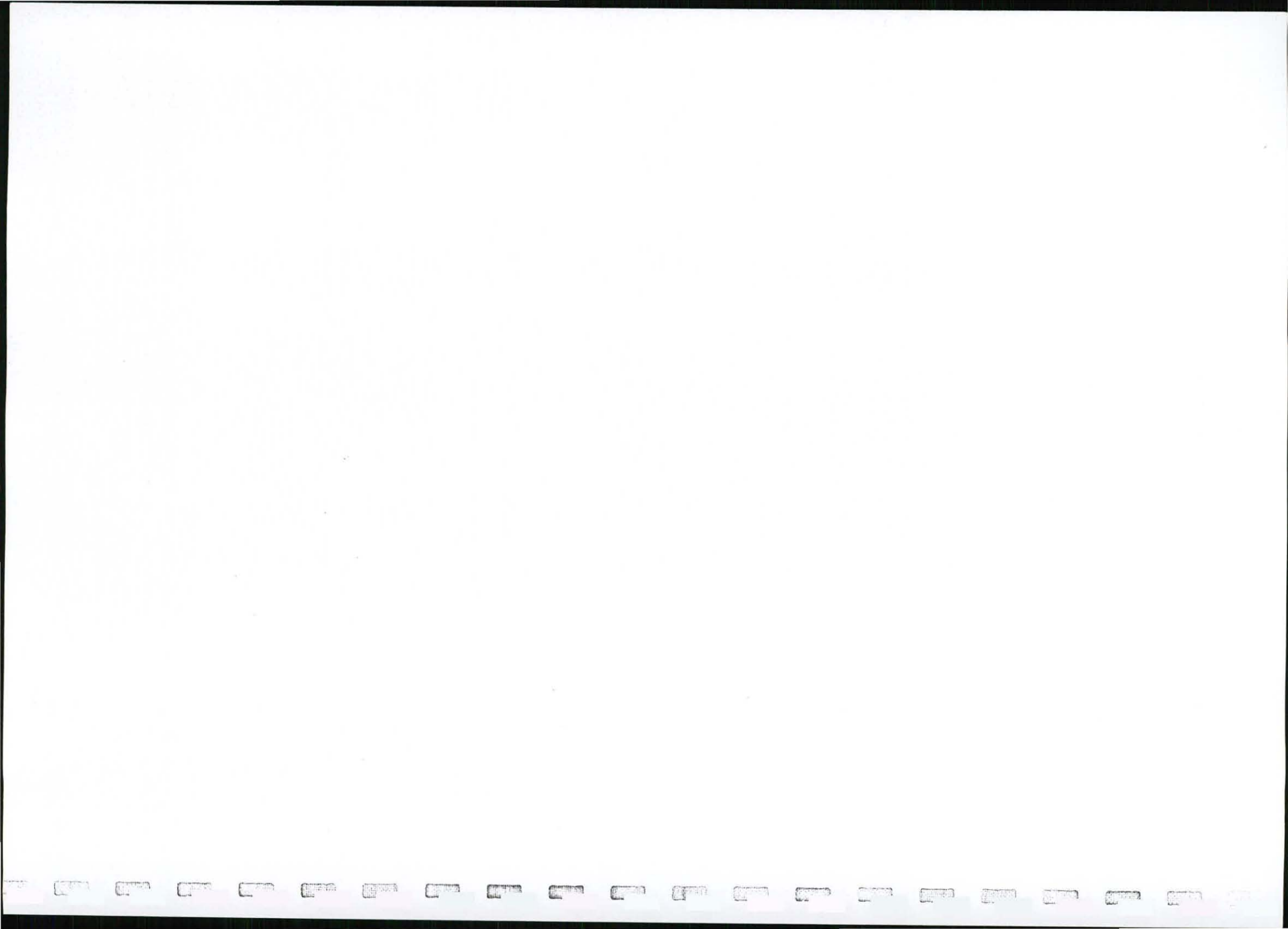
ALLE KOMMENTAAR MOET SYNERGISTICS BEREIK TEEN 1 APRIL 2011

- Environmental Impact.
- Expansion of residential market could positively impact the property development sector



