GAUTENG PROVINCE
AGRICULTURE AND RURAL DEVELOPMENT
REPUBLIC OF SOUTH AFRICA

Basic Assessment Report in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2014 (Version 1)

Kindly note that:

1. This **Basic Assessment Report** is the standard report required by GDARD in terms of the EIA Regulations, 2014.

2. This application form is current as of 8 December 2014. It is the responsibility of the EAP to ascertain whether subsequent versions of the form have been published or produced by the competent authority.

3. **A draft Basic Assessment Report must be submitted, for purposes of comments within a period of thirty (30) days, to all State Departments administering a law relating to a matter likely to be affected by the activity to be undertaken.**

4. **A draft Basic Assessment Report (1 hard copy and two CD's) must be submitted, for purposes of comments within a period of thirty (30) days, to a Competent Authority empowered in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended to consider and decide on the application.**

5. Five (5) copies (3 hard copies and 2 CDs-PDF) of the final report and attachments must be handed in at offices of the relevant competent authority, as detailed below.

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

7. Selected boxes must be indicated by a cross and, when the form is completed electronically, must also be highlighted.

8. An incomplete report may lead to an application for environmental authorisation being refused.

9. **Any report that does not contain a titled and dated full colour large scale layout plan of the proposed activities including a coherent legend, overlain with the sensitivities found on site may lead to an application for environmental authorisation being refused.**

10. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the application for environmental authorisation being refused.

11. No faxed or e-mailed reports will be accepted. Only hand delivered or posted applications will be accepted.

12. Unless protected by law, and clearly indicated as such, all information filled in on this application will become public information on receipt by the competent authority. The applicant/EAP must provide any interested and affected party with the information contained in this application on request, during any stage of the application process.

13. Although pre-application meeting with the Competent Authority is optional, applicants are advised to have these meetings prior to submission of application to seek guidance from the Competent Authority.

DEPARTMENTAL DETAILS

Gauteng Department of Agriculture and Rural Development
Attention: Administrative Unit of the of the Environmental Affairs Branch
P.O. Box 8769
Johannesburg
2000

Administrative Unit of the of the Environmental Affairs Branch
Ground floor Diamond Building
11 Diagonal Street, Johannesburg
Administrative Unit telephone number: (011) 240 3377
Department central telephone number: (011) 240 2500

Contents

(For official use only)

NEAS Reference Number:						
File Reference Number:	**GAUT 002/18-19/E2355**					
Application Number:						
Date Received:						

If this BAR has not been submitted within 90 days of receipt of the application by the competent authority and permission was not requested to submit within 140 days, please indicate the reasons for not submitting within time frame.

Not Applicable

Is a closure plan applicable for this application and has it been included in this report? **No**

if not, state reasons for not including the closure plan.

Not Applicable

Has a draft report for this application been submitted to a competent authority and all State Departments administering a law relating to a matter likely to be affected as a result of this activity? **No**

Is a list of the State Departments referred to above attached to this report including their full contact details and contact person? **Yes**

Refer to **Annexure E**

If no, state reasons for not attaching the list.

Not Applicable

Have State Departments including the competent authority commented? **No**

If no, why?

The report is still at Draft report. Comments from State Departments and the Competent Authority will be included in the Final Basic Assessment Report.

SECTION A: ACTIVITY INFORMATION

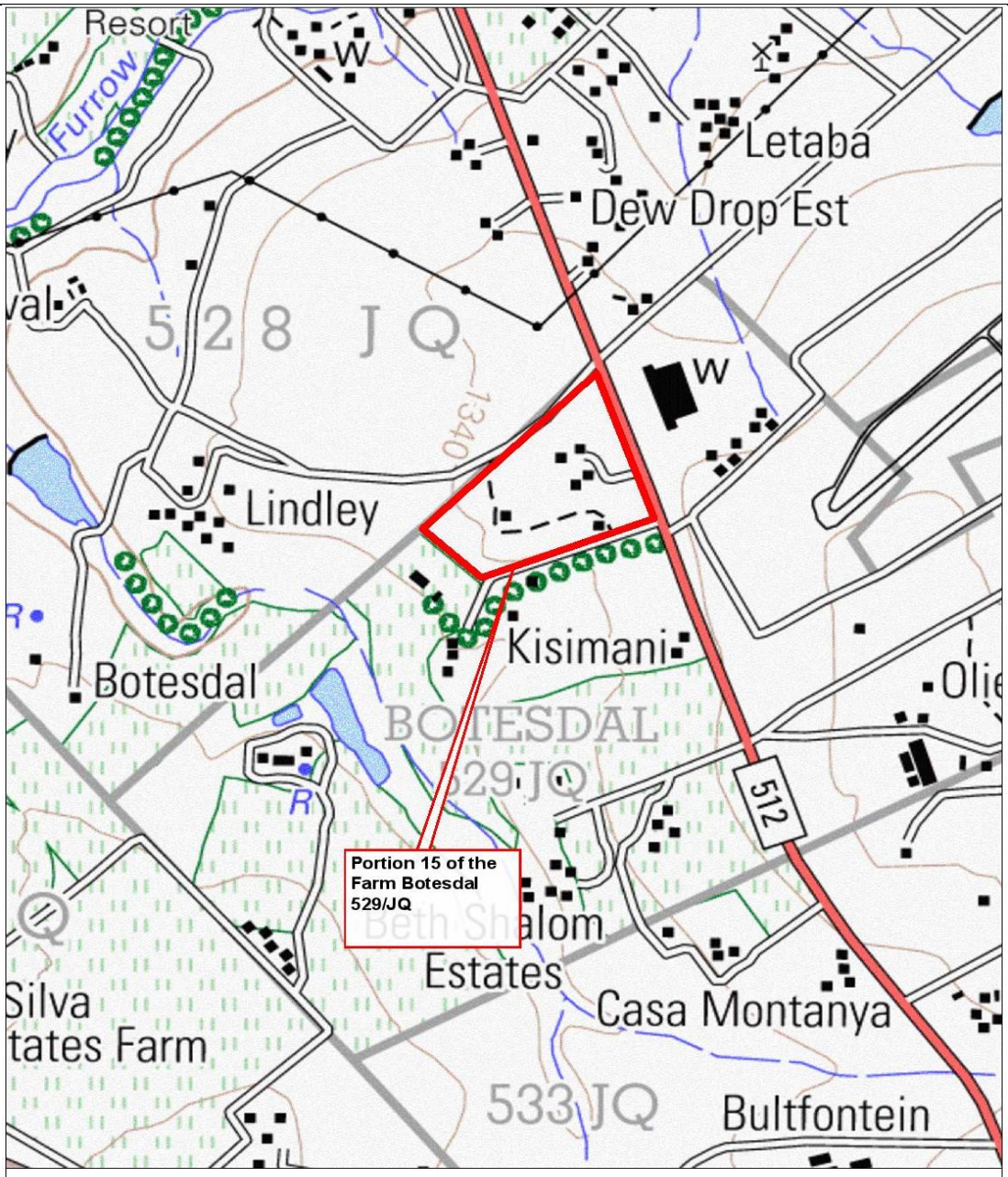
1. PROPOSAL OR DEVELOPMENT DESCRIPTION

1.1 Project Title (must be the same name as per application form):

Title: Proposed commercial development & associated infrastructure to be known as Lanseria Extension 76 on Portion 15 of the Farm Botesdal 529 JQ within City of Johannesburg Municipality.

The site is located to the west of K29 known as Malibongwe Drive (R512) while Lanseria Airport is located to the north of the site. Refer to **Figure 1a and 1b** for the location Maps.

Figure 1a: Google Earth Image of the proposed development shown by a red polygon



REVISIONS		
REV	DATE	DESCRIPTION

LEAP

PROJECT

Ptn 15 of the Farm Botesdal 529/JQ, Lanseria

Locality Map

DRAWN BY	CHECKED BY	DATE	SCALE	QUAD REF. & DATE
ZD	GT	2018-06-22	NTS	2527DD 2002

Figure 1b: Location Map of the proposed development

1.2 Project Description

1. Proposed Development

It is the intention of Open Energy Innovation Pty Ltd to develop the site into Industrial 1 with Commercial uses and other ancillary uses and a guard house (access control gateway).

Due to the complex nature of the township establishment process the exact size of the erven and location thereof are likely to be refined during the process. This will depend on the topography of the land, environmental considerations, access, engineering services investigations and soil conditions. Preliminary investigations are complete on all the variables as per the enclosed studies, but approvals are not in place yet.

This proposed development seeks the following development controls:

Erven 1 to 8
Use Zone : Industrial 1
Primary Rights : Industrial uses, shops, warehouses and Guard House/Access Control
Height : 2 Storeys
Coverage : 40%
FAR : 0.8

Table 1: Proposed Land Use

Use Zone	No of Erven	Area (m2)	FAR	Floor Area (m2)
Special	8	154 971	0.4671	72 384.6

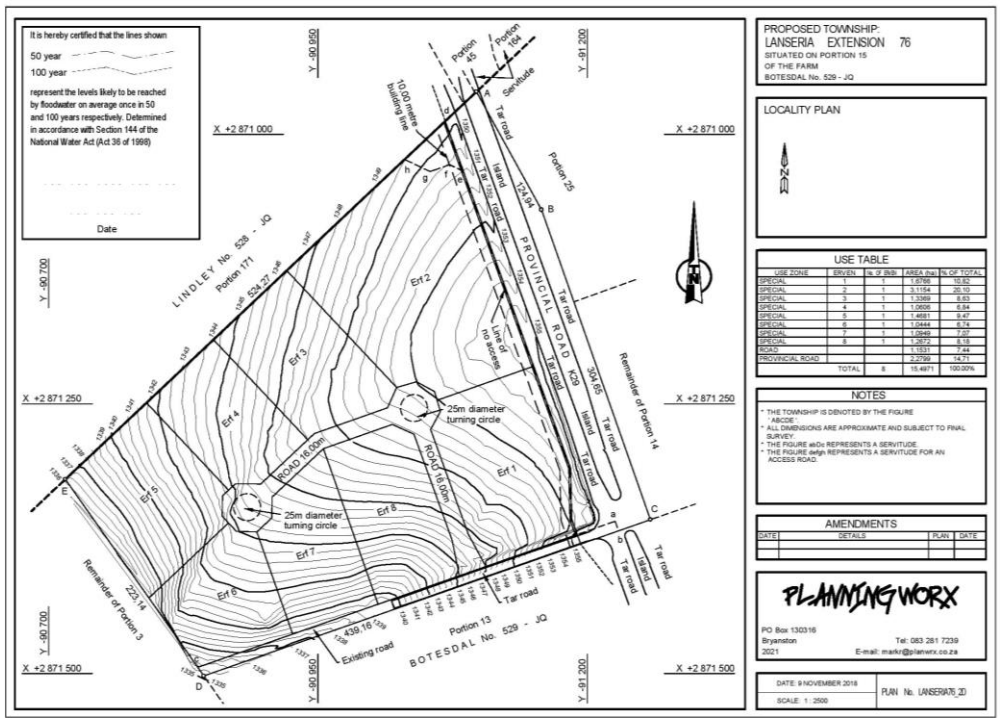


Figure 2: Proposed Layout plan

2. Associated Infrastructure

2.1 Water

a) Bulk Services

Currently no bulk water services are available on the proposed development site. The water reticulation line servicing Lanseria Corporate Estate is a 110mm diameter pipe. It is advisable to connect the water line to the 110mm diameter pipe to service the township development. Water to service the proposed township development will be drawn from the afore-mentioned existing 110mm diameter pipe in the Lanseria Corporate Estate situated to the south east of the proposed site and a water meter will be installed at an approved position by Johannesburg Water and Sanitation Department. The new water line will be ±600m in length.

b) Internal Reticulation

Water Design Criteria

The design criteria to be used for the analysis and design of the water network are indicated in Table 2. Design specifications used from JW Design Standards and Guidelines 2013 VER 1.

