



## NOMINATION

Abakhi Consortium have been appointed by Gauteng Department of Housing (GDoH) to conduct an Environmental Impact Assessment Study to obtain environmental authorisation for the commencement of a subsidised residential development, in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) [NEMA], in accordance with the Environmental Impact Assessment (EIA) Regulations 2010.

Abakhi Consortium comprises a group of professionally allied consultants in the fields of engineering, Town & Regional Planning as well as an Environmental Assessment Practitioner. This group would conduct the administrative processes required for the proposed project to be commissioned which includes the Environmental Impact Assessment (EIA) study, Township Establishment application, development layout, as well as the plan and quantify of required engineering services. These processes would be facilitated by the respective consultants in an allied manner.

Naledzi Environmental Consultants CC (NEC) forms part of the Abakhi Consortium as the Environmental Assessment Practitioner and facilitates the EIA study on behalf of the group.

## ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)



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NEC is an independent environmental consultancy with no vested interested (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the NEMA, 1998.

We do not echo the views of the applicant or client however provide an independent view formed by tasks conducted under the NEMA and the EIA Regulations of 18 June 2010 No R. 543, No R. 544, No. R 545 and No. R546.

## EXPERTISE AND QUALIFICATIONS

NEC is an environmental consultancy offering a wide range of services in the field of Environmental Management. NEC was founded in 2003 on the basis of providing quality and professional Environmental Consulting Services. We offer extensive experience and professional expertise in almost all aspects of environmental management.

**TABLE 1: PROJECT TEAM UNDERTAKING THE ENVIRONMENTAL IMPACT ASSESSMENT**

Name	Organisation	Responsibility
Desmond Musetsho	Naledzi Environmental Consultants CC	Environmental Assessment Practitioner EIA Project Leader Scoping Report, Environmental Impact Assessment Study finalisation, review and

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Proposed establishment of a subsidised residential development, south of Palm Ridge, Ekurhuleni, Gauteng  
Draft Scoping Report; Compilation date: August 2013

*Naledzi Environmental Consultants CC Reg. no. 2003/0890358/23*

		sign off
Marissa Botha	Naledzi Environmental Consultants CC	Project Management Conducting the Scoping and EIA process including Public Participation GIS Mapping and Assistance Report drafting

**Desmond Musetsho** is the Senior Environmental Scientist and currently the Managing Director of Naledzi Environmental Consultants. He has over 11 years of experience in the field of Integrated Environmental Management, both on a project and management level. Mr. Musetsho holds a Professional Bachelor of Environmental Management (Hons) Degree from the University of Venda and is currently completing his Masters in Environmental Sciences. He has extensive experience in Environmental Impact Assessments, development of management plans, development and implementation of Environmental Management Programmes for construction, and facilitation of public processes and workshops. Desmond is a Certified Environmental Assessment Practitioner (ICB-EAPSA) and an Environmental Scientist (SAIEES).

**Marissa Botha** is an Environmental Assessment Project Manager with over 10 years of experience in the field of Integrated Environmental Management, both on project and management level. She has experience in Environmental Impact Assessments, development of management plans, development of Environmental Management Programmes for construction and facilitation of public processes.

This Scoping Report has been drafted by Marissa Ilse Botha. Desmond Musetsho has finalized and reviewed the Scoping Report before release for public review in order to ensure quality control and accuracy of information.

**This SCOPING REPORT has been signed off by:**



**Khangwelo Desmond Musetsho**

Environmental Assessment Practitioner (ICB-EAPSA)  
Environmental Scientist (SAIEES)

## PROJECT INFORMATION

**Table 2: Project Information**

<b>TITLE</b>	Establishment of a subsidized residential development, farms Rietfontein 152IR and Rietspruit 153IR
<b>LOCATION</b>	REGION F, Ekurhuleni Metropolitan Municipality, Gauteng Province
<b>PROPONENT</b>	Gauteng Department of Local Government and Housing (GDoH)
<b>AUTHORIZING AUTHORITY:</b>	Gauteng Department of Agriculture and Rural Development (GDARD)
<b>GDARD REFERENCE NUMBER:</b>	Gaut: 002/13-14/E0038
<b>SCOPING REPORT DATE</b>	AUGUST 2013



Proposed establishment of a subsidised residential development, south of Palm Ridge, Ekurhuleni, Gauteng  
Draft Scoping Report;      Compilation date: August 2013

*Naledzi Environmental Consultants CC Reg. no. 2003/0890358/23*

## PROJECT BACKGROUND

The objective of the Department of Housing's Strategic Plan 2008 to 2011 is to eradicate all slums, or informal settlements by 2014. The department's Breaking New Ground (BNG) initiative kicked off in September 2004 which was launched to establish integrated, sustainable human settlements and is being implemented in all the provinces of South Africa. (*Engineering News, July 2008*). This initiative allows people to live near work opportunities, close to schools, clinics and other amenities. The aims of the initiative is to create non-racial, diverse communities and offer a choice of housing ranging from subsidized houses, bonded houses and apartments for rent.

There is an increasing demand for social housing in the Gauteng Province due to migration of people from rural to urban areas and to economic centres in the province. The most populated area in the province is Ekurhuleni Metropolitan Municipality (EMM) where many people are still living in overcrowded informal settlements without adequate access to engineering and social infrastructure.

GDoH is proposing to establishment a subsidised residential development mainly consisting of low cost housing in the western region of Ekurhuleni Metropolitan Municipality some 10km south of Alberton. The proposal is led in partnership with EMM to alleviate the problem of adequate housing.

The development is proposed to take place at Rietfontein on the farms Rietspruit 152IR and Rietfontein 153IR just south of the formal settlements of Eden Park, Greenfields and Palm Ridge. The development site would comprise Portions 83-98 of the farm Rietfontein 153IR and Portions 27-30, 34-55, 59 of the farm Rietspruit 152IR. The extent of the development properties measures to approximately 378 hectares. The developable land, however, is estimated to be 306 hectares.

Environmental Authorisation (EA) in terms of the NEMA, 1998 is required to commission the project.

Naledzi E. C will facilitate the EIA study on behalf of the Abakhi Consortium, and submit an application for an Environmental Impact Assessment (EIA) in terms of the National Environmental Management Act, 1998 (Act 107 of 1998), in accordance with the EIA Regulations 2010 to GDARD.

The application was submitted during April 2013 and accepted by GDARD. GDARD Ref - Gaut 002/13-14/E0038. (Appendix A – Application Acceptance Letter)

The proposed development land parcels are not state owned. GDoH would ultimately have to acquire the land parcels from the respective landowners once the development proposal / land is deemed environmentally feasible through the EIA process.

## PURPOSE OF THIS DRAFT SCOPING REPORT

*“Scoping” refers to an ongoing assessment of a situation, usually through monitoring, consultations and discussions.*

This Draft Scoping Report (DSR) is compiled in accordance to the EIA Regulations under NEMA. This report serves to communicate the range of potential environmental impacts that are relevant to the project, to the public, which consists of land owners, interested and affected parties / stakeholders as well as organs of state.

This document reports on the initial phase of the EIA Study known as the Scoping Phase. During this phase an understanding is gained of the potential environmental impacts relevant to the project as well as social consequences. It further determines where further information is required. The DSR records the comments and inputs received from the public thus far during the public consultation process (scoping phase) and lists the potential impacts identified.

Interested and Affected Parties (I&AP's) are also given the opportunity to comment on the proposal and scope for the EIA phase by reviewing the DSR.

We would like to request your feedback and inputs on the project.

This initial scope and public inputs guide the authorising authority in determining whether there are gaps in information and whether additional measures are necessary to assess the potential impacts of the development on the biophysical and social environment. GDARD seeks such input to support their decision making process and determine whether all potential issues have been identified or whether further information is required.

### **The Draft Scoping Report is made available for public review for a 40-day review period:**

PUBLIC REVIEW PERIOD: **20 September 2013 – 29 October 2013**

The DSR is made available in the study area at the following venues:

Venue	Location	Contact
Eden Park Municipal Office	Eden Park, c/o Abraham and Ferrari Street Office No. 7	Councillor Gladstone Zide 073 459 4133
Katlehong 2 Customer Care Centre	335 Sontanga Street, Katlehong	Lindiwe Nhlapo 011 999 1553 / 1520 / 1557
Suikerboschrand Country Guest House	10 Croft Road, Garthdale, Kliprivier	Magda Opperman 011 903 8493
Plot 46, Rietspruit 152IR	Rietfontein Agricultural Holdings, along Heidelberg Road R550	Alice Botha 082 462 6181
Suikerboschrand Conservancy	Plot 79, Napoleon Road, Gardenvale, Kliprivier	Roxy Du Toit 082 515 2884

All comments can be sent to the offices of Naledzi Environmental Consultants CC **no later than Tuesday, 29 October 2013.**

#### COMMENTS AND ENQUIRIES

**Please address any written comments/enquiries to:**

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[marissa@naledzi.co.za](mailto:marissa@naledzi.co.za) / [dmusetsho@naledzi.co.za](mailto:dmusetsho@naledzi.co.za)

#### WAY FORWARD

Comments and feedback received on the Draft Scoping Report will be incorporated (as before) in a Comments Issues and Response Report and will be included in the Final Scoping Report. The Final Scoping Report will be submitted to GDARD for consideration and acceptance. Once GDARD has accepted the scope for the assessment, all relevant landowners, I&AP's/ stakeholders and organs of state will be notified.

Acceptance of the information would allow the study to proceed to the next phase. During the 2<sup>nd</sup> phase of the Environmental Impact Assessment study, which is the Impact Assessment Phase, various specialist studies will be undertaken, and an Environmental Impact Assessment Report (EIR) and a Draft Environmental Management Plan (EMP) will be developed. These reports would present the findings of the EIA study and management measures to be implemented during the construction and operational phases of the activity.

Further public interactions will be undertaken during the Impact Assessment Phase which would include:

- ✓ Notification of the availability of the EIR and EMP
- ✓ Opportunity to review and comment on the EIR and EMP;
- ✓ Public Information session (if considered necessary at the stage);

The EIA study would then reach the final stage, decision making. The EIR and EMP will be submitted to GDARD for consideration and decision-making. Once GDARD accepts the submitted reports they would reach a decision to either issue a positive or negative Environmental Authorisation. The EA would include the justification for the decision as well as conditions imposed by the authorisation.

Interested and Affected parties will be notified of the outcome. NEMA allows for a statutory appeal period of 30 days post the issuance of the Environmental Authorisation (EA).

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Appendix M – Comments, Issues and Response Report

<b>Abbreviations</b>
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<b>GDoH</b>	Gauteng Department of Housing
<b>NEMA</b>	National environmental Management Act, 1998 (Act 107 of 1998)
<b>EIA</b>	Environmental Impact Assessment
<b>NEC / Naledzi E. C</b>	Naledzi Environmental Consultants CC
<b>EAP</b>	Environmental Assessment Practitioner
<b>GDARD</b>	Gauteng Department of Agriculture and Rural Development
<b>BNG</b>	Breaking New Grounds Initiative
<b>EMM</b>	Ekurhuleni Metropolitan Municipality
<b>EA</b>	Environmental Authorisation
<b>I&amp;AP's</b>	Interested and Affected Parties
<b>EIR</b>	Environmental Impact Report
<b>EMP</b>	Environmental Management Plan
<b>CCA / CCC</b>	Customer Care Area / Centre
<b>FAR</b>	Floor Area Ration
<b>AADD</b>	Average Annual Daily Demand
<b>TIA</b>	Traffic Impact Assessment
<b>DWA</b>	Department of Water Affairs
<b>BID</b>	Background Information Document
<b>DSR</b>	Draft Scoping Report

### 1. INTRODUCTION

Abakhi Consortium has been appointed by Gauteng Department of Housing (GDOH) to conduct an Environmental Impact Assessment (EIA) Study for the proposed establishment of a subsidised residential development at Rietfontein in the western region of Ekurhuleni Metropolitan Municipality.

Naledzi Environmental Consultants CC (NEC) forms part of the Abakhi Consortium and will facilitate the EIA study on behalf of the group.

The Rietfontein area is located south Palm Ridge in the greater area of Thokoza/Katlehong.

Many people in Ekurhuleni still live in overcrowded informal settlements without adequate access to engineering and social infrastructure. The creation and promotion of sustainable human settlements is therefore an important priority. The GDoH has therefore decided to alleviate the problem of adequate housing through establishment of the proposed subsidized residential development.

Afore the development can commence GDoH requires Environmental Authorisation (EA) from the competent authority, Gauteng Department of Agriculture and Rural Development (GDARD). Therefore, in order to obtain this authorisation i.e. environmental authorisation for the commencement of the proposed project an application must be submitted for an Environmental Impact Assessment (EIA) in terms of the National Environmental Management Act, 1998 (Act 107 of 1998), in accordance with the EIA Regulations 2010.

The extent of the development properties measures to approximately 378 hectares. The developable land, however, is estimated to be 306 hectares. The extent of the developable area may still change during the process in accordance to findings of the EIA study. The development site is thus in excess of 20 hectares, hence the need to conduct a Scoping and Environmental impact Assessment process for the proposal.

### 2. ADMINISTRATIVE PROCESS REQUIREMENTS FOR PROJECT

#### 2.1 EIA Study - Scoping and Environmental Impact Assessment Process

The EIA Regulations of 2010 makes provision for two environmental processes that can be undertaken for development proposals which trigger listing activities under the NEMA Regulations Listing Notice 1 – GNR 544, 2-GNR 545 and 3 – GNR 546. A Basic Assessment Process is to be followed for activities with a lesser impact which is listed under Listing Notice 1 and 3. Eg. Developments less than 20 hectares. A Scoping and EIA process is to be undertaken for activities with greater impacts as listed under Listing Notice 2. Eg. Developments in excess of 20 hectares.

The development site is in excess of 20 hectares. The main activity triggered by this proposal is listed under Listing Notice 2 of the NEMA Regulations GNR. 545. Thus need to conduct the Scoping and EIA Process.

The Scoping and EIA Process is conducted in phases which would consist of a Scoping Phase (1<sup>st</sup> phase), Impact Assessment Phase (2<sup>nd</sup> Phase) and decision making phase (3<sup>rd</sup> Phase).

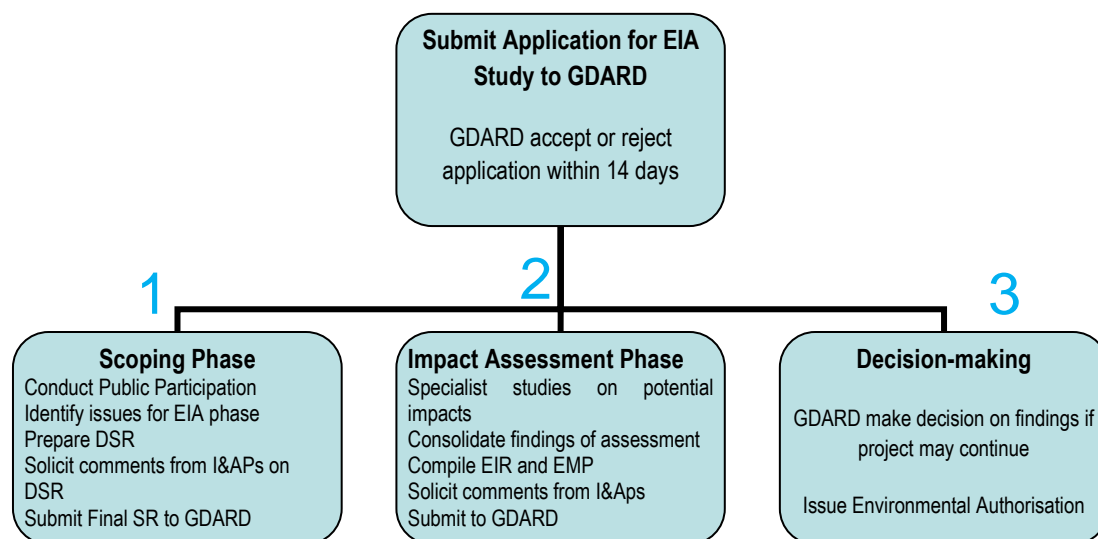
Scoping phase assists to gain understanding of the potential environmental impacts relevant to the project as well as social consequences. It determines where further information is required. The aim is to form an initial scope of the potential impacts through consultation (public participation) with interested and affected parties and desktop analysis and initial site investigations.

The Impact Assessment phase considers the identified impacts and assesses the impacts through specialist investigations. The findings of the assessment are then consolidated in an Environmental Impact Report (EIR) and Environmental Management Plan (EMP).

The decision making phase involves decision making by the authorising authority, which is in this case GDARD. During this phase GDARD will review the EIR and consult with any other organs of state. GDARD must accept or reject the EIR and EMP. Upon acceptance of the reports an environmental authorisation may be issued and conditions of the decision would be given in detail by the competent authority.

The environmental authorisation will be made available to I&AP's for period of 20 consecutive calendar days. This provides I &AP's with an opportunity to verify that the decision taken considered their comments and concerns raised. I&As are also then informed of the appeal procedure, should they have a reason to appeal.

**Figure 1:** Diagrammatic representation of Environmental Impact Process



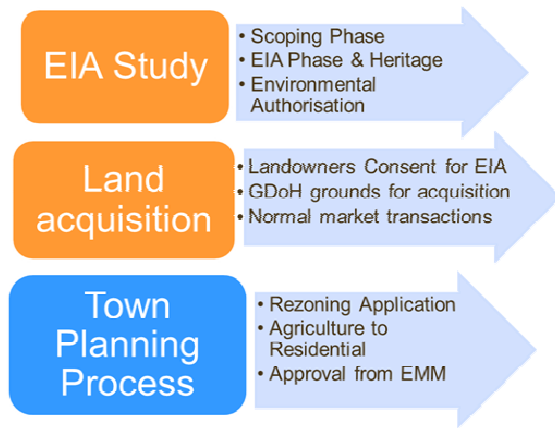
I&As will be afforded the opportunity to comment on all the reports (DSR, EIR and EMP) which are compiled for the project. A commenting period of 40 calendar days would be provided to comment on the reports. I&As would also be notified once the authorisation is issued by GDARD.