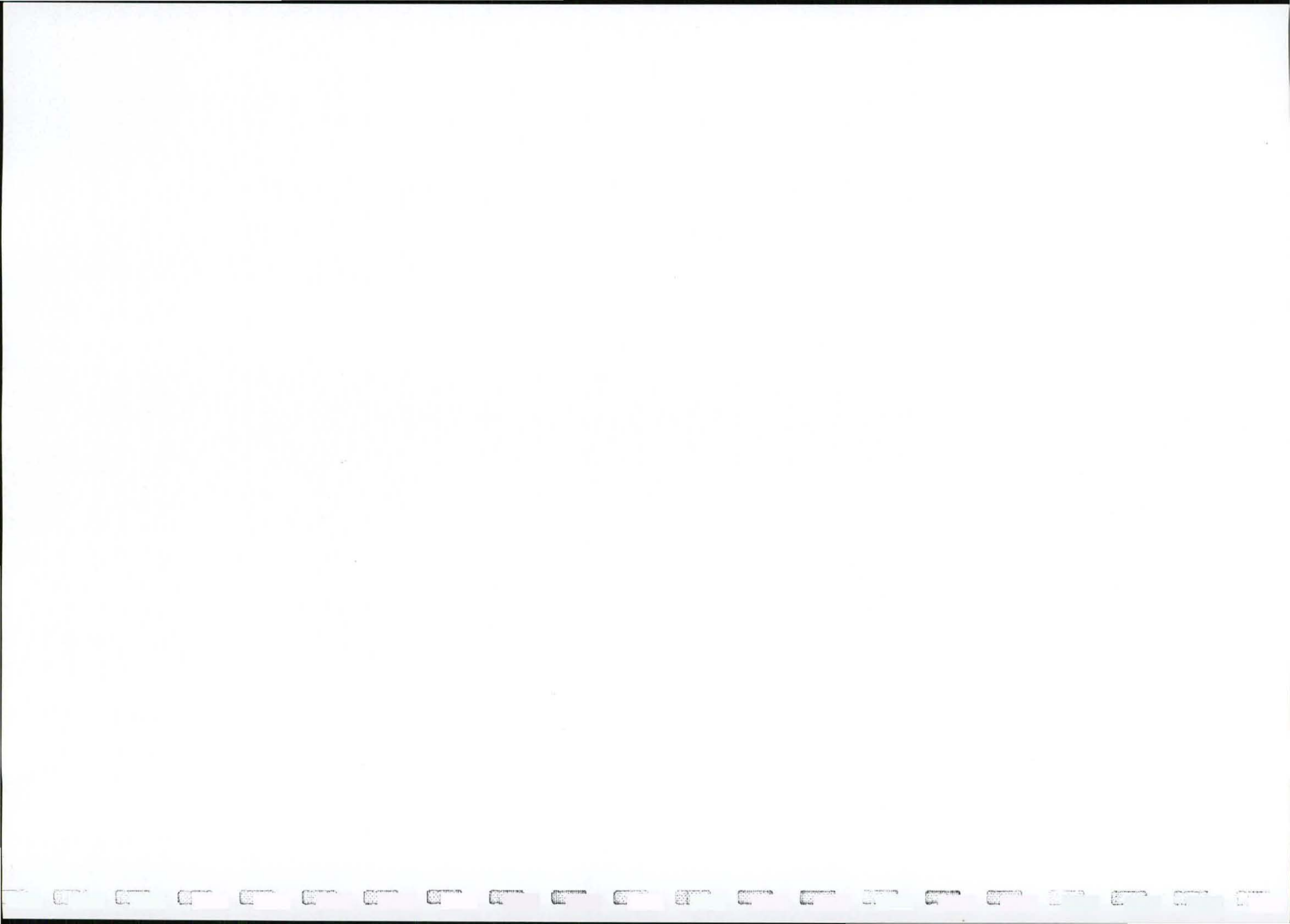


## Appendix 5: Minutes of Public Meetings





August 2010



# MINUTES OF MEETING



Project: **Expansion of the Sintel Char Plant**

Meeting: **Public Information Meeting**

Date & Venue: Mogol Club, Onverwacht  
11<sup>th</sup> of August 2010; 12:00pm

Compiled by: Vivienne Vorster  
Synergistics Environmental Services

---

## **ATTENDANCE:**

### ***PROJECT PROPONENTS***

Charles Linstrom	CL	Exxaro Head Office
Guillaume de Swardt	GS	Exxaro Head Office
Edwin Mogoane	EM	Sintel Char Plant

