



P.O. Box 628
Edenvale 1610

(Tel) 011 454 4566
(Fax) 0866 22 5552
(Cell) 082 553 8844
(Email) p3consulting@telkomsa.net

MIDVAAL TYRE PYROLYSIS PLANT

Final Scoping Version 1.2

DEAT 12/9/11/L734/24G



“ Changing the horizons of today for a brighter tomorrow ”



Title: Midvaal Tyre Pyrolysis Plant
Client: Nienaber Vervoer & Bande
Consultant: P3 Consulting cc
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Approved for P3 Consulting by:

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Pieter Colyn – **Public Participation Practitioner**

I. EXECUTIVE SUMMARY

The late Mr. P Nienaber accumulated around 2.2 – 27 million used tyres on his land – land known as Plot 110, Walker Fruit Farms, Meyerton / Midvaal Municipal area. Mr. Nienaber passed away during 2007 and his children inherited the land and his business.

In the time after the passing of Mr. Nienaber the new Waste Tyre Legislation/ Regulations were passed, effectively declaring the stock pile of tyres on the land of Mr. Nienaber as unlawful and not authorised. The children knew nothing about the change in law and as such had done nothing in the years past to rectify the matter and have the dump site registered and declared an official site with environmental plans in place for operations.

To date the estate of the late Mr. Nienaber has not been settled and the land has thus not been transferred into the names of those who inherited. Notwithstanding this the business had to continue and the sons of the late Mr. Nienaber have been running the business as best they can.

In an effort to get the dump site “legal” and in order to conform with legislation, the Nienaber brothers have opted to apply through a Section 24(G) application to have the matter of the dump site made legal and also to provide the authorities with a plan of action on how best to use / recycle the used tyres on the land. It is their intention to rid the land of the inherited “sins” of the late Mr. Nienaber by not only legalising but also working away the massive amounts of tyres on the land.

The Nienaber brothers have acquired a business partner from overseas who wishes to join them in establishing a tyre pyrolysis plant on the land in order to work away the stock piles of tyres. The process will yield bunker oil; scrap metal and carbon black residue. All three of these items will be sold onwards into respective industries in an effort to rid the land of waste while also economically and environmentally responsible eliminating the stock piles on hand.

In order to ensure that the envisaged plant is environmentally sound a special site visit to see a full tyre pyrolysis plant in operation was undertaken during December 2011. The plant that was inspected is situated in the northern territories of China. A full investigation was undertaken on the plant to evaluate its operations and make recommendations in order to ensure that the plant operations is sound and safe.

The application for the removal / recycling of the used tyres will be a “consent application” – it is an application where once the tyres have been worked away, the land is returned to full agricultural potential and no further storing and recycling of old rubber takes place.

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III ABBREVIATIONS

AEL	Atmospheric Emission License
BAT	Best Available Techniques
BPEO	Best Practical Environmental Option
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECA	Environmental Conservation Act (Act No 73 of 1989)
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMP	Environmental Management Programme
CMA	Catchment Management Area
DEA	Department of Environmental Affairs
DEADP	Department of Environmental Affairs and Development Planning
DWA	Department of Water Affairs
GA	General Authorisation
GHG	Greenhouse Gas
GLV	General Limit Values
I&AP	Interested and Affected Party/ies
IEM	Integrated Environmental Management
IDP	Integrated Development Plan
IPWM	Integrated Pollution and Waste Management
NEMA	National Environmental Management Act (Act No. 107 of 1998), as amended, including new regulations and amendments to this act
NEM:AQA	National Environmental Management: Air Quality Act (Act No. 39 of 2004)
NEM:WA	National Environmental Management: Waste Act (Act No. 59 of 2008)
NWA	National Water Act (Act 36 of 1998)
PPP	Public Participation Process
WULA	Water Use License Application

IV TERMINOLOGIES

“air pollution” – means any change in the composition of the air caused by smoke, soot, dust (including fly ash), cinders, solid particles of any kind, gases, fumes, aerosols and odours substances.

“alternatives” – in relation to a proposed activity, means different methods of meeting the general purpose and requirements of the activity, which may include alternatives to:

- The property on which or location where it is proposed to undertake the activity;
- The type of activity to be undertaken;
- The design or layout of the activity;
- The technology to be used in the activity;
- The operational aspects of the activity; and
- The option of not implementing the activity.

“Alternatives Fuels and Raw Materials” (AFR) – means general and hazardous waste which is used to substitute conventional or primary fossil fuels and/or virgin raw materials in cement kilns and other industrial processes (also referred to as “Alternative fuels and resources”, “Secondary materials” “Refuse derived fuels”, or “Solid recovered fuel”).

“ambient air” – excludes air regulated by the Occupational Health and Safety Act, Act No. 85 of 1993.

“atmospheric emissions” or **“emission”** – means any emissions or entrainment process emanating from a point, non-point or mobile source that results in air pollution.

“atmospheric emissions license” – means a atmospheric emissions license contemplated in terms of legislation.

“best practicable environmental option” – means the option that provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term.

“by-product” – means a substance that is produced as part of a process that is primarily intended to produce another substance or product and that has the characteristics of an equivalent virgin product or material.

“contaminated” – the presence in or under any land, site, buildings or structures of a substance or micro-organism above the concentration that is normally present in or under that land, which substance or micro-organism directly or indirectly affects or may affect the quality of soil or the environment adversely.

“co-processing” – means the utilisation of alternative fuels and/or raw material in industrial processes for the purpose of energy and/or resource recovery and resultant reduction in the use of conventional fuels and/or raw material through substitution.

“cumulative impact” – in relation to an activity, means the impact of an activity that in itself may not be significant, but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

“development footprint” – in respect of land means any evidence of physical alteration as a result of the

undertaking of any activity.

“disposal” – means the burial, deposit, discharge, abandoning, dumping, placing or release of any waste into or onto any land.

“environmental impact assessment” – means a systematic process of identifying, assessing and reporting environmental impacts associated with an activity and includes basic assessment and scoping and an environmental impact report.

“environmentally sound management” – means the taking of all practicable steps to ensure that waste is managed in a manner that will protect health and the environment.

“general waste” – means waste that does not pose an immediate hazard or threat to health or to the environment, and includes domestic waste, building and demolition waste, business waste and inert waste.

“hazardous waste” – means any waste that contains organic or inorganic elements or compounds that may owing to inherent physical, chemical or toxilogical characteristics of that waste have a detrimental impact on health or the environment.

“independent” – In relation to an EAP or a person compiling a specialist report or undertaking a specialised process or appointed as a member of an appeal panel, means –

- That such EAP or person has no business, financial, personal or other interest in the activity, application or appeal in respect of which that EAP or person is appointed in terms of these Regulations other than fair remuneration work performed in connection with that activity, application or appeal; or
- That there are no circumstances that may compromise the objectivity of that EAP or person in performing such work.

“incineration” – means any method, technique or process to convert waste to flue gases and residues by means of oxidation in the presence of heat.

“plan of study for environmental impact assessment” – means a document contemplated in regulation 28(1)(l), which forms part of a scoping report and sets out how and environmental impact assessment must be conducted.

“recovery” – means the controlled extraction of a material or the retrieval of energy from waste to produce a product.

“recycle” - means a process where waste is reclaimed for further use, which process involves the separation of waste from a waste stream for further use and the processing of the separated material as a product or raw material.

“reduction” - involves various possible measures to reduce the amount of waste generated, e.g. manufacturing process optimisation, or raw material reduction or substitution.

“re-use” – means to utilise articles from the waste stream again for a similar or different purpose without changing the form or properties of the article.

“registered interested and affected party” – in relation to an application, means an interested and affected party whose name is recorded in the register opened for that application in terms of regulation 55 of NEMWA.

“significant impact” – means an impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment.

“storage” – means the accumulation of waste in a manner that does not constitute treatment or disposal of that waste.

“thermal treatment” – means incineration, co-processing and other high temperature treatment of general and hazardous waste.

“treatment” – means any method, technique or process that is designed to (a) change the physical, biological or chemical character or composition of a waste; or (b) remove, separate, concentrate or recover a hazardous or toxic component of a waste; or (c) destroy or reduce the toxicity of a waste, in order to minimise the impact of the waste on the environment prior to further use or disposal.

“waste” – means any substance, whether or not that substance can be reduced, re-used, recycled and recovered-

- That is surplus, unwanted, rejected, discarded, abandoned or disposed of
- Which the generator has no further use, for the purpose of production
- That must be treated or disposed of
- That is identified as a waste by the Minister by notice in a Gazette and includes waste generated by the mining, medical or other sector, but by a product is not considered waste.
- Any portion of waste, once reused, recycled and recovered, ceases to be waste

“waste disposal facility” – means any site or premises used for the accumulation of waste with the purpose of disposing of that waste at that site or on that premise.

“waste management activity” – means any activity listed in Schedule 1 or published by notice in the *Gazette* under section 19 of NEM:WA, and includes –

- (a) The importation and exportation of waste;
- (b) The generation of waste, including the undertaking of any activity or process that is likely to result in the generation of waste;
- (c) The accumulation and storage of waste;
- (d) The collection and handling of waste;
- (e) The reduction, re-use, recycling and recovery of waste;
- (f) The trading of waste;
- (g) The transportation of waste;
- (h) The transfer of waste; and
- (i) The disposal of waste.
- (j) **“waste management license”** – means a license issued in terms of section 49 of NEM:WA.

“waste minimisation programme” – means a programme that is intended to promote the reduced generation and disposal of waste.

“waste treatment facility” - means any site that is used to accumulate waste for the purpose of storage, recovery, treatment, reprocessing, recycling or sorting of that waste. Section 1

1. SECTION 1

1.1. BACKGROUND TO THE PROPOSED TYRE PYROLYSIS PLANT AT WALKER FRUIT FARMS - MEYERTON

In South Africa there are currently around 7 million vehicles in operation. This number increases every year by at least 140 000 additional units ($\pm 2\%$). Should each vehicle have a minimum of 4 tyres each, and require replacement of one set per year, then at 28 million tyres will enter the receiving environment as either tyres for retreading or tyres as waste.

(State of the Environment Report of SA 2005 – 2010)

Used tyres not easily disposed of as they can not be compacted and they also demand a considerable volume of airspace on landfill sites due to their size. Although tyres are recycled by retreading of individual units, these units eventually reach their full life span and then needs disposing of.

On landfill sites these tyres pose a challenge as they tend to resurface after some time, causing the capping of waste areas to be disturbed as well as creating visual elements that are unsightly and unwanted.

The burning of tyres is environmentally unacceptable as the initial burning process only adds to air pollution while at least two thirds of the inherent oil within the tyre is allowed to seep into the soil and possibly contaminate underground water resources.

Over many years the late owner (Mr. Nienaber Snr.) of Plot 110, Walker Fruit Farms at Meyerton, accumulated a vast number of used tyres on his property. The number of tyres are estimated at being between 2.2 million and 2.7 million.

After the death of Mr. Nienaber (Senior). The son Mr. Dewald Nienaber Jnr. inherited the land along with all of the tyres.

Shortly after the death of Mr. Nienaber (Senior) legislation was passed that required all tyre waste dumps to be registered and formalized. This was never done with the result being that the tyre dump on Plot 110 Walker Fruit Farms is today in effect an illegal dump.

It is the intention of Mr. Dewald Nienaber of Nienaber Vervoer to, after transfer of his inheritance into his name, to install and operate a tyre pyrolysis plant on the land – land known as Plot 110 Walker Fruit Farms, Meyerton.

The aim of the proposed development is to not only effectively “formalise” the waste dump in terms of legislation, but also provide a permanent solution in the working away of the used tyres in order to return the land to agricultural use.

1.2. LEGAL FRAME WORK AND REQUIREMENTS

1.2.1. The Classification of Tyres : Hazardous or Non-Hazardous

Tyres are, in terms of the Minimum Requirement for Waste Disposal by Landfill, not listed and thus not classified as a hazardous waste.

Hazardous wastes are grouped into

- inorganic waste

- oily waste
- organic waste
- putrescible organic waste
- high volume/low hazardous waste and
- miscellaneous waste.

The Minimum Requirements also states that "general waste is a generic terms for waste that because of its composition and characteristics, does not pose a significant threat to public health or the environment if properly managed".

Tyres are also not listed under the SANS 10228 (Classification of Hazardous Substances) and do not fit the profiles listed in the 9 classes of hazardous substances.

According to the Draft Waste Classification and Management System (GNR 718 of 23 July 2010), published for public review, tyres will be classified as a General Waste, GW54 as soon as it is approved and promulgated.

It can be concluded that tyres are not classified as a hazardous waste and should be disposed of and treated as a general waste.

1.2.2. *National Environmental Management Act*

According the National Environmental Management Act (NEMA), Act No 107 of 1998, as amended, in terms of Section 24(2) and 24D, the following activities listed in Government Notice Regulation No. 544 (Listing Notice 1) and 545 (Listing Notice 2) have been identified as activities that require Environmental Authorisation (EA). The activities can be listed as:

GNR 544 no. 13: "The construction of facilities or infrastructure for the storage, or for the storage and handling of dangerous goods where such storage occurs in containers with a combined capacity of 80 but not exceeding 500 m³."

GNR 545 no. 4: "Construction of facilities or infrastructure for the refining, extraction or processing of gas, oil and petroleum with an installed capacity of 50m³ or more, excluding landfill",

GNR 545 no. 5: "The construction of facilities or infrastructure for any process which requires a permit or license in terms of the national and provincial legislation governing the generation or release of emissions, pollution or effluent and which is not identified in GNR no. 544 of 2010 or included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act in which that Act will apply".

The above activities require a Scoping and Environmental Impact Assessment (EIA) to be conducted in order to obtain Environmental Authorisation (EA) from the National Department of Environmental Affairs (DEA).

1.2.3. *National Environmental Management : Waste Act*

Certain listed in GNR 718 in terms of section 19 of the National Environmental Management: Waste Act (NEM:WA), Act No. 159 of 2008 have been identified and require a Basic

Assessment process to be conducted as stipulated in terms EIA Regulations, as part of a Waste Management License (WML):

Category A – GNR 718 no. 4: *“The storage of waste tyres in a storage area exceeding 500m²”.*

Category A – GNR 718 no. 5: *“The sorting, shredding, grinding or bailing of general waste at a facility that has a capacity to process in excess of one ton of general waste per day”,* Category A –

GNR 718 no. 7: *“The recycling or re-use of general waste of more than 10 tons per month”.*

1.2.4. National Environmental Management : Air Quality Act

In terms of the listed activities and associated minimum emission standards identified in terms of Section 21 of the National Environmental Management: Air Quality Act (NEM:AQA), Act No. 35 of 1994, the release of emission into the atmosphere will require a Atmospheric Emissions Licence for submission and approval by the National Department of Environmental Affairs (DEA) in Pretoria..

Although the Minimum Emissions Standards for Alternative Fuels and Raw Materials (AFR) are being formalised in terms of Section 21 of NEM:AQA, all co-processing facilities will require compliance with the air emission standards listed in the National Policy on Thermal Treatment of General and Hazardous Waste, published on 24 July 2009.

The proposed installation triggers the following categories as listed activities in terms of Section 21 of the National Environmental Management: Air Quality Act (NEM:AQA):

Subcategory 2.3 – *“Industrial fuel oil recycling”*

Subcategory 3.1 – *“Combustion installations”*

Subcategory 3.4 – *“Char, charcoal and carbon black production”* (Carbon black extraction).

Subcategory 4.21 – *“Metal Recovery”*

Category 8 – *“Disposal of hazardous and general waste”*

The application will be lodged with the Midvaal Local Municipality / Health & Environmental Unit for an Atmospheric Emissions License in terms of Chapter 5 of the Act (NEM:AQA)

1.2.5. Waste Tyre Regulations

The storage of waste tyres will be addressed under the regulations (GNR No. 149, 13 February 2009) pertaining to the management of waste tyres under Section 24B of the Environmental Conservation Act (ECA), Act No. 73 of 1989.National Water Act

A water use license application (WULA) in terms of the National Water Act (NWA), Act No. 36 of 1998, will not be required.