## 2.2 Town Planning Application Process

The conduct of an EIA study is only one of the first of the processes to be conducted before the project proposal can be commissioned. There are 2 separate processes that must be undertaken parallel to one another to ensure concerted effort on the project.

Post the EIA process, a Township Establishment application must be submitted to EMM for approval in order to allow the land use of the property to be transformed from agriculture to residential.

GDoH however needs to secure tenure of land before any Township Establishment application can be submitted to EMM. The order of the processes is illustrated below in Figure 2.



**Figure 2:**

**Diagrammatic representation of administrative processes to be undertaken for the project**

### 3. DESCRIPTION OF THE PROPOSED PROJECT

#### 3.1 Locality

The development proposal is to be undertaken at Rietfontein on the farms Rietfontein 153IR and Rietspruit 152IR located directly south of Palm Ridge Extension 9, Eden Park and Greenfields in the vicinity of Tokoza/Katlehong. The area falls in the magisterial district of Alberton in the western region (Region F) of EMM in the Gauteng Province.

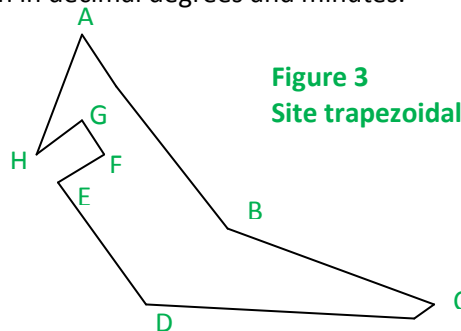
EMM is divided into customer care areas as appose to the previous service delivery units. The development site falls within the Katlehong 2 Customer Care Area (CCA).

The site is located some 10km from Alberton CBD and can be accessed from the R550 Heidelberg Road / K91 Provincial Road running at the southern boundary of the development site. The R550 connects with the R59 Alberton freeway and N3 Highway.

Refer to **Appendix B – Regional and Topographical Maps** for an indication of the project location.

The development site falls within the quarter degree grid of 2628AC. Reference points were taken for the site and are in WGS\_84 spheroid taken in decimal degrees and minutes.

- Point A - S 26° 23.783' E 28° 7.269'
- Point B - S 26° 25.164' E 28° 8.814'
- Point C - S 26° 25.476' E 28° 9.365'
- Point D - S 26° 25.373' E 28° 8.090'
- Point E - S 26° 24.969' E 28° 7.435'
- Point F - S 26° 24.370' E 28° 7.836'
- Point G - S 26° 24.155' E 28° 7.636'
- Point H - S 26° 24.472' E 28° 7.172'



**Figure 3**  
**Site trapezoidal shaped**

The study site comprises 45 individual portions of land which are privately owned. GDoH has yet to secure tenure of land. The following land parcels form part of the development site:

**Table 3: Property Description**

Farm	Portions	Extent	Total
Rietfontein 153 IR	83 – 98	141.7929 hectares	
Rietspruit 152IR	27 - 30, 34 - 55, 59	235.883 hectares	
			<b>377.672 hectares</b>

Refer to Figure 4 for the locality of the site.



Figure 4: Aerial Locality Map

### 3.2 Zoning of site

The site is currently zoned as “Agriculture”.

The site is characterised by rural agricultural activities in the form of agricultural small holdings, consisting of farm dwellings with associated poultry selling, some small scale industrial/commercial activities, livestock farming and a cattle pen in the most north western corner of the site. The holdings therefore provide lodging and sustain the holder’s livelihood.

A reasonable percentage of the site is still occupied (as indicated) mostly west of the K91 provincial road to Thokoza and along the R550 Heidelberg Road. (Greenfields Poultry Farm, Game fencing business, Due South Truck Inn etc)

A considerable percentage of the properties on site are also vacant due to the change in previous year aesthetics created by development pressures from the north. The vacant holdings consist of dilapidated buildings previously occupied by the owners or either lies fallow.

The development site would need to be rezoned to “Residential”. Abakhi Consortium will also facilitate the Township Establishment application which would address the rezoning of the land.

### 3.3 Land Tenure

The site comprises various individual small holdings (portions of farm Rietfontein 153IR and Rietspruit 152IR) which are privately owned. GDoH must enter into agreement with each respective landowner in order to set the grounds for land acquisition. It is anticipated that land will be acquired through normal market transactions.

It is the responsibility of GDoH in the concluding stages of the project, post issuance of the environmental authorization, to undertake land negotiations and acquire the development property from respective private land owners.

### 3.4 Project Objective

GDoH is proposing a new social housing project. This social housing project is considered a major investment and development project in the region. The project is aimed at providing accommodation to the greater Palm Ridge area located in the Katlhong / Thokoza region. The area still fosters informal settlements and also mostly has backyard dwellers that have been residing in the area for a long period and are on current waiting lists for relocation at GDoH. There currently is relocation projects underway in the area aimed to accommodate those in need. Further accommodation is yet required to address the housing backlog within the region through major development initiatives. This project is critical in the eradication of the housing backlog.

The objective of GDoH is to eradicate all slums or informal settlements and establish integrated, sustainable human settlements. This initiative allows people to live near work opportunities, close to schools, clinics and other amenities. The aims of the initiative is to create non-racial, diverse communities and offer a choice of housing ranging from subsidized houses, bonded houses and apartments for rent.

The project is aimed at addressing the demand from the surrounding areas. Once the demand from the surrounding area has been met, focus will be placed on outside areas in need of accommodation that may be housed in the residential development.

### 3.5 Project Description

The intent is to develop the study site for social housing through the establishment of a subsidised residential development consisting of a mix of housing typologies varying in erf sizes, public service, municipal, business and commercial sites with accompanying infrastructure.

A mix of housing typologies refers to subsidised housing, affordable housing and apartments for rent to poor and medium income families.

The development would include the following land uses:

**Table 4: Proposed development land uses**

Zoning	Land use	No of stands	Households
Residential	Stands Single Res	11 126	13 908
	Stands Multi Res	35 (2 782 households)	
Educational	School (Secondary)	3	
	School (Primary)	9	
Institutional	Municipal	2	
	Community facilities	5	
	Government	3	
Business	Retail/business	7	
	Hawkers	2	
Public Space	Local Sport Complex facilities	1	
	Public Parks	42	
Mobility	Nodal Transfer Facility	1	
	Taxi/Bus Holding Area	1	
<b>Sub Total</b>		<b>244. 5522 hectares</b>	
Roads provision (20% of development area)		61. 3810 hectares	
<b>Total Area</b>		<b>305.6903 hectares</b>	

The site scoped and assessed as part of the EIA study is approximately 378 hectares. This extent does however does not define the developable area. The developable area would be approximately 305.6903 hectares. These approximates may change depending on environmental features delineated during the EIA study.

The development rationale for the project optimises development densities to fulfil targets set by GDoH. Design accommodates approximately 13 900 families residing on residential stands with an average of 120m<sup>2</sup> and in residential apartments where the average density is 100 units per hectare. Multi residential stands will require the following development controls:

- Zoning: Residential 3 (Permitting Dwelling Units and Residential Buildings)
- FAR: 0.6
- Coverage: 40%
- Height : 2 Storeys

Bulk services would be required for the development.

### 3.6 Services Requirements

The development would require the provision of water and sanitation services, surfaced access roads and formal storm water facilities. EMM is the custodian service provider for the area. The site falls within the service delivery unit of Katilehong 2 CCA. There are however no service infrastructure ito water, sanitation and waste management on the development site.

A Bulk Services Report will be compiled during the EIA phase to quantify the service demand for the development proposal. From these demand statements infrastructure proposals would be narrowed down to the most feasible options available in the area. The Bulk Services Report would include an engineering design layout of the infrastructure proposals for the subsidized development. Details would be included in the EIR.

Services must be established for the development proposals before the housing component can be constructed. Services are also a determining factor in the decision making process. Eg. Development cannot proceed without provision of services.

### **3.6.1 Water provision:**

The development would cater for housing of low to medium-income households. Based on the limit for small to medium units the Average Annual Daily Demand (AADD) per erf is 700 litres of water per day.

The development would require estimated 3551 mega litres (ML) of water per annum during the operational phase. [(700 litres x 13 900 households) x 365 days]. Please note these are preliminary estimates which would be adjusted in the EIR according to development design specifics.

In order to meet the demand the following scenarios can be implemented:

Scenario A: There is an existing Rand Water line which cuts across the site parallel to K91 provincial Road (R550). It would be feasible for the development to connect to this existing bulk water network from Rand Water.

Scenario B: A formal settlement exists on the northern side of the proposed development, namely Palm Ridge. This settlement has a water reticulation network of various pipe diameters. If connecting to existing water network in Palm Ridge, pipelines will need to be upgraded in terms of size, in order to meet the demand exerted on them.

### **3.6.2 Waste Management**

The development site is located directly south of existing townships Eden Park, Greenfields and Palm Ridge. The proposal is therefore considered a natural expansion for development. Bulk services are available in the area and adjacent to site.

The waste management would feed into the existing municipal waste streams and would be dealt with to ensure that all waste (construction, domestic, effluent) be disposed of appropriately. Waste management includes sewage and solid waste.

Sewage is waste produced by toilets, bathing, laundry, or culinary operations or the floor drains associated with these sources, and includes household cleaners, medications, and other constituents in sewage restricted to amounts normally used for domestic purposes.

Solid waste is commonly known as refuse or rubbish and is a waste type consisting of everyday items that are discarded by the public.

#### **3.6.2.1 Solid waste**

During the construction phase solid building rubble would be generated monthly. The construction phase will continue for a period of approximately 4-5 years. The construction waste would need to be disposed of at a municipal waste disposal site.



Due to the extent of the development high volumes of domestic waste will be produced. Domestic waste generated would feed into the municipal waste stream and will be removed to a municipal landfill site.

#### 3.6.2.2 Sewage (& Sanitation)

The development would generate 600 litres of sewage / grey water per family per day. The estimated volume of sewerage per annum during the operation phase is 3044 mega litre (ML). These are preliminary estimates to be adjusted in the EIR according to design specifics.

Bulk sewer infrastructure is available from adjacent properties however; there will be a need to upgrade outfall sewer pipelines in order to accommodate additional flows.

#### 3.6.3 Storm Water Management

Bulk and links services for storm water management are required as the project is located on an undeveloped area. Currently the roadways form part of the Storm Water Management system as much as possible.

There is storm water discharge from the urban settlements abutting the development site. An attenuation pond is present on southern boundary of the site, next to the R550 Heidelberg Road.

There is a tributary of the Natalspruit crossing the site from north-west to east in the most eastern portion of the site. This tributary would need to be delineated and the 1: 100 year floodline calculated.

The development of the site would increase the amount of run off discharged from the area and the township would require storm water management. The natural flow of storm water would be channelled towards drainage patterns in the area.

Existing storm water infrastructure around the site are inadequate and it is essential to provide adequate storm water drainage facilities capable of providing protection for a 20 year storm in order not to flood houses at critical positions.

A storm water management plan is required to give the township design direction in terms of any attenuation ponds or servitudes required.



development would make use of public transport and this will impact on major access loops. These routes currently do not have supporting infrastructure for public transport like taxi bays and bus routes.

There may be a need to upgrade the existing road system. Roads widths may have to be increased.

A Traffic Impact Assessment (TIA) would be commissioned to fully assess the required road upgrades.

## **4 NEED AND DESIRABILITY OF THE PROJECT**

Ekurhuleni accommodates a population of + 2.7 million. This constitutes + 5.6% of the national population and makes up 28% of Gauteng's population. The population density is approximately 1 400 people per km<sup>2</sup>, making Ekurhuleni one of the most densely populated areas in the country and province (Source: Draft 2009-2013 Ekurhuleni Metropolitan Municipality Integrated Development Plan)

Many people in Ekurhuleni still live in overcrowded informal settlements without adequate access to engineering and social infrastructure. The creation and promotion of sustainable human settlements is therefore an important priority. The GDoH has therefore decided to alleviate the problem of adequate housing through establishment of the proposed subsidized residential development.

## **5 PROJECT ALTERNATIVES**

### **5.1 Consideration of alternatives**

Alternatives are different means of meeting the general purpose and need of a proposed activity, taking into account location or site alternatives, activity alternatives, processes or technology alternatives, temporal alternatives and the no-go alternative. Evaluation of alternatives also allows the relative impact of different project alternatives on the environment to be considered. (DEAT (2006) Guideline 5: Assessment of Alternatives and Impacts in support of the EIA Regulations, 2006-IEM Guideline Series)

According to NEMA Regulations part of the criteria to be taken into account by competent authorities when considering applications are feasible alternatives for the application. It is therefore necessary to provide the need and desirability of the activity and to provide a description of the potential alternatives to the proposed activity, including advantages and disadvantages that the proposed activity or alternatives may have on the environment and the community that may be affected by the activity.

### **5.2 Alternatives to be considered for project**

“Alternatives are different means of meeting the general purpose and need of a proposed activity”

GDoH is proposing to establish a subsidised residential development in a priority area of EMM. As part of the BNG initiative GDoH wants to establish integrated, sustainable human settlements to low and medium income groups to eradicate informal settlements, address poverty and uplift the quality

of living for such families. This proposal would offer a choice of housing ranging from subsidized houses, bonded houses and apartments for rent. The aim of the establishment of the residential development in Rietfontein is to provide land uses which would provide for a sustainable development. The development would cater for the current demand in the greater Palm Ridge area and there after accommodate other focus areas.

The identification, description, evaluation and comparison of alternatives are important for ensuring the objectivity of the assessment process. The aim is to ensure that the selected activity has the fewest negative impacts, while meeting the identified need.

Alternatives that would be considered in detail in the EIR will include:

- i. Activity alternatives: Consideration of activity alternative refers to considering other activities to address the same ends.
- ii. Location or site alternatives: Location refers to the property on which the proposal is intended and possible location for certain activities within the property. Location alternatives can also refer to considering other sites to commission the project. Insitu development vz. Expansion onto undeveloped areas
- iii. Layout / Design Alternatives for residential development: refers to the placement of land uses and infrastructure within the developable area to optimise the site and also provide environmental safeguard to sensitive features identified; Design alternatives could also refer to the architectural designs of the social housing units; engineering designs of the services infrastructure and roads
- iv. Scale alternatives: Refers to the actual size of the development proposed and social housing component quantities proposed. GDoH is proposing to provide a mix of housing typologies. Scale can refer to 15 000 bonded and subsidized houses instead of 25 000 apartments accommodated in block flats or rather 30 000 RDP houses vz. 15 000 bonded houses.
- v. Demand alternatives: Considering other means to meet the current demand for accommodation in the area.
- vi. Technology alternatives: The use of solar geysers for provision of warm water per unit instead of electrical geysers. This technology alternative would lower living costs (electricity costs). Such alternatives can be applied throughout the development to achieve the same ends. Installation of solar panel street lamps as appose to electrical street lamps.
- vii. Land use alternatives: Refer to the considerations of alternative land uses that can be undertaken on the development site aside from social housing. Continuation of rural agricultural activities, urban agricultural integration or commercial and business stands along the R550.
- viii. No go option: This option refers to the status quo remaining and no development taking place. Currently the site is divided into small holdings with the current land use zoning being agriculture. The small holdings provide accommodation and a livelihood to its holders. If the development does not take place the current land use will continue.

The content of the Scoping Report is outlined under Section 28 of the NEMA Regulations of 2010. It is indicated that a description of the environment that may be affected by the activity and the manner in which the activity may affect the environment should be considered. The receiving environment consists of different component such as the biophysical and socio-economic environment.

Information pertaining to the receiving environment and its social surroundings has been sourced through baseline site investigations, desktop analysis and use of tools such as Geographic Information Systems. NEC conducted a site visit on 12 and 15 July 2013 to the study site.

### **6 Biophysical Environment**

#### **6.1 Current condition of development site**

In regional context Alberton is developed alongside the banks of the Natalspruit, stretching from Alberton to Thokoza. The study site nl. Rietfontein, Palm Ridge, Eden Park and Greenfields including Tsietsi Phase 5 are located on the western bank of the Natalspruit. The Kliprivier is located further west of the site. The Kliprivier Groundwater compartment with its dolomite zones is located further west of the site with an associated wetland closer to the study site. Vegetation units corresponding to the geology of the site such as the Kliprivier Highveld Grassland and Carltonville Dolomite Grassland (CDG) occur on site, CDG being the dominant unit. The site is characterised by agricultural holdings trying to survive the pressures from development from the north and off site impacts from such developments.

The site has become prone to thoroughfare with solid waste dumping along the K91 provincial road.

Some of the plots have been vacated by the owners with a moderate number of plots occupied west of the K91 Provincial Road and on the southern boundary of the site towards the R550 Heidelberg Road. There is a tributary of the Natalspruit traversing the site in its most southern point. The site can be considered to be moderately disturbed due to off-site impacts from settlements north.

The study site does not typify its earlier ecological status. The dominant vegetation unit is CDG which is slightly undulating plains dissected by prominent rocky chert ridges.



**Figure 6: Rural settings of site with urban pressures from the north and tributary of Natal'spruit**

## 6.2 Geology and Soils

### Geology

The entire site is underlain at shallow or great depth by andesite, agglomerate and tuff of the Klipriviersberg Group of the Ventersdorp Supergroup. There is a rocky outcrop in the eastern and central areas of the site but are covered by the younger rocks of the Black Reef Formation and the Chuniespoort Group of the Transvaal Supergroup.

The western section of the site is underlain by dolomite and chert of the Chuniespoort Group and shale, quartzite and conglomerate of the Black Reef Formation. This section of the site is located in the greater Klip River dolomite Ground water Compartment. The entire site is blanketed by colluvium.

Alluvium may occur in the extreme eastern section of the site. (Desktop study report ASA Group, July 2009).