Table 2: Design criteria to be used for the analysis and design of water network

ITEM NO.	DESIGN ELEMENT	CRITERIA
1	Average Annual Daily Demand (AADD) for residential and recreational sites	Refer to table 10-5 below
2	Gross Average Annual Daily Demand (GAADD)	Allow 10% losses
3	Instantaneous Peak Factor (IPF)	4.0
4	Design Peak Flow Rate (DPFR) for domestic flows	GAADD x IPF
5	Maximum static head	90m
6	Minimum residual head under conditions of domestic peak flows	25m
7	Maximum linear flow velocity under conditions of domestic peak flows	3.6m/s
8	Pipe type	uPVC pressure pipes
9	Minimum pipe class	Class 16
10	Fire flow at any one hydrant under the condition of domestic peak flows (one hydrant at a time)	100l/s
11	Minimum residual head (fire plus domestic peak flow)	8m
12	Maximum linear flow velocity under conditions of fire-fighting	3.5m/s
13	Boundary roughness (K-value)	0.1mm
14	Available static head	To be confirmed
15	Available dynamic head under fire flow conditions	To be confirmed
16	Flow formulae	D'Arcy Weissbach
17	Minimum pipe diameter	110mm

Estimated Water Demand

The estimated water demand for the proposed development is shown in Table 3 below.

Table 3: Estimated water demand

Use Zone	Township, Pelindaba (R512), Botedal			
	Area (ha)	**Floor area (m2)**	**Average Annual Daily Demand (AADD)**	**Water Demand (kl/day)**
Business	15.479	72 384.6	0.3 kl/100m2/day	868.61
Total	15.479	72 384.6	0.3 kl/100m2/day	868.61

Peak Hourly Consumption (PHC) = Water Demand x Peak Factor
= 72 384.1m2/100m2 x 0.3 kl
= 217.15 kl/day
= 217.15 x 4PF
= 868.61 kl/day
= 10.05 l/s

Total water consumption = PHC + Total Fire Flow (TFFfh)

= 10.05 l/s + 100 l/s
= 110.05 l/s

2.2 Sewer

a) Bulk Services

There is an existing municipal sewer reticulation line located to the south east of the proposed site in the Lanseria Corporate Estate. A connection can be made by an approved position by Johannesburg Water and Sanitation Department. The location is uphill from the proposed site and therefore a pump system will be incorporated in the design.

b) Internal Sewer Reticulation

Sewer Design Criteria
The design criteria used to design the sewage network are indicated in Table 4 below.

Table 4 Sewer Design Criteria

ITEM NO.	DESIGN ELEMENT	CRITERIA
1	Average Annual Daily flow for special and residential Erven	Refer to table 11-6 below
2	Peak Factor	1.8
3	Allowance for infiltration	15%
4	Capacity of sewer	Pipes may run full at the Total Design Flow, which includes the peak and infiltration flows
5	Sewer pipe type	uPVC Class 34
6	Minimum velocity	0.7 m/s
7	Minimum pipe diameter	160 mm
8	Minimum depth of cover	1.0 m

Estimated Sewerage Flow
The estimated flow for the proposed development is shown in Table 5 below

Table 5: Estimated flow for the proposed

USE ZONE	TOWNSHIP, PELINDABA (R512), BOTESDAL			
	Area (ha)	Floor Area (m2)	Average Annual Daily Flow (AADF)	Sewerage Flow (Kl/day)
Business	15.479	72 384.6	0.16 kl / 100m^2	239.74
Total	15.479	72.384.6	0.16 kl/100m2/day	239.74

Peak Flow = Peak Factor x Sewerage Flow
= 72 384.6 m2/100m2 x 0.16 kl
= 115.81 kl/day
= 115.81 x 1.8 PF
= 208.47 kl/day x 1.15 (% allowed for extraneous flow = 15%)
= 239.74 kl/day
= 2.77 l/s

2.3 Stormwater Drainage

a) Stormwater Systems

On the proposed site there are no current stormwater systems. On the northern corner of the site a concrete shoulder starts that directs flow in the northern direction on Pelindaba Road (R512). The site slopes downward in a western direction where the overland stormwater flows into an existing natural watercourse.

Currently the stormwater from the proposed development drains into the above-mentioned channel by means of overland flow.

Figure 3: Proposed storm water management

A stormwater Management Plan has been complied to calculate the flood routing and in detail size the attenuation pound and outlet structures.

b) Hydrology

Hydrological data that is used in the design of the stormwater drainage system for the proposed township development on Botesdal Farm (Portion 15) is summarized in Table 8-2 below.

Table 6: Hydrology

HYDROLOGICAL DATA	
Flood return period	1:5 and 1:25
Average yearly rainfall	750mm
Minimum time of concentration and run-off co-efficient according to: Guidelines for the Provision of Engineering Services and Amenities (Red Book) incorporating the JRA Standard Specifications.	
Design method	Rational method for smaller catchment areas
Pre-development run-off factor (C)	0.28
Post-development run-off factor (C)	0.85

2.4 Electricity supply

Table 7: Electricity supply

AREA/ZONING		*LOAD CALCULATIONS*										*Sub Total*	*TOTAL*	
		Site area		*FAR*	*Area/unit*		*Rate*		*Diversity*					
Erf 1	Industrial 1	1.6766	Ha	0.6	10 060	m²	50	VA/m²	0.9	factor		453		
Erf 2	Industrial 1	3.1154	Ha	0.6	18 692	m²	50	VA/m²	0.9	factor		841		
Erf 3	Industrial 1	1.3369	Ha	0.6	8 021	m²	50	VA/m²	0.9	factor		361		
Erf 4	Industrial 1	1.0606	Ha	0.6	6 364	m²	50	VA/m²	0.9	factor		286		
Erf 5	Industrial 1	1.4681	Ha	0.6	8 809	m²	50	VA/m²	0.9	factor		396		
Erf 6	Industrial 1	1.0444	Ha	0.6	6 266	m²	50	VA/m²	0.9	factor		282		
Erf 7	Industrial 1	1.0949	Ha	0.6	6 569	m²	50	VA/m²	0.9	factor		296		
Erf 8	Industrial 1	1.2672	Ha	0.6	7 603	m²	50	VA/m²	0.9	factor		342	3 257	kVA
	Road	1.1531	Ha		72 385								0	kVA
	Road	2.2799	Ha											
	Future						0%	%	3257.3	kVA			0	kVA
TOTALS	Check:-	15.4971	Ha		210	kVA/Ha							3 257	kVA
		72 385	m²		45	VA/m²								

Eskom has confirmed that power is available and a total supply of 3 MVA will be reserved for 1 year thereafter a new investigation will have to be undertaken.

2.5 Roads

a) Access to the Development

The development will be serviced by one side access off Pelindaba Road (R512). There is an existing road serviced by Pelindaba Road (R512) that will serve as an entrance to the proposed development. The access to the development will be off side access road and not directly from R512, refer to Appendix A.

b) Upgrades to the Existing Roads Network

Traffic Impact assessment have been conducted and submitted to both GDRT and Johannesburg Metropolitan Municipality for approval and/or comments.

Non-Motorised and Public Transport

In terms of the National Land Transport Act of 2009, Section 38, it is a requirement that an assessment of the public transport be included in a Traffic Impact Assessment Study. These were addressed in the TIA submitted to GDRT and JMM.

FUTURE NETWORK

The R512 will become K29 in the future road network. Both lanes have been built to GDRT standards.
The classification of road is shown in Table 9-4.

Table 8: Road classification

Description	Class No.	Function
Side access	5a	Commercial access
(R512) (K29)	3	Arterial connection

GEOMETRIC DESIGN STANDARDS

The details of the different road classes are shown in Table 9-5

Table 9: Class Specifications

Design Element	Specification	
	5a	3
Design speed	40km/h	100km/h
Minimum centre line radii	50m	1500m
Minimum gradient	0.67%	0.5%
Favoured maximum gradient	10%	10%
Maximum grade/grade length	12.5 over 70m	9.5% over 400m
Maximum k-value: Crest	6	62
Sag	6	37

2.6 Pavement Design

The proposed pavement design will be based on anticipated traffic volumes and ground conditions. The design life of the proposed pavement is 20 years on provision that repairs the surface will be made where necessary in order to maintain its skid resistance and permeability during the design life of the road.

2.7 Conclusion on the services

All the required engineering services, in respect of roads, stormwater, potable water and sewer, can be supplied economically to the proposed subdivisions upon change of current land use.
The total budget amount for the upgrades of the stormwater, potable water and sewer networks to accommodate the proposed development will be finalized upon approval of land uses and acceptance of services reports.

- The main access will be serviced by Pelindaba Road (R512).

- Water will be supplied from an existing municipal water reticulation line of 110mm diameter pipe that is in the Lanseria Corporate Estate located to the south east of the proposed site.
- Connection to an existing municipal sewer reticulation from a line located to the south east of the proposed site in the Lanseria Corporate Estate.
- Sewer will be directed to the above-mentioned site by means of a pump system as the location is uphill from the proposed site.
- A total head of at least 33m is required to pump the waste water to the required height from the proposed site.

3. Traffic Impact Assessment

a) Site Access

Access to the development site will be gained off Pelindaba Road (R512) on a left-in left-out (LILO) access and alternatively off the Unnamed Road on a full access. The proposed accesses are located at the following access spacing:

- LILO access off Pelindaba Road (R512): ± 160-meter c/c; and
- Full access off the Unnamed Road: ± 145-meter c/c.

b) External Roads

- Pelindaba Road (R512/ K29)

Pelindaba Road falls under the jurisdiction of Johannesburg Roads Agency (JRA). It can be classified as a Class 2 Major arterial and serves as a mobility road to/ from the development site. The road borders the site to the east. The road exists as a dual carriageway with double lane with per direction.

- Ashenti Road

Ashenti Road falls under the jurisdiction of JRA. It can be classified as a Class 5 Local street. The road exists as a dual carriageway with double lane with per direction.

- Unnamed Road

The Unnamed Road falls under the jurisdiction of JRA. It can be classified as a Class 5 Local street. The road exists as a single lane per direction road.

c) Intersections

- Pelindaba Road forms a 4-way signalized intersection with Ashenti Road
- Pelindaba Road forms a 4-way with stop control on the Unnamed Road and the Access Road.

3.1 Conclusions on Traffic Impact Assessments

The weekday a.m. and p.m. peak hour trip generations for the development is as follows:

Peak	IN	OUT	Total Trips
AM Peak	321	137	458
PM Peak	115	344	458

- Capacity results:
  - The existing intersection of Pelindaba Road (R512) and Ashenti Road is adequate for the proposed development.