1.2.6. Municipal Regulations and Schedules

The proposed project will be subject to the Regulations and Schedule of the MIDVAAL Local Municipality in terms of water and air pollution control.

1.2.7. Summary of authorisations required

- Section 214(G) Application with the Competent Authority being the National Department of Environmental Affairs (Pretoria)
- Scoping / EIA in terms of NEMA (Act 107 of 1998) with the Competent Authority being the National Department of Environmental Affairs (Pretoria)
- Waste License Application in terms of GNR718 of NEM:WA (Act 59 of 2008) with the Competent Authority being the National Department of Environmental Affairs (Pretoria)
- Atmospheric Emissions License in terms of Section 5 of NEM:AQA (Act 39 of 2004) with the Competent Authority being the MIDVAAL Municipal Health & Environment Unit.

1.3. PYROLYSIS; GASIFICATION AND INCINERATION

1.3.1. The difference between Pyrolysis; Gasification and Incineration

The proposed project is for a used rubber pyrolysis plant in the Midvaal Municipal area.

It is important to understand the difference in process and the products that are formed when waste such a rubber undergoes pyrolysis; gasification and incineration.

Figure 1: Comparison between Pyrolysis; Gasification and Incineration

PYROLYSIS	GASIFICATION	INCINERATION
DEFINITIONS	DEFINITIONS	DEFINITIONS
“Decomposition of a chemical by extreme heat.” “Decomposition” meaning “The breakdown of matter, changing the chemical makeup and physical appearance of materials.” “The thermal degradation of waste in the absence of air to produce char, pyrolysis oil and syngas.”	“Conversion of solid material such as coal into a gas for use as a fuel.”	“A treatment technology involving destruction of waste by controlled burning at high temperatures; e.g., burning sludge to remove the water and reduce the remaining residues to a safe, non-burnable ash that can be disposed of safely on land, in some waters, or in underground locations.”
PRIMARY PRODUCT:	PRIMARY PRODUCT:	PRIMARY PRODUCT:
• Pyrolysis oil/diesel; • Carbon black / char; • Gas to produce electricity; and Steel (tyres).	• Synthesis gas to produce electricity, • Combusted with air to make steam which is then used to produce electricity; or • Sold as a gas fuel similar to natural gas”.	• Heat to produce electricity • Gas • Ash

1.4. CLASSIFICATION OF TYRES

In terms of the Minimum Requirement for Waste Disposal by Landfill, tyres are not listed and classified as a hazardous waste.

Hazardous wastes are grouped into:

- inorganic waste,
- oily waste,
- organic waste,
- putrescible” organic waste,
- high volume/low hazardous waste and
- miscellaneous waste.

The Minimum Requirements also states that "general waste is a *generic term* for waste, that because of its composition and characteristics, does not pose a significant threat to public health or the environment if properly managed".

Tyres are also not listed under the SANS 10228 (Classification of Hazardous Substances) and do not fit the profiles listed in the 9 classes of hazardous substances.

According to the Draft Waste Classification and Management System (GNR 718 of 23 July 2010), published for public review, tyres will be classified as a General Waste, GW54 as soon as it is approved and promulgated.

It can therefore be concluded that tyres are not classified as a hazardous waste and should be disposed of and treated as a general waste.

1.5. METHODOLOGY

The process for the project consists of three (normally two) phases:

- Section 24(G) application and DEA Directive
- The Scoping Phase
- The EIA / Impact Assessment Phase

The primary aim of the Scoping Phase is the identification of the parameters for the planning process as well to highlight issues that will require investigations during the EIA phase of the proposed project.

The outcome of the Scoping Phase will guide the way forward for the EIA Phase – and will clearly define the Plan of Study that will be required for the purpose of undertaking the environmental assessment for the proposed construction of a tyre pyrolysis plant. The findings of the Scoping Phase will be addressed in the Environmental Impact Report.

The EIA Phase is to assess the environmental impacts, record the findings and to represent it in a report for decision making authorities. During the Assessment Phase, the various environmental impacts are analysed and assessed in terms of their significance. Considerations will be given to the social, economic and biophysical components of the study and incorporated into the final assessment of the EIA Phase.

1.6. CONTENTS OF THE REPORT

Section 1:	Background to the Proposed Tyre Pyrolysis Plant
Section 2:	Need and Desirability of the Project
Section 3:	Locality and Nature of the Activity
Section 4:	Biophysical Environment
Section 5:	Socio-Economic Environment
Section 6:	Alternatives
Section 7:	Potential impacts – Construction Phase
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Section 9:	Investigations
Section 10:	Public Participation Process
Section 11:	The Environmental Assessment Practitioner
Section 12:	Environmental Management Programme
Section 13:	Conclusions and Recommendations

2. SECTION 2

2.1. NEED AND DESIRABILITY OF THE PROJECT

2.1.1. Definition of Need and Desirability

The DEA (2010) Guideline on Need and Desirability, EIA Guidelines and Information Document Series defines Need and Desirability as follows:

“... the need and desirability of a project refers to the type of development proposed, divided into two components i.e. time and desirability to place ...”

2.1.2. Origin of the Plot 110 tyres

Over the years the previous owner of Plot 110 Walker Fruit Farms (the late Mr Nienaber) accumulated a vast amount of used tyres. Estimates are that the property currently houses between 2.3 million and 2.7 million used tyres of different sizes.

The tyres on Plot 110 have been stacked in large heaps with access roads amongst them for access and safety control.

Figure 2: Aerial photo (2005) of Plot 110 Walker Fruit Farms



Figure 3: Aerial photo (2006) of Plot 110 Walker Fruit Farms



Figure 4: Aerial photo (2010) of Plot 110 Walker Fruit Farms



2.1.3. Transgression of regulations

The late Mr Nienaber left his property and the tyres to his children. After his death GG #31901 GR149 dated 13 February 2009 was promulgated. The children did however not comply with the new regulations with the result that the storage of the vast amounts of used tyres are today illegal.

2.1.4. Department Directive

The illegal storage of used tyres on Plot 110 Walker Fruit Farms came to be known as the “Nienaber Tyre Dump at Midvaal”. In 2011 the National Department of Environmental Affairs issued notice to the Nienaber family that a solution to the tyre dump must be sought and brought to finality. Because of the nature of the

dump and because of its existence a standard process of Scoping and EIA could not be considered. The DEA insisted that the route of a Section 24(G) Application should be followed.

2.1.5. Suggested solution for the “Nienaber Tyre Dump at Midvaal”

The family of the late Mr Nienaber decided to investigate the possibility of acquiring a “tyre pyrolysis plant” and having such installed and operated on Plot 110 Walker Fruit Farms in order to ensure that the “inherited tyre dump” problem is solved to the satisfaction of the authorities; adjacent land owners and the Nienaber family.

A supplier of Tyre Pyrolysis Plants in China was sourced and the acquisition of a plant negotiated. A site visit and plant inspection was undertaken during December 2011 (in China) to ensure operational capabilities as well as observing of possible pollution threats.

After the aforementioned actions the Nienaber family intimated that they wished to pursue the installation of a tyre pyrolysis plant in Midvaal and have subsequently commissioned a full Scoping EIA in order to bring into compliance the dump as well as provide an answer to the problem.

Although the suggested plant locality is within the Walker Fruit Farms area and although the plant development falls outside the infrastructure development of the Municipality, the process of pyrolysis will address waste management and minimisation issues within the Midvaal Local Municipal area through the reduction and recycling of used tyres from within the local environment.

The project will also require an Atmospheric Emissions Licence for the release of flue gas into the atmosphere and will require management and monitoring systems ensuring compliance with the minimum emissions standards and framework of the municipal and provincial air quality management.

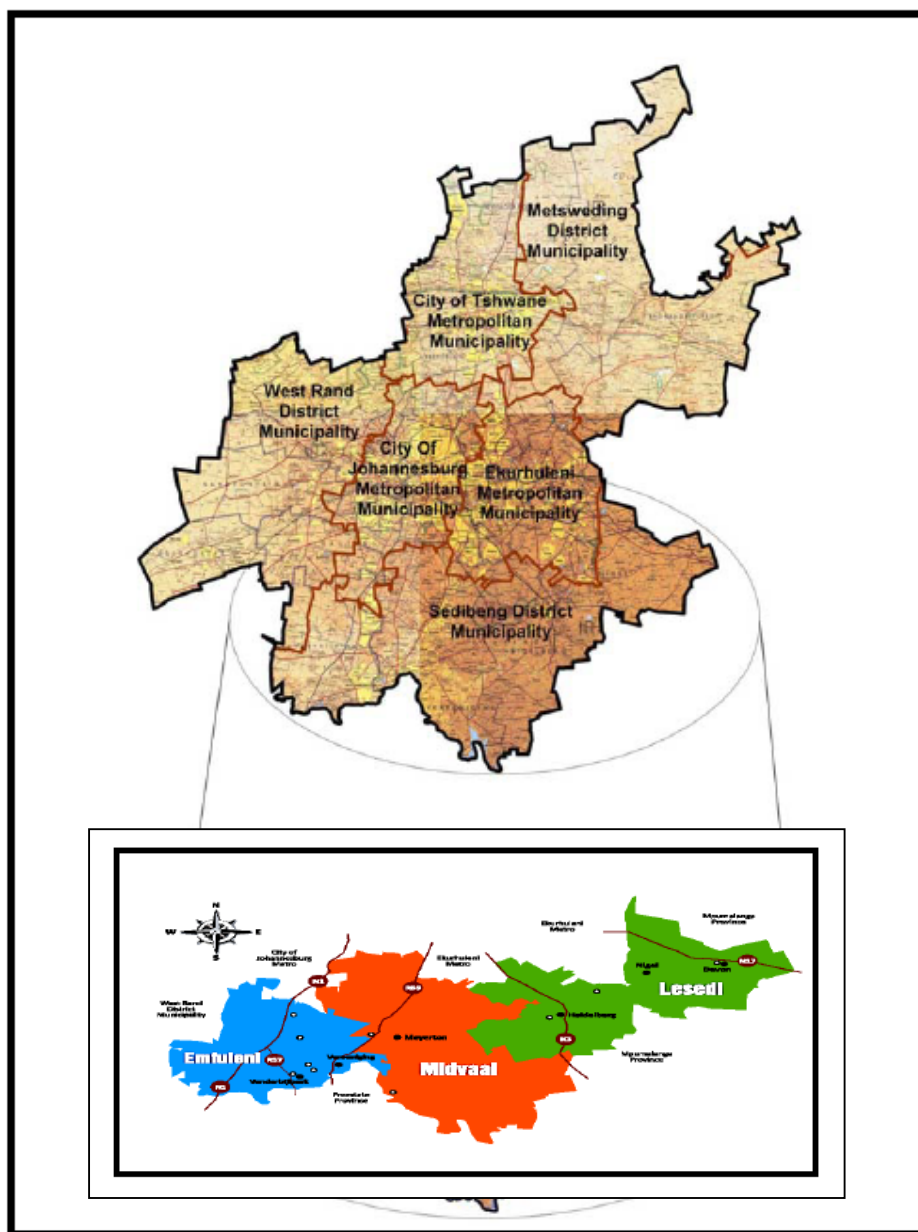
3. SECTION 3

3.1. LOCALITY OF THE ACTIVITY

It is proposed to construct and operate the Tyre Pyrolysis Plant and its associated infrastructure on the property known as Plot 110 Walker Fruit Farms, Midvaal Local Municipality.

The property is located at GPS co-ordinates 26° 31' 00.87"S 27° 59' 43.90E at an elevation of 1514m above sea level..

Figure 5: Midvaal municipality in relation to other adjacent municipalities



3.2. MIDVAAL LOCAL MUNICIPALITY AREA OF EXTENT

The total geographical area of the Midvaal Local Municipality measures 1 728 square kilometres. Midvaal LM is one of three municipalities situated within the Sedibeng District Municipality.

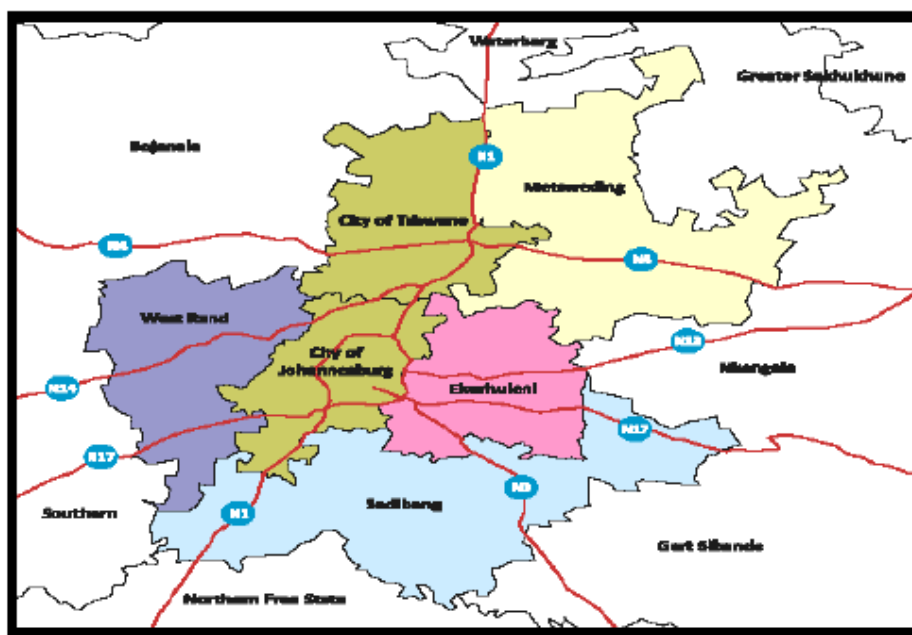
Sedibeng DM measures 4 185 square kilometres, whereby Midvaal LM make up 41.29% of the total area of the Sedibeng District Municipality.

Figure 6: Size of each municipality within the Greater Sedibeng District Municipality

Sedibeng District Municipality	Emfuleni Local Municipality	Midvaal Local Municipality	Lesedi Local Municipality	
km²	4,185	968	1,728	1,489

Total size of geographical area (Source: Global Insight, 2009)

Figure 7: Sedibeng in relation to its surrounding metro areas



The property is located at Plot 110, South Road, Walker Fruit Farms, Meyerton / Midvaal.

This type of undertaking and activity is regulated, amongst others by the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) and Environment Impact Assessment Regulations promulgated under the Act, Regulations R543; R544; R545; R546 and R547 (dated 18 June 2010). The Act and Regulations require that an Environmental Impact Assessment (EIA) study be undertaken, by an Independent Environmental Practitioner.

3.2.1. Site Alternatives

Alternatives for the location of the Tyre Pyrolysis Plant must be considered. These sites are:

Site Alternative 1

Located at Plot 110 Walker Fruit Farms

GPS co-ordinates 26° 31' 00.87"S 27° 59' 43.90E

Elevation : 1514m above sea level

Zoning: Agricultural Small Holding

Site Alternative 2

Located at 82 Graniet Street, Henley-on-Klip
GPS co-ordinates 26° 30' 17.55"S 28° 03' 05.12"E
Elevation : 1507m above sea level
Zoning : Business 3

Site Alternative 2 lies approximately 6km east of Site Alternative 1

Figure 8: Locality of Plot 110 and 82 Graniet Str



3.3.1. Description

Pyrolysis is a process of thermal breakdown of a substance in the absence of oxygen (vacuum) and is very different to incineration or gasification. By employing the use of a pyrolysis reactor around 10 tons of waste tyres can be thermally reduced (**not incinerated**) to:

- diesel-type bunker fuel/oil
- carbon char/black
- non-condensable gas and
- recyclable steel (found within the tyre)

The plant employs a completely sealed process unit, with a reactor that is isolated. Carbon Black is stored in an underground bunker from where it is packaged for removal.