The development site is divided into two distinct zones (A and B). Zone A is non-dolomitic and has no risk for instability. Zone B is dolomitic and has a high risk of small to medium sized sinkholes and a high risk of dolines developing. Development restrictions may need to be implemented in Zone A as it may pose instability risks to the development. A geological engineer would be appointed to conduct a full Dolomitic Stability Investigation for the site. The recommendations from this report would guide the layout of the development and land uses proposed within the residential development.



**Table 5: Lithology**

Lithostratigraphic unit	Lithology
Malmani Subgroup, Chuniespoort Group, Transvaal Supergroup	Dolomite, chert and associated soil derivatives
Black Reef Formation	Shale, quartzite and conglomerate
Klipriviersberg Formation, Ventersdorp Supergroup	Andesite, tuff and agglomerate

The study area is likely to be mantled in places by unconsolidated material deemed to be various recent deposits. Occasionally thick sequences of transported soils, particularly aeolian sand, silt and clay occur, suggesting the presence of more recent palaeo-features such as paleo-sinkholes. The material varies in thickness, sedimentological-and geotechnical properties:

**Table 6: Deposits**

Post-Gondwana Deposits		
Fill Material	Variable composition	
Pedcretes (cemented soils)	Calcrete (cemented or replaced by carbonates) Ferricrete (cemented or replaced by iron oxides) Silcrete (cemented or replaced by silica) Mangacrete (cemented or replaced by manganese oxides) OR Calcified soils (less than 50% cement or replacement material) Ferruginised soil Silicified soil Manganised soil	
Transported Soils	Colluvium: Talus (Coarse Colluvium) Hillwash	Soils of sandy, clayey and silty composition
	Alluvium	Boulders, cobbles, gravel (in channel deposition) Fine gravels and silts (point bars, alluvial islands) Sands and silts (levees) Clays (backswamps and depressions)
	Sandy Soils of Mixed Origin	Silty and clayey sands, sandy silts, sandy clays (Red brown, orange brown, or yellow in colour)

A detailed geotechnical investigation will be undertaken and details will be included in the EIA Report.

### 6.3 Topography

The site is in a lower lying area as the northern formal settlements. The property is divided by a central ridge of high ground (elevation 1538m) with the high ground falling towards the east to 1510m and south west to 1515m. . The property slopes predominantly in a southerly direction. Elevation profiles and contour lines for the site indicated that slopes do not seem to exceed 2 degrees. The site comprises slightly undulating plains.



## 6.4 Wetlands and Drainage line / Geohydrology

### Wetlands and Drainage lines

The proposed site falls within the Upper Vaal Catchment in Water Management Area no. 8 within tertiary drainage region C22 and quaternary drainage area is C22C. The Natalspruit River flows further east of the site. The Klip River is located further west of the site.

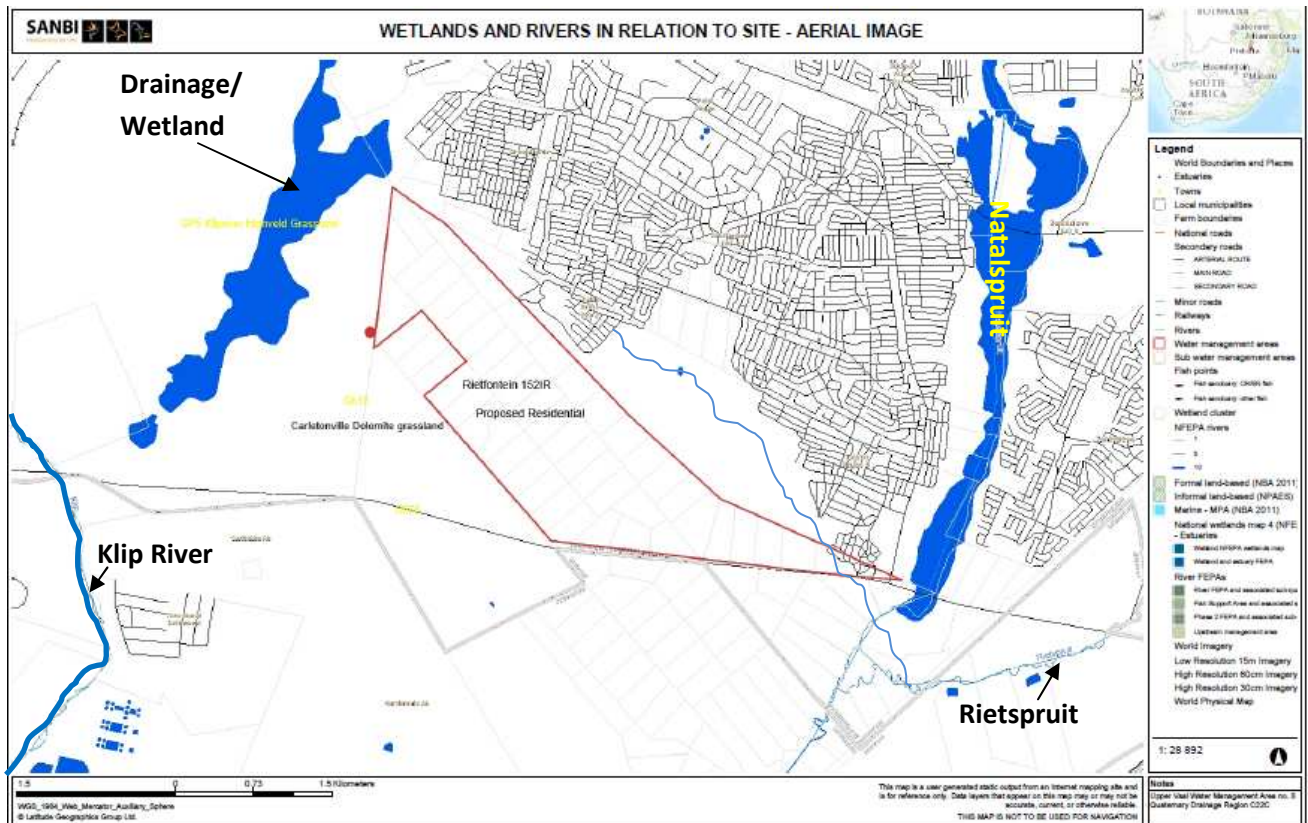


Figure 8: Wetlands and drainage patterns in the study area

There is also a storm water discharge from the urban settlements abutting the development site. An attenuation pond is present on southern boundary of the site, next to the R550 Heidelberg Road.

There is a tributary of the Natalspruit crossing the site from north-west to south in the most southern portion of the site.

The development layout would need to take cognisance of seepage areas, wet areas and natural water flows. Servitudes and storm water management would be required to channel the flows away from buildings. Development should not encroach on such areas.

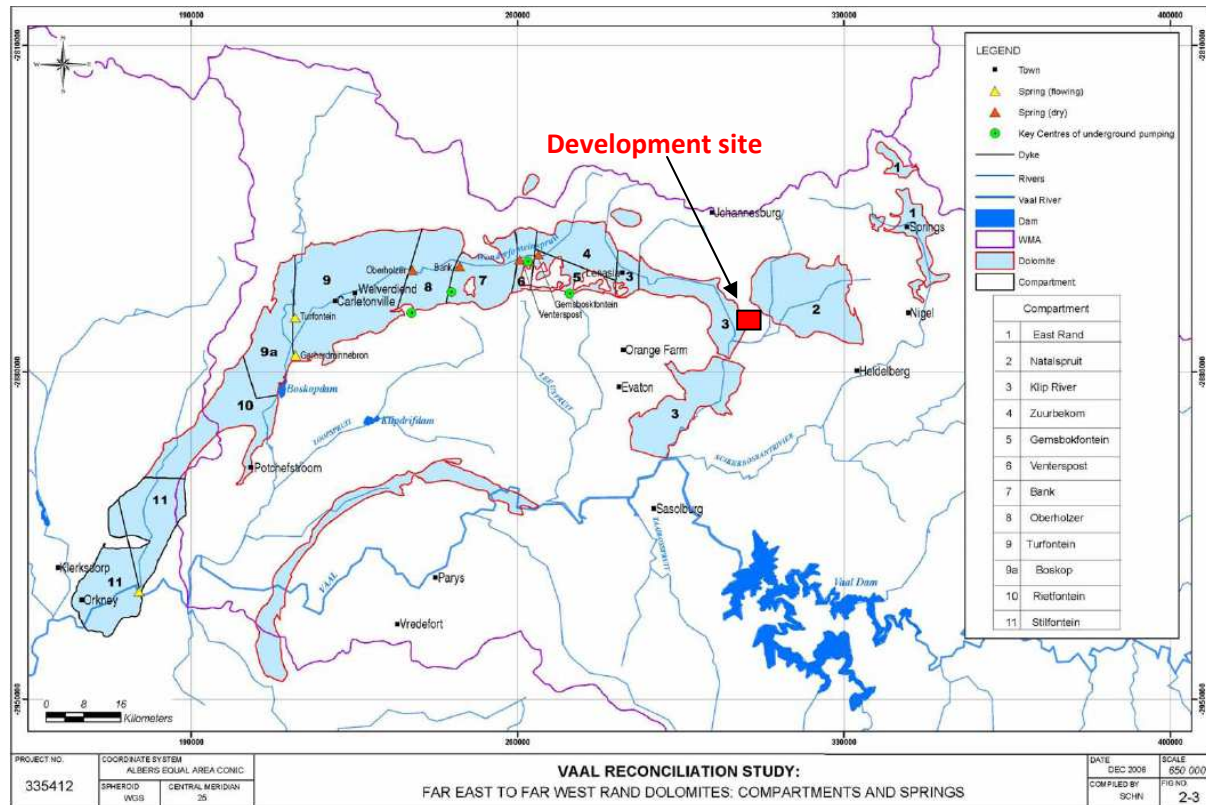
A specialist will be appointed to conduct a full Wetland Impact Assessment for the EIA Phase to delineate any wetlands and water features on site. An engineer would be appointed to calculate the 1: 100 year floodline of the tributary.

## Geohydrology

There are two groundwater compartments associated with the main drainage lines in the broader area. The study site falls within the Kliprivier and Natalspruit Dolomitic Ground Water compartment areas. The compartments are:

- Klip River Groundwater Compartment (GC);
- Natalspruit Groundwater Compartment (GC)

The western section of the site is located in the greater Klip River dolomite GC. Please refer to Figure 9 for location of site in relation to the Klip River Dolomite GC.



**Figure 9: Location of site in terms of Klip River Dolomite GC (map abstracted from the Vaal River System: Large Bulk System Reconciliation Strategy, Ground Water Assessment: Dolomite Aquifers, 2006, DWAF Report Number: P RSA C000/00/4406/06)**



**Figure 10: DWA Aquifer Classification, 2012**

According to the Department of Water Affairs Aquifer Classification Map of South Africa (August 2012), the majority of the site covers a minor aquifer region (green) which is moderately yielding and of variable water quality. Areas further west and south of the site correspond to

major aquifer regions (blue).

The development site is characterised by agricultural holdings. There are several boreholes on the development site. The average depth at which water may be struck on the development site is anticipated to be from 30-50 metres. There is however dolomitic zones in the north western section of the site associated with the Klip River where ground water may be struck at depths of 5-10m below ground. Perched groundwater conditions may emanate from these dolomitic zones further west of the site.

The quality of the natural dolomite groundwater is essentially a Ca/Mg (HCO<sub>3</sub>)<sub>2</sub> type, alkaline and with an EC of <70 mS/m. However, the impacts of mining, industrialisation, waste disposal and agriculture have modified this natural water quality to a greater or lesser extent over most of the dolomite area.

A Geotechnical investigation will be commissioned for the EIA phase which will determine the original water levels from geohydrological data. A Wetland Assessment would also be conducted as part of the EIA Impact Phase to delineate seepage areas and wetlands. Details will be included in the EIR.

## 6.5 Climate

The closest weather report/station was found for Alberton which is located some 10km north of the development site. The area enjoys a dry, sunny climate, with the exception of occasional late afternoon downpours in the summer months of October to April. Winter is the sunniest time of the year, with cool days and cold nights. Regular cold fronts pass over in winter bringing very cold southerly winds but usually clear skies.

## 6.6 Temperature

The average midday temperatures for the area range from 16.8°C in June to 26.7°C in January. The region is the coldest during July when the mercury drops to 0.1°C on average during the night.

**Table 7: Average Temperature**

Month	Daily maximum temperature ( °C )	Daily minimum temperature ( °C )
January	26	14
February	26	14
march	25	13
April	23	10
May	20	6
June	18	3
July	18	3
August	21	5

September	25	9
October	26	11
November	26	12
December	26	14

## 6.7 Rainfall

The mean annual rainfall for the area is 813 mm. The highest rainfall occurs during January (128.4mm) to December (151mm). It receives the lowest rainfall in July (4mm).

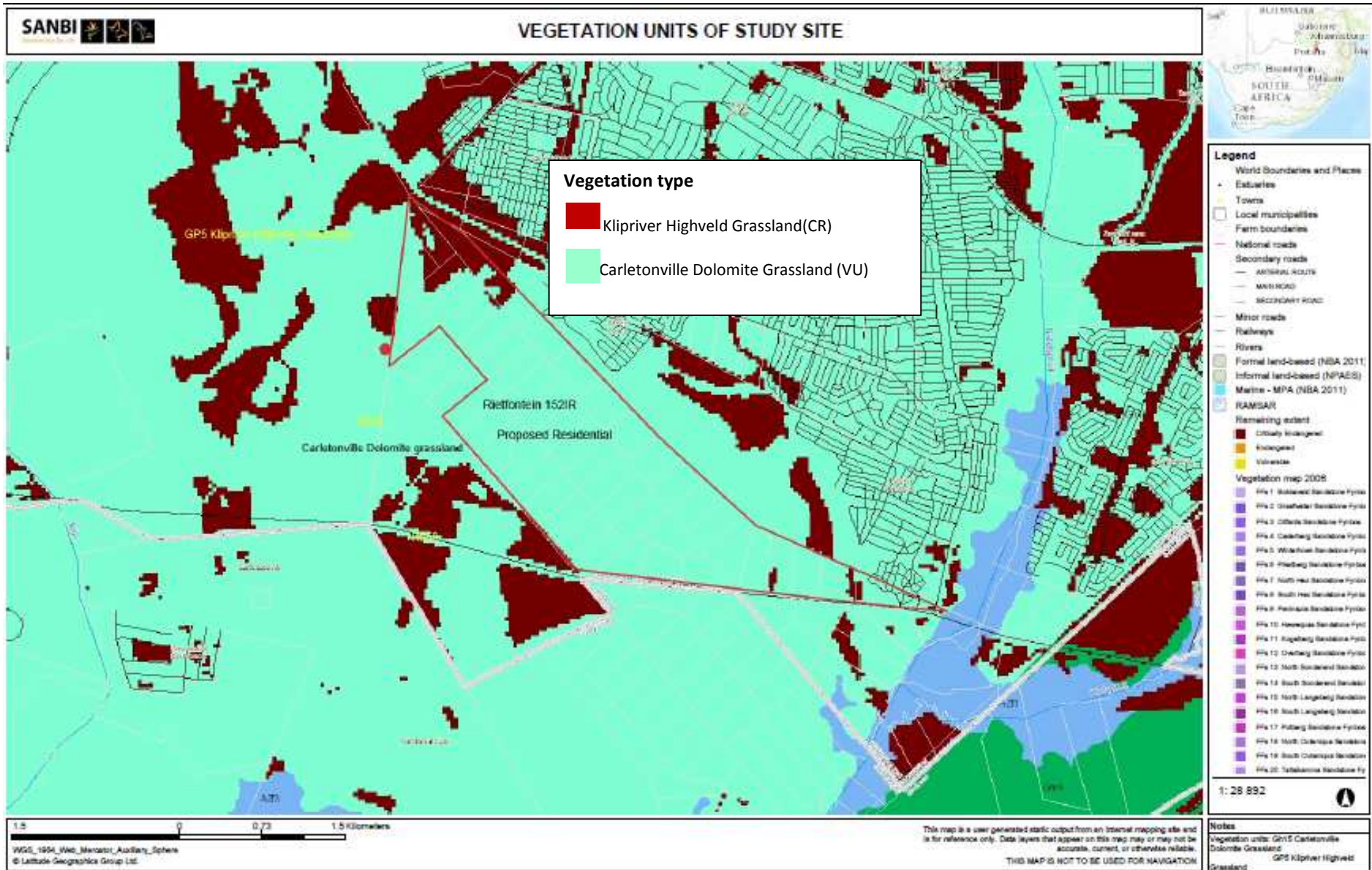
**Table 8: Average Rainfall**

Month	Precipitation (mm )	Average Rainfall days
January	128.4	19
February	143.5	15
march	102	15
April	39.6	10
May	25.1	5
June	11.6	3
July	4	1
August	14.1	3
September	19.6	5
October	78.9	15
November	99.3	18
December	151	21
<b>Total</b>	<b>813 mm per annum</b>	<b>130 average rainfall days</b>

## 6.8 Vegetation

The study site is located in the Grassland Biome and more specifically on the Dry Highveld Grassland Bioregion as defined by Mucina & Rutherford (2006). The study site comprehends two ecological types, namely Carletonville Dolomite Grassland and Klipriver Highveld Grassland.

Refer to **Figure 11: Vegetation units of study site, page 20** for the proportion of the different vegetation units corresponding to the site.



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Proposed establishment of a subsidised residential development, south of Palm Ridge, Ekurhuleni, Gauteng  
Draft Scoping Report;      Compilation date: August 2013  
*Naledzi Environmental Consultants CC Reg. no. 2003/0890358/23*

(a) Carletonville Dolomite Grassland (Gh 15)

This vegetation type is responsible for the largest surface area on the site (95%). It is prominent on dolomite and chert of the Malmani Subgroup (deeper red to yellow apedal soils). The vegetation type is typical of the slightly undulating plains dissected by prominent rocky chert ridges.