### ***ENVIRONMENTAL CONSULTANTS***

Mari Wolmarans	MW	Synergistics Environmental Services
Vivienne Vorster	VV	Synergistics Environmental Services

### ***INTERESTED AND AFFECTED PARTIES (IAPs)***

Filomaine Swanepoel	FS
Experience Nkwamba	EN
Tendani Mufamadi	TM
Johannes Molepo	JM

## **APOLOGIES:**

None

## **MINUTES OF MEETING:**

	<b>Welcome, Introduction and Project Presentation</b>
--	---



	<p>VV opened the meeting and indicated that the purpose was to:</p> <ul style="list-style-type: none"> <li>• Discuss the proposed expansion of the Sintel Char Plant; and</li> <li>• To inform the public about the proposed project and to take note of any comments, queries and question which they may have</li> </ul> <p>VV gave a brief description about the Sintel Char Plant and the proposed expansion project, and then handed over to GS to give an overview of the technical process involved.</p> <p>GS gave a detailed explanation of the proposed expansion project. He also discussed the Char Plant process, inputs, outputs and infrastructure involved in detail.</p> <p>VV continued the presentation outlining the environmental authorisation and legislation requirements, the specialist studies to be undertaken as well as the purpose and function of the public participation process.</p>
	<p><b>Questions and Comments</b></p>
	<p>When will the construction of the expansion project begin?</p> <p>GS answered that construction is scheduled to begin in the third quarter of 2011</p>
	<p>Will the pollution control dam remain the same size? Is the capacity adequate for the expansion project?</p> <p>GS answered that the pollution control dam is currently sized for 8 retorts and the size will therefore be sufficient for an additional 4 retorts.</p> <p>VV added that the surface water specialist study, undertaken by Jones and Wagner Engineers will verify whether the size is sufficient.</p>
	<p>Will any additional water be required for the expansion project?</p> <p>GS said that potable water requirements will remain roughly the same, as employment numbers will only increase slightly. Raw water required for use in the boilers will also remain as per the original water balance since the boiler system will not be expanded for this project.</p>
	<p>A statement was made by FS that the water service agreement between Char Plant and Grootegeluk Mine will need to be amended, should water use increase.</p> <p>GS answered that the agreement will be looked into and any changes required will be done accordingly.</p> <p>CL added that the water balance will be updated as part of the surface water specialist study.</p>
	<p>Will the existing Atmospheric Pollution Prevention Act (APPA) Permit be amended?</p> <p>VV answered that an Atmospheric Emissions License (in terms of the new National Environmental Management Air Quality Act No. 39 of 2004) will be undertaken to amend the existing APPA permit.</p>

	<p><i>There have been complaints about odours from the Sintel Char Plant at Grootegeluk Mine. There are also rumours amongst employees that the phenol levels are harmful to people's health and affect the mine personnel. What air quality monitoring is being undertaken at Char Plant?</i></p> <p><i>EM answered that air quality monitoring is undertaken bi-annually and assessed according to the conditions within the APPA permit.</i></p> <p><i>FS queried whether the 6 month frequency is often enough, as there could be variations which are overlooked and exceedances of limits which go undetected?</i></p> <p><i>EM added that a Hazardous Chemical Substances Survey was undertaken in October 2009 by GijimaAST to assess whether employees are excessively exposed to any hazardous substances. The results of the report found that employees are not excessively exposed to hazardous chemicals above the Occupational Exposure Limits. Ambient air quality monitoring must still be undertaken at designated places, such as the liquor destructors.</i></p>
	<p><i>What is being done about the waste 'sludge' which is currently being stored?</i></p> <p><i>GS answered that coal fines that accumulate in the cyclones and tar precipitators of the recycle gas system are removed on a scheduled basis to avoid negative impacts on the process. The coal fines mixed with tar are removed as a sludge and stored in 210ℓ drums. These drums were initially sent to Holfontein, but this alternative was stopped due to excessive cost. Testing, with positive results, has been obtained by mixing the sludge with char fines to a dry consistency suitable for blending with power station coal. Sludge production volumes +/- 0.04% of coal used.</i></p>
	<p><i>The Grootegeluk Water Use License (WUL) states that the pollution control dam needs to be monitored for phenols. The mine is worried that this is not being done and it is a bad reflection on them.</i></p> <p><i>EM answered that monitoring is being done at boreholes up and downstream from the pollution control dam. There have been no phenols detected in these monitoring boreholes.</i></p>
	<p><b><i>There were no further questions and the meeting was closed at 13:30pm. The attendees were thanks for their attendance.</i></b></p>
	<p><b><i>Please see the full presentation attached herewith as Appendix A</i></b></p>