Used tyre stocks are already on site (Site Alternative 1). Should the plant be located at Site Alternative 2 then tyres will be brought on site on a daily basis. Stock comprising of at least a 6 days supply will be kept on site as a reserve stock. The total stock pile will however not exceed 500 m³ as specified by the GNR 718 of the NEM:WA.

3.3.2. Composition of used tyres

A typical composition of used tyres are:

Figure 9: Composition of used tyre rubber

Substance	Percentage
Natural and synthetic rubber	60 – 65%
Carbon Black (CB)	29 – 31%
Zinc Oxide (ZO)	2 – 3%
Sulphur (S)	1 – 2%
Extender oil and additives	2% each

(Source: Teng, H Serio, MA and others *Processing of Used Tyres into Activated Carbon and Other Products Ind. Eng. Chem. Res.*, 34(9) 3102-3111)

3.4. THE PROCESS

3.4.1. Receiving of used tyres

- All tyres will be delivered to the site for processing. Loads will be weighed in order to ensure that complete batch sizes are ready for processing
- All tyres made ready for process will be stored on cemented surfaces

3.4.2. Storage of tyres

- Tyres will be stored in accordance to the Waste Tyre Regulations (GN R149 daed 13 February 2009)
- All tyres will be stacked on storage pallets in a central area where the stock of at least 5 – 7 days may be accumulated
- All tyres stored will be cleaned prior to stacking to avoid dirty run-off water forming
- All tyres to be used will be cut up into smaller pieces prior to being loaded into the reactor chamber

3.4.3. The Pyrolysis Process

- The reactor chamber will be loaded by hydraulic loader to ensure a firm stacking and avoid space being underutilised
- Heating will initially be by LP Gas until the pyrolysis process generates its own gas. This gas will then be piped to the heating chamber and used as heating fuel
- All off gas will pass through a water operated scrubber system to be cleaned prior to release. Due to the heat steam will be formed that will be released
- In the condensator the gasses will be turned back to form oil
- The system will not use flare-off to rid the system of unwanted gasses
- Carbon Black will be dumped in an underground bunker from where it will be moved mechanically to be bagged for use off site
- Steel from the tyre casings will be removed and sold off as scrap metal.

Figure 10: The pyrolysis process – schematic presentation of a system



3.4.4. Products of the Pyrolysis Process

- **Carbon Black** – will be moved from the reactor chamber into an underground bunker from where it will be mechanically lifted to be bagged and sold off. Carbon Black is used extensively in the rubber; plastics and ink industries.
- **Pyrolysis Oil** - Condensable gases are passed through the condensers and form oil. These oils are sought after as industrial or heating oil. Further processing will be required to yield high value oil or fuel. The oil will be stored in an above ground storage facility.
- **Steel** - The steel is the high quality steel rings that make up around 10% of the total make-up of tyres. Steel will be stored in skips on-site in a designated area for regular collection by a reputable scrap metal dealer.
- **Gases** - Condensable gases passed through the condensers and are condensed into oil. The non-condensable gases are re-routed back to the heating chamber and are used to heat the process and replace the use of LPG gas. After burning the off gas is cooled, scrubbed and released into the atmosphere.

NOTE: Gases will only be flared in the unlikely event of an emergency being detected by the computerised control system.

3.4.5. Tyre Pyrolysis Waste Streams

- **Waste Water** – All gasses are scrubbed and will produce a sediment in the waste water on site. This sediment will be removed on a regular basis and used back into the heating process of the pyrolysis process. A secondary condenser will turn steam back to water that will be reused in the process. Waste water containing mud and sand from the tyre washing bay will pass through a standard oil trap and holding receptacle. Such sediment will be disposed of by an approved waste company. All water will follow a close looped system in order to facilitate optimal reuse practices.
- As part of the final EIR Report a full storm water and process water flow management plan will be included.
- **Emissions** – an assessment of all emissions into the atmosphere will be undertaken. Dispersion of odour and pollutants of concern will be assessed for their potential impact, direct indirect and cumulatively.
- **Alternative electricity supply** – should the power supply from ESKOM fail, an alternative mobile generator set will provide back-up power. The cost of running such a unit is economically and environmentally unacceptable.

3.4.6. Construction Method

The tyre pyrolysis plant requires a sturdy cement slab as foundation. As such it is envisaged that the required slab will be covered with a shed roof structure. The entire plant will be pre-constructed and technically checked in China before being taken apart and shipped to South Africa.

3.4.7. Access to the Site

The Hannes van Niekerk express motorway provided access to both the suggested sites. Site Alternative 1 is finally reached via a series of dirt roads while Site Alternative 2 is reached via Graniet Street in Henley on Klip – a surfaced road.

4. SECTION 4 – THE BIOPHYSICAL ENVIRONMENT

4.1. ENVIRONMENTAL MANAGEMENT

The Midvaal Local municipality area has faced a significant human activity sprawl in the northern part associated with industrial development and associated urban development and sprawl. Such activities relatively have a huge negative impact on the natural unspoilt environment of the region. The local authority acknowledges that, while development is vital for the economic well-being of the area, maintaining an environment that is natural and ecologically sound is vital for the social well-being of the communities in the area.

Water bodies will be managed to maintain the natural habitats of vertebrates and invertebrates by preserving an adequate buffer zone around them in line with the requirements of the DWAF and the GDARD. Pollution will be monitored on a regular basis and pollution sources will be managed in conjunction with the DWAF and the GDARD. Natural floodplains and water courses will be protected and any development in the vicinity of the rivers and water bodies in the area will be assessed in terms of the relevant legislation and regulations of the DWAF and the GDARD.

The MLM area is also largely characterised by Category I and II Ridges which have been identified by the GDARD as ridges requiring special attention. Any proposed development activities in the vicinity of areas with ridges will be assessed in terms of the GDARD's Ridges Policy.

The Strategic Environmental Management Plan (SEMP) is the product of the integration of the baseline information layers as contained in the Status Quo section of this report, after assessing it in terms of current policies and consultations with key stakeholders. During this stage of the process baseline information was transformed into secondary information that attaches value to different features which culminated in Environmental Control Zones (ECZs).

The main purpose of the Strategic Environmental Management Plan (SEMP) is to establish control zones, which indicate the environmental suitability of certain land parcels to accommodate various types of land uses or activities. The SEMP is not prescriptive in terms of land use and does not indicate which land uses must occur in which zones. Rather, the SEMP indicates specific minimum environmental requirements, through management parameters, which have to be met satisfactorily before approval of a development application could be considered. Similarly the SEMP indicates the level of assessment expected and required in the specified zone(s). The SEMP should also be used as the environmental input for the further review and development of the IDP and SDF processes.

The SEMP serves to provide guidance in terms of satisfying the requirements of the environmental management mandates of GDARD and the MLM, while it does not impose land uses on the planning mandate of the MLM.

The most significant constraints for development in the area include:

- The occurrence of Nature Reserves, specifically the Suikerbosrand Nature Reserve;
- Significant natural open space connectors;
- Several established conservancies in the area;
- The occurrence of Category I and Category II Ridges;
- Occurrence of large areas of medium and high potential agricultural land;
- Potential pollution sources from local and regional industrial activities, waste facilities, mining activities and irrigation agriculture;
- Constraints to development due to the position of the urban edge; and
- Development activities in the Vaal Dam Area.

There are clear indications from all sectors in the study area that there is a significant demand for development land, especially along the R59 freeway and the southern part of the study area, at the Vaal Dam, lying in an area bound by the R54 and R549

4.2. CLIMATE

The climate of Midvaal is characteristic of the Highveld. It has warm summers with showers and thunderstorms commonly occurring in the late afternoon with rainfalls that vary between 700mm and 800mm. The area's Highveld climate contributes positively towards the increase of its agricultural and tourism potential. The winters are cool and dry.

4.3. ATMOSPHERE

Air pollution is a major concern as a result of Midvaal's locality in southern Gauteng. Midvaal is situated south of the mining belt in Johannesburg, which results in dust being blown over the area from the mining activities. Further causes of air pollution are the industries situated in Johannesburg, the East Rand and within the Sedibeng District, as well as smoke from open fires.

An Environmental Management Plan for the Midvaal Local Municipality was formulated in conjunction with Gauteng Department Agriculture and Rural Development (GDARD previously known as Gauteng Department of Agricultural, Conservation and Environment (GDACE)). The Environmental Management Plan for Midvaal was approved and is currently being implemented.

4.4. TOPOGRAPHY

Sedibeng District's topography is gentle with the elevation above sea level varying from 1500m to over 1800m at the top of the Suikerbosrand which is the highest point in Gauteng. The major topographical highest points in the east and north of the districts are the Ventersdorp lavas and Witwatersrand quartzite. The gentle slopes make it possible to develop an integrated, cost-effective urban environment. The topographical features provide the potential for the introduction of passive recreational activities. The ridges are considered environmentally sensitive and any new development should be carefully considered.

4.5. HYDROLOGY AND DRAINAGE

The Midvaal area is located south of the sub-continental divide (viz. the Witwatersrand Ridge). Rain falling on the southern part of the divide, flows via the Vaal River into the Atlantic Ocean, while rain falling north of the divide flows via the Jukskei and Crocodile Rivers into the Indian Ocean.

The Vaal River Basin is the main hydrological system in the Sedibeng region and the tributaries of this river are non-perennial as a result of the dry weather in the area. The Vaal Dam is presently the most important source of water in Gauteng and has a water capacity of 2 536 million cubic metres. It supplies the mining, industrial, agricultural and other activity sectors in the region and in Gauteng as far as Rustenburg.

A problem facing the hydrological system is the polluting of the water from urban and industrial run-off.

The Klip River is an important feature, landscaping the Midvaal area and currently provides a habitat for birds and small animals. The river course could also be used for various recreational activities and tourist attractions if developed in a sustainable and responsible manner.

At present the quality of the water is a major concern as:

- ❖ Three municipal sewerage effluent plants as well as ERWAT dispose water into the river;
- ❖ Water from the outflows from stormwater systems is disposed into the river;
- ❖ The outflow from sewerage works also disposes into the river; and

- ❖ The spillage of sewerage into the system.

This significantly increases the flow rate of the river and leads to the erosion of riverbanks, canalization, loss of surrounding wetlands and a reduction in the retention period in reed beds and wetlands necessary for purification.

People use the river as a source of water and recreation. Quality checks on the water are only done on request if someone reports foul odours, dead fish or other concerns. This could cause a major problem and may even lead to a cholera problem. A management system for the Klip River needs to be formulated and implemented.

4.6. FAUNA AND FLORA

The region falls within the Grassland Biome, which covers the high central plateau of South Africa. Approximately one-third of the mammal species in South Africa occur in the biome.

Most of the area is covered by Cymbopogon Themeda Veld Type 48b, Northern Variation. Setaria grass species and Themeda and Eragrostis species dominate this veld type. Naturally occurring trees and shrubs are limited to specialised niches, such as riverine fringes.

The North-Eastern area is covered by Babenveld type 61 b, which is underlain by the Venterdorp lava. This is a sour, unpalatable grassveld, which typically includes Trachypogon, Tristachya, Setaria and Eragrostis grass species.

Trees and shrubs, such as Protea and Caffra, Acacia Caffra and Celtis Caffra African, are common along rocky hills and ridges.

No information is currently available on endangered species or biodiversity in the area.

4.7. SENSITIVE AREAS

The following information was received from the Gauteng Provincial Government : Gauteng Department Agriculture and Rural Development (GDARD) indicating the various sensitive areas located throughout the Midvaal area.

o **Confirmed Red Data Species**

Red Data species have been identified and are considered to be endangered. The confirmed species are species that have been identified in the field and of which samples have been captured for reference and scientific purposes.

The specific specie may not be named for safety and conservational purposes.

Bird Species:

Identified in the Suikerbosrand Nature Reserve.

Habitat Models

The identified areas are considered to be suitable habitats for various plant, mammal and invertebrate

species but have not yet been thoroughly investigated.

Plant Habitat Model:

An area was identified in the Suikerbosrand area as well as the Vaal Marina area.

Ridges and Wetlands

Wetlands occur on soil structures that are inundated with water for a significant period of time in a year. They occur along non-perennial rivers that are dry for a part of the year

The ridges should be protected as part of the Open Space System as well as for potential archaeological finds.

Ridges: Ridges are dispersed throughout the Midvaal area mainly in a North-South direction.	Wetlands: Several wetlands are found throughout the Midvaal area and are mostly located along non-perennial rivers
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Mammal Habitat Model

An area was identified in close proximity to the central western border of Midvaal.

Invertebrate Habitat Model

Small groups were identified throughout the Midvaal area. The biggest concentration was found in the Suikerbosrand Nature Reserve. This area was identified in the north western “corner” of Midvaal.

River Systems

The Klip River watercourse drains into the Vaal River, which is the main water source for Gauteng.

It is important therefore that the quality of the river is maintained and taken care of. The river also has tourism potential and is a habitat for various birds and small animals.

4.8. GEOLOGY

There are 3 distinct geological areas in Midvaal:

- ❖ **Timeball Hill Formation.** Pediment from granite covers the thick shale. Schale is not very permeable and limits the use of pit latrines in the area. The formation is known for its properties for brick making (an opportunity that should be further investigated).
- ❖ **Vryheid Formation.** This formation consists of sandstone and schale that erodes into clay.
- ❖ **Klipriversberg Group.** This is a sub-humid, dry zone implying that residual soils are formed during erosion with expansion possibilities.

There are numerous shallow and easily accessible coal deposits in this area that have been prospected but not yet mined. Most of the good coal deposits occur in the lower lying areas, but are limited in extent, therefore the prospect for a single large mine is remote.

The development of coal mining in this area depends almost entirely on sustained local demand from nearby power stations and weighing this option against the opportunity offered by the tourism industry, with a less significant impact on the natural environment.

The Midvaal area is also known for dolomite which restricts possible densification or intensifying of land uses.

4.9. CONSERVANCIES

4.9.1. What is a conservancy?

A conservancy is a vehicle for community-based conservation. It is a registered, voluntary association of land-owners and land-users who decide to cooperatively manage their natural resources in an environmentally sustainable manner without necessarily changing the land-use of their properties.

(Community-based means communities within the conservancies and surrounding areas).

Conservancies have to deal with a multitude of problems: illegal mining activities, dumping of refuse, overgrazing, veldfires, game poaching, ill-planned Golfing estates, theft of plants and rocks, tree-cutting, alien vegetation - to name a few.

The momentum that the GCA has created is a sign that people at grassroots level need to network and support one another. The concept has moved way beyond the old idea of conservation as putting up a fence, putting in game and (preferably) removing people out of the equation

4.9.2. Heritage Sites

It is important to mention here that heritage sites have been identified within the conservancies of the Midvaal and are being monitored by them. As mentioned in the NACSA constitution conservancies are not there to only conserve our natural resources but also the heritage of all the people of South Africa.

4.9.3. Importance of grasslands (Dominant Habitat in Midvaal)

As Midvaal is predominately a grassland habitat it is important to ensure that they are recognised and protected. There is a wide misconception that grasslands are less important, ecologically than forests or indeed single trees!

Primary grasslands have become an endangered habitat through irresponsible property development and lack of proper land management. Our primary grasslands (that is, grasslands that have never been subject to any soil disturbance such as excavation, ploughing or soil erosion) carry relatively high to very high biodiversity, and often include rare, vulnerable or endangered species of both flora and fauna. Up to 80% of South Africa's grasslands have already been irreversibly transformed by forestry, agriculture and urban development. Less than 2% of the remaining 20% is under formal protection! It is within this context that we must manage these diminishing habitats responsibly and sustainably.