According to the national vegetation map (Mucina & Rutherford 2006; SANBI BGIS) the proposed study area falls within the vegetation type Carletonville Dolomite Grassland (Gh 15). Less than 2 % is statutorily conserved as oppose to the targeted 24%, indicative that the vegetation type is poorly conserved. Almost a quarter has already been transformed by cultivation, by urban sprawl or by mining activity. 76.1% of the vegetation unit still remains. This vegetation type is classified as “Vulnerable”. Only a small extent conserved in statutory (Sterkfontein Caves—part of the Cradle of Humankind World Heritage Site, Oog Van Malmani, Abe Bailey, Boskop Dam, Schoonspruit, Krugersdorp, Olifantsvlei, Groenkloof) and in at least six private conservation areas. Almost a quarter already transformed by cultivation, urban sprawl or by mining activity as well as the building of the Boskop and Klerkskraal Dams. Erosion very low (84%) and low (15%).

Endemic taxon the succulent Shrub *Delosperma davyi* is listed for this vegetation unit. The species habitat is mainly found on dolomitic rocks at the edge of dense shrubs.

This vegetation unit mainly occurs in the North-West province but also in Gauteng and marginally into the Free State Province. It is distributed in the region of Potchefstroom, Ventersdorp and Carletonville, extending westwards to the vicinity of Ottoshoop, but also occurring as far east as Centurion and Bapsfontein in Gauteng Province. The altitude ranges from 1 360–1 620 m.

It occurs on slightly undulating plains dissected by prominent rocky chert ridges. It forms a complex mosaic pattern dominated by many species. The unit is scattered in protected places (amongst rocks and boulders) with prominent grasses such as *Loudetia simplex* (Common Russet Grass), *Hyparrhenia hirta* (Common thatching Grass), *Brachiaria serrate* (Velvet Signal Grass) and *Heteropogon contortus* (Spear Grass) and scattered shrubs including *Euclea undulate* (Common Guarii), *Rhus magalismsontanum* (Berg Taaibos), *Zanthoxylum capense* ( Small Knobwood) and *Diospyros lycioides* (Bluebush).

**Table 9: Dominant species within the Carletonville Dolomite Grassland**

Vegetation type	Carletonville Dolomite Grassland
Graminoids:	<i>Aristida congesta</i> , <i>Brachiaria serrate</i> , <i>Cynodon dactylon</i> , <i>Digitaria tricholaenoides</i> , <i>Diheteropogon amplexans</i> , <i>Eragrostis chloromelas</i> , <i>Eragrostis racemosa</i> , <i>Heteropogon contortus</i> , <i>Loudetia simplex</i> , <i>Schizachyrium sanguineum</i> , <i>Setaria spahcelata</i> , <i>Themeda triandra</i>
Herbs	<i>Acalypha angustata</i> , <i>Barleria macrostegia</i> , <i>Chamaecrista mimosoides</i> , <i>Chamaesyce inaequilatera</i> , <i>Crabbea angustifolia</i> , <i>Dianthus mooiensis</i> , <i>Dicoma anomala</i> , <i>Helichrysum caespitium</i> , <i>Helichrysum miconiifolium</i> , <i>Helichrysum nudifolium</i> var. <i>nudifolium</i>

Geophytic Herbs	Boophone disticha, Habenaria mossii
Low Shrubs	Anthospermum rigidum subsp. Pumilum, Indigofera comosa, Pygmaethamnus zeyheri var. rogersii, Rhus magalismontana, Tylosema esculentum, Ziziphus zeyhriana
Geoxylic suffrutices:	Elephantorrhiza elephantine, Parinari capensis subs. Capensis

(b) Klipriver Highland Grassland (GP 5)

Pockets of the Klipriver Highveld Grassland vegetation unit are scattered in the local area. Only a minor section of the study site corresponds to this unit in the most northern corner of the site.

This vegetation unit is classified as a threatened ecosystem and is “Critically Endangered”.

This vegetation is listed as a priority area for meeting explicit biodiversity targets as defined in a systematic biodiversity plan- Very high irreplaceability and high threat status.

The remaining natural area of this ecosystem is 62%. Only 1% of the ecosystem is protected or the original area. This vegetation unit hosts species of special concern, 25 threatened or endemic plant and animal species including those listed below.

The geographical location of the unit is Johannesburg south including Grasmere, Alberton, and Springs (2627BD, 2628AC, 2628AD respectively). Ecosystem delineated by the Klipriver and associated wetlands and non-perennial rivers, together with the Klipriviersberge ridge system and associated drainage lines.

Key biodiversity features including Red or Orange Listed plants for example Cineraria longipes, Delosperma purpureum, Delosperma leedndertziae, and Trachyandra erythorrhiza; Red and Orange listed birds for example African March-Harrier, African Grass-Owl, Greater Flamingo, and Melodius Lark; Red or Orange Listed or priority invertebrates for example Roodepoort Copper Butterfly, Marsh sylph, Orachrysops mijbrughi, and Golden Starburst Baboon Spider; and six vegetation types amongst others Carletonville Dolomite Grassland. A number of rivers, wetlands and pans are key features in the ecosystem which includes amongst others the Klipriver, Natalspruit and Rietspruit, and various other unnamed wetlands and pans.

The areas on site corresponding to this vegetation unit has been transformed and encroached upon due to off-site impacts on habitat from existing settlement development.

## 6.9 Fauna

The development site has little faunal activity. The site has been transformed through rural agricultural activities, cattle grazing, illegal dumping and creation of several thoroughfare tracks.

Few birds were observed on site. The Crowned Plover (Kroonkiewiet; *Vannellus coronatus*) and Hadedah were mostly spotted in the short grassland and along the drainage area.

There is a drainage line to the southern point of the development site which is considered an ecological corridor and may support a larger diversity of species. Any drainage lines and wetland areas would be delineated and adequate buffer zones implemented to ultimately allow exclusion of these areas from the development layout.

The abundance of species on site is limited to livestock (cattle, goat, sheep and chicken), domestic animals (cats and dogs) and few horses.

Biodiversity assessments would be undertaken for the project area and included in the EIR Report. The specialist studies would consider the anticipated impact and provide mitigations for such impacts.

### **6.10 Sensitive features**

The development site is divided into two geological zones nl. Zone A-non dolomitic zone and Zone B-Dolomitic zone. Zone B is considered a sensitive feature on site as it comprises a dolomitic zone covering a substantial portion west of the K91 provincial road.

There is a high risk of medium sized sinkholes developing and a high risk of dolines developing is the inherent risk classifications in both a dewatering and nondewatering scenario within Zone B.

As this part of the development site is not suitable for residential purposes the following options can be considered:

- a) Exclude area from the development site (if this option is considered it is recommended that the entire parcel west of the Provincial Road be excluded);
- b) Use the area for commercial and light industrial land uses

A Detailed Dolomitic Stability Assessment Report would be commissioned to assess the impacts the development may have on the geological zone and vice versa. Details of the investigation would be included in the EIR. Cognisance would be taken of the delineation of the zones for consideration and placement of specific land uses within the township design.

There is also the presence of a tributary of the Natalspruit draining south into the Natalspruit and Rietspruit which traverse the development property at its most southern portion. The determination of the 1: 100 year floodline of the tributary and the conduct of a Wetland Assessment would delineate the wet areas and guide the township layout design. The 1:100 year floodline would be brought onto the development layout plan. The wetland assessment would delineate any seepage areas and wetlands which would be excluded from the development layout. Details of delineations would be included in the EIR.

### **6.11 Conservation and Protected Areas**

The study site coincides with minor pockets of a “critically endangered” vegetation unit, Klipriver Highveld Grassland. Furthermore the study site corresponds to important land based on the



potential presence of primary vegetation communities and the occurrence of Orange Listed Plant species and Red Listed Bird habitat and is categorized as a critical biodiversity area (GDACE, 2012).

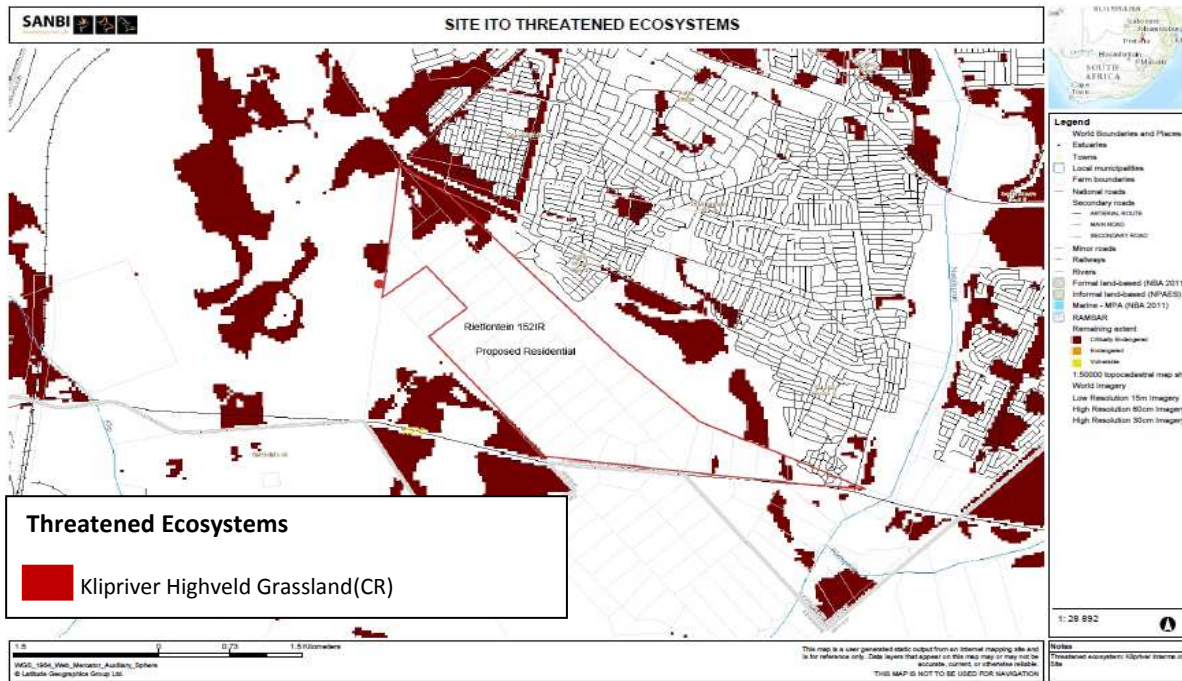


Figure 12: Klipriver Highveld Grassland (Critically endangered) coverage on study site

In addition the Gauteng Conservation Plan also suggests a number of areas with ecological function (pollination, faunal dispersal, hydrological processes and nutrient cycling) that are to be covered by the study site. These act as ecological support areas and include rocky grassland as well as wetlands and tributaries associated with the Klip River and Natalspruit.

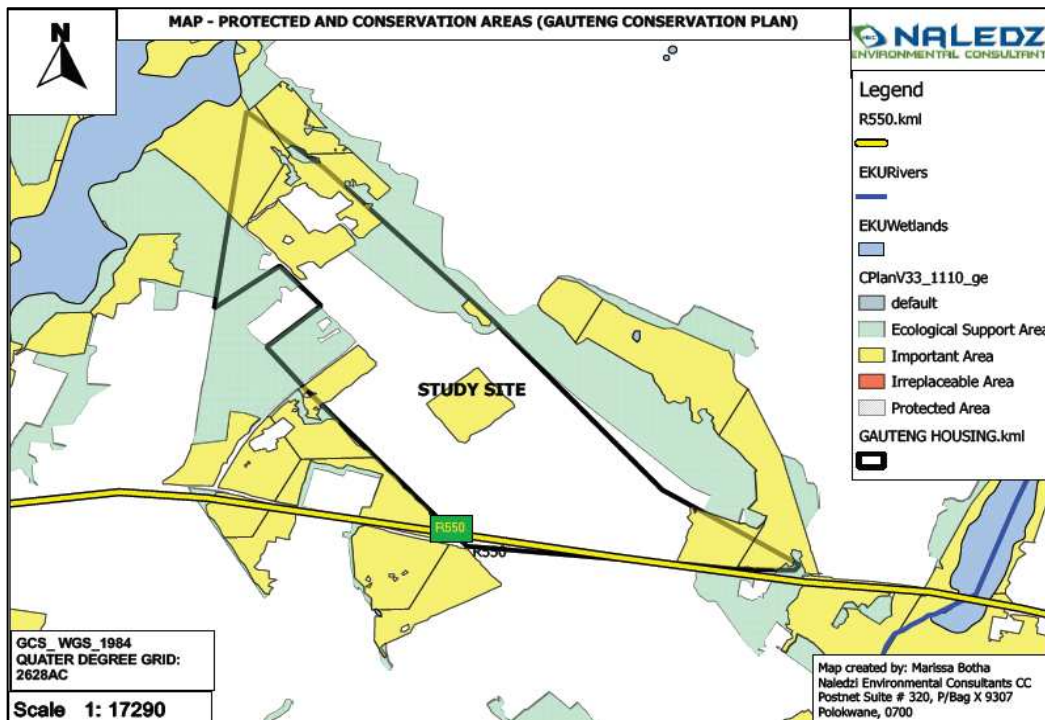


Figure 13: The spatial position of sensitive features and ecological support areas on the study site based on the Gauteng Conservation Plan (GDACE 2012)

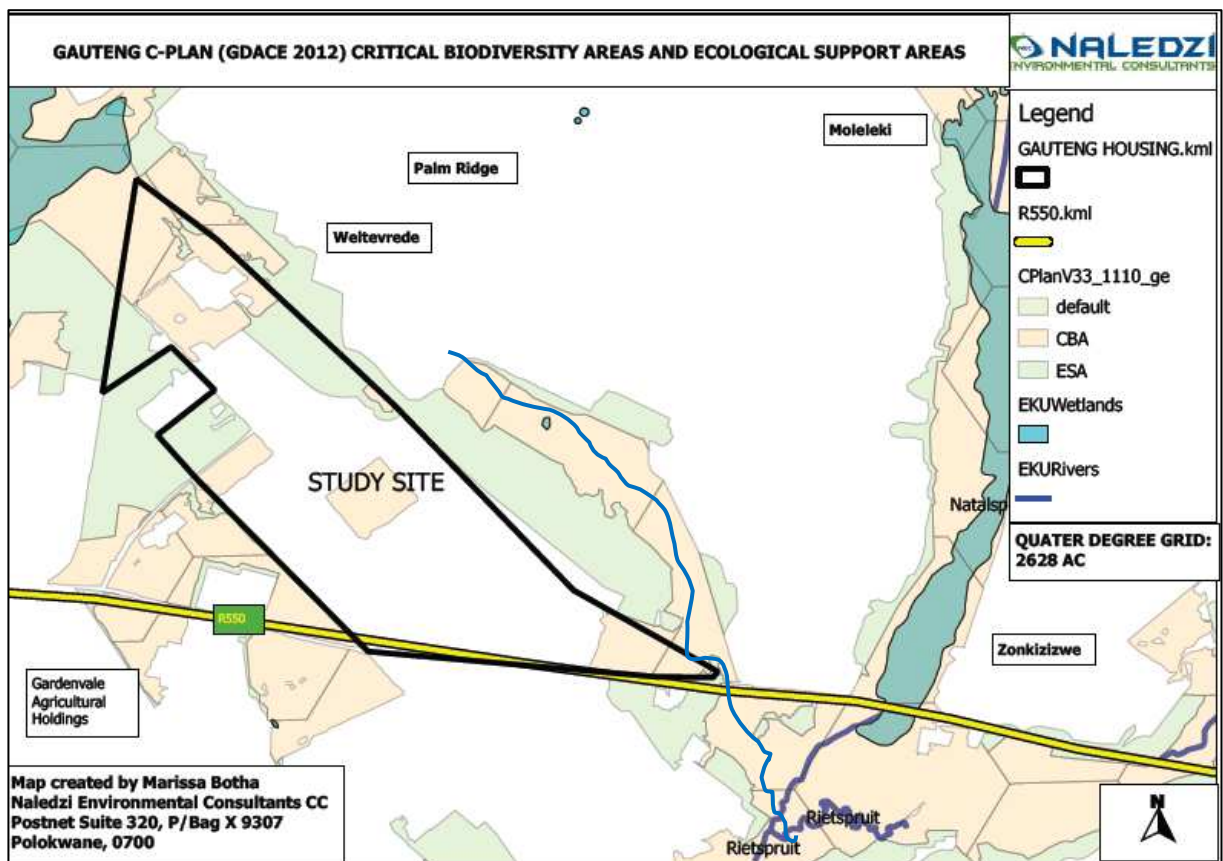


Figure 14: The spatial position of sensitive features and critical biodiversity areas as well as ecological support areas on the study site based on the Gauteng C-Plan (GDACE 2012)



Figure 15: Sensitive features identified on site

An Ecological Impact Assessment would be conducted to assess and mitigate the fauna and flora on the proposed development property. The Ecological Assessment would also consider the presence of Conservation and Protected Areas as outlined in the spatial planning tool, the Gauteng Conservation Plan, 2012. Details of the assessment and proposed mitigation measures would be included in the EIR.

### 6.12 Species of Conservation Concern

On 18 June 2013 reply was received from the Biodiversity unit of GDARD which confirmed per email that the following Biodiversity Assessments would be required to investigate the following aspects:

- Plants with specific reference to: *Habenaria bicolor*, *Gnaphalium nelsonii* and *Trachyandra erythronrhiza*
- Birds with specific reference to: *Sagittarius serpentarius* (Secretary bird) and *Tyto capensis* (African Grass Owl);

Naledzi E. C. conducted a site visit to the study site. No Red or Orange List species were observed on the study site however a number of Red and Orange listed species occurs in the same quarter degree grid as the site. There is a possibility that some of these species may occur on site.