## Appendix A: Presentation



**Exxaro Resources: Sintel Char Plant**

**Proposed Expansion of the Sintel Char Plant**

Environmental Impact Assessment (Amendment),  
Environmental Management Programme,  
Integrated Water Use License Application (Amendment) and  
Waste Management License



Public Information Meeting  
Date: 11<sup>th</sup> August 2010

Authorities Information Meeting  
Date: 12<sup>th</sup> August 2010

Synergistica Working Together

**Exxaro PURPOSE OF THE MEETING**

- Discuss and explain the proposed project (i.e the expansion of the Sintel Char Plant)
- Discuss the Environmental Legislative Processes
- Discuss the scope of supporting specialist studies
- Public Participation Process
- Provide Interested and Affected Parties with an opportunity:
  - Ask questions
  - Raise issues and concerns
  - To be addressed in the future phases of the project

Synergistica Working Together

**Exxaro AGENDA**

- Welcome, introduction and apologies
- Purpose of meeting
- Brief Overview of Sintel Char Plant
- Project Description
  - EXXARO
- Environmental Legislative Processes
- Specialist Studies
- Public Consultation Process
- Questions and Discussion
- Way Forward and Closure

Synergistica Working Together

**Exxaro INTRODUCTION**

- Exxaro Resources (Pty) Ltd owns and operates the Sintel Char Plant which is situated within the boundaries of the Grootegeluk Mine.
- Exxaro Resources is a separate entity from Exxaro Coal (Pty) Ltd, and have a lease agreement in place with Grootegeluk Mine
- The Sintel Char Plant, which covers an area of ~5.5ha, has been in operation since 2009
- Wish to expand the existing Char plant by increasing the number of retorts from 4 to a maximum of 10,
- The footprint of the expansion will also be ~5.5ha. The entire footprint of the Char land is ~13.9ha.
- The expansion will be located adjacent to the existing plant and will effectively double their current production rates