4.9.4. Conservancies in the Midvaal Area

There are eight Registered Conservancies situated in the Midvaal Area.

a) HENLEY-ON-KLIP

- a. Established September 1998 / 6894Ha / Rural – Urban Conservancy
- b. Conservation Status : Irreplaceable sites in the South and West and important sites in the east bordering on Suikerbosrand Nature Reserve by *GDACE Conservation plan 2* :
- c. Objectives : The Klip River is a major concern as it has been recognised as one of South Africa's most polluted rivers. The Conservancy monitors water quality and regularly performs river cleanups
- d.

b) THORNTREE CONSERVANCY

- a. Established : 1 April 1999 / 4571.68Ha / Rural Conservancy
- b. Conservation Status : More than 50% of this conservancy has been recognised as important and irreplaceable by *GDACE Conservation plan 2*
- c. Objectives :Thorntree Conservancy was established to look after the environmentally sensitive areas such as koppies situated in the middle of the conservancy which have been declared irreplaceable sites by *GDARD conservation plan 2*. The conservancy monitors red data plants an invertebrates, and the Walkerville / DeDeur landfill site on a regular basis.
- d. Awards / Achievements : Thorntree Conservancy received:
 - i. The Meerkat Award for Best Overall Performing Conservancy in Gauteng in 2004 and 2005;
 - ii. The EWT Gold award for Best Biodiversity practice in a Gauteng Conservancy in 2006, and
 - iii. The Mail and Guardian Greening the Future Merit Award for Environmental Practice in the Not-for-Profit Organisation Category in 2006

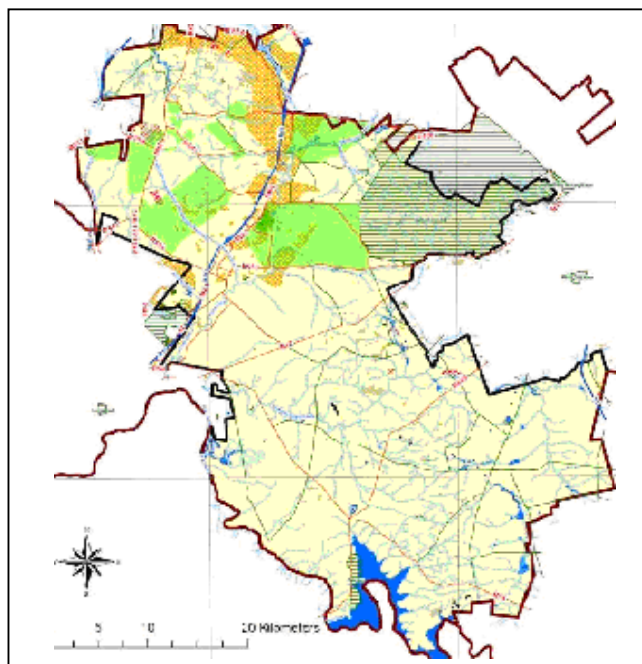
c) APPLE ORCHARDS

- a. Established : 12 October 2002 / 1417.2Ha / Rural Conservancy
- b. Conservation Status : A few important sites in the north of the Conservancy were recognized by *GDARD Conservation Plan 2*
- c. Objectives : The community of Apple Orchards are recording data on indigenous plants and animals, as well as information of challenges facing the human inhabitants of the Conservancy.

Figure 11: Other Conservancies

Name	Established	Size	Type
Kliprivier Suikerboschrand	1 March 2003	2949.86Ha	Rural Conservancy
Welverdiend Triange	25 November 2005	1499.95	Rural Conservancy
Klipkraal	9 January 2006	4200.00	Rural Conservancy
Drumblade	To be confirmed	To be confirmed	Rural Conservancy
Sicelo Shiceka	18 June 2005	Unavailable	Informal Settlements

Figure 12” Conservancies (in green) within the Midvaal Municipal Area



4.10. WATER POLLUTION

Sedibeng including Midvaal LM is faced with serious water pollution challenges in river systems and water bodies, notably the Kliprivier and Blesbokspruit which are polluted from runoffs from industrial areas, townships and waste water treatment works.

The Kliprivier is one of the most polluted rivers in the Sedibeng District as a result of mining and industrial activities in the upper catchments, outside the borders of the Sedibeng. (Source: Strategic Environmental Focus 2008).

The state of Midvaal LM’s surface and ground water quality is influenced by activities within and beyond the boundaries of Midvaal LM. External pressures emanating from mining and industrial activities on the East Rand (Germiston, Boksburg, Brakpan and Springs), are major contributing factors to the current state of surface and ground water quality in Midvaal area.

The largest internal pressures are limited to the industrialised and urban areas in Meyerton. Rural areas in Midvaal where agricultural activities dominate, have a lesser, but nonetheless important, influence on the surface and ground water quality.

4.11. WASTE

Sedibeng’s history with regards to waste management is not that different to the South African situation in general. The issue of waste as with most local, provincial and national departments has many facets including economical, physical, social and political.

Waste management has traditionally taken place on an ad-hoc basis to meet the current needs, with very little foresight into the future needs of an ever-increasing population. Identification of landfill sites has generally taken the form of unplanned site location with little or no thought of design to reduce potential impacts to the environment, neighbouring communities, etc.

With the development of the minimum requirements by the Department of Water Affairs and Forestry (DWAF) for waste disposal by landfill the identification of landfill sites now take a much more pro-active approach in reducing further negative consequences related to an activity such as planning and design.

Local authorities in Sedibeng have indicated that they have neither sufficient funding nor adequate trained staff, to effectively plan and execute their waste management functions in a sustainable manner.

Communities have also not been involved in the identification of the landfills, which has resulted in community resistance and/or limited support. The level of services varied by area and in particular the previously disadvantaged areas have been left without proper waste management services.

4.12. AIR QUALITY

Sedibeng District Municipality is generally characterized by poor air quality, particularly within the Emfuleni and Midvaal Municipalities. A series of studies undertaken over the years have clearly indicated the negative impact of pollution on the health of people living and working in the area. As a result the Vaal area (including Emfuleni and Midvaal) was declared a Priority Area in terms of the National Environmental Management: Air Quality Act in 2006.

The proposed Highveld Priority Area will include Lesedi along with areas of Mpumalanga, effectively making the whole Sedibeng region a priority area in terms of known ambient air quality problems. Recent data from Department of Environmental Affairs and Tourism's (DEAT) air quality monitoring stations in the Vaal shows particulate matter as being the key problem, with levels well over international standards. (Source: EPoA Version 0.2, 2nd October 2007).

4.13. MAJOR PROVINCIAL AND ARTERIAL ROADS (DEVELOPMENT CORRIDORS)

The Midvaal Local Municipality has an extensive road network at both the national and regional level, including the R59 and the R82, which traverse the district and connect with the Ekurhuleni and City of Johannesburg Metropolitan areas. All major routes are predominantly on a North-South axis and tend to converge on the City of Johannesburg. Regional main roads operating on a district tend to radiate out from or converge on the commercial centres of Meyerton. The R42 provides the main East-West linkage across the district.

The following identified roads provide important linkages and should be optimized to link historically disadvantaged communities to areas of major employment.

These include:

- **Provincial Route R42** – this is the main East-West linkage through the Midvaal LM, stretching from the N1 at Loch Vaal in the South-West through Vanderbijlpark, Vereeniging, Heidelberg, and Nigel to Vischkuil/Endicott in the North-East onwards towards Delmas in Mpumalanga.
- **Provincial Route R59** – the main North-South linkage through the Midvaal LM area, linking Vereeniging/Vanderbijlpark with Meyerton and northwards towards Alberton in Ekurhuleni.
- **Provincial Route R82** – a secondary North-South link, linking Vereeniging with De Deur and Walkerville and Johannesburg towards the North.

5. SECTION 5 - SOCIO-ECONOMIC ENVIRONMENT

5.1. SPATIAL COMPOSITION AND LAND USES

The main land use within the Midvaal Local Municipality is briefly discussed hereunder

5.1.1. Proclaimed Towns

The table below indicate proclaimed town within the Midvaal LM area of jurisdiction, which include Residential, Industrial and Commercial Townships.

Figure 14: Residential; Industrial and Commercial Township area

Townships	Henley-on-Klip	Riversdale
De Deur Estates	Lakeside Estates	Rothdene
Duncanville X3	Mamello	Sybrandt v Niekerk Park
Eikenhof (Portion)	Meydustria	Sicelo
Eye of Africa	Meydustria X2	Vaal Marina
Golfpark	Noldick	Vaalview Settlements
Highbury	Noldick X1	Witkop Industrial
Highbury X1	Ohenimuri	Witkop (Daleside)
Kliprivierdorp (Kookrus)	Randvaal X1	
Klipwater	Meyerton Small Farms	
Meyerton	Risiville	
Meyerton X1; 2; 3; 4 & 6	Risiville X2	

5.1.2. Urban Residential Areas

Residential land use includes both formal and informal residential townships. The defined residential areas within Midvaal LM include: Risiville and extensions, Kliprivier, Riverdale, Golfpark and extensions, Meyerton and its extensions and Henley-on-Klip, which are all situated along the Eastern side of the R59 freeway. Some informal settlements occur along the Western side of the R59 freeway in Midvaal. In view of the above, it is submitted that the majority of new housing developments within the Midvaal LM area over the short to medium term will be subsidy-linked housing schemes initiated with state funding – private sector housing development will play an insignificant role in respect of generating additional infrastructural and community services demands. A possible mix use / residential development located on the North Western part of Midvaal LM area of jurisdiction (Doornkuil) which consist of ±20 000 residential houses (Credit Link and Bonded houses) and associated business properties will contribute to the existing residential fabric of Midvaal.

5.1.3. Industrial / Commercial Developments

There is corridor of industrial activity along the R59 from Kliprivier to the Meydustria area. The most important industry in this area is Samancor. It must be noted that some of the industries in the Meyerton area are heavy/noxious industries and thus potentially have a high environmental impact on the residential areas in close proximity. Commercial activities which can be defined as warehousing, distribution and

transport businesses are found interspersed with industries in all the major industrial areas. An established industrial/commercial industry is Heineken Brewery along the R59 corridor, which is strategically located to boost job creation and employment opportunities in the Midvaal Local Municipality region. North of Heineken Brewery, a new Commercial Park (Klipriver Business Park) has been approved and is currently being developed. This Commercial Park is envisaged to be similar to that of Longmeadow Business Park (located in Modderfontein / Edenvale) and Linbro Business Park (situated north of Buccleuch) along the N3.

5.1.4. Retail / Business (CBD)

Retail/business is mostly concentrated in and around the existing Meyerton Central Business District of Meyerton, as well as some suburban / local supportive shopping centres. This land use makes out only ± 1 % of the total area of Midvaal local Municipality.

The CBD's of Midvaal show significant signs of urban decay, however during 2008/2009 and 2009/2010 the CBD phased upgrading project commenced, whereby Phase 1 (Truck Stop) located West of Meyer Street was completed in 2008 and Phase 2 (CBD Upgrade) along Loch Street between Meyer Street and Venton Street was completed in November 2009. Phases 3 and 4 will conclude the upgrading project (Phase 2-4 relates to the beautification of the CBD).

5.1.5. Rural Residential (Agricultural Small Holdings)

The rural settlement pattern in the district is characterized by a large number of small holdings/small farms settlements ranging from 1 – 5 ha properties located around the fringes of the urban areas. Diverse land uses are found on the agricultural holdings, ranging from rural residential, through small scale farming to extensive, informal industrial and commercial activities. A relatively large proportion of the agricultural holdings are vacant.

5.1.6. Commercial Agricultural

Commercial agriculture takes up the largest area within the Midvaal LM area. Agricultural activity in Midvaal LM area is dominated by large scale commercial farming operations [crop production including maize, grain, sorghum, wheat, soya and dry beans, ground nuts, sunflower seeds and vegetables, and animal production including milk, beef, mutton and lamb, eggs and poultry].

Midvaal LM is a very important resource to Gauteng in terms of food production, and the protection of Agricultural land should be taken into consideration in the spatial planning of the area.

The performance of the agricultural sector is very dependent on climatic conditions and may fluctuate from year to year. The agricultural sector does however present opportunities for downstream economic activities and job creation in terms of further processing of agricultural produce.

5.1.7. Vacant Land

The provincial eLand decision support system indicates that there is ± 98000 ha of developable vacant land situated in the Sedibeng District. ± 4900 ha of this developable vacant land is situated within the urban

edge as currently demarcated by Gauteng Province. A more detailed vacant land audit was undertaken within the urban edge as part of the SDF exercise. The demarcated urban edge amounts to ±6220 ha for the whole of Sedibeng, of which 1085 ha [17,5%] is situated in Midvaal Local Municipality.

The Figures below indicate that there is enough vacant land within the current urban edge to accommodate substantial future urban development within the Midvaal Local Municipality. (Source: Sedibeng SDF 2009)

5.2. SOCIO-ECONOMIC SECTOR

5.2.1. Strengths

The slow population growth rate will relieve the need for housing and social facilities over the long term

5.2.2. Opportunity

A large pool of undeveloped potential workforce exists.

5.2.3. Weakness

A substantial portion of the population (64%), live in rural areas making service delivery very difficult. Low levels of socio-economic development in the rural areas, particularly in terms of literacy, education, primary health, early childhood development as well as adult basic education and training.

5.2.4. Threat

Large, young population (31%), which is indicative of future strain on services. Severe impact of HIV/AIDS on the population and specifically economically active component of the population. The large dependency on the agricultural sector in the economy can be a threat when taking factors like droughts or floods in consideration.

6. SECTION 6 - ALTERNATIVES

The National Environmental Management Act (NEMA) Act 107 of 1998 demands that an assessment should consider alternatives. These alternatives may include, but is not limited to only site selection and technology.

In the case of the proposed Tyre Pyrolysis Plant at Plot 110 Walker Fruit Farms a number of alternatives will be considered in order to assess the potential impacts (short and long term); inputs from surrounding communities; intensity of impacts and duration of impacts.

6.1. ALTERNATIVE 1 - THE NO-GO ALTERNATIVE

The No-Go Opportunity applies to Plot 110 Walker Fruit Farms being left as it is, along with the multitude of tyres on the site. No plant will be erected and the tyres will not be worked away; taken away or removed in any way. The current *status quo* will remain.

6.2. ALTERNATIVE 2 - PLOT 110 WALKER FRUIT FARMS

This alternative will entail the construction and operation of a Tyre Pyrolysis Plant on the said property. The plant will be positioned in such a way as to utilize the actual stock pile of used tyres on Plot 110 Walker Fruit Farms. Once the supply of tyres on this piece of land has been depleted the plant will be taken down and moved to another location where it will be utilized in the conversion of used tyres.

6.3. ALTERNATIVE 3 – 82 GRANIET STREET, HENLEY-ON-KLIP

This alternative entails the construction and operation of a Tyre Pyrolysis Plant on the said property. For the operation to be able to function from this property the tyres currently stockpiled at Plot 110 Walker Fruit Farms will need to be transported across to this property. Once the stockpile of 110 Walker Fruit Farms has been depleted other tyres from within the tyre industry may be sourced for the process.

6.4. ENVIRONMENTAL DECISION MAKING REGARDING THE CORRECT PREMISES

The Environmental Assessment for each of the properties will highlight the positives and the negatives of the plant being operated on either of the properties. Public Inputs are included in the assessment.

Current Public Opinions have already persuaded the applicant to consider Alternative 3 as the preferred Option rather than Alternative 2.

Although the application was originally made for Plot 110 Walker Fruit Farms, it is in the right of the Environmental Assessment Practitioner to declare Alternative 3 as the Preferred Option based on the environmental impact assessment as well as all the other inputs received from the community at large.

7. SECTION 7 - POTENTIAL IMPACTS DURING CONSTRUCTION

In order to implement the best practicable environmental option and in accordance with the principles stipulated in the NEMA it is required that various alternatives be investigated when considering a development which may impact significantly on the surrounding environment. This means that the options will be assessed in such a manner that the alternative which has the most benefit or cause the least environmental damage to the natural environment be chosen. This option also needs to be of such a nature that the capital and social cost incurred will be of an acceptable nature to society.