- The proposed signalised intersection of Pelindaba Road (R512) and Unnamed Road/ Access Road is adequate for the proposed development.
- The Main entrance off the Unnamed Road is adequate for the proposed development.
- The proposed LILO access off Pelindaba Road (512) is adequate for the proposed development.

- Parking requirements (minimum):

- Site 1: 173 parking bays
- Site 2: 324 parking bays
- Site 3: 140 parking bays
- Site 4: 108 parking bays
- Site 5: 194 parking bays
- Site 6: 108 parking bays
- Site 7: 108 parking bays
- Site 8: 130 parking bays

- Loading requirements:

Based on the City of Johannesburg Land Use Scheme, 2017 (draft) loading and off-loading facilities for goods and passengers shall be provided on an erf or site to the satisfaction of the Council, provided that the Council may relax this requirement on submission of a written application for consent, accompanied by a Site Development Plan.

- Proposed improvements and recommendations:

- Traffic signals are proposed at Pelindaba Road (R512) and the Unnamed Road.

Select the appropriate box

The application is for an upgrade of an existing development	**n/a**	The application is for a new development	**X**	Other, specify	**n/a**

Indicate the number of the relevant Government Notice:	**Activity No (s) (relevant notice): e.g. Listing notices 1, 2 or 3**	**Describe each listed activity as per the wording in the listing notices:**	**Reason why listed activity is applicable**
GNR 983, 8 December 2014 **as amended by** GNR 327, 7 April 2017	Listing Notice 1 Activity 27	The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation.	Two habitats areas are identified, namely: Degraded Egoli Granite Grassland and Transformed Habitat and the terrestrial sensitivity of these habitat units range from moderately low to low; More than 1 ha of the 15ha + is still indigenous vegetation.
GNR 985, 8 December 2014	Listing Notice 3 Activity 12	The clearance of an area of 300 square meters or more of indigenous vegetation except where such clearance is of indigenous vegetation.	The property is subject to an Important areas asper the DEA CPlan 3.3 Two habitats areas are identified, namely: Degraded

as amended by GNR 324, 7 April 2017		**c, Gauteng** ii. Within Critical Biodiversity Areas or Ecological Support Areas identified in the Gauteng Conservation Plan or bioregional plans	Egoli Granite Grassland and Transformed Habitat and the terrestrial sensitivity of these habitat units range from moderately low to low; More than 1 ha of the 15ha + is still indigenous vegetation

Does the activity also require any authorisation other than NEMA EIA authorisation?	**YES**	NO

If yes, describe the legislation and the Competent Authority administering such legislation

Water Use License Application (WULA): General Authorisation	
Legislation	**Competent Authority**
National Water Act, 1998 (Act No 36 of 1998)	Department of Water and Sanitation

If yes, have you applied for the authorisation(s)?	YES	**NO**
If yes, have you received approval(s)? (attach in appropriate appendix)	YES	**NO**

The water use licence: Application will be submitted to DWS after the commenting period of this report expires and all relevant comments have been addressed.

2. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

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

Title of legislation, policy or guideline:	**Administering authority:**	**Promulgation Date:**
Constitution of the Republic of South Africa (Act No 108 of 1990)	Government of South Africa	18 December 1996
National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).	Department of Environmental Affairs (DEA) and Gauteng Department of Agriculture and Rural Development (GDARD)	27 November 1998
GN Regulation 983 to 986 Dec 2014 as amended and promulgated under Chapter 5 of the National Environmental Management Act (NEMA, Act 107 of 1998) in Government Gazette 40772 on 7 April 2017.	Gauteng Department of Agriculture and Rural Development (GDARD)	7 April 2017

Listed activities: 1. GNR 983 amended by GN R 327: Listing Notice 1: Activity 27 2. GNR 985 amended by GN R 324: Listing Notice 3: Activity 12		
National Water Act (Act No 36 of 1998)	Department of Water Affairs (DWA)	26 August 1998
National Heritage Resources Act No 25 of 1999 (Act No 25 of 1999 as amended)	South African Heritage Resources Agency (SAHRA)	28 April 1999
The Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983)	National - Department of Agriculture Forestry and Fisheries (DAFF)	27 April 1983
Noise Control Regulations of Gauteng Act,1999 (Act No 9 of 1999)	Gauteng DARD	August 1999
Gauteng Environmental Management Framework	Gauteng DARD	2015
i. Companion Guideline on the Environmental Impact Assessment Regulations, 2010 ii. Environmental Management Framework Guidelines, 10 October 2012 iii. Public Participation Guideline, 10 October, 10 October 2012 iv. Fee Regulations Guidance Document, April 2014 v. Guideline on need and desirability in terms of the Environmental Impact Assessment Regulations, 2010 vi. EIA Listed Activities and Timelines (January 2015) Section 24G and Similar Listings (January 2015	Gauteng DARD	Various dates
All relevant Provincial regulations, Municipal by-laws and ordinances This includes: • Gauteng Provincial Environmental Management Framework GPEMF 2015 • SPLUMA Bylaws of COJ • The Gauteng Draft Red Data Policy • The Gauteng Draft Ridges Policy • Protection of Agricultural Land in Gauteng Revised Policy (June 2006) • City of Johannesburg Municipality Spatial Development Framework (SDF) • City of Johannesburg Metropolitan Municipality's Open Space Framework •• Gauteng Transport Infrastructure Act	City of Johannesburg Local Municipality	Various dates

Description of compliance with the relevant legislation, policy or guidelines:

Legislation, policy of guideline	Description of compliance
Constitution of the Republic of South Africa (Act No 108 of 1990)	• Obligation to ensure that the proposed development will not result in pollution and ecological degradation; and • Obligation to ensure that the proposed development is ecologically sustainable, while demonstrating economic and social development. The proposed project can be considered as a sustainable development that will prevent pollution and ecological degradation whilst promoting justifiable economic and social development.
NEM:PAA 57 of 2003	**PART 3** **PROHIBITION OR RESTRICTION OF LAND USE IN A SPECIAL NATURE RESERVE, NATIONAL PARK AND WORLD HERITAGE SITE** Buildings and improvements 46. (1) No person shall, without the prior written approval of a management authority, erect, construct or transform or cause to be erected, constructed or transformed a) any building or any other improvement, including but not limited, to a building or structure of any kind, jetty, dock, pier, landing stage, landing float, marker, anchor buoy, raft, fence or any obstruction, bridge, pontoon, road or crossing in respect of a building or other immovable property; (6) on any private land in a special nature reserve, national park or world heritage site other than in accordance with the management plan for the area and the plans, specifications and conditions approved by the management authority.
National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).	The Amendments to the EIA Regulations, were published 7 on April 2017 in terms of the NEMA and came into effect on 7 April 2017. In terms of these EIA Regulations, the following listed activities within Government Notice R. 327 and R 985 are triggered by the proposed development, thereby requiring environmental authorisation from the GDARD. Government Notice 983 to 986 as amended by R. 327, R. 325 and R. 324, and R. 326 lists construction, transformation, extraction, exploration and expansion of facilities or activities that require environmental authorisation prior to commencement of construction. A distinction is made between Listing Notices 1 and 3 activities, which require a Basic Assessment, and Listing Notice 2 activities, which require a full EIA (Scoping followed by Impact Assessment). A Basic Assessment is generally intended for smaller scale activities, or activities whose impacts are well understood and can be easily managed. A Full EIA is required for Listing Notice 2 activities which are

Legislation, policy of guideline	Description of compliance
	activities that due to their nature and/or extent are likely to have significant impacts that cannot be easily predicted. Listing 2 activities are therefore higher risk activities that potentially cause higher levels of pollution, waste and environmental degradation. The proposed project requires a basic assessment in terms of R. 327 and 324.
National Water Act (Act No 36 of 1998)	All nearby waterbodies were scanned and Water Use License Application (in terms of General Authorisation) is envisioned (i.e. there is surface waterbodies within 500m of the proposed site).
Gauteng Noise Control Regulations	The regulation controls noise pollution. According to the acceptable noise levels in a residential area situated within an urban area is 55dBA and the maximum acceptable noise levels in a rural area is 45dBA. Implication for the development: Within the construction phase of the proposed development, the impact of noise could be problematic, but such impacts are generally short term. One should note that practical mitigation measures for noise pollution are low, but certain measures can be implemented to mitigate the severity. During the operational phase, there will be no noise impacts. (Please Refer to Appendix H (EMPr) for a list of suitable guidelines and mitigation measures)
National Heritage Resources Act No 25 of 1999 (Act No 25 of 1999 as amended)	A Phase 1 Heritage Impact Assessment have been undertaken.
Gauteng Environmental Management Framework	The aim of the EMF is to guide protection and enhancement of environmental assets and natural resources along with development patterns to ensure sustainable environmental management and development patterns within and around the Gauteng Province. The Gauteng Environmental Management Framework, 2015 (GEMF 2015) identifies the proposed site as Environmental Management Zone 1 dominated by urban development activities and Zone 2 which is a sensitive developmental zone allowing conservation.
i. Companion Guideline on the Environmental Impact Assessment Regulations, 2010 ii. Environmental Management Framework Guidelines, 10 October 2012.	Guidelines have informed this Application for Environmental Authorisation procedures and project / BAR.

Legislation, policy of guideline	Description of compliance
iii. Public Participation Guideline, 10 October 2012 iv. Fee Regulations Guidance Document, April 2014 v. Guideline on need and desirability in terms of the Environmental Impact Assessment Regulations, 2010 vi. EIA Listed Activities and Timelines (January 2015) vii. Section 24G and Similar Listings (January 2015)	
All relevant Provincial regulations, Municipal by-laws and ordinances This includes: • Gauteng Provincial Environmental Management Framework GPEMF 2015 • SPLUMA Bylaws of COJ • The Gauteng Draft Red Data Policy • The Gauteng Draft Ridges Policy • Protection of Agricultural Land in Gauteng Revised Policy (June 2006) • City of Johannesburg Municipality Spatial Development Framework (SDF) • City of Johannesburg Metropolitan Municipality's Open Space Framework • Gauteng Transport Infrastructure Act	Guidelines have informed this Application for Environmental Authorisation procedures and project / BAR

3. ALTERNATIVES

Describe the proposal and alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished. The determination of whether the site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment.

The no-go option must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. **Do not** include the no go option into the alternative table below.

Note: After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Please describe the process followed to reach (decide on) the list of alternatives below

The concept of integrated Environmental Management suggests that an Environmental Impact Assessment process, to determine the possible impact of the proposed activity, should incorporate the consideration of feasible alternatives. A reasonable number of possible proposals or alternative, to achieve the same objective should be assessed. The identification, description, evaluation and comparison of alternatives are important for ensuring a sound environmental impact assessment process.

Alternatives should be considered as norm within the Environmental Process. These should include, if applicable:

- Activity alternatives
- Location alternatives;
- Technology alternatives; and
- The No-Action alternatives (NO-GO).

For any alternative to be considered feasible, the alternative must meet the need and purposes of the development proposal without presenting significantly high associated impacts. Alternatives are typically distinguished into discrete or incremental alternatives. Discrete alternatives are overall development options, which are typically identified during the pre-feasibility, feasibility and / or Basic Assessment process. Incremental alternatives typically identified arise during the Assessment process and are usually suggested as a means of addressing / mitigating identified impacts (e.g.: waste management, noise reduction measure, contamination management, etc.) These alternatives are closely linked to the identification of migration measure and therefore are not specifically identified as distinct alternative. The types of alternatives considered for this project are presented below.