South Africa uses the internationally endorsed World Organisation-International Union for Conservation of Nature (IUCN) **IUCN Red List Categories and Criteria** in the Red List of South African plants. This scientific system is designed to measure species' risk of extinction. The purpose of this system is to highlight those species that are most urgently in need of conservation action. The three threatened categories are Critically Endangered, Endangered and Vulnerable. Species have been evaluated according to the IUCN criteria and the following species are considered as per the Red List Categories of the IUCN to possibly occur on the proposed site:



**Table 10: Red or Orange Listed plants that may occur on site:**

Species	Type	Habitat	Occurrence on site	Status
<i>Gnaphalium nelsonii</i> Burt & Davy		Seasonally wet grassland	Possible the pockets of Kliprivier Highveld grassland (moist grassland) in north western corner of site and most southern point towards tributary of Natalspruit	Rare
<i>Habenaria bicolor</i>	Orchid	Grassland – well drained grassland at 1600m absl.	Carltonville Dolomite Grassland (short structured grassland) encompassing the majority of the study site.	Near threatened
<i>Trachyandra erythronrhiza</i>	Lily species	Wetlands	Wetland further west of the study site. May occur on dolomitic zones west of K91 provincial road	Vulnerable

**Table 11: Red and Orange listed faunal species that may occur on site:**

Species	Common name	Habitat	Occurrence on site	Conservation Status
Sagittarius serpentarius	Secretary bird	Open grassland	Carltonville Dolomite Grassland (short structured grassland). Vacant areas on site - Majority of site	Near Threatened
Tyto capensis	African Grass Owl	Open Grassland Moist grassland and wetlands	Grasslands. Mostly in vacant areas along drainage area to southern portion and north western portion of site	Vulnerable

### 6.13 Ramsar Sites in Ekurhuleni

There is only one Ramsar site in Ekurhuleni which is the Blesbok Spruit Ramsar site. This site is located west of Strubensvale in the eastern regions of Ekurhuleni along the Blesbok Spruit some 40km north east of the development site. Therefore no Ramsar sites occur on the development site.

### 6.14 Land with Agricultural Potential

As the site is characterised as agricultural holdings and land further south of the site into Midvaal also qualify as AH it is necessary to indicate the areas in the study site with agricultural potential as set out in the Environmental Management Framework for Ekurhuleni of 2008.

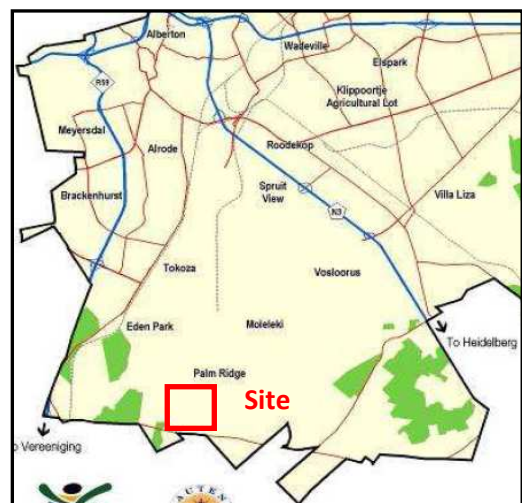
The Gauteng policy on the protection of high potential agricultural land (2006) defines high potential agricultural land as *“Having the soil and terrain quality, growing season and available moisture supply needed to produce sustained high yields of crops economically when treated and managed according to best possible farming practices”*.

Applying this definition, a land capability mapping study was completed during 2006 for Gauteng Province with the objective to identify and protect areas of high agricultural potential. The result of this study was subsequently classified and grouped into the following 5 classes:

- Agricultural hubs
- Important agricultural sites
- Incorporated within the urban edge
- Overlapping the urban edge
- Protected area

Only one agricultural hub as defined by GDARD, occurs in Ekurhuleni in the Bapsfontein area. Several important agricultural areas are scattered across Ekurhuleni.

The study site does not cover an area considered as high potential agricultural land or important agricultural



**Figure 12: Agricultural potential of Region F (green-high potential; yellowish-none)**

areas. The features on site do not supply the necessary characteristics to produce a sustainable yield of crop.

Southwest of the study site there are areas of high potential agricultural land along the Klip Rivier. Further south of the site within the jurisdiction of Midvaal Local Municipality various medium scale farmers cultivate lands along the banks of the Riet Spruit River.

## **7 Social Environment**

### **7.1 Heritage and Cultural Resources**

The study site is located south of Katlehong. Katlehong (place of success) was established in 1945 and has become a high-density area in Gauteng with 6 informal settlements in its southern part. Together with Thokoza and Vosloorus it forms the second biggest black township after Soweto.

Katlehong has expanded through formal settlements Eden Park, Palm Ridge and Greenfields further south towards the Rietfontein Agricultural Holdings (Vereeniging NU) of the farms Rietfontein 153IR and Rietspruit 152IR. The agricultural holdings were established along with agricultural activities along the Klip Rivier and Rietspruit in the area.

There is also a Suikerbosrand Nature Reserve located some 7km south east of the site managed by the GDARD.

Currently there are various dilapidated farm dwellings and associated dilapidated farms structures on the development site. There may be the presence of graves or cultural and heritage resources.

A Heritage Impact Assessment would be conducted during the EIA phase to identify any sites of cultural or heritage importance. Details of the assessment will be included in the EIR.

### **7.2 Existing land use**

The current land use is considered rural agriculture and is elaborated on in the existing and biophysical environment, under current condition of the development site under point no. 6.1 of the report.

Also of importance in terms of land uses is the existence of servitudes on the development property:

- Jetfuel pipeline – NATREF / Total jet fuel pipeline from Sasolburg to OR Tambo International Airport traversing the site;
- A transmission power line servitude routes along the north-west to south-east border of the development site. The power line servitude also cuts across the most southern portion of the development site heading south;
- Possible rail alignment and linkages servitude may traverse the development site;

It is essential that the Regional Town Planner facilitating the Township Establishment application and layout design, source all necessary information on servitudes registered on the respective properties. The location of the servitudes on the development site should be brought onto the

township layout and ample space in the design should be provided to honour such servitudes. Details thereof would be included in the EIR during the EIA Phase.

### 7.3 Future land uses proposed on study site

A township application has been submitted to EMM by Greenfield Gardens Pty Ltd for the proposed establishment of a township to be known as Palm Ridge Ext. 10 compounding Portions 89 & 90 of the farm Rietfontein 153IR. An Environmental process has been followed in terms of NEMA, and the Environmental Assessment Regulations of 2010 for the proposal. The environmental authorisation from GDARD is eminent. The GDARD project reference number is: Gaut: 005/12-13/0426.

In addition indications have been made by Greenfield Gardens Pty Ltd that a development proposal for the Rietspruit / Waterval area, compounding portions 27-33, 55-59, 83-84 of Rietspruit 152IR west of the K91 road and portions 85-98 of Rietfontein 153IR east of the K91 Road has been planned in detail. The western part of the development would consist of affordable housing (bonded) and the eastern part of subsidized housing.

According to the Ekurhuleni Built Environment Performance Plan (EBEPP) the Waterval (Rietfontein land parcels) was already considered a major investment and development project in 2011. It was indicated in the EBEPP that the Waterval project is a large housing project south of Palm Ridge for which a DFA application was already in process at the time. No details on any EIA process followed or GDARD reference numbers were available at the time of compiling the DSR. Further details would be sourced during the Scoping Phase.

The above mentioned proposals have been lodged on the proposed development property under assessment for this Scoping and EIA application by GDoH. It is therefore evident that the study site is in demand for development of housing for expansion of the Palm Ridge area up to the border between Ekurhuleni and Midvaal.

The land under assessment is however privately owned and security of tenure (land acquisition) would be the beneficial factor for each developer/applicant in preceding post all authorisations to commissioning of the said proposals.

### 7.4 Surrounding land use

**Table 13: Surrounding land uses**

Surrounding land use	Direction from site	Distance	Municipal area
Formal Settlements (Katlehong-Palm Ridge, Greenfields, Eden Park)	North	Directly adjacent  300m	Ekurhuleni Metropolitan Municipality
Tsietshi Phase 5	East	Directly adjacent	Katlehong Customer Care Centre 2
Agricultural Holdings	South (south of R550 Heidelberg Road) and	1 km south west	Midvaal Local

Garthdale AH	south west	Directly south of Heidelberg Road	Municipality
Agricultural activities Centre pivots	Along Klip River west of site  Along Riet Spruit River south of site	2.5 km west of site  1.5km south of site	Midvaal Local Municipality
Suikerbosrand Nature Reserve	South east of site	7km south east of site	Mostly in Midvaal Local Municipality  Managed by Gauteng Dept. of Agriculture and Rural Development

Furthermore a township application has been submitted to Germiston Council (EMM) on 31/07/2012 for the proposed development of Palm Ridge Extension 11 which compounds Portions 31, 32, 33, 56 and 58 of the farm Riespruit 152IR. A positive environmental authorisation has been obtained by the developer, Greenfield Gardens Pty Ltd from GDARD. The Environmental Authorisation reference number is: Gaut: 002/08-09/N0816.

This township application proposal does not fall within the development property under application for the GDoH proposed establishment of the subsidized residential development.

## 7.5 Social-Economic Activities

The development site is located south of Palm Ridge, Eden Park and Greenfields. The focus area in this proposed is mostly the broader expansion of the Palm Ridge area which falls within the Katlehong 2 Customer care area of EMM. This area falls in Region F of Ekurhuleni MM located towards the south - eastern border of the City of Johannesburg.

On the southern periphery of Region F there is a very low density residential character, interspersed with agricultural activity and some significant natural resources. The development site is located on this southern periphery.

The population within this Palm Rige/Eden Park/Greenfields area is accounted for as part of Katlehong. 24% of the population or Ekurhuleni resides in Katlehong area. The high population growth rate can be attributed to a combination of natural population growth and influx/migration.

The strength of the Region F is the industrial areas of Wadeville and Alrode. Leeuwpoort is a major development area in this zone. The industrial areas of Wadeville and Alrode remain the backbone of the economy of the region. The region has strong economic and social linkages with the city of Joburg. There is also a new pull factor towards Midvaal in the south because of the location of Heineken which has become an instant pull factor along the R59 corridor.

However in the Katlehong area there is serious overcrowding e.g. in each tiny yard, shacks are set up for rent - one toilet often serves five to six families. Despite being surrounded by an industrial area, there is a high level of unemployment.

According to EMM census information unemployment figures for EMM is 48%. According to statistics it is evident that 19,54% of employed persons in the southern area work in elementary occupations (14,06% in craft or trade, 13% as clerks and 7% as professionals).

In the entire EMM, 9% of the adult population have no schooling. In the year 1996 to 2001, the proportion of adults without any schooling decreased from 8,2 to 7,2% in the northern region and from 11,32 to 10,5% in the south and east. People with a Grade 12 diploma increased from 28,8% to 33% in the northern region and from 19% to 24,6% in the south and east. Individuals with a higher education increased from 8,9% to 14,8% in the north and from 4,67 to 7,45% in the south and east.

The economic targets for EMM are:

- Economic diversification
- Job creation
- Skills development
- Tourism promotion
- Investment promotion and;
- Economic transformation

A Social Impact Assessment will be conducted to determine the social impact and social economic impacts that may stem from the project proposal. Impacts may be either positive or negative. Details of will be included in the EIR.

## LEGISLATION AND GUIDELINES APPLICABLE TO THE PROJECT

### 8 LEGISLATION AND GUIDELINES CONSIDERED FOR THE APPLICATION

#### 8.1 LEGISLATION

There are certain legislative requirements to which the proposed establishment of the subsidized residential development must conform. The requirements of the applicable legislations or acts must be applied to this development proposal.

##### 8.1.1 Constitution of the Republic of Southern Africa Act No 108 of 1996

The Constitution of South Africa is the supreme law of the country of South Africa. It provides the legal foundation for the existence of the republic, sets out the rights and duties of its citizens, and defines the structure of the government.

In terms of Section 24 of the Constitution:

- ✓ Every person has the right to an environmental that is not harmful to their health or well-being and to have the **environment protected** through reasonable legislative measures.

**Environmental protection** is a practice of protecting the natural environment on individual, organizational or governmental levels, for the benefit of both the natural environment and humans. Due to the pressures of population and technology, the biophysical environment is being degraded, sometimes permanently. This has been recognized, and governments have begun placing restraints on activities that cause environmental degradation.



### 8.1.2 National Environmental Management Act, 1998 (Act 107 of 1998)

The National Environmental Management Act, 1998 (Act 107 of 1998 (NEMA) provides for the co-operative, environmental governance by establishing principles for decision making on matters affecting the environment, institutions that will promote cooperative governance and procedures for co coordinating environmental functions exercised by organs of state.

For the establishment of the subsidized residential development to be commissioned, an Environmental Impact Assessment study is required. The EIA study is conducted in terms of Regulations R544, R545 and R546 promulgated on 18 June 2010 of the Regulations compiled in terms of Section 24 and 24 (D) read with Section 44 of the National Environmental Management Act (Act No 107 of 1998). The Regulations lists the activities as per categorical Listing Notices which would require the undertaking of an EIA in order to obtain environmental authorisation for the activities.

GDoH has applied to GDARD for such listed activities triggered by the proposal and would ultimately seek environmental authorisation to prove the development environmentally feasible. The proposal triggers activities listed in all three notices R544 – Listing Notice 1, R 545-Listing notice 2 and R546-Listing notice 3.

Listing Notice 1 requires that a Basic Assessment Process is followed and Listing Notice 2 requires that a full Scoping and EIA process is followed. The listed activities fall within both the requirements however the activities listed under Listing Notice 1 have a lesser impact than those of the activities requiring an EIA. The main listed activity for the project is Activity 15 under Listing Notice 2 and therefore result in a full Scoping & EIA being undertaken for the proposed project.

### 8.1.3 Applicable Listing notices and triggered activities under EIA Regulations, 2010

Relevant Government notice	Activity no	Listing activity Description
R 544, 18 June 2010	Listing Notice: 1 Activity: 37	The expansion of facilities or infrastructure for the bulk transportation of water, sewage or storm water where: <ul style="list-style-type: none"> <li>(a) The facility or infrastructure is expanded by more than 1000 metres in length; or</li> <li>(b) Where the throughput capacity of the facility or infrastructure will be increased by 10% or more –</li> </ul> Excluding where such expansion: <ul style="list-style-type: none"> <li>(i) Related to transportation of water, sewage or storm water within a road reserve; or</li> <li>(ii) Where such expansions will occur within urban areas but further than 32 metres from a watercourse, measured from the edge of the watercourse</li> </ul>
R 544, 18 June 2010	Listing Notice 1 Activity 47	The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre – <ul style="list-style-type: none"> <li>(a) Where the existing reserve is wider than 13.5metres; or</li> <li>(b) Where no reserve exists, where the existing road is wider than 8metres</li> </ul>

		Excluding widening or lengthening occurring inside urban areas.
<b>MAIN ACTIVITY</b> R545, 18 June 2010	Listing Notice: 2 Activity: 15	Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where total area to be transformed is 20 hectares or more:  Except where such physical alteration takes place for (i) Linear development activities; (ii) Agriculture or afforestation
R546, 18 June 2010	Listing Notice: 3 Activity: 13	The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitute indigenous vegetation, except where such removal of vegetation is required for:  1. Undertaking of a process or activity included in the list of waste management activities published in terms of section 19 of National Environmental Management: Waste Act, 2008, in which case the activity is regarded to be excluded from this list; 2. The undertaking of a linear activity falling below the threshold;  Geographical area:  (a) Critical Biodiversity areas and ecological support areas as identified in systematic biodiversity plans adopted by the competent authority; (d) Gauteng: (v) Sites identified as irreplaceable or important in the Gauteng Conservation Plan

#### 8.1.4 National Water Act, Act 36 of 1998 (NWA)

The principles and objectives of the NWA are to guide the protection, use, development, conservation, management and control of water resources in a sustainable and equitable manner for the benefits of all persons.

The aim of the NWA is to regulate the use of water and activities which may impact on water resources through the undertaking of listed water uses and potential contamination of water resources.

The Department of Water Affairs (DWA) is the administering body of the act. Southern Africa has been divided into water management areas with their associated tertiary and quaternary drainage regions in order to assist DWA with their water management strategies.

The development site falls within the Upper Vaal Catchment area in WMA no 8, within tertiary drainage region C22 and quaternary drainage area is C22C. The Natalspruit River flows further east of the site. The Klip River is located further west of the site. There is also a tributary of Natalspruit traversing the most southern portion of the site.

Section 19 of the National Water Act, 36 of 1998 deals with prevention and remedying effects of pollution in particular where pollution of water resources occurs or might occur as a result of activities on land. The person who owns, controls, occupies or uses the land in question is responsible for taking measures to prevent pollution of water resources. If these measures are not taken, the catchment management agency concerned may itself do whatever is necessary to prevent the pollution or to remedy its effects, and to recover all reasonable costs from the persons responsible for the pollution.

In terms of Section 19 the following is stated:

- (1) *An owner of land, a person in control of land or a person who occupies or uses the land on which -*
- a. any activity or process is or was performed or undertaken; or*
  - b. any other situation exists, which causes, has caused or is likely to cause pollution of a water resource, must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring.*
- (2) *The measures referred to in subsection (1) may include measures to -*
- a. cease, modify or control any act or process causing the pollution;*
  - b. comply with any prescribed waste standard or management practice;*
  - c. contain or prevent the movement of pollutants;*
  - d. eliminate any source of the pollution;*
  - e. remedy the effects of the pollution; and*
  - f. remedy the effects of any disturbance to the bed and banks of a watercourse.*

No development may be undertaken below the 1: 100 year floodline. An Engineer would be appointed to calculate the 1: 100 year floodline of the tributary. The township layout design would be set above the floodline. There may also be the presence of seep areas and or wetlands which must be delineated. The delineated areas would be considered no go areas and buffer zones would be implemented to conserve the aquatic features.

The development would also generate storm water for which a storm water management plan would be required in order to guide run off into natural drainage patterns in the study area.

All potential pollution sources must be identified and management measures provided to curb negative impacts on water resources during the construction and operational phase of the development.