When investigating alternatives the following aspects are taken into consideration:

- Biophysical Impacts;
- Socio-economical Impacts.

Alternatives are defined as options that will meet the general purpose and requirements of the activity, which may include alternatives to:

- (a) The property on which, or location where, it is proposed to undertake the activity;
- (b) The type of activity to be undertaken;
- (c) The design or layout to be used in the activity; and
- (d) The operation aspects of the activity.

7.1. SOCIO-ECONOMIC IMPACTS

Vehicular traffic will increase during the construction period with the resultant increase in noise levels as well as the amount of traffic. Construction will however be undertaken during normal day light hours (08:00 – 17:00) during the week with no construction on a Sunday or Public Holiday.

The recruitment of labour and procurement of items for the construction of the plant will be sourced locally thus ensuring a positive impact on the local community and business in general.

7.2. ENVIRONMENTAL IMPACTS

The environment is of first and foremost concern during the assessment of any potential impacts. Impacts on the environment during construction can be rated as LOW as the land to be used is already disturbed. The plant, pre-assembled in sections in China, will be positioned on a cement slab. Cement and cement wash water poses the biggest pollution threat during the construction phase.

8. SECTION 8 - IMPACTS DURING THE OPERATIONAL PHASE

Tyre pyrolysis process has the ability to impact on the environment should the entire process not be properly monitored and managed.

The process can be divided into three specific stages i.e.

- Pre-pyrolysis Phase
- Pyrolysis Phase
- Post Pyrolysis Phase

8.1. PRE-PYROLYSIS PHASE

This is the phase where tyres are brought to the site; washed; cut into pieces and made ready for stacking into the pyrolysis chamber. During this phase wash water, contaminated with mud and sand from the tyre washing must be kept separate and allowed to settle in order to remove the mud. Such water may not be discharged into storm water drainage nor allowed to find its way into any water course.

8.2. PYROLYSIS PHASE

During this phase the actual rubber is thermally degraded into pyrolysis oil; carbon black powder and waste steel. Of concern during this phase is the safe containment of all smoke and gas as well as the final carbon black powder. The gas and smoke must be properly condensed back into oil while carbon black powder must be effectively contained in a bunker before being packaged.

8.3. POST PYROLYSIS PHASE

During this phase the pyrolysis chamber is opened and the residue from the process removed. Waste steel from the tyres are collected and may contain carbon black residue. As such the steel must be shaken and stamped to ensure that all carbon black remains behind and that none is allowed to enter the receiving environment. All carbon black powder is also collected in a bunker receptacle for later packaging. During the packaging no carbon black should be allowed to spill into the receiving environment or allowed to be blown into the receiving environment.

8.4. OTHER FACTORS TO BE CONSIDERED

A number of other factors must be considered during the operation phase:

8.4.1. Stormwater

Proper storm water management must be in place to ensure that any storm or flood event does not cause the operation to be a negative impact on the environment. Storm water will be addressed in the Final EIA Assessment.

8.4.2. Fire Management

In any event of fire a proper fire plan and evacuation plan must be in place to ensure the safety of lives and property. Fire has the potential to impact negatively on the environment and as such a properly fire safety plan and evacuation plan must be in place. Fire and fire related impacts will be assessed in the Final EIA Assessment.

8.4.3. *Maintenance and Upgrades*

During maintenance and upgrades work being undertaken may pose environmental risks. Procedures and procedure audits will be required to ensure that maintenance teams operate in safety yet in full knowledge of the environment and protecting the environment. The aspect will be assessed in the Final EIA Assessment.

9. SECTION 9 - INVESTIGATIONS

9.1. INVESTIGATIONS

The Final EIA Assessment will need to take cognisance of a number of additional pieces of information. Some of these may require specialist investigations if it is found that they lack enough information.

Some of the additional information that will be assessed are:

- Traffic Impact
- Noise Impact
- Visual Impact
- Air Quality Impact
- Storm Water Management
- Storage of Diesel
- Storage of Pyrolysis Oil

Any additional information that may be required will automatically be incorporated into the Final EIA Assessment

10. SECTION 10 - PUBLIC PARTICIPATION PROCESS

The main aim of an Environmental Impact Assessment is to assess possible impacts that the proposed project may have on : a) the environment and b) social & economical environment.

One of the requirements of NEMA is that the general public should be informed; should be allowed to raise issues and concerns and also have their input included into the final assessment process. Chapter 6 Section 54 – 57 of the Act (Act 107 of 1998) clearly defines the Public Participation Process to be followed.

10.1. THE SCOPING PHASE

The Scoping Phase is very important as it allows for Interested and Affected Parties (I&APs) to raise issue and concerns; pose questions; receive answers and give inputs. During this phase the following activities are undertaken:

- a) Letters of Notice of Intent to possible I&APs
- b) Background Information regarding the proposed project is distributed
- c) Organs of State are informed of the proposed project
- d) Advertisement is placed in a local newspaper to inform a larger and wider circle of possible I&APs
- e) Site Notice to the proposed property is displayed to inform I&APs
- f) A Public Open Day Information Session / Public Meeting is held to further distribute information and allow for meaningful input; questions and issues to be raised
- g) Focus Group meeting is undertaken to listen to “group specific” issues and questions.

10.1.1. Interested and Affected Party Register (I&AP Register)

A register of all I&APs are kept for future information distribution and mailing purposes. This register also stands as proof of participation in the process.

10.1.2. Issues & Response Report (I&RR)

All issues; concerns; questions and inputs are taken down and ultimately answered. This I&RR forms the basis of further investigations during the EIA Assessment Phase and allows the consultants to ensure that the assessment undertaken addresses all relevant issues; concerns and questions.

10.1.3. Background Information / Letter of Notice

In compliance with the Act, a Background Information Notice / Letter of Notice is distributed to adjacent landowners. This notice informs landowners of the proposed project, give information of public meetings; gives information regarding the registration of issues and concerns as well as give information on ways and means to register and be part of the Public Participation Process.

10.1.4. Advertising

A formal advertisement is placed in a local newspaper to further inform potential I&APs. Such an advertisement is also used to inform the general public of any specific dates of public meetings or focus group meetings. The advertisement also carries the formal departmental project registration number for easy reference by I&APs.

10.1.5. Site Notice

A Site Notice is placed at the entrance to the proposed site to inform the general public of the intended project. This notice also carries additional information regarding meetings or specific investigations to be undertaken.

10.1.6. Meetings

A Public Open Day Information Session is held to further inform I&APs. This meeting also assists in getting together additional issues; concerns and inputs. If required Focus Group Meetings are also held to listen and understand Group Specific issues and concerns.

11. THE ENVIRONMENTAL ASSESSMENT

11.1. ASSESSMENT

In order to ensure impartiality and an assessment based on facts alone, the Final Assessment will be peer reviewed and assessed by an Independent Environmental Assessment Practitioner. Once assessed the Final Assessment will also be signed off by the Environmental Assessment Practitioner (EAP)

12. SECTION 12 - ENVIRONMENTAL MANAGEMENT PLAN (EMP)

12.1. THE EMP

The EMP is the “road map” that will govern, guide and direct the entire project from inception / construction to operation and finally closure (where applicable).

The EMP provides guidance to the different role players in assigning roles and responsibilities to all parties concerned and thus ensures that the environment received the protection it needs on a daily basis.

Once the Final EIA Assessment has been completed a complete EMP will be compiled and all impacts and potential impacts will be addressed.

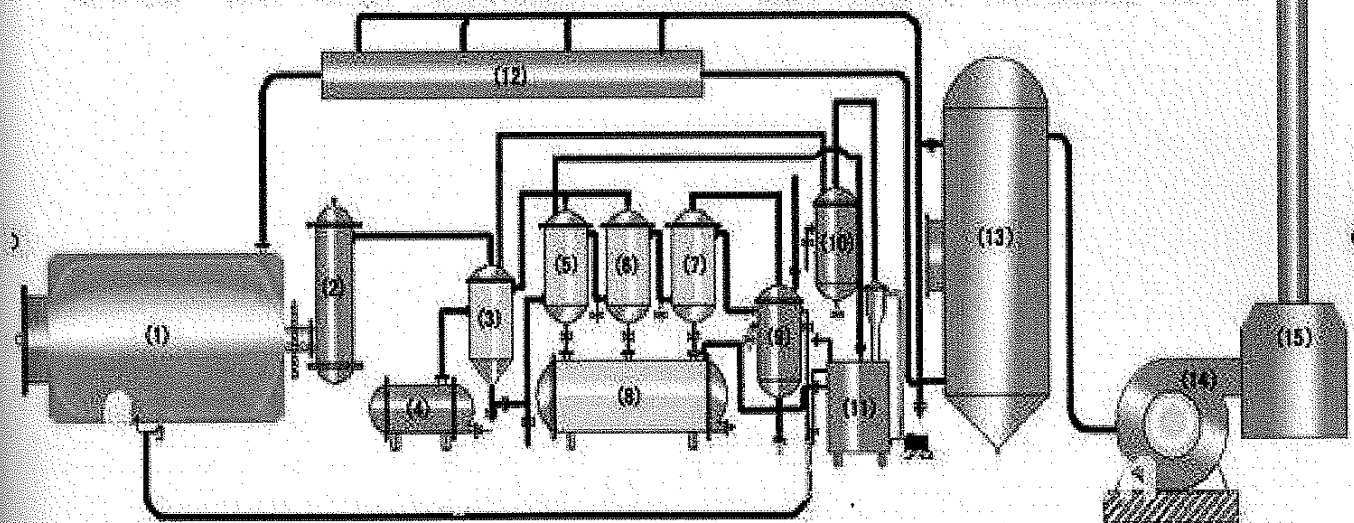
13. SECTION 13 - CONCLUSION

13.1. CONCLUSION

The Scoping Phase / Process is a “living” process that allows for continuous inclusion of new issues; concerns and inputs. The aim is to involve all I&APs in the process and to have all related issues; concerns; inputs and comments included in the process. The final Record of Decision, from the relevant authority, is then based on facts and inputs from a large group rather than from a single person doing the assessment.

Flow Chart of a Tyre Pyrolysis Plant

the flow chart of the waste tire and
plastic oil refining
this is the first link to make crude oil



- (1) reactor (2) catalyst chamber (3) oil-water separator (4) oil tank A
(5) condenser A (6) condenser B (7) condenser C (8) oil tank B
(9) anti-back fire device (10) buffer tank (11) negative pressure device
(12) waterjet flue (13) dust removing device (14) draught fan (15) chimney

MIDVAAL Conservancies

CONSERVANCIES IN MIDVAAL

Background

What is a Conservancy?

A conservancy is a vehicle for community-based conservation. It is a registered, voluntary association of land-owners and land-users who decide to cooperatively manage their natural resources in an environmentally sustainable manner without necessarily changing the land-use of their properties. (Community-based means communities within the conservancies and surrounding areas).

Types of Conservancies

- Rural
- Urban
- School
- Industrial
- Informal Settlements

National Association of Conservancies/Stewardship of South Africa NACsSA

The National Association of Conservancies of South Africa (NACSA) was established to:

- promote community-driven conservation nationally by supporting provincial conservancy associations
- Network with local and international bodies with similar aims.

NACSSA's membership consists of two representatives from provincial conservancy associations plus co-opted members as needed.

Currently there are provincial conservancy associations in seven of the nine provinces. Through this network NACSSA represents +-750 conservancies in South Africa. In total, these conservancies own and manage about 30 million hectares of land, five times what is in state-controlled conservation areas.

NACSA received The WESSA Presidential Award 2005 for promoting conservation in South Africa.

NACSSA is a member of the IUCN

Gauteng Conservancy and Stewardship Association GCSA

The Gauteng Conservancy Association (GCSA) was formed in February 2003 (in the Midvaal) to promote conservation on private property in Gauteng and to give "teeth" to efforts to protect Gauteng's fast-disappearing greenbelt areas. It is an independent body recognised by the Gauteng Department of Agriculture and Rural Development (GDARD). The GCSA registers Conservancies on behalf of GDARD in Gauteng.

The GCA Changed its Name in February 2009 to the Gauteng Conservancy and Stewardship Association GCSA to be in line with the National Biodiversity Stewardship Program. The GCSA is a member of the IUCN

The GCA represents 53 conservancies. These conservancies range in size from tens of thousands of hectares to tiny areas, measuring a few hectares.

Conservancies have to deal with a multitude of problems: illegal mining activities, dumping of refuse, overgrazing, veldfires, game poaching, theft of plants and rocks, tree-cutting, alien vegetation - to name a few.

The momentum that the GCA has created is a sign that people at grassroots level need to network and support one another. The concept has moved way beyond the old idea of conservation as putting up a fence, putting in game and (preferably) removing people out of the equation. We see it as community-driven conservation - people working towards protecting, conserving, restoring and growing whatever is valuable in their own neighbourhood.

The GCA received the Mail and Guardian Greening the Future Merit Award for Environmental Best Practice in the Not-for-Profit Organization Category in 2005. In 2008 the GCA received the Kudu award for their Community Contribution and the environmental education award from SANPARKS. The GCSA received the Mail and Guardian Greening the Future Merit Award in 2009. It also received the NACSA Aardvark Gold Award for best environmental practice in a province in South Africa 2006 and 2009 and a Silver award in 2010.

Heritage Sites

It is important to mention here that heritage sites have been identified within the conservancies of the Midvaal and are being monitored by them. As mentioned in the NACSA constitution conservancies are not there to only conserve our natural resources but also the heritage of all the people of South Africa.

Importance of Grasslands (The dominant habitat in Midvaal)

As Midvaal is predominately a grassland habitat it is important to ensure that they are recognised and protected.

There is a wide misconception that grasslands are less important, ecologically than forests or indeed single trees!

Primary grasslands have become an endangered habitat through irresponsible property development and lack of proper land management.

Our primary grasslands (that is, grasslands that have never been subject to any soil disturbance such as excavation, ploughing or soil erosion) carry relatively high to very high biodiversity, and often include rare, vulnerable or endangered species of both flora and fauna. Up to 80% of South Africa's grasslands have already been irreversibly transformed by forestry, agriculture and urban development. Less than

2% of the remaining 20% is under formal protection! It is within this context that we must manage these diminishing habitats responsibly and sustainably.

Conservancies in the Midvaal

There are Nine Registered Conservancies situated in the Midvaal not all shown on Fig1

Our aim is to have green belts running from North to South and East to West in the Midvaal or at most to form conservancies in areas where the *GDACE conservation plan 2* has recognized important and irreplaceable sites see Fig 2

1. Apple Orchards

Size: 1417.2 hectares

Established: 12 October 2002

Type: Rural

Conservation Status: A few important sites in the north of the Conservancy were recognized by *GDACE conservation plan 2*

The Community of Apple Orchards, are recording data on indigenous plants and animals, as well as information on the challenges facing the human inhabitants of the Conservancy. The Conservancy acts as an educative forum by being a channel for the acquisition and dissemination of environment-related information. It informs and educates local residents about living in ecologically sustainable ways, incorporating identification of environmental problems and the possible solutions to those problems.

2. Henley on Klip

Size: 6894.2 hectares

Established: 06 September 1998

Type: Rural/Urban

Conservation Status: Irreplaceable sites in the South and West and important sites in the east bordering on Suikerbosrand Nature Reserve *GDACE conservation plan 2*.

The Klip River is a major concern as it has been recognized as one of South Africa's most polluted rivers. The Conservancy monitors water quality and regularly performs river clean-ups.

3. Klipkraal

Size: 4200.00 hectares

Established: 9 January 2006

Type: Rural

Conservation Status: important site in the middle of conservancy and irreplaceable site on the southern end.