Provide a description of the alternatives considered

No.	Alternative Type: Activity	Description
1	**PROPOSED ACTIVITY: (Preferred Alternative)**	It is the intention of Open Energy Innovation Pty Ltd to develop the site into Industrial 1 with Commercial uses and other ancillary uses and a guard house (access control gateway). Due to the complex nature of the township establishment process the exact size of the erven and location thereof are likely to be refined during the process. This will depend on the topography of the land, environmental considerations, access, engineering services investigations and soil conditions. Preliminary investigations are complete on all the variables as per the enclosed studies, but approvals are not in place yet. This proposed development seeks the following development controls: Erven 1 to 8 Use Zone : Industrial 1 Primary Rights : Industrial uses, shops, warehouses and Guard House/Access Control Height : 2 Storeys Coverage : 40% FAR : 0.8

No.	Alternative Type: Activity	Description
2.		Since the preferred alternative provides for a mixed-use development, which will suitably address all possible land use options, a second activity alternative is not provided. The preferred land use is in keeping with the desired land use according to the City of Johannesburg strategic planning. Land close to and adjacent to the Lanseria Airport is suitable for light industry that supports the airport. Developing and expanding the airport node is a desirable activity. No alternative activity is thus proposed

No.	Alternative type, - Location	Description
1	**Proposal - Infill development location (preferred)**	This is the most preferred location type due to the balance achievable between social, environmental and economic requirements: • The land belongs to the Applicant • Aligns to the prerequisites of the City of Johannesburg Metropolitan Municipality SDF • Situated within the urban realm adjacent to existing and proposed urban infrastructure, service and amenities • Socially inclusive due to its location to numerous communities and along public transport routes
2	Alternative 1 – Inner City Location	An inner-city location would be environmentally and socially feasible, however economically unviable, provided that the same area extent of land be found available for development as inner-city resources are very scarce.
3.	Alternative 2 – Suburban location	Not socially, environmentally or economically feasible due to the following: • Not situated adjacent to primary movement corridors • Not accessible to a range of socio-economic population groups • Isolated nature of development and therefore not inclusive • Contrasting densities and heights with regard to the mixed-use nodal development • Availability of land at an affordable cost minimal

No.	Alternative type, Technology	Description
1	**Proposal Technology (preferred or only alternative)**	There are a few technology alternatives proposed for this project and will be applied to achieve the desired outcomes of the project and most feasible and practical options were chosen from an economical and environmental perspective. Measures will put in place to make the development as ecologically responsible as possible such as the installation of: • Energy efficient light bulbs • Solar heating units, • Low flow water taps • Use local labour • Use local materials

2	Alternative 1	Not Applicable since the materials and structures in fuel station construction and operations is governed by SANS standards and must be met.
3.	Alternative 2	The alternative for developers are always to use conventional building methods and materials. These will include • Ineffective light bulbs • Conventional heating units, • Low flow water taps • Use foreigner labour • Use materials that is imported from long distances. • High water use fixtures • No water harvesting • No waste separation It is recommended that these technological alternatives are not implemented or promoted by the developer.

No-Go Alternative

This option assumes that a conservative approach would ensure that the environment is not impacted upon any more than is required to establish the facility. It is important to state that this assessment is informed by the current condition of the area. Should the GDARD decline the application, the 'No-Go' option will be followed, and the status quo of the site will remain.

In the event that no alternative(s) has/have been provided, a motivation must be included in the table below.

Not Applicable

4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the total physical size (footprint) of the proposal as well as alternatives. Footprints are to include all new infrastructure (roads, services etc), impermeable surfaces and landscaped areas:

	Size of the activity:
Proposed activity ***(Total environmental (landscaping, parking, etc.) and the building footprint)***	Approximately 15 4972ha
Alternatives:	
Alternative 1 (if any)	n/a
Alternative 2 (if any)	n/a

Ha / m^2

or, for linear activities:

	Length of the activity:
Proposed activity	n/a
Alternatives:	

Alternative 1 (if any)	n/a
Alternative 2 (if any)	n/a

m/km

Indicate the size of the site(s) or servitudes (within which the above footprints will occur):

	Size of the site/servitude:
Proposed activity	n/a
	n/a
	n/a
Alternatives:	
Alternative 1 (if any)	n/a
	n/a
	n/a
Alternative 2 (if any)	n/a

Ha/m^2

5. SITE ACCESS

Proposal

Does ready access to the site exist, or is access directly from an existing road?	**YES**	NO
If NO, what is the distance over which a new access road will be built		n/a

Describe the type of access road planned:

The main access will be serviced by Pelindaba Road (R512).

Include the position of the access road on the site plan (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

Alternative 1

Does ready access to the site exist, or is access directly from an existing road?	n/a	n/a
If NO, what is the distance over which a new access road will be built		n/a

Describe the type of access road planned:

Not Applicable

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

Alternative 2

Does ready access to the site exist, or is access directly from an existing road?	n/a	n/a
If NO, what is the distance over which a new access road will be built		n/a

Describe the type of access road planned:

Not applicable

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

PLEASE NOTE: Points 6 to 8 of Section A must be duplicated where relevant for alternatives

Section A 6-8 has been duplicated	**0**	Number of times

(only complete when applicable)

6. LAYOUT OR ROUTE PLAN

Refer to Annexure A for Site Development Plan

A detailed site or route (for linear activities) plan(s) must be prepared for each alternative site or alternative activity. It must be attached to this document. The site or route plans must indicate the following:

- the layout plan is printed in colour and is overlaid with a sensitivity map (if applicable);
- layout plan is of acceptable paper size and scale, e.g.

    - A4 size for activities with development footprint of 10sqm to 5 hectares;
    - A3 size for activities with development footprint of > 5 hectares to 20 hectares;
    - A2 size for activities with development footprint of >20 hectares to 50 hectares);
    - A1 size for activities with development footprint of >50 hectares);

- The following should serve as a guide for scale issues on the layout plan:
    - A0 = 1: 500
    - A1 = 1: 1000
    - A2 = 1: 2000
    - A3 = 1: 4000
    - A4 = 1: 8000 (±10 000)

- shapefiles of the activity must be included in the electronic submission on the CD's;
- the property boundaries and Surveyor General numbers of all the properties within 50m of the site;
- the exact position of each element of the activity as well as any other structures on the site;
- the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, sewage pipelines, septic tanks, storm water infrastructure;
- servitudes indicating the purpose of the servitude;
- sensitive environmental elements on and within 100m of the site or sites (including the relevant buffers as prescribed by the competent authority) including (but not limited thereto):

    - Rivers and wetlands;
    - the 1:100 and 1:50 year flood line;
    - ridges;
    - cultural and historical features;
    - areas with indigenous vegetation (even if it is degraded or infested with alien species);

- Where a watercourse is located on the site at least one cross section of the water course must be included (to allow the position of the relevant buffer from the bank to be clearly indicated).

FOR LOCALITY MAP (NOTE THIS IS ALSO INCLUDED IN THE APPLICATION FORM REQUIREMENTS)

- the scale of locality map must be at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map;
- the locality map and all other maps must be in colour;
- locality map must show property boundaries and numbers within 100m of the site, and for poultry and/or piggery, locality map must show properties within 500m and prevailing or predominant wind direction;
- for gentle slopes the 1m contour intervals must be indicated on the map and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the map;
- areas with indigenous vegetation (even if it is degraded or infested with alien species);
- locality map must show exact position of development site or sites;
- locality map showing and identifying (if possible) public and access roads; and
- the current land use as well as the land use zoning of each of the properties adjoining the site or sites.

7. SITE PHOTOGRAPHS

Refer to Annexure B

Colour photographs from the center of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under the appropriate Appendix**.** It should be supplemented with additional photographs of relevant features on the site, where applicable.

8. FACILITY ILLUSTRATION

Facility illustrations - No Applicable

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

SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT

Note: Complete Section B for the proposal and alternative(s) (if necessary)

Instructions for completion of Section B for linear activities

1) For linear activities (pipelines etc.) it may be necessary to complete Section B for each section of the site that has a significantly different environment.
2) Indicate on a plan(s) the different environments identified
3) Complete Section B for each of the above areas identified
4) Attach to this form in a chronological order
5) Each copy of Section B must clearly indicate the corresponding sections of the route at the top of the next page.

Section B has been duplicated for sections of the route **n/a** times

Instructions for completion of Section B for location/route alternatives

1) For each location/route alternative identified the entire Section B needs to be completed
2) Each alterative location/route needs to be clearly indicated at the top of the next page
3) Attach the above documents in a chronological order

Section B has been duplicated for location/route alternatives **n/a** times (complete only when appropriate)

Instructions for completion of Section B when both location/route alternatives and linear activities are applicable for the application

Section B is to be completed and attachments order in the following way

- All significantly different environments identified for Alternative 1 is to be completed and attached in a chronological order; then
- All significantly different environments identified for Alternative 2 is to be completed and attached chronological order, etc.

Section B - Section of Route **n/a** (complete only when appropriate for above)

Section B – Location/route Alternative No. **n/a** (complete only when appropriate for above)

1. PROPERTY DESCRIPTION

Property Description: (Including Physical Address and Farm name, portion etc.)	The subject property is located on Botesdal Farm (Portion 15) next to Pelindaba Road (R512) and across form the Lanseria Airport in the City of Johannesburg.

2. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in decimal degrees. The degrees should have at least six decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

Alternative:	**Latitude (S):**	**Longitude (E):**
1. Project Proposal	25º 56' 49.93''S	27º 54' 29.64''E
2. Alternative 1	n/a	n/a

In the case of linear activities:

Alternative:	**Latitude (S):**	**Longitude (E):**
• Starting point of the activity	n/a	n/a
• Middle point of the activity	n/a	n/a
• End point of the activity	n/a	n/a

For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route and attached in the appropriate Appendix

Addendum of route alternatives attached **n/a**

The 21digit Surveyor General code of each cadastral land parcel

Botesdal Ptn 15	T	O	J	Q	0	0	0	0	0	0	0	0	0	5	2	9	0	0	0	1	5

3. GRADIENT OF THE SITE

Indicate the general gradient of the site.

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

4. LOCATION IN LANDSCAPE

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

Ridgeline	Plateau	Side slope of hill/ridge	Valley	Plain	Undulating plain/low hills	River front

5. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

a) Is the site located on any of the following?

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

(Information in respect of the above will often be available at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

b) are any caves located on the site(s)	YES	**NO**

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
n/a	**n/a**

c) are any caves located within a 300m radius of the site(s)	YES	**NO**

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
n/a	**n/a**

d) are any sinkholes located within a 300m radius of the site(s)	YES	**NO**

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
n/a	**n/a**

If any of the answers to the above are “YES” or “unsure”, specialist input may be requested by the Department

6. AGRICULTURE

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA)	YES	**NO**

Figure 4: Gauteng Agricultural Potential Atlas (Source: GDARD)

Please note: The Department may request specialist input/studies in respect of the above.