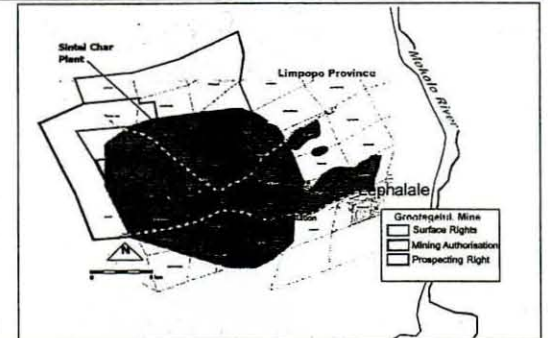
Synergistica Working Together

**Introduction to Project Team**

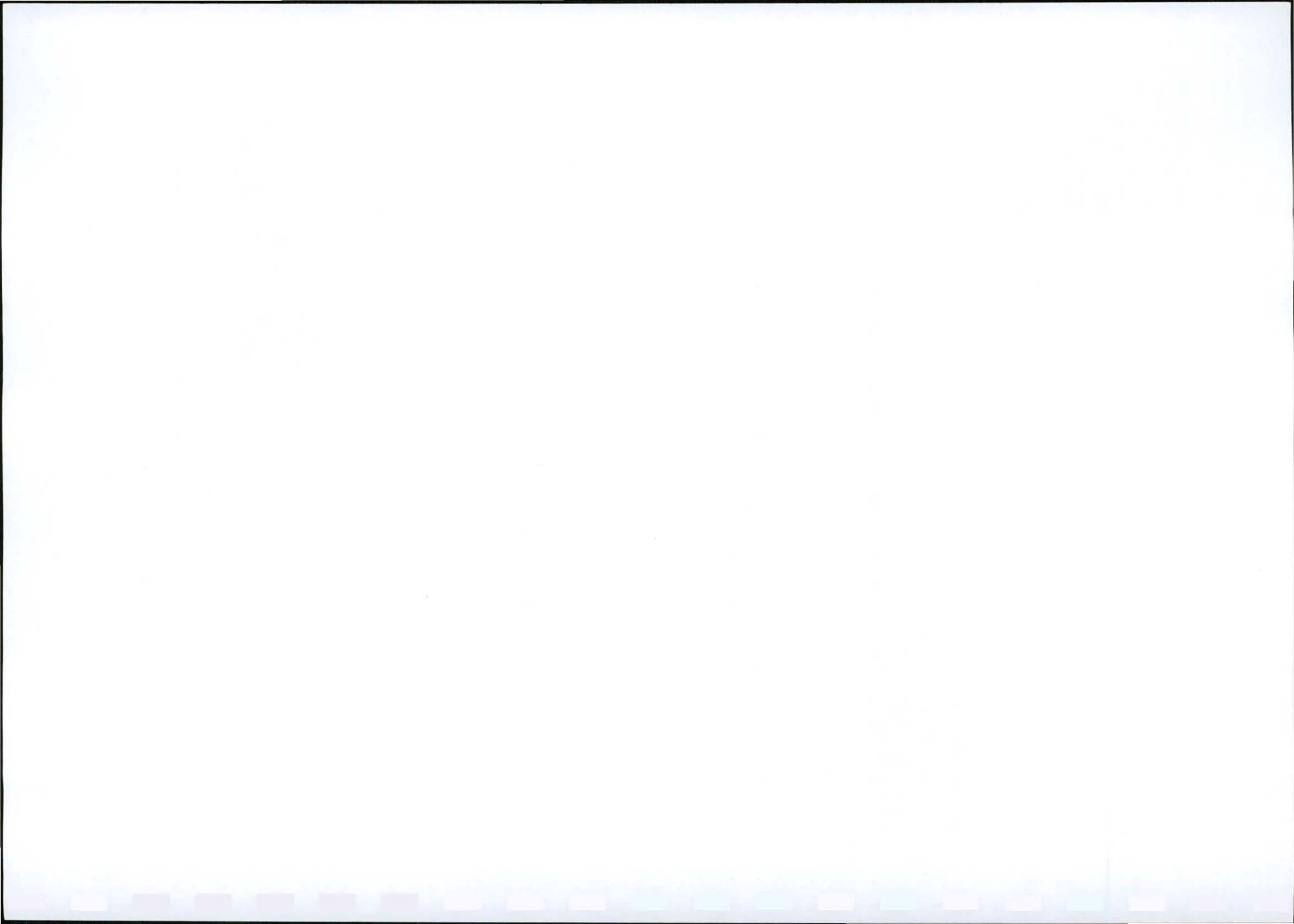
- **Project Proponent**
  - Exxaro Resources – Sintel Char Plant
    - Manager: Jaco van Dyk
  - Exxaro HQ -
    - Project Manager: Guillaume de Swardt / Lornie Conradie
  - Exxaro Environmental Specialist Unit
    - Charl Nolte
- **Environmental Assessment Practitioner**
  - Synergistica Environmental Services
    - Mari Wolmarans
    - Vivienne Vorster
- **Specialist Team – details to follow**

Synergistica Working Together

**Exxaro REGIONAL LOCALITY**



Synergistica Working Together



**exxaro** PROJECT DESCRIPTION

- Exxaro Presentation

Synergistics Working Together

**exxaro** Environmental Legislative Processes

- Mineral And Petroleum Resources Development Act (MPRDA)
  - EMP
    - Public Participation
    - Scoping Report
    - Environmental Impact Assessment Report
    - Environmental Management Programme
- EMP submitted to the Limpopo Department of Mineral Resources (DMR)