This conservancy is situated north-east of the Vaal Dam see Fig 3

It is a very important tourism site. They have hiking trails through un-spoilt grasslands and koppies that are used to benefit the awareness of the importance

of grasslands and koppies. Educational institutions have used this conservancy for educational purposes. This is one of the newest conservancies in Gauteng and has grown from one member to five members in this short time.

4. Klipriviersuikerboschrand

Size: 2949.86 hectares

Established: 01 March 2003

Type: Rural

Conservation Status: Most of the area marked in Fig 2 in this conservancy has been recognised as irreplaceable sites by *GDACE Conservation Plan 2*.

It borders the Suikerbosrand Nature Reserve and has two rivers running through it, namely the Klip River and the Rietspruit. Regular River cleanups are run by the community.

5. Thorntree

Size: 4571.68 hectares

Established: 01 April 1999

Type: Rural

Conservation Status: More than 50% of this conservancy has been recognised as important and irreplaceable by *GDACE Conservation Plan 2*.

Thorntree Conservancy was established to look after the environmentally sensitive areas. There are koppies situated in the middle of the conservancy which have been declared irreplaceable sites by the *GDACE conservation plan 2*.

The Conservancy monitors red data plants and invertebrates, and the Walkerville / De Deur landfill site on a regular basis.

Thorntree Conservancy received the Meerkat Award for Best Overall Performing Conservancy in Gauteng in 2004 and 2005.

Thorntree Conservancy received the EWT Gold award for Best Biodiversity practice in a Gauteng Conservancy in 2006 and the Mail and Guardian Greening the Future Merit Award for Environmental Best Practice in the Not-for-Profit Organization Category in 2006.

6. Twesolopele

Size: No info available at present

Established: 18 June 2005

Type: Informal Settlement

Conservation Status: None

This Conservancy was established by a few residents of Sicelo west of Meyerton. They have realized the importance of their environment and have planted trees and limiting the number of dogs to attract wildlife (birds and Mammals) back to the area. Many vegetable gardens have appeared.

In May 2006 they received a certificate of merit from the Wilger Veld and Youth Club for their efforts.

7. Welverdiend Triangle

Size: 1499.95 hectares

Established: 25 November 2005

Type: Rural

Conservation Status: This whole conservancy has been declared an important site by *GDACE Conservation Plan 2*

This conservancy is situated south of the Suikerbosrand Nature reserve and consists of large tracts of unspoilt grasslands. The Community of this conservancy has shown great enthusiasm in protecting this area. They received a Silver Award for Conservation from the GCA in May 2006.

8. Sunset De Deur

Size: 100 hectares

Established: 6 October 2007

Type: Rural

Conservation Status: More than 30% of this conservancy has been recognised as important and irreplaceable by *GDACE Conservation Plan 2*. Consists of tracts of unspoilt grasslands,

9. Drumblade

Size: 1213 hectares

Established: 11 march 2009

Type: Rural

Conservation Status: A few important sites in the central area of the Conservancy were recognized by *GDACE conservation plan 2*

The Pardeberg Mountain falls within this conservancy

This is an extremely active conservancy the members embarked on a tree planting program with the assistance of the Midvaal Local Municipality .Over 150 indigenous trees were planted on the verges .The Drumblade Conservancy won an award for "Outstanding performance in the Mayoral Adopt a Tree Program 2009.The Drumblade Conservancy received the GCSA Gold Meerkat award for best practice in a Gauteng Conservancy

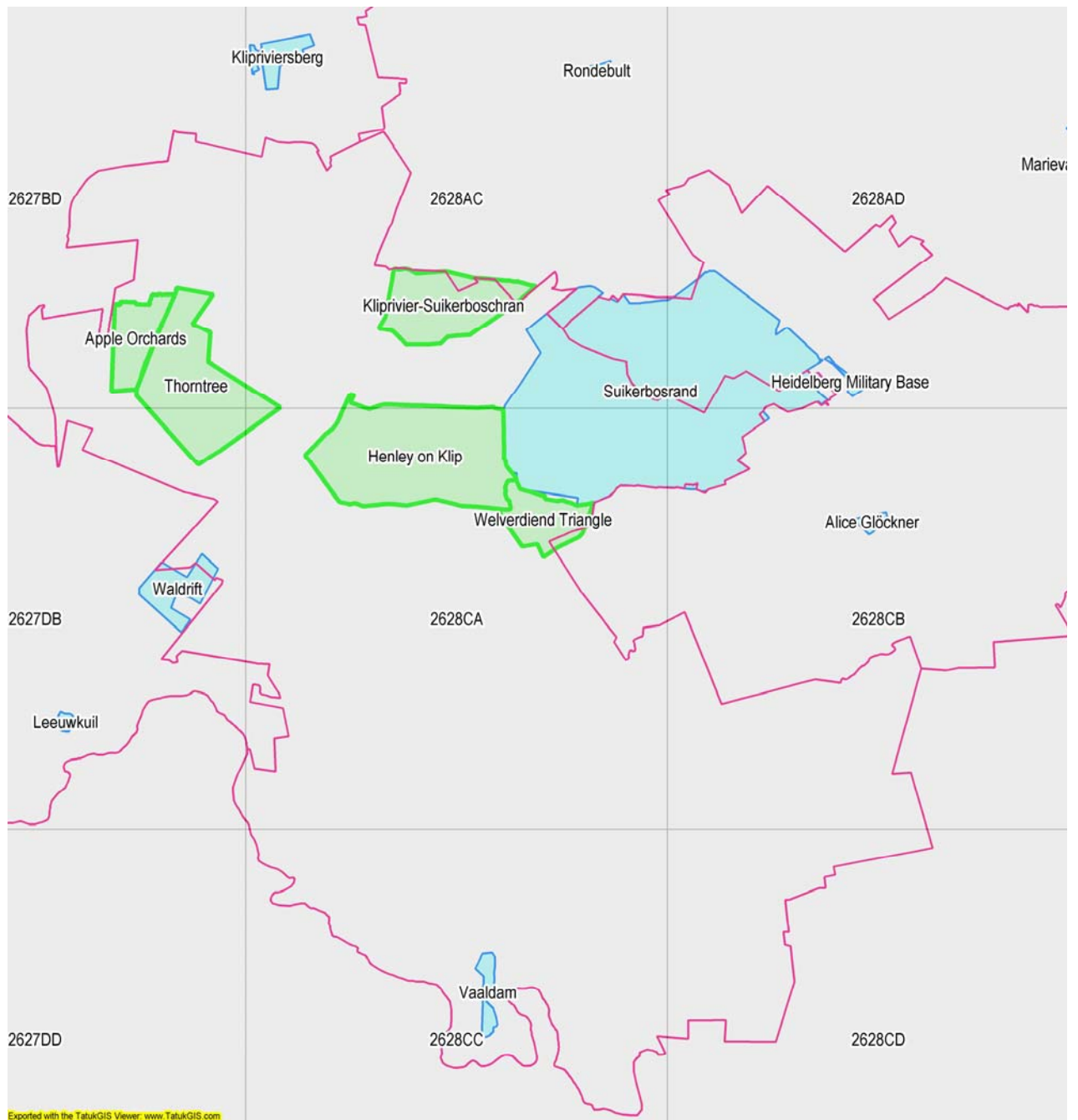


Fig 1 Conservancies in Midvaal not including Klipkraal, Twesolopele Sunset and Drumblade

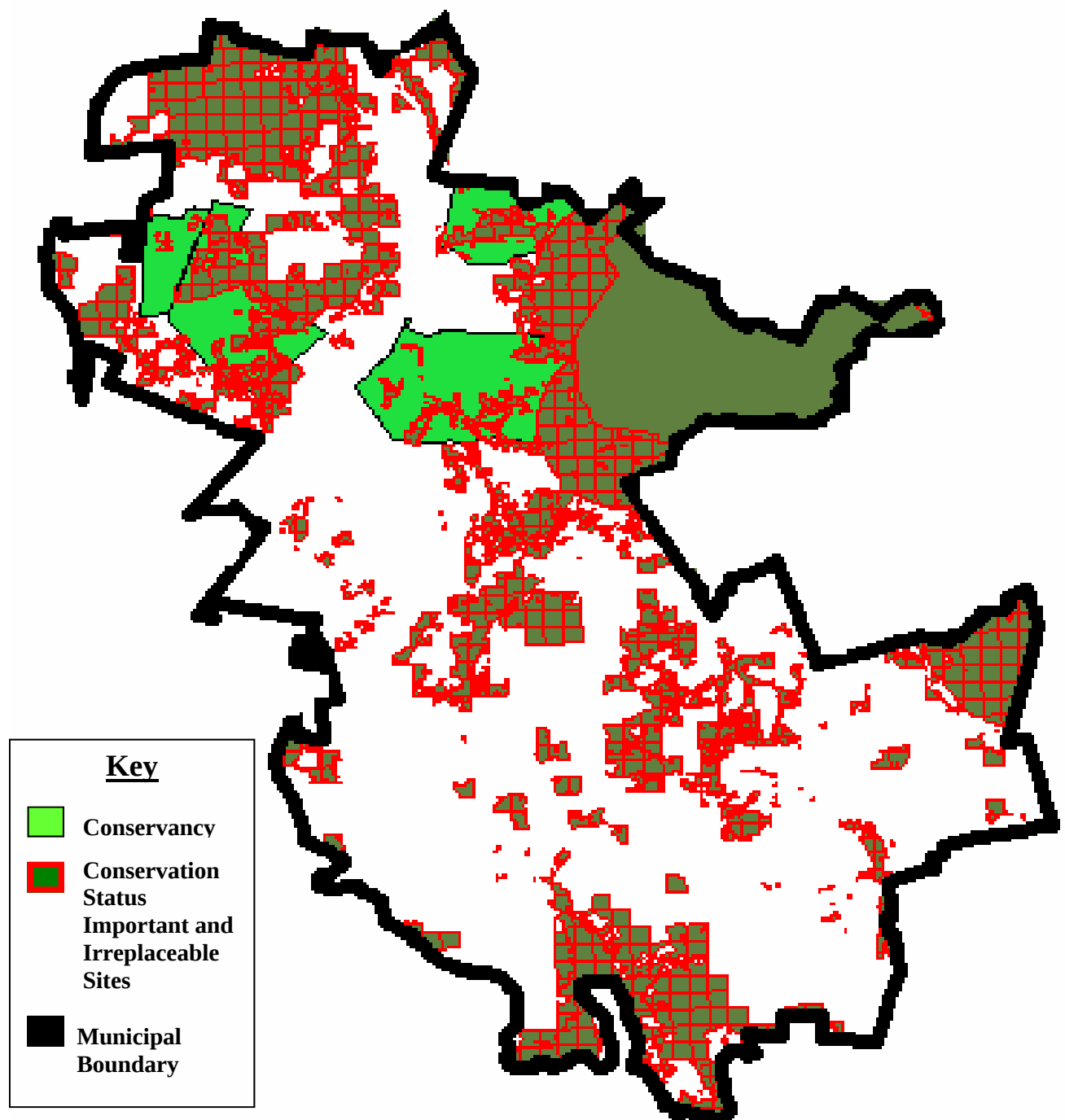


Fig 2 Midvaal Sensitivities *GDACE conservation plan 2*

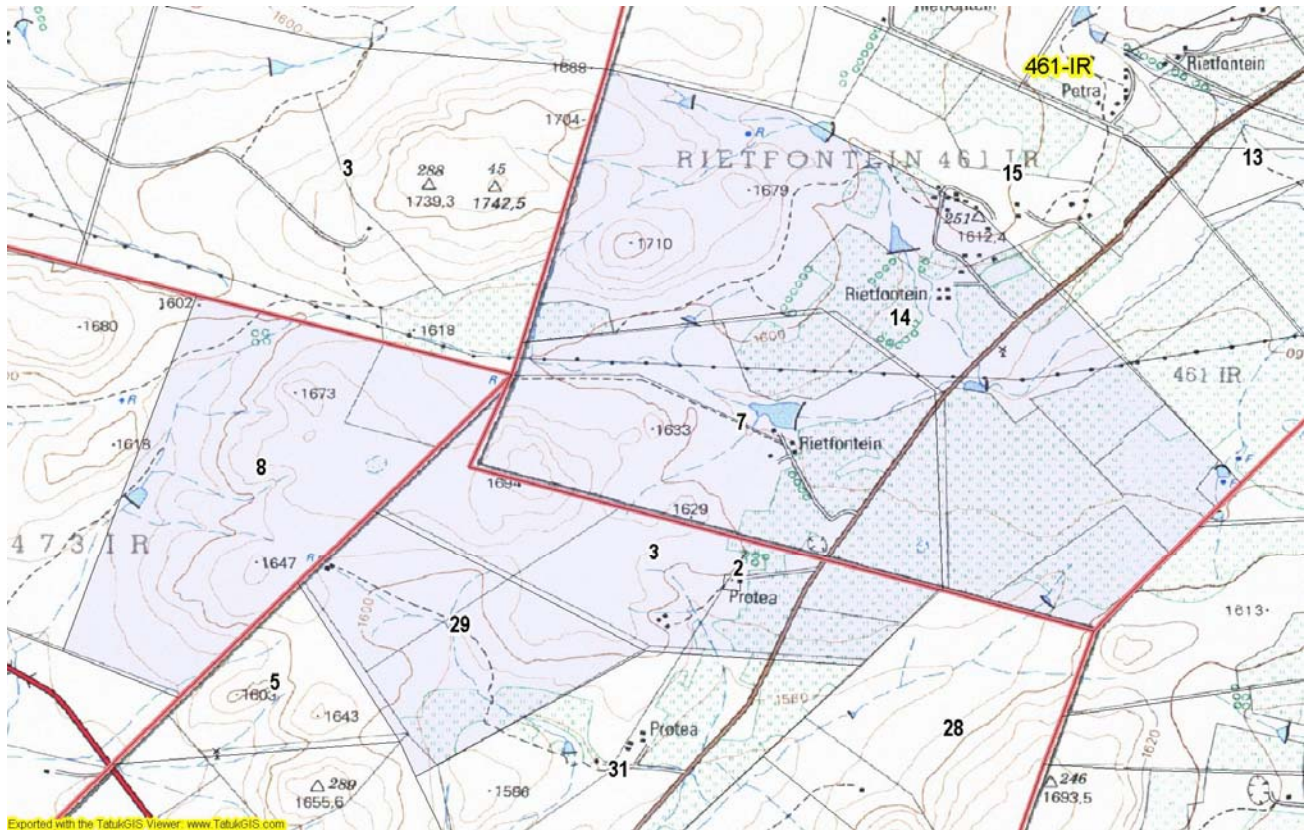
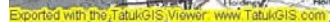
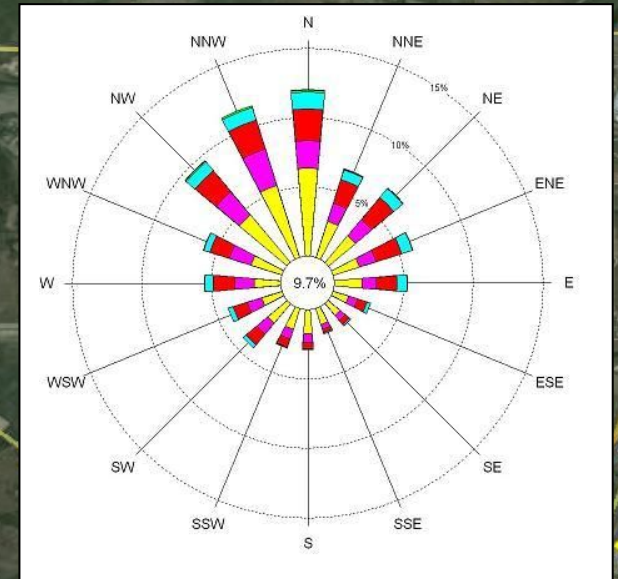