7. GROUNDCOVER

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

Figure 5: Gauteng Cplan 3.3 (Source: DEA)

Indicate the types of groundcover present on the site and include the estimated percentage found on site.

Natural veld - good condition % =	**Natural veld with scattered aliens % = 80%**	Natural veld with heavy alien infestation % = 0	Veld dominated by alien species % = 0	Landscaped (vegetation) % =0
Sport field % =	**Old Cultivated land % = 20%**	Paved surface (hard landscaping) % =	Building or other structure % =0	Bare soil %-0

Please note: The Department may request specialist input/studies depending on the nature of the groundcover and potential impact(s) of the proposed activity/ies.

Are there any rare or endangered flora or fauna species (including red list species) present on the site	YES	**NO**

If YES, specify and explain:

Protected tree Sclerocarya birrea subsp. caffra- Tree removal permit will be obtained

Are there any rare or endangered flora or fauna species (including red list species) present within a 200m (if within urban area as defined in the Regulations) or within 600m (if outside the urban area as defined in the Regulations) radius of the site.	YES	**NO**

If YES, specify and explain:

Not Applicable

Are there any special or sensitive habitats or other natural features present on the site?	YES	**NO**

If YES, specify and explain:

Not Applicable

Was a specialist consulted to assist with completing this section	**YES**	NO

If yes complete specialist details

Name of the specialist:	Scientific Terrestrial Services CC		
Qualification(s) of the specialist:	Pr Sci Nat		
Postal address:	PO Box 751779 Gardenview		
Postal code:	2047		
Telephone:	011 616 7893	Cell:	
E-mail:	envguard@telkomsa.net	Fax:	086 724 3132

Are any further specialist studies recommended by the specialist?	YES	**NO**
If YES, specify:	Not Applicable	
If YES, is such a report(s) attached?	YES	**NO**

If YES list the specialist reports attached below

Annexure G1: Terrestrial Ecological Scan Assessment Annexure G2: Wetland Assessment Annexure G3: Heritage Assessment

Signature of specialist: _____ Date:

Please note: If more than one specialist was consulted to assist with the filling in of this section then this table must be appropriately duplicated

.

8. LAND USE CHARACTER OF SURROUNDING AREA

Using the associated number of the relevant current land use or prominent feature from the table below, fill in the position of these land-uses in the vacant blocks below which represent a 500m radius around the site.

1. Vacant land	2. River, stream, wetland	3. Nature conservation area	4. Public open space	5. Koppie or ridge
6. Dam or reservoir	7. Agriculture	**8. Low density residential**	9. Medium to high density residential	10. Informal residential
11. Old age home	12. Retail	13. Offices	**14. Commercial & warehousing**	**15. Light industrial**
16. Heavy industrial[AN]	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport[N]	23. Train station or shunting yard[N]	24. Railway line[N]	25. Major road (4 lanes or more) [N]
26. Sewage treatment plant[A]	27. Landfill or waste treatment site[A]	28. Historical building	29. Graveyard	30. Archeological site
31. Open cast mine	32. Underground mine	33.Spoil heap or slimes dam[A]	34. Small Holdings	
Other land uses (describe):		**Airport**		

NOTE: Each block represents an area of 250m X 250m, if your proposed development is larger than this please use the appropriate number and orientation of hashed blocks

NORTH

	1	**1**	**1**	**1/14**	**1**
	1	**1**	**1**	**22**	**22/15**
WEST	**1**	**1**		**22/25**	**22/15/25**
	1	**1/34**	**1/8**	**14/15**	**14/15**
	1	**1/34**	**1/8**	**1/15**	**14/15**

EAST

= Site

SOUTH

Note: More than one (1) Land-use may be indicated in a block

Please note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed activity/ies. Specialist reports that look at health & air quality and noise impacts may be required for any feature above and in particular those features marked with an "A" and with an "N" respectively.

Have specialist reports been attached	**YES**	NO

If yes indicate the type of reports below

Annexure G1: Terrestrial Ecological Scan Assessment
Annexure G2: Wetland Assessment
Annexure G3: Heritage Assessment

Specialist Study – Terrestrial Ecological Scan Assessment was appointed to conduct an Ecology Assessment on the subject property. A summary is presented here, and the complete report may be found in **Annexure G1**.

During the field investigation, two habitat units were identified, namely the Degraded Egoli Granite Grassland and Transformed Habitat Units.

Since the study area is situated within an urban landscape, with increased levels of anthropogenic activities, the floral and faunal ecology associated with the study area has been degraded and the floral and faunal sensitivity of the habitat units range from moderately low to low. During the field assessment a single individual of the NFA (1998, updated 2011) protected tree Sclerocarya birrea subsp. caffra (Marula) was encountered within the study area and has likely germinated after a seed has been discarded by a passer-by. Nonetheless, a permit from DAFF must be obtained for the removal/destruction of this individual prior to the commencement of any construction activities.

Terrestrial Habitat Units
During the field assessment, two habitat units were identified within the study area, i.e. the Degraded Egoli Granite Grassland and the Transformed Habitat Unit.

Degraded Egoli Granite Grassland
The majority of the study area falls within the Degraded Egoli Granite Grassland habitat. Edge effects from the surrounding small holdings and road infrastructure, as well as anthropogenic activities such as informal fires and illegal disposal of waste, as well as historic cultivated practices has resulted in the establishment of Alien Invasive Plant (AIP) species and the establishment of Hyparrhenia hirta dominated grassland. This has subsequently altered the floral community composition.

Transformed Habitat Unit
The Transformed Habitat Unit is associated with the R512 (Malibongwe Drive), as well as an old small holding and comprised of dilapidated buildings as well as garden ornamentals. A few indigenous grass species has become re-established within this area. Due to the historic transformation of this area, the habitat can no longer be considered a grassland habitat and is classified as transformed. The AIP and garden ornamental species do however still provide habitat and food sources for common widespread faunal species.

Floral
During the field assessment the protected tree Sclerocarya birrea subsp. caffra (Marula) (25°56'51.94"S; 27°54'34.69"E) was observed within the Degraded Egoli Granite Grassland. This species is not indigenous to the vegetation type and has likely spread to the area due to human activity. Although this species is nationally considered to be of Least Concern (SANBI Redlist, 2017), the tree is protected under the National Forest Act (1998, as amended in September 2011). As such destruction/ removal of individuals of this species requires a permit from the Department of Agriculture, Forestry and Fisheries (DAFF), prior to the commencement of any construction activities. No other floral SCC were recorded within the study area, nor is any expected to occur within these areas due to habitat degradation associated with the area.

Floral Ecological

Habitat modification of the study area has taken place with the floral diversity considered to be moderately low. The Egoli Granite Grassland was dominated by the unpalatable grass Hyparrhenia hirta, forming large dense stands of a single species, with limited herbaceous species present. According to Bredenkamp et al. (2006) this is an indication of degraded Egoli Granite Grassland with high levels on anthropogenic influence. The central portion of the southern half of the study area was recently burned, and as such comprised predominantly of new growth. Clear signs of disturbance within this area was pertinent, such as a decrease in basal cover, with bare soils clearly visible between individual plants, as well as a limited number of grass species recorded.

Furthermore, the diversity of grass and forb species of the area was limited to species often associated with disturbed Egoli Granite Grassland vegetation according to Bredenkamp et al (2006), and include species such as *Eragrostis chloromelas, E. curvula, Melinis repens*, *Helichrysum nudifolium*, *H. rugulosum, Conyza podocephala* and the *geoxylic suffrutex* (underground tree) *Ziziphus zeyheriana*. Portions of the habitat unit was also associated with a high abundance of the AIP tree *Eucalyptus diversicolor*, as well as the herbaceous AIP species *Tagetes minuta*, and *Verbena bonariensis*. The degraded Egoli Granite Grassland habitat is considered to be a CBA according to the Gauteng C-Plan (2011) and considered to form part of the remaining extent of the Endangered Egoli Granite Grassland Ecosystem as per the National Threatened Ecosystem Database (2011). As discussed above, the habitat unit can no longer be considered as primary vegetation due to its degraded state, nor did the area provide suitable habitat for any "red" or "orange" listed plant species considered protected within the Gauteng Province. The conservation importance of this habitat unit is therefore considered of an intermediate level, as the habitat unit no longer meet the criteria of a CBA but do still provide ecological connectivity to surrounding natural areas.

The transformed habitat has historically been transformed to hardened infrastructure and ornamental gardens, and as such are no longer representative of the Egoli Granite Grassland vegetation type. A few grass species often associated with disturbance has however become re-established within this area such as *Hyparrhenia hirta, H. tamba* and *Panicum* maximum. The habitat unit was however associated with a number of AIP and ornamental tree species such as *Fraxinus Americana*, *Grevillea robusta*, *Jacaranda mimosifolia*, *Melia azedarach*, *Pinus radiata* and *Morus alba*.

Faunal SCC Discussion

No faunal SCC were encountered during the field assessment within the study area. It is furthermore considered unlikely that any faunal SCC will utilise the study area, due to the area located within an urban setting, therefore associated with increased levels of anthropogenic activity. This has subsequently led to faunal habitat degradation of this area, thereby limiting available habitat and food sources for faunal SCC.

Faunal Ecological Discussion

Faunal species diversity was considered to be low throughout the study area, which can be attributed mainly to the high levels of habitat disturbance and modification observed. The study area is situated within a medium density urban area, comprising predominantly of small holdings and farming practices such as crop cultivation. These areas are therefore either fenced off or transformed which further limits movement of species through these areas to the study area. Furthermore, due to the urban landscape and infrastructure such as roads traversing the study area it is considered highly unlikely that larger mammal species will utilise this area. Only common faunal species, well adapted to increased anthropogenic activities were observed during the field assessment and include species such as Acridotheres tristis (Common Myna), Ploceus velatus (Southern Masked Weaver), Apus (Common Swift), Vanellus coronatus (Crowned Lapwing), Diplopoda (Millipede), Acrida acuminate (Common Stick Grasshopper), and Tarachodes (Bark Mantid). Insects were the most abundantly observed faunal species, with the majority of species observed within the degraded Egoli Granite Grassland.