Synergistics Working Together

**exxaro** ENVIRO-LEGAL REQUIREMENTS

- ENVIRONMENTAL LEGISLATIVE PROCESSES
  - National Environmental Management Act (No. 107 of 1998) prohibits the commencement of certain controlled activities without authorisation from a competent authority.
  - Mineral and Petroleum Resources Development Act (No.28 of 2002). Char plant is situated on mining land within the boundaries of Grootegeluk Mine
  - National Water Act (No. 36 of 1998) promotes sustainable water use and protection. Section 21 lists 11 controlled activities which may not be undertaken without a Water Use License
  - National Environmental Management Waste Act (No. 59 of 2008) prohibits the undertaking of listed waste management activities without a license from a competent authority.
  - National Environmental Management Air Quality Act (No. 39 of 2004). Reform the law regulating air quality to protect the environment and prevent pollution

Synergistics Working Together

**exxaro** Environmental Legislative Processes

- National Water Act (NWA) (No. 36 of 1998)
  - Section 21 uses which require the submission of an Integrated Water Use License Application (IWULA):
    - Section 21 (b) Storing water
    - Section 21(g) Disposing of waste in a manner which may detrimentally impact on a water resource
  - IWULA (amendment)
    - Submitted to the Limpopo Department of Water Affairs (DWA) for authorisation
- National Environmental Management Air Quality Act (No. 39 of 2004).
  - Atmospheric Emissions License will be submitted to DEA under the

Synergistics Working Together

**exxaro** Environmental Legislative Processes

- National Environmental Management Act (NEMA)
  - GN 543 of June 2010 defines the process for undertaking an Environmental Impact Assessment (EIA)
  - EIA
    - Public Participation
    - Scoping Report
    - Environmental Impact Assessment Report
    - Environmental Management Programme
  - EIA (amendment)
    - Submitted to Limpopo Department of Economic Development, Environment and Tourism (LEDET) for authorisation

Synergistics Working Together

**exxaro** Environmental Legislative Processes

- National Environmental Management Waste Act (NEMWA)
  - Process to be followed is the same as that of an EIA
  - Published in the EIA regulations (GN 543 of June 2010)
  - Waste Management Licence/EIA report
    - Public Participation
    - Scoping Report
    - Environmental Impact Assessment Report
    - Environmental Management Programme
  - Submitted to the Waste Management Division of the Department of Environmental Affairs (national authorities – hazardous waste)

Synergistics Working Together





**exxaro** **PROJECT DESCRIPTION – Environmental Considerations**

- What are the key environmental sensitivities:
  - Groundwater Impacts
  - Surface Water Impacts
  - Waste Streams produced at the Char Plant
  - Air Quality Impacts

Synergistics Working Together

**exxaro** **Specialist Studies**

- Surface Water
  - Information review and gap analysis
  - Water balance and salt balance
  - Surface water runoff and drainage components
  - Surface water impact assessment
  - Management and monitoring
  - Technical inputs into the IWULA

Synergistics Working Together

**exxaro** **Specialist Studies**

- The following specialist studies will be undertaken in support of the EIA, EMP, IWULA and Waste Management Licence Application
  - Groundwater – ERM (Alkie Marais & Hesma Cockrell)
  - Surface water – Jones and Wagener (Chris Waygood)
  - Waste Stream Analysis – Golder and Associates (Leon Breidenhann)
  - Air Quality – Airshed Planning Professionals
  - Traffic Impact Assessment – WSP

Synergistics Working Together

**exxaro** **Specialist Studies**

- Waste Stream Analysis
  - Identification of waste streams at Char Plant
  - Assessment of waste streams
  - Legislative requirements
  - Impact assessment
  - Management and monitoring measures

Synergistics Working Together

**exxaro** **Specialist Studies**

- Groundwater
  - Information review and gap analysis
  - Hydrocensus
    - Borehole drilling
    - Groundwater samples
    - Hydro-chemical analysis
  - Conceptual groundwater model
    - Characteristics
    - Groundwater flow, rate and direction
    - Groundwater recharge
  - Groundwater Impact assessment
  - Management measures and monitoring

Synergistics Working Together

**exxaro** **Specialist Studies**

- Air Quality
  - Identification of atmospheric emissions
  - Identification of sensitive receptors
  - Simulation of
    - PM10 concentrations
    - Dust fallout
  - Evaluation of human health risks
  - Recommendations
    - Mitigation measures
    - Air quality monitoring programme

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