Fig 3 Klipkraal Conservancy not shown on Fig 1 and 2



Prevailing winds for the area



De Deur, South Africa

Thortree Conservancy indicated in YELLOW

Plot 110 Walker Fruit Farms

4.24 km

Imagery Date: 8/30/2011

Image © 2012 DigitalGlobe
Image © 2012 GeoEye

© 2012 AfriGIS (Pty) Ltd

26°28'42.98" S 27°58'13.25" E elev 1575 m

Google earth

Eye alt 19.85 km

Issues and Response (EIR) Report – Plot 110 Walker Fruit Farms / Tyre Pyrolysis Plant

Category	Code
Environmental	
Social	
Financial	
Process Information	
General Information	

#	Issue	Response	Code
1	The amount of tyres quotes as being on Plot 110 is excessive. The total must be wrong.	The amount of tyres has been quoted by the department. However upon investigation it was discovered that an error occurred and the estimated number of tyres has been determined as being between 2.2 and 2.7 million used tyres.	
2	Why quote the fact that the children inherited the land and the mistakes from the late Mr. Nienaber. The activity is illegal and ignorance is not a defence.	The Nienaber children do not deny the fact that the waste dumps are illegal. It is because of the illegal nature oof the dumps that they have decided to try and provide a solution to a serious problem.	
3	The name of the department is incorrect.	GDARD was formerly known as GDACE. The department has been incorrectly named. The mistake has been rectified.	
4	Why is the matter being handled by the DEA and not GDARD.	The matter has been addressed by the DEA on a national level due to the serious nature of the waste sites. As such the DEA will be the authority that will consider application for rectification and eventual authorisation.	
5	The current illegal storage of tyres is a fire hazard.	In order for the current situation to be remedied through a process of application and environmental assessment and consideration, the current <i>status quo</i> first needs to be acknowledged and authorised. For this to happen a Section 24(G) application is being undertaken. While the process is being followed the premises are being maintained – grass is being kept cut; no fires are allowed on site and no burning of any rubber or tyres occur on the site.	
6	Air quality is a local issue. The Local Authority does not have any complete guidelines and as such they are not in a position to make informed decisions.	The air quality issues of the area is being addressed by the National Department as well. Between the National Department and the Local Authority dialogue takes place regarding the issue on hand and the possible solutions being placed on the table. Between the two authorities the matter will be discussed and inputs given before any decision is taken.	
7	Is it appropriate to permit additional pollution activities?	The process being followed by the tyre pyrolysis plant has a dust extraction	

		phase where particles are extracted from the exhaust discharge. Gasses are taken and used in the heating process of the main chamber and steam is allowed to escape via the outlet.	
8	The alternative site needs to a real consideration.	Alternatives must be assessed and considered. Apart from the No-Go option an alternative site has been suggested. Initial assessment on the site has already indicated that the alternative is more appropriate for the plant than Plot 110 Walker Fruit Farms.	
9	Why are the by-products (materials) generated by the process dangerous?	Oil and carbon black has been rated as hazardous substances and as such handling and exposure to these products should be controlled. Health and Safety Regulations adopted by the operator ensures the safe handling and storage of all substances that may be harmful to employees as well as the receiving environment.	
10	The EIA is intended to INFORM the public.	Every process must start at a point hence a Draft Scoping Report; Background Information Document; Site Notice; Advertisement; Public Open Day Information Session; Posters at the Open Day and other reports made available to the general public.	
11	Municipal water pressure in the area is low and will not support a fire incident. Alternatives are required.	The input is noted. A possible alternative will be to have a bulk water tank on site specifically designated for fire fighting events.	
12	What is the use of a plot – low density residential or what?	Plot use as in the instance of Plot 110 is primarily agricultural but also low density.	
13	Is barren the same as vacant or conservation?	Barren or vacant land is seen as land where one would find no development or limited development is that the land may contain a house. Once a piece of land falls within a conservancy the land may still be referred to a barren or vacant but with the addition that the land also has a conservation status.	
14	Is it correct to say that Plot 110 is in an agricultural zone. Why should policy then be ignored and industrial development allowed?	Plot 110 is indeed within an agricultural small holding area. In order to undertaken an alternative activity on the land certain applications must be undertaken and be considered by the relevant authorities. Policy is not ignored by applying for a different right – the applicant request the authority to consider changing its zoning of a specific piece of land and changing it to an alternative.	
15	Is it that residential use on Plot 110 is low density, or not permitted.	The use of Plot 110 is primarily agricultural, but the owner has the right to reside on the premises, build his dwelling or dwellings on site and decide how many family members and staff may stay with him / her.	
16	The report glosses over the need for rehabilitation and de-commissioning.	The report has made it clear that should Plot 110 be utilised for the plant operation that it would be to work away the tyre stacks and return the land	

		to agricultural use. At the Public Open Day Information Session as well as the Focus Group Meeting it was made clear that the plant would be taken down and removed once the tyres have been worked away. It is not the intention of the applicant to continue operation on Plot 110 should the decision be made to install the plant on Plot 110.	
17	The Vaal River is a mere 17km away	This fact has been noted. It is for this reason that the applicant has investigated that steam from the stack is clean and that the handling of oil and carbon-black on site will not pose any risk to the immediate environment nor the wider environment.	
18	The report does not mention the typical winter temperature inversion that traps air pollution close to the ground during the winter.	The emissions from the stack is in the form of steam . Scrubbers cleans gasses and particles from the steam emission in order to protect the receiving environment.	
19	What about air borne particles – where will they blow and what will they impact?	The emissions from the stack is in the form of steam . Scrubbers cleans gasses and particles from the steam emission in order to protect the receiving environment.	
20	Ground water – how do others use ground water and what will happen if hazardous waste reaches ground water and run-off?	The water cycle of the operation is a closed cycle whereby wash water is collected to prevent mud and other impurities going into the ground. Rain water is not allowed to mix with any water or matter from the operation.	
21	Refuse removal – by MIDVAAL Municipality	All solid waste (municipal waste) will be collected on a regular basis by the municipality and disposed of at its licensed landfill site. No tyres or rubber products will be removed and disposed of at any landfill site as it is in contravention of waste regulations.	
22	This is not an environmentally friendly solution – it is at best monitored and mitigated. The process is misrepresented – it is an industrial process with hazardous materials.	The process undertaken has been developed over a number of years and environmentally unacceptable practices and incidents have been addressed. Where necessary certain parts of the plant has been redesigned and made “environmentally safe and friendly”. The intended plant is a 4 th generation plant. In a properly controlled environment and being operated by trained and responsible staff the operation will not pollute nor present a threat to the receiving environment.	
23	Environmental authorisation should be obtained before proceeding.	The construction and operation of a tyre pyrolysis plant prior to obtaining an environmental authorisation would constitute another illegal activity. The tyre pyrolysis plant is being suggested by the applicant as a solution to a problem – a problem that the National Department of Environmental Affairs wished solved.	
24	“Consent Use” – this is the application to the local authority.	The DEA has instructed the applicant to solve the illegal tyre stacks on Plot	

	What is not clear is the additional application for environmental authorisation. The one cannot proceed without the other.	110. The applicant was instructed to proceed with a Section 24(G) Application (Application for rectification of an illegal activity – the tyre stacks). After receiving the Section 24(G) Application the DEA instructed the applicant to have a Scoping / EIA undertaken – which it is now doing. As part of the process the Local Authority is informed about the application being made and the Local Authority is provided with the relevant documentation. The Local Authority is also requested to make representation and give inputs into the application being made in order to make its stand on the matter known to the National Department. The final authorisation is obtained from the National Department (DEA) and will include any conditions specified by the Local Authority – provided that the Local Authority has made the submissions.	
25	Why can they not be moved?	Part of the assessment is considering alternatives (a) Plot 110; (b) The No-Go Option and (c) An alternative Site. The applicant has already made known that the preliminary assessments of the three options has indicated the fatal flaw in taking Plot 110 as the preferred option. The alternative option has been assessed and found to be more suitable. The EAP has the right to select and provide reasons for the selection of an alternative rather than staying with the original site. Selection will be done taking into account the environment as well as impacts current and long term.	
26	The plot has no tenants but it has neighbours.	The applicant realizes that there are neighbours and that is why a public participation process is undertaken. The process will reveal questions; inputs and will require answers.	
27	The plant can not occupy the whole property. What will happen with the area vacated by the stockpile that is worked away. What is the actual footprint of the actual plant?	The plant will not occupy the entire property. The demonstration plant visited in China was situated on an area of no more than 30m x 30m. The intention is to work the stock piles away. As they are worked away the land will be returned to agriculture. There is no intention to bring any additional stock on site or allow any other activity to take place. The entire intention of the plant is to work the stock piles away and clear the area of used tyres.	
28	These are industrial activities, and hazardous materials which in no way relate to agricultural activities.	These facts are not denied, hence the application to the DEA for an environmental authorisation to undertake the activity and clear the land of the unwanted stock piles.	
29	Understand the risks of the rotating oven.	The rotating oven has been fitted with two pressure release valves that activate should pressures develop.	
30	Oil stored on site has risks.	Oil produced by the process will be stored in a bulk oil storage tank. This tank will be installed in a bunker area that will be designed and built	

		according to approved standards.	
31	Carbon Black – this is an air quality risk.	Carbon Black is dropped into a sub-surface bunker from where it is mechanically moved to storage bags. Carbon Black is not allowed to lie loose in the open in order to ensure that no wind disperses any carbon black.	
32	What if there is spillage or pollution? What does that do to the adjoining cropland and water.	Oil is held in special tank within a bunker area. Any spillage is contained in the bunker and pumped back into the tank or into the waiting tanker. Carbon Black is mechanically packed in special bags that allows the safe removal of carbon black from the premises. All handling will take place in an enclosed cemented area. Waste steel is placed in a 6000kg skip and is removed on a regular basis. Such a skip will be held on a cemented area, specifically earmarked for the skip and waste steel.	
33	How much energy is required to operate the process?	Initial heating is done by gas burners. Once pyrolysis starts and the process generates its own gas, the gas is piped into the burners and the process self heats the rotating oven. No electricity is required for heating purposes. A minimal portion is required to power the small motor that rotates the oven and drive the fans.	
34	Why is the plant not looking at “greener” options such as taking the heat generated by burning the tyres and converting it to energy?	The plant utilises heat to change the tyre's substance. Heat changes the tyre into gas from which oil is extracted and carbon black and waste steel is derived. The plant does not burn tyres at all. A completely different set-up where tyres are burnt could be utilised to generate heat for power generation. It is the desire of the applicant to utilise the tyre in a tyre pyrolysis plant in order to (a) work away the waste stacks and (b) derive financial profits from the investment and activity.	
35	Potential for explosion and fire exists.	The facility has been developed and fitted with safety valves. Fires in other plants from other manufacturers may have developed. This intended facility is a fourth generation facility developed over a number of years, to operate safely and efficiently.	
36	The report minimises the risk and the response is inadequate.	Any mechanical process has risks. Risks are managed in a professional way by trained operators. Care and professional conduct ensures a safe environment and an undertaking that takes place in a controlled manner, according to approved operational conduct and according to approved standards.	
37	Tyres consist of various components some of which is toxic.	The process of pyrolysis forms gas. This gas is burnt in the heating process and the off-gas is filtered and cleaned before the water vapour is allowed to	

		vent. All particles are washed out and taken into a storage sump before being used in the heating process.	
38	Whole tyres or tyres cut up into pieces poses a leachate risk to the soil and subterranean water resource.	The risk and problem of the stacks are acknowledged. The intention is to work away the stock piles and return the land to agricultural use.	
39	The report does not address the illegal activity of storage.	The Section 24(G) Application addresses the illegal stock piles. The Scoping Report requires to take the process and its associated impacts forward in order to formalise the stock piles and obtain an environmental authorisation that will permanently solve the existence of the stock piles.	
40	The stock piles should rather be relocated to an industrial site.	Authorisation to start a new site will be required. It will not exempt the applicant from undertaking a Section 24(G) Application nor undertaking the required process as determined by the DEA.	
41	The facility must develop pollution plans and implement best management practices.	The tyre pyrolysis process is conducted under strict control and in compliance with strict operating criteria. Storm water run-off from the stock piles will need to be channelled and contained in a manner which will allow any pollution to settle and be removed. This aspect will need to be examined in more detail in the final EMP for the stock pile.	
42	Stockpiles are a fire hazard.	The piles of tyres are stacked in different stacks. Grass between the stacks are cut on a regular basis to ensure that a fire hazard is minimised. The entire property is walled thus providing additional protection from run-away fires from adjacent properties. No rubber products or tyres are burnt on the premises and as such no pollutants can be released into the receiving atmosphere.	
43	The No-Go option is wrong – the applicant must remedy the activity	It is the intention of the applicant to make application to install and operate a tyre pyrolysis plant in order to work away the illegal stockpiles.	
44	Ideally for the applicant, contrary to policy, detrimental to the environment and a burden on the community.	The applicant is obliged to remedy the illegal activity. The applicant is being forced by the DEA to remedy and it has decided, based on financial calculations, to apply for the right to install and operate a tyre pyrolysis plant. Negatives will be mitigated and where possible the process will be adjusted to ensure that the receiving environment does not suffer. The final authorisation and decision rests with the DEA.	
45	Only needing rehabilitation because of the illegal activity – this is not a motivation for adding to the wrong.	The DEA is insisting on a solution to the illegal stockpiles. A Section 24(G) Application to apply to remedy the “wrong” is the only avenue through which one can remedy. The applicant is investing a large amount of money in a process that will ultimately rid the property of the unwanted rubber and also remove the rubber permanently from the environment. The applicant has acknowledged the wrong and the need to remedy.	

46	The EMP must be prepared alongside the EIA	IT has always been the understanding that any EIR Report is accompanied by an extensive EMP (a formal draft). Any additions are then included and submitted for final approval.	
47	How will the public be informed.	The draft scoping (Rev. 1.0) was the first document to be placed in the public domain. The revised Scoping Report (This Report) will once again find its way into the public domain for further inputs. From this will follow the EIR Report and its public inputs before finally going to the authorities.	
48	The report is already ignoring restraints.	The report was the first Draft Scoping. Any process must be started at some point and the public given an opportunity to get involved. This is exactly what has happened in this case. All inputs and comments are being incorporated and will eventually find their individual places within the Final EIR Report.	
49	What about gaps in knowledge and how unanticipated impacts will be handled.	Where answers are required, answers and information will be obtained. Should impacts be experienced they will be handled according to a set procedure fully described in the EMP and approved by the DEA. Each operation should have as part of its operational procedure a site incident log from which must flow actions and remedies – all such actions and remedies must be recorded for future reference.	
50	Monitoring must be enforced.	Dust buckets will be positioned to determine if any airborne particles are entering the environment. Continuous monitoring is not negotiable – it is a pre-requisite for a safe operation.	
51	What about storage concerns. Already there is scope for vermin, run-off, contamination.	The storage of the stockpiles is a concern to the DEA hence their instance that the problem be solved. The entire process being followed is to submit a proposed plan of intervention to the DEA in order to obtain authorisation to undertake additional activities that will remedy the problem. The final decision and authorisation resides with the DEA and not with the applicant.	
52	The project must be made more green even in an industrial area.	The technology to be employed is a forth generation tyre pyrolysis plant that has been developed over a number of years. Everything possible has been incorporated to ensure that the process is green and that any potential negative impact is mitigated. Ongoing monitoring and environmental auditing will ensure that the plant remains green and that technology and operational levels are maintained.	
53	Loss of opportunity and cost to others in the region.	The applicant as much as any other person in the area has a right to expect to benefit and reap benefits from his / her property and ultimate investment. Yet such benefits should not be at the cost of others. For this reason alternatives are also being considered and should it become clear	