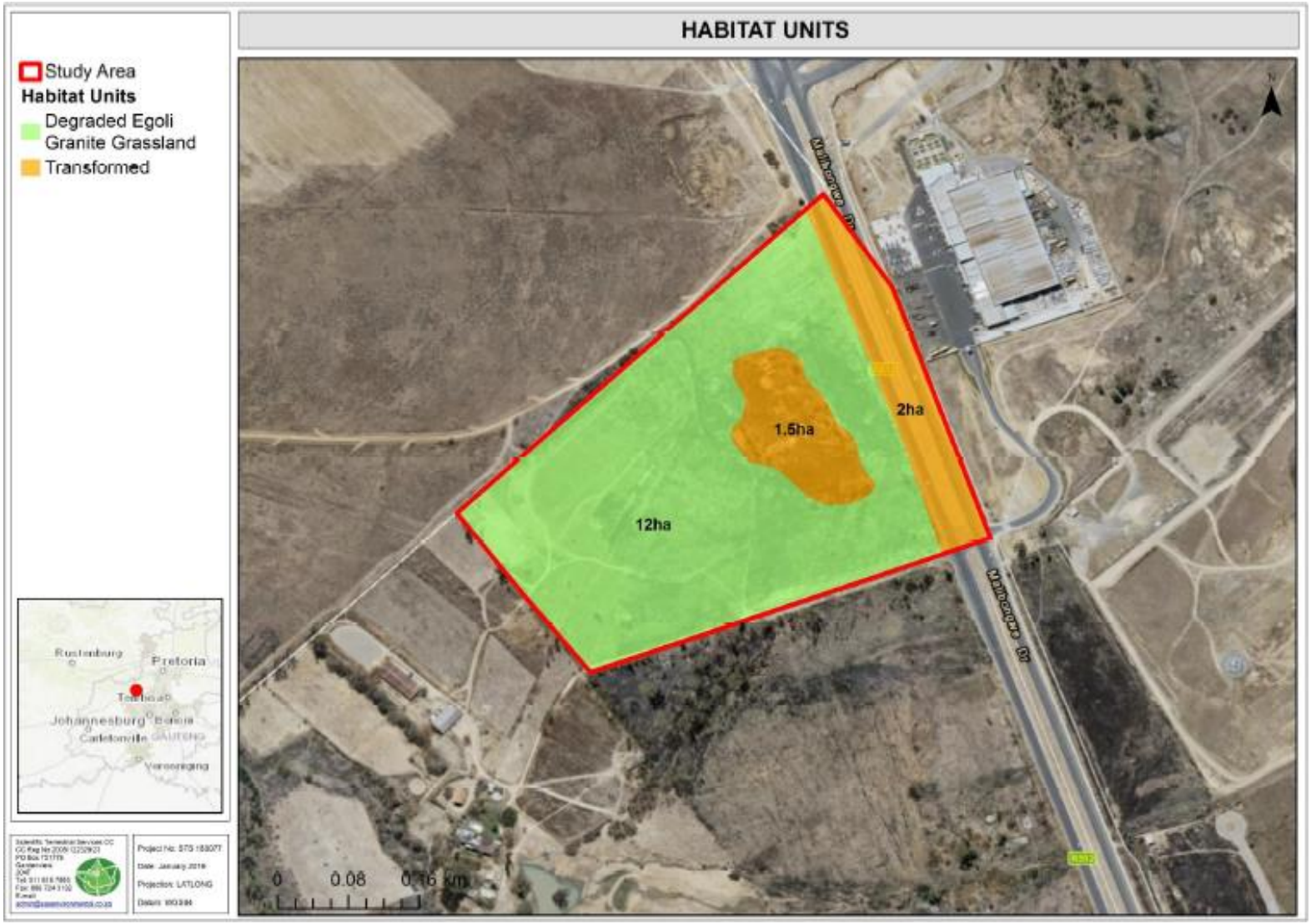


Figure 6: Habitat units associated with the study area

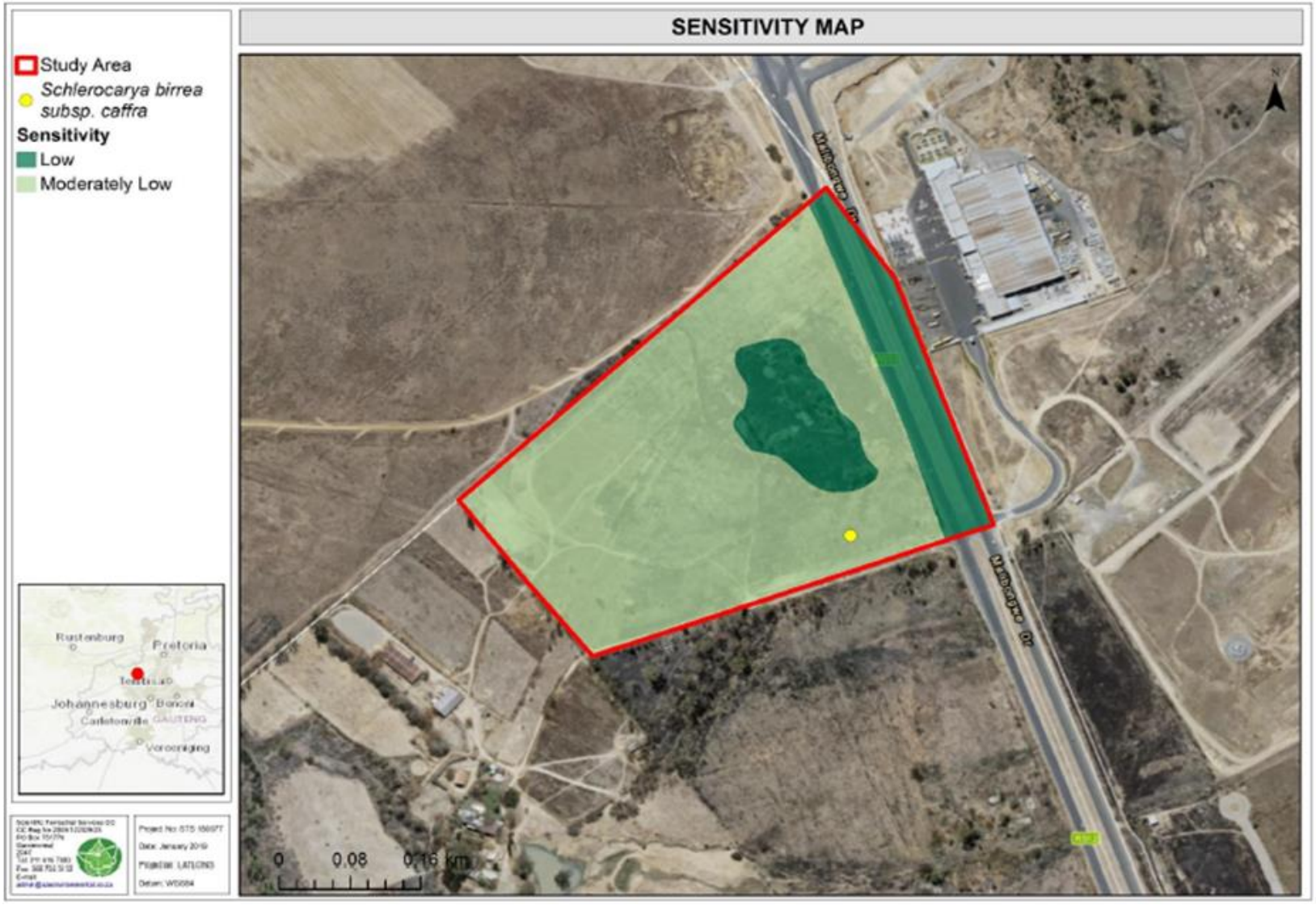


Figure 7: Terrestrial habitat sensitivity map for the study area

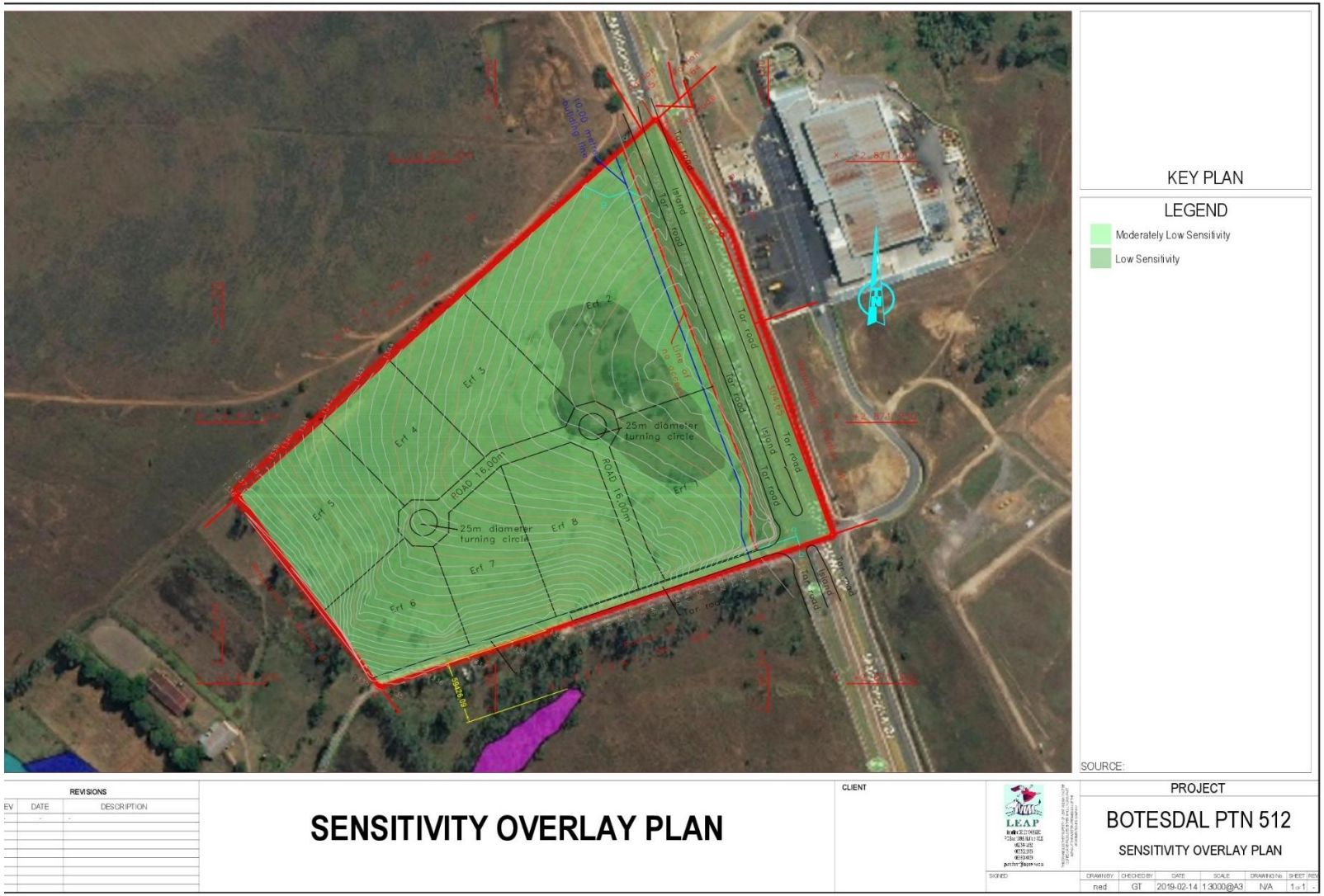


Figure 8: Sensitivity Overlay Plan

8.2 Wetland Assessment

WaterMakers was appointed to conduct a Wetland Assessment on the subject property. A summary is presented here, and the complete report may be found in **Annexure G2**.

A one-day field survey was undertaken on the 15th of December 2018. The wetland delineation was based on the legislatively required methodology as described by DWAF (2005). Functional assessments of the hydrogeomorphic units were carried out using the Level 2 Wet-EcoServices assessment (Kotze et al., 2005) for wetlands within the study area and a Level 1 Wet-Eco Services assessment for wetlands situated within 500m from the study area.