#### **8.1.5 National Heritage Resources Act, 1999 (Act 25 of 1999)**

The National Heritage Resources Act, 1999 (NHRA) protects all structures and features older than 60 years (Section 24), archaeological sites and material (Section 35) and graves and burial sites (Section 36). Potential impacts on heritage and archaeological resources during the construction phase include the likelihood of unearthing of heritage and archaeological resources especially during the construction phase of the project. The NHRA thus protects:

- Burial sites
- Buildings of more than 60 years
- Paleontological objects
- Special geological features (fossil prints, bushman rock art)

A Heritage Impact Assessments as required in terms of section 38 of the National Heritage Resource Act (Act 25 of 1999) would be commissioned during the EIA phase of the project to:

- To establish whether any of the type and ranges of heritage resources as outlined in section 3 of the National Heritage Resource Act(Act 25 of 1999) do occur in or near the proposed power line route, and if so, to establish the significance of these heritage resources.
- To establish whether such heritage resources will be affected by the proposed power line activities, and if so, to determine possible mitigation measures that can be applied to these heritage resources.

#### **8.1.6 National Environmental Biodiversity Act, 2004 (Act 10 of 2004)**

The purpose of the Biodiversity Act is to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA and the protection of species and ecosystems that warrant national protection. As part of its implementation strategy, the National Spatial Biodiversity Assessment was developed.

The development site encompasses two small pockets of the Kliprivier Highveld Grassland. This vegetation unit is classified as a threatened ecosystem and is "Critically Endangered". This vegetation is listed as a priority area for meeting explicit biodiversity targets as defined in a systematic biodiversity plan- Very high irreplaceability and high threat status. There is also the possibility of Red and Orange listed flora and fauna species occurring on site. A Ecological Assessment addressing the fauna and flora on site will be conducted and details included in the EIR.

The list of threatened and protected species issued in terms of Section 56 (1) of the NEMB would be considered in this application and occurrence of species on site would be assessed.

South Africa also uses the internationally endorsed World Organisation-International Union for Conservation of Nature (IUCN) **IUCN Red List Categories and Criteria** in the Red List of South African plants.

#### **8.1.7 Convention on Biological Diversity. Signed 1993 and ratified 2 November 1995.**

The Convention on Biological Diversity (CBA) is an international treaty signed in agreement to address all aspects of biological diversity: generic resources, species and ecosystems. The objectives of the CBA are:

- conserve biological diversity
- The sustainable use of the components of biological diversity
- The fair and equitable sharing of the benefits arising out of the utilization of genetic resources

#### **8.1.8 Conservation of Agricultural Resources Act (Act 43 of 1983)**

The Conservation of Agricultural Resources Act (Act 43 of 1983) – (CARA) is an act which provides for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the **combating of weeds and invader plants** and for matters connected therewith.

One of the objectives of the act as indicated is the control of weeds and invaders plants. The weeds and invader plants have been categorised:

- ❖ Category 1: Prohibited plants which must be controlled, or eradicated where possible (except in biocontrol reserves, which are areas designated for the breeding of biocontrol agents)
- ❖ Category 2: Mainly commercial plantation spp. but also plants for woodlots, animal fodder, soil stabilisation etc.; allowed only in demarcated areas (by permit) under controlled conditions and in biocontrol reserves
- ❖ Category 3: Mainly ornamental spp., no further planting allowed (except with special written permission), nor trade in propagative material. Existing plants may \*remain but **must be prevented from spreading. (\* except those within the floodline of watercourses or wetlands or as directed by the executive officer)**
- ❖ Bush encroachers: indigenous woody spp. which requires sound management practices to prevent them from becoming a problem.

## 8.2 Planning Frameworks / Strategies / Guidelines

### 8.2.1 Gauteng Spatial Development Framework (GSDF)

The GSDF seeks sound provincial development. The development framework is focussed on achieving development by implementing spatial planning principles and improving urban form.

The GSDF based the Province's future development on five critical factors, which are resourced-based economic development, contained urban growth, re-direction of urban growth, rural development beyond the urban edge and mobility and accessibility. The critical factors include:

- **Resource-based economic development**
- **Contained urban growth:** Sprawl and unnecessary urban expansion are widely discouraged, owing to direct and indirect costs to government and distortion of the urban form. To contain unwanted growth, a provincial urban edge has been delineated, which aims to compact the city, improve the utilization of resources, preserve the rural environment and give structure and form to the city. The proposed subsidized residential development would fall within the urban edge of the south western region of EMM, Region F.
- **Re-direction of urban growth**
- **Rural development beyond the edge:** Rural development is to be protected by the urban edge, thereby creating distinctive urban and rural areas. The proposed subsidized development as indicated would fall within the urban edge for EMM. The R550 Heidelberg Road would from the boundary of the development towards the rural agricultural areas south of the R550.
- **Mobility and accessibility:** The GSDF indicates that people in Gauteng will always be reliant on a high level of mobility and accessibility because of the presently dispersed settlement pattern and a culture of private transport. Mobility must be enhanced to improve the movement of people, goods and services, both for public and private transport. A TIA would be conducted for the development proposal to determine the impact of the development of on the local network and would make recommendations on the need to upgrade or improve of public transport routes, major access routes to the site. The development plan would also take cognizance of rail spurs and transportation nodes planned for the area and honour such servitudes to enhance mobility and accessibility to the area for potential residents.

## **8.2.2 Aerotropolis Planning and land Use Guidelines (PLUG)**

The PLUG Guideline provides for planning and land use guidance across all six Ekurhuleni Regional Spatial Development Frameworks to ensure a common understanding of the Aerotropolis concept and the application thereof in Ekurhuleni. The project demarcates the geographic Aerotropolis area (primary and/ or secondary).

This document was published February 2013 by EMM. The PLUG is silent with specific planning and land use guidelines for the Katlehong / Palm Ridge area however rather refers to Vosloorus which is located along the N3 Highway from Germiston. The N3 Highway is a major development corridor within Ekurhuleni EMM. The R21 connects Vosloorus with Boksburg, East Rand Mall and O.R. Tambo airport to the north. It also connects it to the industrial areas of Isando, Spartan and Jet Park. The N3 connects Vosloorus to the Rand airport, Germiston and Bedfordview. Continuing westwards onto the R24 connects it to Johannesburg CBD and City Deep.

Katlehong is considered part of the Vosloorus Expansions. The applicability of this guideline is debatable to the project area. More focus would be given to the MSDF and Regional SDF of EMM addressing Region F in which the Palm Ridge and Rietfontein area falls.

## **8.2.3 Ekurhuleni Metropolitan Municipality Spatial Development Framework (MSDF)**

The Metropolitan Spatial Development Framework (MSDF) is a key strategic framework and plan for the spatial performance and investment in the metropolitans' geographic space.

The MSDF determines an accurate and defined urban edge. A tighter urban edge increases development pressure on land within the edge.

The Ekurhuleni Urban Edge was moved partly outwards (southwards) to include land at the R550 & K91 intersection where the development site is located as per the EMM Urban Edge Map 27 (2009). According the SDF land use plan, the entire area along the urban periphery next to Heidelberg Road has been set out for residential development up to Magagula Heights.

The development site is located within the extended Ekurhuleni MM urban edge in Region F. The pressure and challenges experienced with current housing projects in EMM include high community expectations to land size, land scarcity and the funding system, not allowing for purchasing of centrally located land, due to higher land prices; thus the selection of reasonably priced land on the urban periphery in line with the funding system and land size requirements. Insitu development is ruled out due these pressures and challenges in the Palm Ridge, Greenfields, Eden Park as only small land parcels available for development. The Rietfontein Agricultural Holdings is the only vacant area to serve as a natural extension area of the greater Palm Ridge area still within the extended urban edge satisfying the expectations to of land size and the funding system for current housing projects.

One of the criteria of the MSDF is to promote sustainable livelihood development by developing townships into model self-sustaining neighbourhood development areas. There is a need / demand for such in Palm Ridge.

The development of social housing is a demand within the municipal area as there is a housing backlog of 180 000 housing units within the urban edge (Ekurhuleni Infrastructure and Community Services Backlog study 2009-2025)

#### **8.2.4 EMM Regional Spatial Development Framework: Region F**

The development site is located in Region F of the EMM. This Region is formed south of the N17 and west of the superdump. The area includes the better parts of Leeupoort, Windmill Park, Sunward Park, Elspark, Wadeville, Alrode, Alberton, Meyersdal, Brackendowns and Brackenhurst, Kathorus, Edenpark, Palm Ridge and Greenfields.

This RSDF attempts to address some of the spatial issues facing the region of which the following forms part:

- Providing affordable accommodation, upgrading of buildings, hostels and informal settlements to continue to absorb the poorer section of the population. There is a need to address the marginalised and to enhance the quality of living of the poor.

Ekurhuleni has commenced with the drafting of regional spatial development frameworks for the respective regions within Ekurhuleni (A, B, C, D, E & F). Region F is the last region within EMM and the RSDF for this region has is not available yet. However as per the MSDF and SDF plans the Rietfontein area has been earmarked for residential development.

The Katlehong and Palm Ridge area is seriously overcrowding e.g. in each tiny yard, shacks are set up for rent - one toilet often serves five to six families. Despite being surrounded by an industrial area, there is a high level of unemployment. There is a demand for social housing within this settlement area to decongest the current Palm Ridge area.

This development proposal seeks to address the need to provide affordable accommodation and address the quality of living of the poor and provide sustainable settlements where people can work, live and play.

The development site does fall within the urban edge recently included as per 2009 Urban Edge Map of EMM). Palm Ridge and Eden Park are also considered secondary Activity nodes for which EMM Development Policies are relevant such as social housing.

#### **8.2.5 Ekurhuleni Built Environment Performance Plan 2012 (Draft 3) – EBEP**

The EBEP provides Ekurhuleni's overall vision and plan for the built environment in context of the pressures, challenges, issues and opportunities that cities face. EBEP is a repackaging of existing plans and information focusing on the current spatial landscape, spatial vision and implementing the integration and efficiency of city management.

The plan refers to the human settlements within Ekurhuleni and service levels of these settlements. It further elaborates on current housing projects and a housing programme to be undertaken to address the housing backlog within Ekurhuleni.

The GDoH is conducting the formulation of Municipal Housing Frameworks parallel to the Spatial Development Framework of Ekurhuleni. These include:

- Integrating previously disadvantaged areas into the urban fabric, eradicating informal settlements and working towards residential densification in Expansion Areas.
- Spatial Planning for the Informal Sector, including informal traders, informal service providers and informal housing.

- Review of the EMM Housing Department's 'Migration Plan' so as to support the Spatial Concept of nodes and corridors and to prevent urban sprawl. Such review must be an integral part of the RSDFs to be prepared. A principle to be applied in this regard is the minimisation of the migration of people both in terms of numbers and in terms of distance. Where it is necessary to relocate people, it should be done as close as possible to their existing area of stay.

Current projects undertaken in EMM include:

- Social housing (conversion of hostels into family units); EMM Housing Department in conjunction with GDoH is currently implementing Community Residential Units programme aimed at redevelopment and conversion of hostels into family units. Ekurhuleni currently owns 22 hostels which are to be converted.
- Upgrading of Informal Settlement programme (UISP);
- Integrated Residential Development Programme (IRDP): the programme provides for planning and development of integrated housing projects which are planned and developed in phases. It provides for holistic development of the housing construction phase for qualifying housing subsidy beneficiaries and the sale of stands to non qualifying beneficiaries and to commercial interests. Phase 1 includes Land, Services and Township Proclamation. Phase 2 includes Housing Construction and Individual ownership options. A list of IRDP projects has been handed to EMM through the accreditation process. **The subsidized residential development proposed at Rietfontein forms part of the list of projects handed to EMM.** (thus led by GDoH in partnership with EMM)
- Mixed housing projects

The Rietfontein area is considered a major investment and development project which forms part of the housing programme implemented to address the demand for housing in EMM. The development proposal is therefore in line with the EBEP.

### 8.2.6 Ekurhuleni Municipal Housing Development Plan 2011 (MHDP)

The Municipal Housing Development plan was developed in co-operation with Gauteng Department of Local Government and Housing. The plan includes densification strategies and the medium density housing programme including social housing and community residential units (CRU)

The Draft Ekurhuleni MHDP sets the official housing backlog for Ekurhuleni as at 209 372. This includes informal units and the current waiting list. The region for which the development is intended is Region F.

According to the MHDP the following housing backlog was applicable in 2010 for Region F and may have escalated in due course:



Region	Informal	%	Waiting List	%	Total	%
F	23 993	15%	9 992	22%	33 985	16%

Also, according to the Housing Migration Plan for EMM it is evident that the Rietfontein AH land parcels have been earmarked for housing.

The Housing Migration Plan illustrates the logic of the housing migration plan in terms of current projects as well as land earmarked for housing. The migration plan makes use of the current subsidy structure to (in general) address the existing housing need by means of single residential houses on serviced stands. The development is therefore in line with the Housing Migration Plan of EMM Housing Department.

### 8.2.7 EMM Environmental Management Framework

The EMF, in terms of the Environmental Impact Assessment Regulations, 2006, must be taken into account in the consideration of applications for environmental authorisation.

Five environmental constraint zones were identified within the EMM. The environmental constraint factors would be taken into consideration and assessed in the EIA study. These constraints include:

- Low to no constraint zone;
- Agricultural constraint zone;
- Geotechnical constraint zone;
- Hydrological constraint zone; and
- Ecological constraint zone

According to the Environmental Parameters for Development as set out in the EMF the site is located in an area with ecological, geotechnical and some hydrological constraint zones. The EIA study would assess the environmental constraints and delineate such areas and address the impacts that may transpire. No development would be undertaken below the 1:100 year floodline and seep areas would be delineated and buffer zones implemented (hydrological). Geotechnical constraint zones refer to dolomitic zones on site which would be delineated and risk factors determined. The development layout would be set as to locate land uses in a manner which is suitable for the geotechnical conditions on site.

### 8.2.8 EMM Biodiversity and Open Space Strategy (EBOSS), May 2009

The objectives of EBOSS are to:

- Meet the open space needs of the population of Ekurhuleni in a way that will ensure adequate access to a variety of types of open spaces in Ekurhuleni that will fulfil the physical and psychological needs of the community;
- meet the national biodiversity targets for vegetation types in the area in an appropriate manner that focuses on attainable priorities;
- consider and integrate the conservation plan needs of the province in a practical way;
- consider and take land needed for development into account in an objective and equitable manner;
- contribute as an integrated element in the proper functioning of Ekurhuleni as a city;
- set implementation targets in a manner that is realistic, affordable and achievable; and

- provide objective implementation performance measures that will accurately indicate performance and ensure accountability of officials.

The purpose of the policy is to:

- Ensure that the biodiversity conservation priorities of EMM and GDACE are aligned to protect and conserve biodiversity;
- promote biodiversity;
- recognise biodiversity as an essential natural resource;
- increase the area under formal protection; and
- ensure the substantial management of this resource.

In Ekurhuleni, because of its topographical nature, extent and position on the continental divide, the hydrological system provides a strong and distinct natural backbone to open space. Due to the importance of the hydrological systems in terms of both biological and hydrological functioning of the area, it must remain intact and **no further development** (with the exception of linear infrastructure that has to cross these areas) will be allowed in these areas.

The natural open space system represented in this strategy includes highly stressed and sensitive natural environments such as wetlands, rivers/streams and remnant patches of representative indigenous fauna and flora that are necessary to maintain bio-diversity and forms the primary open space network in Ekurhuleni and must be considered as “no go” areas for development.

The development site is located on a transformed area where no open space areas are indicated. There is a drainage line crossing at the southern portions of the site which would be considered as no development area. The 1: 100 flood line would be determined for the township establishment and no development would take below the flood line.

#### **8.2.9 Gauteng Conservation Plan, 2012 (Version 2)**

The GDARD: Gauteng Conservation Plan aims to identify and map areas that are of importance to biodiversity in Gauteng. The development site is affected by areas of importance that have been mapped under the Gauteng C-Plan. The most important areas are however located on the perimeters of the site such as hydrology (ecological supports areas). There are also patches of the critically endangered Kliprivier Highveld Grassland corresponding to dolomitic areas on the most northern western portion of the site.

#### **8.2.10 GDARD Requirements for Biodiversity Assessments (Version 2)**

The project location was made available to GDARD Biodiversity Information Unit to establish which Biodiversity Assessments would be required for the study area. Response from the GDARD is attached to this report under Appendix C.

#### **8.2.11 Sustainable development Criteria for Build Environment Projects requiring Environmental Impact Assessments in Gauteng, 2009**

This document has been developed by GDARD to ensure that sustainable development is integrated into planning and design of built environment projects requiring Environmental Impact Assessments in Gauteng.

The criteria for proposed built environment projects are:

- Development should be integrated with existing and planned infrastructure and land uses to ensure efficient systems and balanced land use.
- Development should be located where damage to natural environments and ecosystems is minimised. It should ensure that existing natural environments are conserved and take opportunities to strengthen this.
- Development should be located where they will not lead to a loss of agricultural land. Landscaping and agriculture should be developed and managed to minimise negative impacts and local food production should be supported.
- Development should minimise the consumption of municipal potable water and production of waste into municipal sewage systems. Increased storm water runoff and water pollution should be avoided.
- Development should minimise the negative environmental impacts of construction and the consumption of resources. Positive social and economic impacts of construction and resource use should be maximised.
- Development should minimise the use of non-renewable energy and maximise use of renewable energy sources.
- Development should minimise the amount of waste diverted to land fill. Pollution should also be avoided.
- Development should support diverse productive local economies that create work and sustainable enterprises.
- Development should reduce the reliance on cars and ensure that low energy environmentally friendly forms of transport are encouraged.
- Development should support the health and well being of people on site and in neighbouring communities.
- Development should support education and ongoing learning of people on site and in neighbouring communities.
- Development should support Inclusionary Housing and ensure that people who work on site do not have to travel long distances to access affordable housing.
- Development should support social cohesion and benefit the full diversity of the population.
- Sustainable development targets that reflect the South African context should be set for the development and operation of the development. Management and monitoring should be carried out to ensure that these are achieved.