		that a better alternative is available then the preferred option will clearly be indicated.	
54	Impacts on the environment and avoidance – mitigation.	During the Assessment Process all the options will be assessed and rated. The rating will clearly indicate impacts and the level of impact along with the mitigation.	
55	Adding to air pollution in the absence of a plan should not be done. Johannesburg Plan should not be used.	The decision of the DEA rest solely with the DEA. The Johannesburg Plan is used as a guideline in the absence of any other guideline in the area.	
56	The decision needs to separate the rectification (Storage) and the application (the further processing).	The environmental authorisation (decision) is totally separate from the Section 24(G) Application (rectification). However the Section 24(G) should first be finalised and the administrative fine paid before any consideration will be given to the actual application for an Environmental Authorisation.	
57	Are there any other systems that could be used to work away the tyre stockpiles?	Other applications are available – however it has been the decision of the applicant to opt for a tyre pyrolysis plant for the waste tyre stockpiles.	
58	Will other systems not be better for South Africa? Pollution versus capital gains.	Other systems may well be more green than the proposed option. However it has been the decision of the applicant after financial consideration to opt for the tyre pyrolysis process.	
59	Is it possible to move the plant to another site?	Alternatives will be investigated and considered before making a final decision based on environmental impacts.	
60	We want the documents in an easy understandable language.	The input is noted and we will try to put facts a clearly as possible.	
61	When in the process are tyres cut up?	The tyres are cut up just prior to being placed in the rotating oven.	
62	Can the rubber not be used in the manufacturing of roads?	Rubber can definitely be used in the manufacture of roads. However the applicant has opted to dispose of the waste tyre stockpiles through tyre pyrolysis.	
63	This will have smells and pollution and should be in an industrial area.	The process removes particles and gasses from the vent vapour before release and as such there should not be any pollution occurring.	
64	Is there any law that will stop industrial activities on agricultural land?	The environmental application process is there to protect the environment and also force applicant to apply and await decision from government. Agricultural land can not be summarily turned into industrial land.	
65	What guarantee do we have that the plant will only be temporary on Plot 110 Walker Fruit Farms?	It is the intention of the applicant to ask for a consent use of the property should the environmental assessment be positive. Once completed the plant will be dismantled and removed.	
66	We need more information on the inner workings of the plant.	Information on the process and the plant itself will be attached to the EIR Report and the assessment of the plant.	
67	What is happening to the waste of the plant?	The plant generates the following as “waste” streams: a) Carbon Black powder that is bagged and sold off into the plastic pipe and tyre manufacturing industry;	

		b) Bunker Oil is condensed from the gasses generated during the heating process of the tyres. Oil is sold off as heating oil or bunker oil for ships. c) Waste Steel is produced once the tyres have been transformed to carbon black and oil. This steel is sold off to smelters for melting and re-use. d) Steam Vapour is generated during the cooling and pyrolysis process. The steam ($\pm 80\%$) is condensed in a final condenser in order to re-use the water. The remainder of the steam is allowed to vent from the stack.	
68	This plant comes from China – a country where there is high pollution levels and degrading of the environment.	The pyrolysis plant comes from China. It is a 4 th generation plant designed to operate safely and where exhaust fumes are cleared. The fact that the plant is manufactured in China does not mean that it is environmentally unsafe. Large numbers of this specific plant is being exported to Europe currently.	
69	The area around Plot 110 has some wetlands and there also exists a colony of Highveld Bullfrogs.	This is noted and will be considered in the assessment of Plot 100 during the assessment process.	
70	The roads will be destroyed if this plant is to continue on Plot 110 Walker Fruit Farms.	This is noted and will be considered in the assessment phase.	
71	If this is not the first plant of its making in SA why are we not transporting the tyres to the other plants rather than have this one here?	The financial implications for transport over vast distances of these tyres is big. Such transport will also be adding to CO ₂ pollution.	
72	What are the financial gains for the Nienabers in having this plant installed?	No business venture is undertaken if it is not financially viable. The profits and profit margins are confidential to the applicant and is not public information.	
73	We will die of mercury poisoning	Test results does not indicate any mercury emissions. All gasses are re-used and emissions are cleaned.	
74	Were any EIA studies done for any of the other pyrolysis plants?	No listed activity may commence prior to environmental authorisation. Therefore any other pyrolysis plant should have gone through a Scoping / EIA process	
75	What if the DEA does not approve a license?	In the event of a negative Record of Decision the applicant will have to consider yet other alternatives that may be financially viable.	

[illegible]



P O Box 1552
Walkerville 1876

Cell: +27(016)590-2914
Fax: +27(086 631 8817)
Email: nacsa@nacssa.org.za

MIDVAAL TYRE PYROLYSIS PLANT

(MY COMMENTS 10 November 2011)

DRAFT SCOPING
VERSION 1.0

2. OVERVIEW

(refer para.2 on Page 8)

Seems an extraordinary amount of tyres for the size of the land.

Calculating 60% of 4ha stacked at 10 tyres per .765m cubed, the stacks need to be 28m high for 22 million.

(refer para 4 on Page 8)

Why the quotes? It IS an illegal activity and ignorance is not a defence.

(refer para 7 on Page 8)

The EIA should therefore include de-commissioning and a fund for rehabilitation

(refer para. 1 on Page 10)

The Department name is incorrectly given. Also it would be helpful to explain why it is DEA and not GDARD that is the competent authority.

(refer para. 4 on Page 10)

And the current illegal storage of tyres, the fire hazard?

(refer para.2.4.4 on Page 11)

Air quality is a local issue; if the LA is only now busy with compiling guidelines, it is not ready/able to make an informed strategic decision about this development.

(refer para. 3 on Page 12)

Is it then appropriate to permit ADDITIONAL polluting activities? The alternative site needs to be a REAL consideration.

(refer para.2.4.6 on Page 13)

Would be useful to have these practices explained in layman's terms, indicating the significance of the controls and the extent of the concern. Why are the materials hazardous?

The EIA is intended to INFORM the public.



NACSSA



P O Box 1552
Walkerville 1876

Cell: +27(016)590-2914
Fax: +27(086 631 8817)
Email: nacsa@nacssa.org.za

3. BACKGROUND TO THE PROPERTY TO BE USED FOR THE PROPOSED PROJECT

(refer para. 3.1 The Property on Page 14)

Later in this report, the fire management talks about connections to MUNICIPAL water. Municipal water is supplied to all holdings in Walkers Fruit Farms the water pressure is inadequate to fight fires. The fire management and hazard must be scrutinised more carefully.

(refer para.3.3 on Page 15)

Is barren the same as vacant or conservation? The use of this word creates bias. And what are “normal” plot dwellings? Is this not low density RESIDENTIAL land use?

(refer para.3.4 on Page 15)

The accuracy must be checked – is it that residential use is low density, or NOT PERMITTED? How does this report then MOTIVATE why policy should be IGNORED and an industrial development allowed?

(refer para 3.5 on Page 15)

The report glosses over the need for rehabilitation and de-commissioning.

4. ENVIRONMENTAL CONTEXT/RECEIVING ENVIRONMENT

(refer para. 4.1 on Page 16)

The Vaal River is a mere 17km from this location.

(refer para. 4.2 on Page 16)

The report does not mention the typical winter temperature inversion which “traps” air pollution close to the ground in winter.

(refer para. 4.2.4 on Page 16)

What is the significance of this in relation to the risk of air-borne particles from the operations? Where are they likely to blow to? And which regional activities are negatively impacted?

4.3.1 RECEIVING WATER ENVIRONMENT

(refer para.4.3.4 on Page 17)

And the surrounding area? How do other people use groundwater, and what will happen if hazardous waste reaches ground water or run-off?

(refer para 4.6.2 on Page 17)

All refuse other than the illegal tyres. (Midvaal has got a weekly removal of refuse not mentioned in report)



NACSSA



P O Box 1552
Walkerville 1876

Cell: +27(016)590-2914
Fax: +27(086 631 8817)
Email: nacsa@nacssa.org.za

5. DETAILED PROJECT DESCRIPTION

(refer para. 5.1 on Page 19)

This is not an environmentally friendly solution, it is at best monitored and mitigated. These words misrepresent what is an industrial process with hazardous material – nothing friendly about that.

Actually environmental authorisation needs to be obtained before a sensible person would proceed.

(refer para. 5.2 on Page 19)

That is the local authority application. But what is not clear is that ADDITIONAL is the environmental authority. One without the other means the development cannot proceed.

(refer para. 5.3 on Page 19)

Why can they not be moved??!! It is a failing of this assessment that it does not consider fully the alternative of locating the plant in an industrial area, and moving the tyres to that location. This will add to the cost, but it is not something which CANNOT be done. This alternative makes the AREA and its occupants CARRY THE COST OF THE IMPACT, because the applicant does not want to carry the cost of the transport.

(refer para. 5.4 on Page 19)

It may not have tenants but it has NEIGHBOURS. Challenge the factual correctness. The plant cannot occupy the whole property. What will happen to the area vacated by the stockpile as work progresses? What is the footprint of the actual plant?

(refer para. 5.5 on Page 19)

These are industrial activities, and hazardous materials which in no way relate to agricultural activities.

(refer para. 5.5.1 on Page 20)

Understand these risks.

(refer para.5.5.2 on Page 20)

Oil stored on site has risks

(refer para. 5.5.3 on Page 20)

This is the air quality RISK

(refer para. 5.6 on Page 20)

And if there is spillage or pollution? What does that do to the adjoining cropland and water?



P O Box 1552
Walkerville 1876

Cell: +27(016)590-2914
Fax: +27(086 631 8817)
Email: nacsa@nacssa.org.za

(refer para. 5.7 on Page 20) : **RESEARCH:*** Most projects operate within a temperature of 250 degrees C – 500 degrees C, although some report operating at up to 900 degrees C. Question – how much energy is required to generate that heat at sustained levels? 900 degrees C.

(refer para. 5.8. on Page 20)

Why is this plant not looking at “greener” options such as taking the heat generated by burning the tyres and converting it to energy?

(refer Page 20) : **RESEARCH:*** The potential for explosion and fire exists at PGL operations. Operating at high temperatures and in a low oxygen condition increases the risk of fire and explosion through accidental air infiltration. Catastrophic fires have destroyed some facilities.

COMMENT : the report minimises the risk and the response is inadequate.

(refer Page 21) : **RESEARCH:*** In addition to natural and synthetic rubber, tyres also contain a variety of other materials, including styrene-butadiene copolymers, butyl, EPDM, cis-o-poly-butadiene, aramid, glass fibres, nylon, rayon, polyester, antioxidants, antiozonants, vulcanization accelerators, extending oils, zinc oxide tackifiers, stearic acid, sulphur, clay fillers, various pigments and carbon black. As a consequence of containing the above materials tyres contain a variety of chemical compounds, including those of antimony, arsenic, barium, beryllium, boron compounds, cadmium, calcium and magnesium carbonates cobalt, copper, lead, mercury, potassium and sodium.

COMMENT : Some of these are toxic. The report minimises the risks by not explaining fully.

(refer Page 22) : **RESEARCH:*** Storage of whole tyres requires proper management to prevent potential health problems. Whole tyres stored outdoors may be treated with pesticides or insecticides for vector control (e.g. mosquito or other insect larvae, rodents, water snakes).

Rain may wash dirt, road oil and pesticides or insecticides off the tyres. Tyres, whole or in chips, may also leach substances into the soil.

Thus. stormwater runoff could potentially contaminate soils, groundwater or nearby surface water.

COMMENT : The report does not address the present illegal activity of storage. The Section 24 G application should include the measure to remedy and monitor. As the stockpile IS illegal, the assumption is made that it is NOT managed correctly, and consequently relocating the stockpile to an industrial facility in its entirety would be a more responsible act.

(refer Page 22) : **RESEARCH:*** A facility must develop pollution plans and implement best management practices (BMP's) to control stormwater discharges and may be required to establish a monitoring program. Control of runoff through containment (e.g berms) and capture (e.g. settling ponds) may be acceptable BMP's)

In addition, tyre stockpiles represent fire hazards. Open burning of scrap tyres could emit pollutants of health concern, including benzo(a)pyrene, benzene, lead, zinc and numerous aromatic organic compounds (5-4). Aisles and berms between and around piles provide emergency access for fire fighting equipment and serve as fire breaks.



NACSSA



P O Box 1552
Walkerville 1876

Cell: +27(016)590-2914
Fax: +27(086 631 8817)
Email: nacsa@nacssa.org.za

6. ALTERNATIVES

(refer para. 6.1 on Page 23)

No-Go does not include perpetuating illegal activity. It is the applicant's responsibility to remedy the illegal activity

(refer para. 6.3 on Page 23)

Ideally for the applicant, contrary to policy, detrimental to the environment and a burden on the community.

(refer para. 6.4 on Page 23 and 24)

Only needing rehabilitation because of the illegal activity – this is not a motivation for adding to the “wrong”

The report only states that there is a large building and there is an illegal stockpile. The stockpile can be moved, another building can be found or built. This motivation ONLY explains the solution perceived to be easiest by the proponent. An informative report would consider alternative locations realistically, weighing economic cost, penalties for illegal storage, cost to the agricultural activities, risk to health and wellbeing, violation of policy, safety risk (fire and health) against the ease of correcting the illegal status of the site.

7.2.6 IMPACT ASSESSMENT PHASE

(refer para 7.2.7 on Page 27)

Insist that the EMP is prepared alongside the EIA – there is too much that would need to be monitored and watched over for this to be tacked on afterwards. The decision makers need to know exactly how the risks will be managed, reported on, how the affected community will be involved and receive data and what avenues are open to them when things do go wrong.

(refer para 7.3.3 on Page 28)

And how well were the public INFORMED of the risks if these are still inadequately represented in this report?

(refer para. 8.2.4 on Page 31)

This report is already ignoring the constraints – the zoning does not permit this activity, the air pollution has this flagged as a priority area etc.

(refer para. 8.2.6 on Page 32)

It is also necessary to look at gaps in knowledge, unanticipated impacts and how will provision be made for these?

(refer para.8.2.8 on Page 32)

Because the material is so fine and easily carried, monitoring should not be a recommendation but an enforceable activity with penalties for breaching any of the safety/environmental limits.



P O Box 1552
Walkerville 1876

Cell: +27(016)590-2914
Fax: +27(086 631 8817)
Email: nacsa@nacssa.org.za

(refer para. 8.4.1 on Page 33)

What about the STORAGE concerns? Already there is scope for vermin, runoff, toxic contamination etc., etc.

(refer para. 8.5.3 on Page 34)

Serious investigation of making the project more green is needed, even in an industrial area.

(refer para. 8.5.6 on Page 35)

What is the opportunity cost to others? How does having this industrial activity in an agricultural/rural area negatively impact on opportunities which others may rightfully and legitimately expect to enjoy in a rural setting?

9. CONCLUSION

(refer last para. on Page 36)

This speaks only to the economic factors. A conclusion should also fairly and without bias explain the risk and impact to the environment. It should comment on the physical context of the proposed development, and the impact on human health and wellbeing which may follow. It should explain how and if negative impacts have been (1) avoided and where not possible to avoid (2) how mitigated. It is not clear the AVOIDANCE has been considered as an option (for the environment, not the client).

***Research** Refers to Final Report Environmental Factors of Waste Tyre Pyrolysis. Gasification and Liquefaction. California Integrated Waste Management Board. July 1995.

When a POLICY (zoning) is ignored, the decision maker has to MOTIVATE why policy is being ignored. Air quality management is a priority in our area; adding to the air pollution should not be done in the absence of a plan,(or using Johannesburg's plan!)

The storage is already an illegal activity, which has hazards and risks which need to be addressed under Section 24G. The illegal activity is NOT a motivation for furthering degrading and negatively impacting the environment. The decision needs to separate the rectification (storing) and the application (further processing).

The proposal does nothing innovative or "environmentally friendly" (I quote). This is an opportunity - in a different PLACE - to demonstrate additional benefits.

Ivan Parkes
Chairman Gauteng Conservancy and Stewardship Association
Chairman Thorntree Conservancy
Executive National Association Of Conservancies/ Stewardship South Africa (IUCN Liaison)
Executive Fire Protection Association Midvaal Local Municipality



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