Wetland soils

According to DWAF (2005), the permanent zone of a wetland will always have either Champagne, Katspruit, Willowbrook or Rensburg soil forms present, as defined by the Soil Classification Working Group (1991). The seasonal and temporary zones of the wetlands will have one or more of the following soil forms present (signs of wetness incorporated at the form level): Kroonstad, *Longlands*, *Wasbank*, L*amotte*, *Estcourt*, Klapmuts, Vilafontes, Kinkelbos, Cartref, Fernwood, Westleigh, Dresden, Avalon, Glencoe, Pinedene, Bainsvlei, Bloemdal, Witfontein, Sepane, Tukulu, Montagu.

Alternatively, the seasonal and temporary zones will have one or more of the following soil forms present (signs of wetness incorporated at the family level): Inhoek, Tsitsikamma, Houwhoek, Molopo, Kimberley, Jonkersberg, Groenkop, Etosha, Addo, Brandvlei, Glenrosa, Dundee (DWAF, 2005).

The traversed catena within the study area produced none of the recognised hydromorphic soil forms according to DWAF (2005; 2008). Several traversed catenas within the study area revealed the terrain to be dominated by shallow, terrestrial, Mispah soil form as well as exposed rock intermittently.

According to the DWAF (2005), soil wetness indicators (i.e. identification of redoximorphic features) are the most important indicator of wetland occurrence due to the fact that soil wetness indicators remain in wetland soils in most instances, even if they are degraded or desiccated. It is important to note that the presence or absence of redoximorphic features within the upper 500mm of the soil profile alone is sufficient to identify the soil as being hydric (a wetland soil), or non-hydric (non-wetland soil) (Collins, 2005). Redoximorphic features are the result of the reduction, translocation and oxidation (precipitation) of iron and manganese oxides that occur when soils are saturated for sufficiently long periods of time to become anaerobic. Redoximorphic features typically occur in three types (Collins, 2005):

- A reduced matrix - i.e. an in situ low chroma (soil colour), resulting from the absence of Fe^{3+} ions which are characterised by "grey" colours of the soil matrix.
- Redox depletions - the "grey" (low chroma) bodies within the soil where Fe - Mn oxides have been stripped out, or where both Fe-Mn oxides and clay have been stripped. Iron depletions and clay depletions can occur.
- Redox concentrations - Accumulation of iron and manganese oxides (also called mottles). These can occur as:
    - Concretions - harder, regular shaped bodies;
    - Mottles - soft bodies of varying size, mostly within the matrix, with variable shape appearing as blotches or spots of high chroma colours; and,
    - Pore linings – zones of accumulation that may be either coatings on a pore surface, or impregnations of the matrix adjacent to the pore. They are recognised as high chroma colours that follow the route of plant roots, and are also referred to as oxidised rhizospheres

No active redoximorphic features were present within any soil profiles within the study area. Some exposed hardplinthic horisons were noted on the southern side of the study area which were paleo related.

Wetland Vegetation

According to DWAF (2005), vegetation is regarded as a key component to be used in the delineation procedure for wetlands. Vegetation also forms a central part of the wetland definition in the National Water Act, Act 36 of 1998. Using vegetation as a primary wetland indicator, however, requires undisturbed conditions (DWAF, 2005). A cautionary approach must be taken as vegetation alone cannot be used to delineate a wetland, as several species, while common in wetlands, can occur extensively outside of wetlands. When examining plants within a wetland, a distinction between hydrophilic (vegetation adapted to life in saturated conditions) and upland species must be kept in mind. There is typically a well-defined 'wetness' gradient that occurs from the centre of a wetland to its edge that is characterized by a change in species composition between hydrophilic plants that dominate within the wetland to upland species that dominate on the edges of, and outside of the wetland (DWAF, 2003). It is important to identify the vegetative indicators which determine the three wetness zones (temporary, seasonal and permanent) which characterize wetlands. Each zone is characterized by different plant species which are uniquely suited to the soil wetness within that zone.

The majority of the study area had been disturbed through various historic and current anthropogenic practices with only terrestrial vegetation such Eragrostis repens, Eragrostis chloromelas and invasives dominating the terrain. Two small sparsely populated patches of Verbena bonariensis and Kyllinga sp. were noted but were likely due as a result of anthropogenic disturbance causing some slight ponding in the landscape, however, these areas were not supported by hydrogeomorphic soils, nor were there any interflow or responsive soils in the vicinity.

Delineated Wetland Areas

According to the National Water Act (Act no 36 of 1998) a wetland is defined as, “land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.” Wetlands typically occur on the interface between aquatic and terrestrial habitats and therefore display a gradient of wetness – from permanent, to seasonal, to temporary zones of wetness - which is represented in their plant species composition, as well as their soil characteristics. It is important to take cognisance of the fact that not all wetlands have visible surface water. An area which has a high-water table just below the surface of the soil is as much a wetland as a pan that only contains water for a few weeks during the year.

Hydrophytes and hydric soils are subsequently used as the two main wetland indicators. The presence of these two indicators is symptomatic of an area that has sufficient saturation to classify the area as a wetland. Terrain unit which is another indicator of wetland area refers to the land unit in which the wetland is found. Wetlands can occur across all terrain units from the crest to valley bottom.

In practice all indicators should be used in any wetland assessment / delineation exercise, the presence of redoximorphic features being most important, with the other indicators being confirmatory. An understanding of the hydrological processes active within the area is also considered important when undertaking a wetland assessment.
Indicators should be 'combined' to determine whether an area is a wetland and to delineate the boundary of a wetland. According to the DWAF delineation guidelines, the more wetland indicators that are present the higher the confidence of the delineation. In assessing whether an area is a wetland, the boundary of a wetland or a non- wetland area should be considered to be the point where indicators are no longer present.

No wetlands or riparian habitat were delineated within the study area.

Two HGM types, a hillslope seepage connected to a watercourse and a channelled valley bottom wetland were delineated within 500m of the study boundary and classified into two hydro-geomorphic (HGM) units. HGM 1, a channelled valley bottom wetland an HGM 2, the hillslope seepage wetland is connected to HGM 1 downstream from the study area (Figure 4). In addition, riparian habitat was delineated south of the study area. The riparian habitat is undergoing active gully erosion and is densely invaded by Eucalyptus sp. trees.

HGM units encompass three key elements (Kotze et al, 2005):

(1) Geomorphic setting. This refers to the landform, its position in the landscape and how it evolved (e.g. through the deposition of river borne sediment);
(2) Water source. There are usually several sources, although their relative contributions will vary amongst wetlands, including precipitation, groundwater flow, stream flow, etc.; and
(3) Hydrodynamics, which refers to how water moves through the wetland.

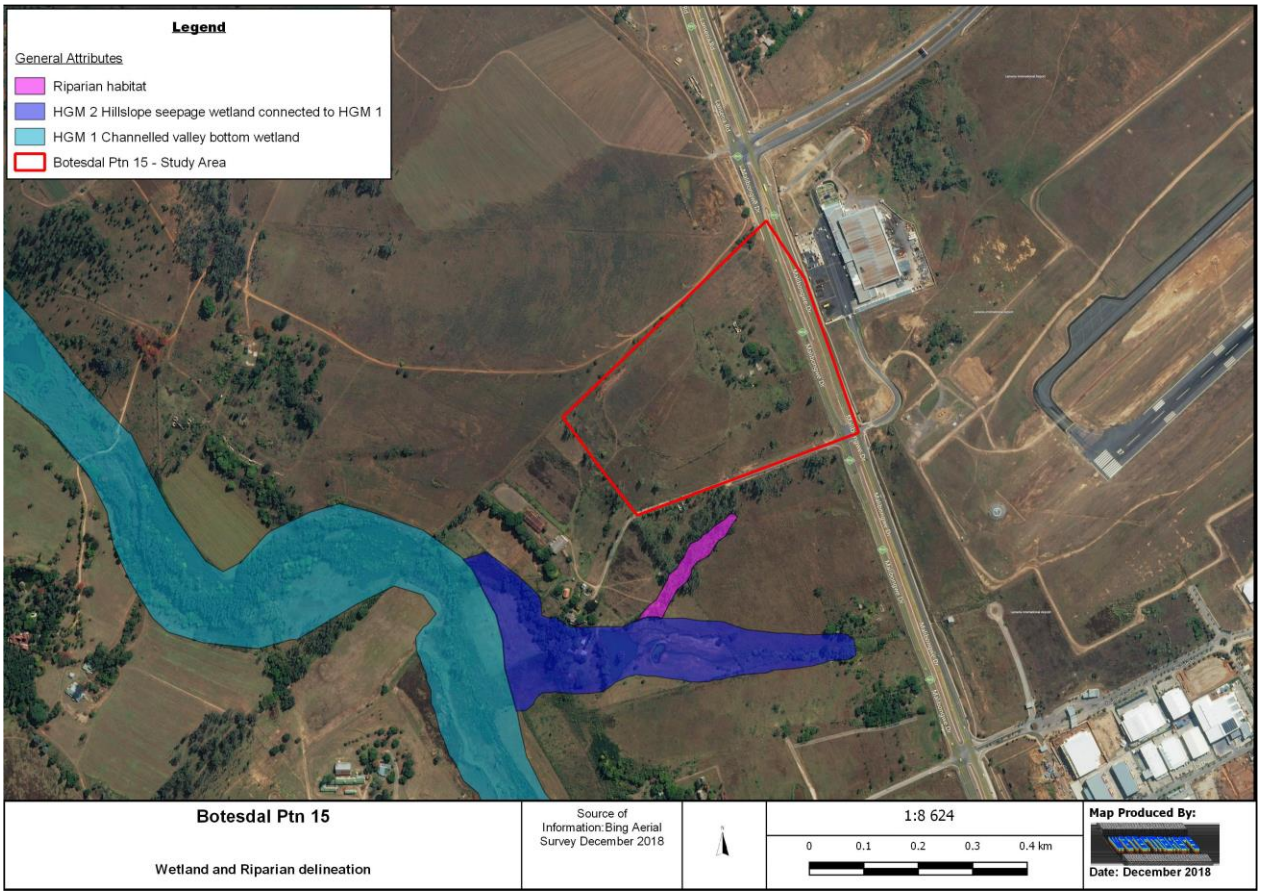


Figure 9: Wetland delineation for the study area and downstream of the study area.