#### **8.2.12 Gauteng Noise Control Regulations, 1999**

Gauteng Province Department of Agriculture, Conservation and Environment have under Section 25 of the Environmental Conservation Act, 1989, developed the Noise Control Regulations of 1999 to manage noise pollution in the province. Section 8 of the noise regulations prohibits the cause of disturbing noise.

“ No person shall make, produce or cause a disturbing noise, or allow it to be made, produced or caused by any person, animal, machine, device or apparatus or any combination thereof.”

“ No person shall make changes to existing facilities/existing uses of land or buildings or erect new buildings if these will house or cause activities, that will offer such changes or erection cause a

disturbing noise unless precautionary measures to prevent the disturbing noise have been taken to the satisfaction of local authority”

- **Disturbing noise** means a noise level that causes the ambient noise level to rise above the designated zone level, or if no zone level has been designated, the typical rating levels for ambient noise in districts, indicated in table 2 of SABS 0103;
- **Noise nuisance** means any sound which disturbs or impairs or may disturb or impair the ' convenience or peace of any person;
- **Zone sound level** means a derived dBA value determined indirectly by means of a series of measurements, calculations or table readings and designated by a local authority for an area.

SABS 0103 is South African Bureau of Standards document guideline which is replacement from time to time and was replaced by the SANS 10103: 2008 Edition 6 ““The measurement and rating of environmental noise with respect to annoyance and to speech communication“.

The ambient noise ratings levels are indicated as per Table 2 of SABS 10103:2008 are as follows:

**Table 14: Ambient noise ratings levels (SABS 10103:2008)**

1	2	3	4	5	6	7
Type of district	Equivalent continuous rating level ( $L_{Req,T}$ ) for noise dBA					
	Outdoors			Indoors, with open windows		
	Day/night $L_{R,dn}^a$	Daytime $L_{Req,d}^b$	Night-time $L_{Req,n}^b$	Day/night $L_{R,dn}^a$	Daytime $L_{Req,d}^b$	Night-time $L_{Req,n}^b$
a) Rural districts	45	45	35	35	35	25
b) Suburban districts with little road traffic	50	50	40	40	40	30
c) Urban districts	55	55	45	45	45	35
d) Urban districts with one or more of the following: workshops; business premises; and main roads	60	60	50	50	50	40
e) Central business districts	65	65	55	55	55	45
f) Industrial districts	70	70	60	60	60	50

## 9 DESCRIPTION OF ENVIRONMENTAL ISSUES AND POTENTIAL IMPACTS

The Scoping Report aims to scope, identify and list the *environmental issues and potential impacts* that are relevant to the project and determines where further information is required in the form of specialist studies and or investigations. The identification of such issues and potential impacts are solicited from stakeholders, interested and affected parties through a public consultation process as well as desktop investigations undertaken by the environmental consultant paired with initial site investigations.

The report also lists possible *cumulative effects* from further settlement development within the area. When referring to *cumulative effect* it 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 in the area.

The key identified issues and potential impacts pertaining to the proposed establishment of a subsidized residential development outline the focus areas for the Impact Assessment phase and Specialist studies to be undertaken.

### 9.1 The potential environmental impacts identified

The potential impacts identified for the project applies to the biophysical and social environment which is to be affected during the construction and operation phase of the social housing development.

Cognisance of the current status of the environment has been taken in identifying the key issues and impacts. Geographical Information systems, tools and biodiversity plans were also referred to in order to report on the environmental features on the development site.

From these information systems broader identification could take place. The impacts identified are as follows:

#### 9.1.1 Biophysical environment

The biophysical environment is the relation between the physical environment and the biological life forms within the environment.

- Impacts on Biodiversity (Flora and Fauna, avifauna)
- Impacts on hydrology (surface and groundwater pollution)
- Impacts on aquatic ecosystems (wetlands)
- Impacts on Soils and Geology (dolomitic zones)

#### 9.1.2 Social environment

The social environment refers to the environment developed by humans as contrasted with the natural environment.

- Impact on cultural and heritage resources
- Impacts on land use and also surrounding land uses
- Health, Safety and Security
- Impact on existing services supply (municipal capability)
- Impact on traffic (local road network)
- Socio-economic impacts (positive and negative)
- Impact on air quality
- Increase in noise and vibration
- Waste management (liquid and solid waste pollution management)

## 9.2 Cumulative impacts

The study area is built up with the greater settlements of Thokoza, Katlehong and Palm Ridge which are located on the western banks of the Natalspruit with its dolomitic zones and associated ground water compartments. Therefore cumulative impacts on the *biophysical environment* would be considered.

The further transformation and expansion of the greater Palm Ridge area may pose cumulative impacts on the *social environment* which would be considered. In terms of the SDF and Housing Migration plan of EMM the area alongside the Heidelberg Road R550 up to Magagula Heights, forming the urban periphery; have been set out for residential development. This in particular poses cumulative impacts on the social environment.

## PUBLIC PARTICIPATION PROCESS

### 10 PUBLIC PARTICIPATION PROCESS

The Public Participation Process forms the corner stone for detailing the Scoping Report. The process identifies potential interested and affected parties on the project and solicits inputs and comments pertaining to the matter/activity proposed from such parties. Public Participation allows the public to contribute to the project and provides for better decision making by collective inputs from stakeholders, organs of state and specialists. In terms of the EIA Regulations 2010, Section 28, a Scoping report must contain details of the public participation process undertaken for the project.

The public participation process is conducted in accordance to Regulation 54 to 57 of Government Notice R543 of the NEMA Regulations. The process provides the public access to necessary information on the project throughout the scoping and EIA phase of the study.

#### 10.1 Commencement of the Public Participation Process

Naledzi Environmental Consultants CC also facilitates the public participation process on behalf of Abakhi Consortium for the proposed establishment of a residential development south of Palm Ridge. The public participation process kicked off during July 2013.

#### 10.2 Identification and Registration of Interested and Affected Parties

##### What is an interested and affected party?

- Any party interested and or affected by the activity
- Organs of state who have jurisdiction in respect of the activity

## Identification and Registration

The project is proposed by provincial government sphere however the development site is not state owned. The development property is in private ownership by several holders. Initial focus was placed on the identification of directly affected landowners through a title deed search information system. Where gaps in holder information were identified physical on site identification took place. Once sufficient information was available for several landowners further networking took place amid holding owners to source the remaining details from which all the landowner details were sourced.

Due to the change in land use taking place opposite the R550 Heidelberg Road adjacent and surrounding landowners were identified in the Garthdale AH area and south along the R550.

A Ward Demarcations map for the study site was also compiled to identify the wards affected by the proposed social housing development. Once the affected ward councillors were established details were sourced from the Katlehong 2 Customer Care Area.

Organs of state which have jurisdiction in respect of the activity and organisations were identified to form part of the project database.

The placement of a newspaper advertisement and site notices in the study area also provided an opportunity for interested and affected parties to register on the project database.

In accordance to Regulation 55 of Government Notice R543 of the NEMA Regulations the Environmental Assessment Practitioner (EAP) managing the application must:

- 1) Open and maintain a register which contains the names and contact details and addresses of
  - (a) All persons who have submitted written comments or attended meetings
  - (b) All persons who have requested the EAP or applicant, in writing, to register their names on the database;
  - (c) All organs of state which have jurisdiction in respect of the activity

An I&AP database has been opened for the project and all identified landowners, interested and affected parties and registered interested and affected parties have been registered. Public meetings also took place during the month of August 2013 and attendees at the meeting have also been added to the project database. The database would remain open for the duration of the Scoping and EIA phase. Please refer to Appendix D for the I&AP Database.

### 10.3 Ward Councillors Focus Group Meeting

A Ward Councillors Focus Group Meeting was considered a necessity for the public participation process kick off for the project due to the social surroundings of the study site which includes Palm Ridge, Eden Park, Greenfields and Tsietsi Phase 5. The participating wards thus included:

Ward 61 – Palm Ridge Ext. 9

Ward 53 – Eden Park, Greenfields

Ward 58 – Palm Ridge

Ward 101 – Tsietsi Phase 5

Ward councillors play a fundamental role in the communication process between the communities they represent and the Council. The councillors also provide an avenue to transfer project information and consultation details to the relevant communities of the project area. The meeting attendees would therefore provide an avenue to reach relevant community leaders and local organisations forming part of the community structures.

The focus group meeting took place on 12 July 2013 at the Eden Park Municipal Offices. The purpose of the meeting was to discuss and portray the public participation engagement plan for the area. Logistics for the process were confirmed during this meeting.

Although the site is demarcated to fall inside Ward 61 it was indicated during the meeting that ward delineations may be administrative on the map and may not actually portray the commonly understood borders. It was confirmed during a site visit also on 12 July 2013 that the development site falls within Ward 53. Refer to Appendix E for the Ward Councillors FGM Minutes.

#### **10.4 Newspaper Advertisement**

Post the ward councillor's focus group meeting, the Scoping and EIA process was announced in the local newspaper Alberton Record on 26 July 2013. The announcement also provided to opportunity to interested and affected parties to register and seek information and clarity. The advertisement also announced a public information session scheduled for the project at Palm Ridge Community Hall on 14 August 2013. Please refer to Appendix F Alberton Record Advertisement.

#### **10.5 Flyers**

During the ward councillor's focus group meeting it was requested as part of the public participation engagement plan that Naledzi provide 1000 flyers for distribution to community leaders in the affected areas bordering the site.

Naledzi considered it a beneficial task and provided the flyers per hand on 18 July 2013. Refer to Appendix G for flyer and delivery note.

#### **10.6 Site notice**

Naledzi Environmental Consultants placed site notices at publically frequented places within the settlements of Palm Ridge, Greenfields, Eden Park, Tsietsi Phase 5 and in and around the development site. The Katlehong 2 Customer Care Centre was also informed of the proposal and notices placed at the entrance to the centre.

The site notice informed the local communities of the project proposal and the public information session that has been scheduled for the project. Site notices were posted on 18 July 2013. Please refer to Appendix H for proof of placement of site notices.

#### **10.7 Hand delivery notes and Distribution of Background Information Documents**

As part of the identification of landowners and tenants on the project site, Naledzi provided Background Information Documents through hand delivery to landowners and cattle owners grazing on the property. It was also evident that most residents within the existing settlements to the



southern borders of Palm Ridge, Eden Park, Greenfields access their properties through narrow paths on the property. Letters were handed to such walkers.

The BID provides an Interested and/or Affected Party (I&AP), with background information on the proposed project, as well as information regarding the Environmental Impact Assessment process that will be undertaken. It further indicates how you can become actively involved in the project, receive information and raise issues that may concern and/or interest you. The sharing of information forms an important component of the public participation process and provides the opportunity to become actively involved in the process from the onset. I&As were given a 40 calendar day period to raise any issues or concerns regarding the project.

Background Information documents (BID) were emailed, posted and delivered to affected landowners and adjacent landowners on 18 July 2013. Refer to Appendix I Proof of BID Distribution.

The advertisement for the project could only be published in the Alberton Record on 26 July 2013 thus the public commenting period started on 26 July 2013 and expired on 3 September 2013.

### **10.8 Stakeholders Meeting**

Important stakeholders on the project are Ekurhuleni Metropolitan Municipality. A Stakeholders meeting took place with members of the Environmental and Resource Planning division of EMM on 05 June 2013 to discuss the project and the Scoping and EIA process to be undertaken.

Per request EMM also provided a letter to indicate that comments and inputs would only be provided on the project upon receipt of official reporting such as the Scoping Report and EIR. Refer Appendix J Stakeholders Feedback and Attendance Record

### **10.9 Public Meetings**

Two public meetings were scheduled for the proposed project to accommodate a) directly affected landowners and surrounding owners, b) Communities border the site.

A public meeting took place with directly affected landowners and surrounding landowners in the Kliprivier area on 14 August 2013, 13:00 at the 2 "Shy" Hall. Invitations were sent out to all relevant landowners to announce the information session. Comments, Issues and concerns raised during the meeting were recorded. Appendix K – Landowners Meeting invite notifications

A another public meeting took place with community leaders of the Palm Ridge, Greenfields, Eden Park and Tsietse Phase 5 are at the Palm Ridge Community Hall on 14 August 2013 at 17:00. Notification of the meeting was made through invitations to landowners and flyers distributed to community leaders through ward councillors for the area.

The minutes of each meeting are attached as Appendix L(1) – Kliprivier Public Meeting; Appendix L(2)- Palm Ridge Public Meeting

## 10.10 I&AP Correspondence

All comments received from interested and affected parties were acknowledged and recorded in an Issues and Response Report and has been addressed in the Scoping Report accordingly.

The majority of the issues received were recorded during the public meetings for the project. Refer to Appendix M for the Issues and Response Report.

In a nutshell the feedback received implied that communities and land owners are adamant that:

- The provision of social facilities such as schools must be secured and guaranteed in conjunction with the housing development;
- Local small business must get first option to partake in the construction process;
- The current urban agriculture practises conducted on some of the land parcels must be incorporated in the township layout to ensure continued access to locally grown produce;
- Employment areas must be developed in conjunction with the housing development in this regard the communities are adamant that the current small business operating within the development area must be relocated to suitable business premises within the township and their continuation must be secured. ( the development must therefore not cause job losses)

The landowners also welcomed the proposal of setting up a land owner's forum to:

- Assist with and sanction the township layout particularly giving permission to enter land parcels for land use surveys
- Assist with the EIA process

## 10.11 Public Review of Draft Scoping Report

During the public meetings, stakeholders were advised that the Scoping Report would be prepared and made available for public review. Electronic copies of the Scoping Report will be made available to registered interested and affected parties and organs of state on the project database. Hard copies of the Scoping Report would be placed at public venues in the study area to allow for review and commenting.

The venues are as communicated to interested and affected parties. Tentatively review can take place in the areas of:

- Katlehong 2 CCC
- Eden Park Municipal Office
- Suikerboschrand Country Guest House (Kliprivier)
- Plot 46, Rietspruit (Rietfontein AH) along the Heidelberg Road
- Suikerboschrand Conservancy (Gardenvale, Kliprivier)

The DSR and Plan of Study for EIA will be distributed to all I&AP's and stakeholders for comment for a period of 40 days from 20 September 2013 to 29 October 2013. Once the public review period has lapsed on the DSR, Naledzi would capture all the comments and issues received from the public in a Final Scoping Report. The FSR and Plan of Study for EIA would be submitted to GDARD for approval. I&Aps would receive notification of the submission of the FSR to GDARD and would also have the opportunity to request copies of the final report.

## 10.12 Public Consultation during Environmental Impact Phase

Interested and Affected Parties would be notified of the commencement of the EIA Phase once all specialist investigations have been undertaken. I&As would be given the opportunity to review the findings of the EIA which is presented in a Draft EIR and EMPr. The draft EIR would indicate the potential positive and negative impacts and measures to enhance positive impacts and reduce negative impacts.

As part of the assessment, an EMP is compiled. The EMP is a requirement as per the EIA Regulations. The EMP recommends how to operate and implement the project. It is anticipated that the EIR would be available in the first quarter of 2014. I &As would receive a notification letter announcing the availability of the Draft EIR. The report would be distributed for public review and comment for a period of 40 calendar days.

A public meeting would be arranged to present the findings of the EIR to I&As and stakeholders. Details thereof would be available during the EIA Phase.

All comments and issues received during the public review period of the Draft EIR and EMPr would be captured in a Final EIR and submitted to GDARD for review and ultimately approval. I &As would receive notification of the submission and would as per the scoping phase have the opportunity to request copies of the final report.

## 10.13 Public Consultation during Decision making phase

During this phase GDARD will review the Final EIR and consult with any other key organs of state eg. the Department of Water Affairs (DWA) before granting or refusing an environmental authorisation.

The environmental authorisation will be made available for public review for a period of 20 consecutive calendar days. This provides I &AP's with an opportunity to verify that the decision taken have considered their comments and concerns raised. I&As are also then informed of the appeal procedure, should they have a reason to appeal.

# PLAN OF STUDY FOR ENVIRONMENTAL IMPACT ASSESSMENT

## 11 PLAN OF STUDY FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY

The Plan of Study is required in terms of Section 28 (n) of the NEMA Regulations 2010 of GN R 543. The plan of study is to form part of the content of the Scoping Report to set the approach to the Environmental Impact Assessment of the application. The Plan of Study must include:

- I. A description of the tasks that will be undertaken as part of the environmental impact assessment process, including any specialist reports or specialist processes, and the manner in which such tasks will be undertaken;
- II. An indication of the stages at which the competent authority will be consulted;
- III. A description of the proposed method of assessing the environmental issues and alternatives, including the option of not proceeding with the activity and;
- IV. Particulars of the public participation process that will be conducted during the EIA process
- V. Any specific information required by the competent authority

## 11.1 TASKS TO BE UNDERTAKEN FOR THE EIA

The Impact assessment Phase entails undertaking various specialist studies, and developing an Environmental Impact Assessment Report (EIR) and a Draft Environmental Management Plan (EMP) As part of the assessment, an EMP is compiled. The EMP is a requirement as per the EIA Regulations. The EMP recommends how to operate and implement the project. The provisions of the EMP are legally binding on the developer and its contractors. This EMP is also submitted to GDARD for their approval. Implementation of the EMP during commissioning and operation of the project will ensure compliance with environmental regulations during the cycle of the project.

### A. Specialist Studies

The GDARD Biodiversity Information unit was notified of the project through the provision of the project reference number and geographical location. Please refer to Appendix C for a copy of the response from the Biodiversity unit.

Specialist Studies have been identified according to potential impacts in the Scoping Report and as prescribed by GDARD. The specialist studies would be commissioned in the initial stages of the impact assessment phase of the EIA study. Specialist Studies would focus on the outcomes of the Scoping Report and inform or evaluate the potential impacts and consist of baseline information and assessment of the potential impact. The specialists would also provide recommendations on the mitigations measure to be implemented to curb potential negative impacts and enhance positive impacts.

The details and findings of the specialist studies would be incorporated in an Environmental Impact Report (EIR) and Draft Environmental Management Plan (EMP).

### GDARD Requirements for Specialist Studies

Specialist studies undertaken for the project will comply with the *GDARD Requirements for Biodiversity Assessments Version 2 (updated June 2012)*. Surveys would be restricted to summer months (November – end of April) as prescribed.

Specialist studies must be detailed as per Section 32 of the NEMA Regulations Gov Notice R543 which indicates: Include -

- Details of person who prepared the report
- Expertise of that person to carry out the specialist study or specialist process
- A declaration that the person is independent in a form as may be specified by the competent authority;
- An indication of the scope of , and any purpose for which the report was prepared;
- Description of the methodology adopted in preparing the report or carrying out the specialist process;
- Description of any assumptions made and nay uncertainties or gaps in knowledge
- Description of findings and potential implications for such findings on the impact of the rposoed activity, including identifying alternatives on the environment;
- Recommendations in respect of any mitigation measures that should be considered by the applicant and the competent authority;
- A description of any consultation process undertaken during the course of carrying out the study;

- Summary of copies of any comments received during any consultation process;
- Any other information requested by the competent authority

## **B. Environmental Impact Report (EIR) and Environmental Management Plan (EMP)**

A Draft EIR and Draft EMP will be developed in which the findings of the specialist studies would be consolidated to inform the assessment. Issues raised by I&As and the potential impacts from the development on the physical, biophysical and social-economic environment will be examined in detail.

As part of the assessment, an EMP is compiled. The EMP is a requirement as per the EIA Regulations. The EMP recommends how to operate and implement the project.

The Draft EIR and EMP will be available for public review/comment for a period of 40 calendar days. The availability of the Draft EIR will be advertised in a local newspaper. It is anticipated that the Draft EIR and EMP would be compiled during January 2014. The public review period on the reports is anticipated to be in the first quarter of 2014. The report would be available at locations which are easily accessible by the public.

On the lapse of the public review period the reports would be finalised by incorporating any additional comments received from I&As. A Final EIR and Draft EMP would be submitted to GDARD for review and decision making. The anticipated date for submission is to the end of April 2014.

## **C. Comments Issue and Response Report**

Comments, issues and concern raised by organs of state, landowners and interested and affected parties are recorded in a Comments Issue and Response Report. The report contains responses to the issues raised by the respective parties.

## **D. Public Consultation**

The consultation of the public during the Impact Assessment phase is pivotal to convey and represent the findings of the EIR and EMP for the project. Joined inputs on consideration of the impact of a project assist in informed decision making by the competent authority.

Tasks to be completed under this process include:

- Notification letters to I&As to announce the commencement of the Impact Assessment Phase
- Notification to I&As of the availability of the Draft EIR and EMP in the local newspaper;
- Placement of Draft EIA at venues accessible by the public in the study area;
- Providing a public review period and comment for a period of 40 calendar days;
- Notification of a Public Open Day / Meeting to present the findings of the EIR to I&As and stakeholders;
- Notification to I&As that final reports have been submitted and copies are available on request;
- Notification to I&As and stakeholders of the issue of an environmental authorisation. This provides I &As with an opportunity to verify that the decision taken considered their comments and concerns raised.
- I &As are also informed of the appeal procedure, should they have reason to appeal

The key objective of public participation during this phase is to provide stakeholders and I&AP's with sufficient and transparent information on an ongoing basis. Information contained in the Scoping Report is elementary to the content of the EIR. The process therefore allows for comment and review of the Draft EIR. The inputs received during the comment period would be included and assessed in a Final EIR.

## 11.2 STAGES AT WHICH THE COMPETENT AUTHORITY WILL BE CONSULTED

Stages	Documentation	DATE
Scoping Phase	Submission of Draft Scoping Report (two pdf electronic copies)	September 2013
	Proof of submission to organs of state	
	Submission of Final Scoping Report and Plan of Study for EIA	End of October 2013 to November 2013
EIA Phase	Submission of Draft EIA and EMP (two pdf electronic copies)	February 2014
	Proof of submission to organs of state	
	Submission of Final EIA and Draft EMP	April 2014

## 11.3 PURPOSE OF ENVIRONMENTAL IMPACT ASSESSMENT

The purpose of the environmental impact assessment is to assess and address the potential environmental impacts identified during the scoping phase through in depth specialist investigations focussing on each identified impact. The in depth investigations provide mitigations measures to address the identified impacts and also provide for methods to enhance positive impacts. Specialist study findings would be incorporated in the EIR and impacts would be assessed according to its significance, extent to be addressed and adoption of mitigation measures to address the issue.

The assessment would include the consideration of the impacts as per the NEMA Regulations of 2010, GN R543, Section 31 (I):

- Cumulative impacts
- The nature of the impact
- Extent and duration of the impact
- Probability of the impact occurring
- The degree to which the impact can be reversed
- The degree which the impact may cause irreplaceable loss of resources
- The degree to which the impact can be mitigated

A scoring system would be utilised to rank the significance of each impact identified. The cumulative effect of the impacts within the local area would also be considered.

In terms of the National Environmental Management Act , 1998 Chapter 1, sets out the national Environmental Management Principles of which ultimately strive to ensure that development is socially, environmentally and economically sustainable. The core values of an Environmental Impact Assessment are therefore integrity, utility and sustainability. The EIA would therefore conform to the agreed Environmental Standards and would provide balanced credible information for decision making and result in environmental safeguards.

The EIA process to be followed should therefore meet the aims and objectives of NEMA, 1998 and focus on issues that matter and respond realistically to such issues. Most important the EIA process must be participative which fully involves the public. By involving the public, information should be presented in a clear and non-technical manner.

### 11.3.1 Assessment Methodology of Environmental Issues

#### Impact Assessment Rating Matrix

The identified impacts were evaluated by considering several rating scales as listed below. These ratings include: extent, duration, intensity, significance, status of impact, probability.

“Extent” defines the physical extent or spatial scale of the potential impact

**Table 9: Extent of impact**

EXTENT	
Rating	Description
Local (1)	Impacts extending only as far as the activity, limited to the site and its immediate surroundings
Regional (2)	Impacts extending to provincial level e.g. Limpopo Province/North West Province
National (3)	Impacts extending to within the country i.e. South Africa
International (4)	Scale of impact extending beyond the borders of South Africa

“Duration” defines the temporal scale.

**Table 10: Duration of impact**

DURATION	
Rating	Description
Short term (1)	0-5 years
Medium term (2)	5-15 years
Long term (3)	Between 15 – 30 years
Permanent (4)	Over 30 years. Where mitigation either by natural processes or by human intervention will not occur in such a way or in such time span that the impact can be considered transient.

“Intensity” establishes whether the impact would be destructive or benign.

**Table 11: Intensity of impact**

INTENSITY
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Rating	Description
Negligible (2)	Where impacts affect the environment in such a way that natural, cultural and social functions and processes are not greatly and in instances no mitigation measures will be required.
Low (4)	Where impacts will result in medium to short term effects on the social and/or natural environment. These impacts are not deemed largely substantial and are likely to have little real effect.
Medium (6)	Where impacts will result in medium- to long-term effects on the social and/or natural environment. These impacts will need to be considered as constituting a fairly important and usually medium term change to the environment, these impacts are real but not substantial.
High (8)	Whereby effects will be long term on social, economic and/or bio-physical environment. These will need to be considered as constituting usually long term change to the environment.
Very High (10)	Where impacts should be considered as constituting major and usually permanent change to the environment, and usually result in severe to very severe effects

“Significance” - attempts to evaluate the importance of a particular impact with mitigation measures included and also excluded. The significance was calculated using the following formula:

$$\text{Significance} = \text{Extent} + \text{Duration} + \text{Intensity} \times \text{Probability}$$

**Table 12: Significance of impact**

SIGNIFICANCE	
Rating	Description
Low (< 30)	Where impacts will result in medium to short term effects on the social and/or natural environment. These impacts are not deemed largely substantial and are likely to have little real effect.
Medium (30 – 75)	Where impacts will result in medium- to long-term effects on the social and/or natural environment. These impacts will need to be considered as constituting a fairly important and usually medium term change to the environment, these impacts are real but not substantial.
High (> 75)	Whereby effects will be long term on social, economic and/or bio-physical environment. These will need to be considered as constituting usually long term change to the environment and can result in severe to very severe effects.

“Status of impact” - describes whether the impact would have a negative, neutral or positive effect on the affected environment.

“Probability” describes the likelihood of the impact occurring.

**Table 13: Probability of occurrence**

PROBABILITY	
Rating	Description
Improbable (1)	Where the possibility of the impact to materialise is very low either because of design or historic experience.



Probable (2)	Where there is a distinct possibility that the impact will occur.
Highly probable (3)	Where it is most likely that the impact will occur
Definite (4)	Where the impact will occur regardless of any prevention measures.

### 11.3.2 Specialist Investigations to be undertaken

In terms of the NEMA Regulations 2010, GN R543, Section 32 (3) specialist studies prepared in terms of the regulations should contain:

- a) Details of –
  - i. Person who prepared the report
  - ii. Expertise of person to carry out the specialist study
- b) Declaration that person is independent in a form as may be specified by the competent authority
- c) An indication of scope of and purpose for which report was prepared;
- d) Description of methodology adopted in preparing the report or carry out the specialist process;
- e) Description of assumptions made and any uncertainties or gaps in knowledge
- f) Description of findings and potential implications of such findings on the impact on the proposed activity, including identified alternatives on the environment;
- g) Recommendations in respect of any mitigation measures that should be considered by the applicant and the competent authority;
- h) Description of consultation process that was undertaken during course of carrying out the study
- i) A summary of copies of any comments that were received during any consultation process

The study area falls within the sphere of competent authority GDARD. GDARD has set out requirements for the conduct of Biodiversity Assessments within their region, GDARD Requirements for Biodiversity Assessment Version 2, 2012. The specialist studies to be undertaken would also conform to the requirements.

Specialist studies / Investigations to be undertaken include:

#### 11.3.2.1 Ecological Impact Assessment

An Ecological Assessment will be undertaken for the study site which would consist of desktop analysis of available literature of the site, and consider spatial frameworks for the study area. A Detailed survey of the study site would be undertaken to determine whether any listed and threatened ecosystems exist or if any protected species occur on site.

The Ecological Assessment would form a detailed assessment of flora, fauna, avifauna, invertebrate and mammals that may potentially occur on site. The detailed assessment and survey would culminate in thorough reporting and sensitivity mapping of identified protected species and ecosystems. The Report would identify impacts pertaining to the activity and would be assessed according to their significance. Recommendations for mitigation measures would be provided to lower the anticipated impacts.

### 11.3.2.2 Wetland Impact Assessment

A Wetland Impact Assessment would be undertaken to identify any wetland and aquatic ecosystems on site and to delineate such features. The assessment would identify the potential impact of the development on the wetland and aquatic features and vice versa. Potential impacts would be assessed and recommendations made to curb negative impacts foreseen.

The following work will be included in this part of the study:

- Wetland and riparian delineation and GIS map work identifying the various quaternary drainage areas in relation to project area;
- Characterise the receiving water environment in terms of present ecological state (PES) as well as recommended Eco-Health Class;
- Wetland and riparian functional assessment;
- Wetland and riparian buffer zones;
- Identify all surface water bodies within the study area;
- Identify sensitive riparian areas where they occur;

### 11.3.2.3 Heritage Impact Assessment

A Heritage Impact Assessment would be conducted to identify any cultural or heritage resources that may be present on the development site. The assessment would list any identified features with location descriptions and state the significance of each feature.

The archaeologist would present possible impacts foreseen from the development on the resources and indicate either removal procedures or protection methods of such features identified on site. Mitigation measures would be outlined in this assessment and presented to the South African Heritage Resources Agency (SAHRA) and Gauteng Provincial Heritage Resources Agency (PHRA) for approval.

The aims with the Heritage Impact Assessment is therefore to

- To establish whether any of the type and ranges of heritage resources as outlined in section 3 of the National Heritage Resource Act (Act 25 of 1999) do occur in or near the proposed development site and if so, to establish the significance of these heritage resources.
- To establish whether such heritage resources will be affected by the proposed power line activities, and if so, to determine possible mitigation measures that can be applied to these heritage resources.

### 11.3.2.4 Social Impact Assessment

A Social Impact Assessment would be conducted for the development proposal to assess the potential effects of the proposed housing development on the surrounding community. The assessment would include the conduct of a site visit to the area to identify the affected community groups and stakeholders. The site visit would also assist to understand the baseline conditions of the area.

A literature review of the relevant policy documents and overarching frameworks will be completed and core economic activities would be identified through literature review.

The assessment would entail extensive consultation with relevant stakeholders and interviews with various interest groups. These stakeholders include ward councillors and management of the Suikerbosrand Provincial Nature Reserve as well as current and future residents.

From the above mentioned methodologies the specialist would conduct a comprehensive literature review. An assessment of any potential issues or challenges which may arise would be assessed. The study would provide recommendations for mitigation measures and any opportunities which may exist to further the positive benefits of the project and a comprehensive Social-Economic Impact Assessment.

#### 11.3.2.5 Dolomitic Stability Assessment (Geotechnical Investigation)

The development site is located along with the greater alberton area on the western bank of the Natalspruit with the Klip River and moist conditions located further west, off site. These areas are known for their dolomitic conditions and also elaborated on in the EMM Environmental Management Framework for their geotechnical constraints. Dolomitic zones underlying the site would need to be delineated and assessed to determine potential risk areas for sinkhole development. Dolomitic conditions cannot sustain high density development and therefore may foster other land uses in the development layout with lower densities.

The Dolomitic Stability Assessment would define dolomitic zones on site; identify the risk areas as well as alternative land uses and further present recommended mitigation measures for the development.

#### 11.3.2.6 Bulk services Report

The development would require precision planning of bulk infrastructure services. A Bulk Services Report would be compiled and presented in the EIR. The service requirements would be quantified and provision methods stated. The engineering services would form the basis of the subsidized residential development for which an engineering services design in terms of roads, water, and sanitation would be included in the EIR.

#### 11.3.2.7 Storm Water Plan

The development site falls below various formal settlements from which storm water is abutted onto the site. There is also the occurrence of a drainage line in the most southern portion of the development site for which a 1: 100 year floodline calculation would be undertaken. A storm water plan would be compiled to ensure that storm water is channelled into natural surface water flows.

#### 11.3.2.8 Traffic Impact Assessment

The increase in vehicular movement from the development proposal would require the conduct of a detailed Traffic Impact Assessment to stipulate the road infrastructure requirements and recommendations of possible upgrade requirements. The details of this assessment are to form part of the EIR.

### **11.3.3 Environmental Impact Report (EIR)**

An EIR would be compiled on completion all specialist investigations. Findings and recommendations outlined by the specialist studies would be incorporated by the EAP into a single report, the EIR. The EIR would contain the following:

- An assessment of the biophysical and social environment encompassed by the development and direct surroundings and consider the impacts of the development thereon and vice versa
- Identify and assess the significance of potential impacts the development may have on the dual environments
- Provide mitigation measures to curb negative impacts and enhance positive impacts
- Provide an environmental statement of findings of the assessment to the authorising authority for decision making

### **11.3.4 Environmental Management Programme (EMP)**

An Environmental Management plan is required for implementation during commissioning and operation of the project. The EMP will ensure compliance with environmental regulations during the cycle of the project and recommends how to operate and implement the project in form of efficient mitigation measures. Mitigations and recommendations would be resultant from the findings and recommendations contained of the EIR.

## **11.4 PARTICULARS OF PUBLIC PARTICIPATION PROCESS FOR EIA PHASE**

Interested and Affected Parties would be notified of the commencement of the EIA Phase once all specialist investigations have been undertaken. I&As would be given the opportunity to review the findings of the EIA which is presented in a Draft EIR and EMP. The draft EIR would indicate the potential positive and negative impacts and measures to enhance positive impacts and reduce negative impacts.

As part of the assessment, an EMP is compiled. The EMP is a requirement as per the EIA Regulations. The EMP recommends how to operate and implement the project. It is anticipated that the EIR would be available in the first quarter of 2014. I &As would receive a notification letter announcing the availability of the Draft EIR. The report would be distributed for public review and comment for a period of 40 calendar days.

A public meeting would be arranged to present the findings of the EIR to I&As and stakeholders. Details thereof would be available during the EIA Phase.

All comments and issues received during the public review period of the Draft EIR and EMP would be captured in a Final EIR and submitted to GDARD for review and ultimately approval. I &As would receive notification of the submission and would as per the scoping phase have the opportunity to request copies of the final report.

## **11.5 PUBLIC PARTICIPATION DURING THE DECISION MAKING PHASE**

During this phase GDARD will review the Final EIR and consult with any other key organs of state eg. the Department of Water Affairs (DWA) before granting or refusing an environmental authorisation.

The environmental authorisation will be made available for public review for a period of 20 consecutive calendar days. This provides I &AP's with an opportunity to verify that the decision taken have considered their comments and concerns raised. I&Aps are also then informed of the appeal procedure, should they have a reason to appeal.

## **ATTACHED ARE THE APPENDICES TO THE DRAFT SCOPING REPORT**

**Appendix A** – Application Acceptance Letter

**Appendix B** – Regional and Topographical Map

**Appendix C** – GDARD Biodiversity Unit Response to application

**Appendix D** – Interested and Affected Party Database

**Appendix E** – Ward Councillors Focus Group Meeting Minutes and Attendance Record

**Appendix F** – Copy of Alberton Record Newspaper Advertisement

**Appendix G** – Copy of flyer and delivery note

**Appendix H** – Proof of site notices

**Appendix I** – Proof of BID Distribution / projection notification

**Appendix J** – Stakeholders consultation attendance register, feedback

**Appendix K** – Landowner Pubic Meeting proof of invitation

**Appendix L (1)** – Kliprivier Public Meeting Minutes and Attendance Record

**Appendix L(2)** – Palm Ridge Public Meeting Minutes and Attendance Record

**Appendix M** – Comments, Issues and Response Report