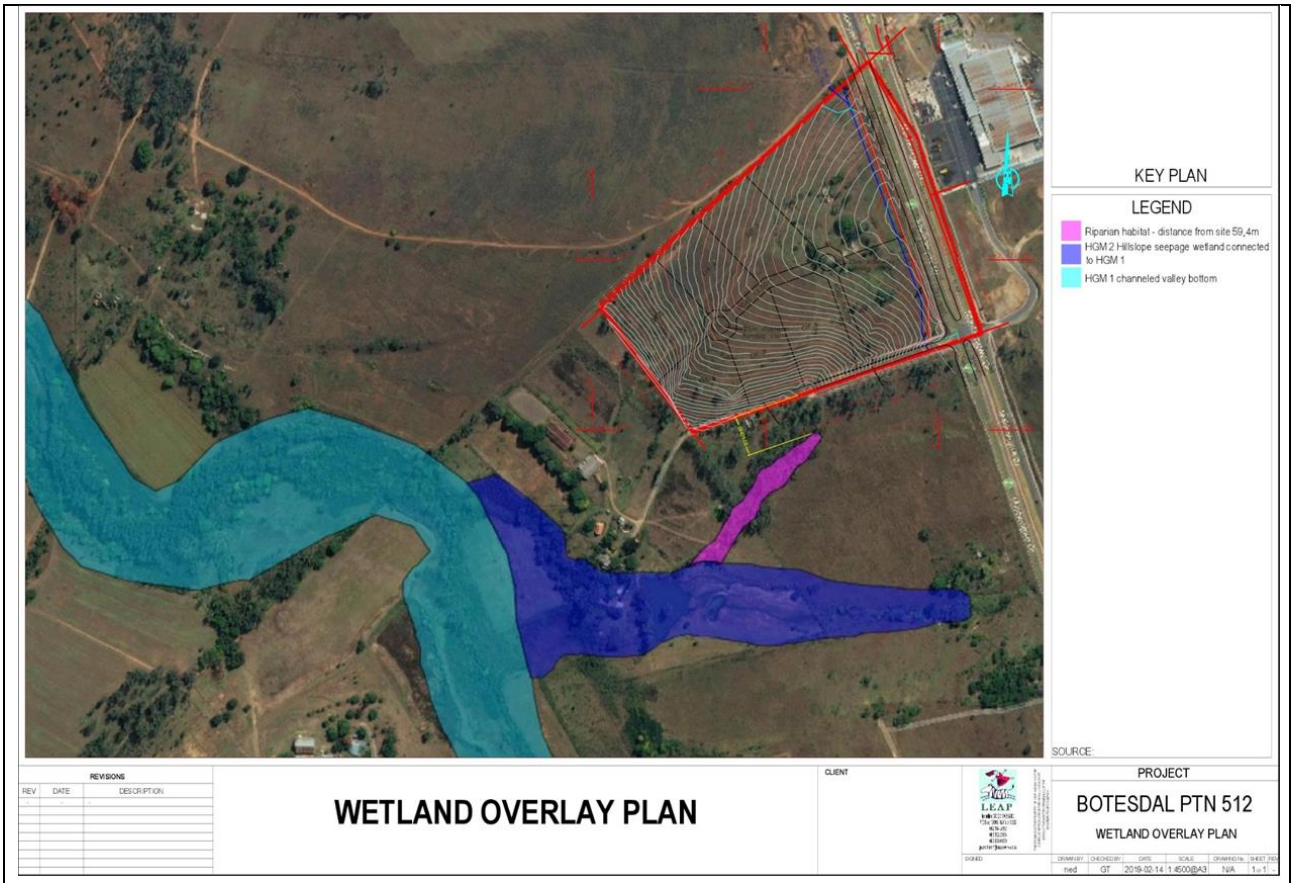


Figure 10: Wetland overlaid on layout plan

8.5 Heritage Assessment

Refer to Section 10 below

9. SOCIO-ECONOMIC CONTEXT

Describe the existing social and economic characteristics of the area and the community condition as baseline information to assess the potential social, economic and community impacts.

The subject property is situated in Region G of the RSDF.

- **Population**

The CoJ serves a total of 4.9 million people (2016). As is the case with many big cities in the world, it is overwhelmed by economic migration – nationally and internationally. The current population makes it the biggest metro by population size in South Africa. It is projected that the population could increase from the 4.9 million (2016) to 5.4 million (2021) and to 7.6 million (2037). The growth rates in the projection period range from 2.0% per annum to 2.3%. With this projection in mind, the CoJ commits itself to bring about change and opportunities to the current population, and to create an environment where the growing population can prosper.

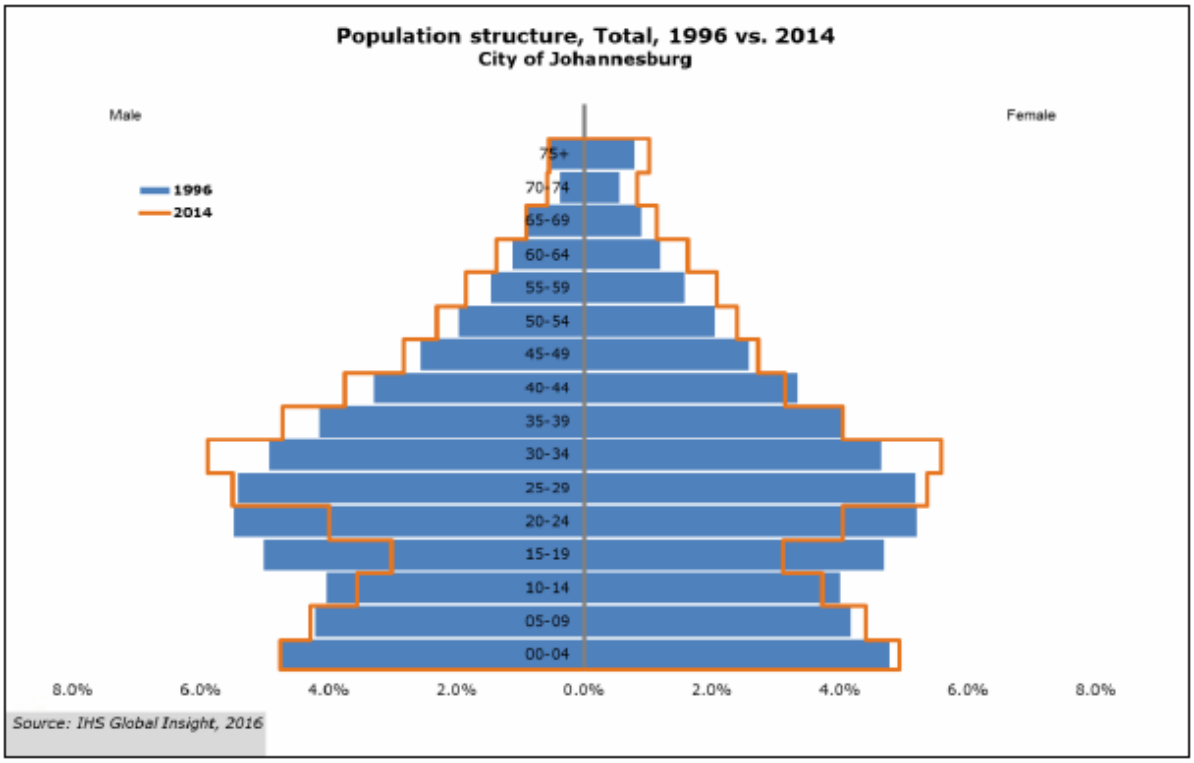
Johannesburg residents make up 36% of Gauteng's population, and 8% of the population of South Africa. A great deal of the city's population is young; a third of its residents are under 35 years of age. Racially, South Africa is divided as follows: Africans are the majority, making up for 76.4% (compared to 73% in 2001); white account for 12.3% (compared to 16% in 2001); coloured for 5.6% (compared to 6% in 2001); and Indian for 4.9% (compared to 4% in 2001).

Population density (at 1 644 km2) has increased from 1962 persons/km2 in 2001, to 2 698 persons/km2 in 2017. The population density has a major effect on the services and needs which is to be provided by the CoJ in order to service the (growing) economy with pride and dignity.

- **Age distribution, (youth) employment and age dependency**

There has been little change in the broad age structure of the Johannesburg population between 1996 and 2016. The population pyramid reflects a large youth population (persons aged 14 to 35 years) which constitute over 33.2% of the total population. This indicates that the youth is migrating to Johannesburg for better opportunities, but the influx has led to high youth unemployment (approximately 40%) in Johannesburg. In addition, the proportion of the elderly population (aged 65 years and older) also increased between 1996 and 2016. The CoJ recognises these challenges and commit to tap into skills and higher productivity ratios associated with the youthful economically-active population, and to provide services to accommodate the higher life expectancy experienced in the city.

While the broad age structure of the population of Johannesburg is similar to that of Gauteng, it is different from that of the national population in the following respects: The proportions of persons aged 0 to 14 years in Johannesburg, in 1996 and 2011, were lower than the corresponding proportions in the national population. Also, the proportions of persons in the working age group (15 to 64 years) in Johannesburg, in 1996 and 2016, were higher than the corresponding proportions in the national population. This indicates a growing potential workforce for whom jobs need to be created. Without sufficient economic growth and the creation of new job opportunities, the city will continue to struggle with high unemployment levels and might lose out on individual talent and a growing middle class which can stimulate the economy. Growing the economy and creating new jobs therefore go hand in hand; this is emphasised in the first pillar of the new administration.



In addition to the age distribution, the overall age dependency burden in Johannesburg declined from about 41 dependents for every 100 persons in the working age group (2001), to 31 dependents for every 100 persons in the working age group (2016). The overall age dependency burden is lower in Johannesburg than in Gauteng and

nationally in 2016. This is primarily owing to marked differences in child dependency between the Johannesburg and the national population, relative to differences in elderly dependency between the Johannesburg and the national population. In absolute terms, the elderly population in Johannesburg more than doubled from about 94 496 in 2001 to about 266 166 in 2016. This indicates a growth rate of the elderly population of about 181% during the last decade and implies an increase in the demand (and supply) for services directed to those affected.

- **Economic growth and the effect of the growing population**

In the last twenty years, the proportion of the population aged 0 to 14, has increased in Johannesburg, and the survivors of this cohort in the next 1 to 15 years will be potential entrants into the labour market. With continuing migration, the youth population and its corresponding unemployment rate will remain high in the short to medium term. However, youth population is regarded as the production population which the city could tap into. Although the proportion of the elderly population in Johannesburg is still small, the annual growth rate of 6.6% per annum was much higher than the national average (2.2% per annum) and also higher than that of Gauteng (3.6% per annum) in the last ten years.
The discussed conditions raise a number of implications regarding development given competing allocation of scarce resources.

- If present growth rates in Johannesburg continue, innovative, dignified and smart approaches will be needed to accelerate improvement in people's welfare.
- There are plausible implications for service delivery, e.g. the provision of electricity, housing, health, etc., as population and households increase over time.
- In view of the increasing trend in the size of the 0 to 14 age group with accompanying increase in the working age group, there will be implications for the education sector in absorbing the potential increase in entrants to tertiary institutions. This should be conducted in conjunction with economic growth so that the educated youth can feed into an established future job market.
- There will be implications resulting from the increase in the size of the working age group for employment and job creation, savings, capital formation and investment if there are more new entrants into the labour market than those that exit – especially if the education sector is developed to produce a more educated (and employable) youth.
- There will be implications for resource allocations with regard to different forms of old age support by government in view of the high growth rate of the population of the elderly in Johannesburg.

- **Youth unemployment in Johannesburg**

Johannesburg has experienced a growth in its middle class. Despite this, unemployment is still fixed at 28.2%. Youth unemployment is of particular concern, as it stands at approximately 40%. Unemployment (with specific focus on youth unemployment) is recognised as one of Johannesburg's most pressing socio-economic challenges, and it is recognised as a major obstacle to transformation growth, opportunity and development. The dangers of a high youth unemployment rate is of grave concern as it leads to an increased risk of poverty, a weaker consumer market, deskilling, isolation and an overall erosion of human capital, an increase in mental health problems, increased levels of alcohol and drug consumption, crime and social instability, an increased reliance on public services and welfare, the hampering of economic growth and productivity, and (potentially) a brain drain – should the youth choose to leave the city behind. As such, a holistic approach will be needed to engage the youth, to tap into their skills, and to make them owners of their own development.

Johannesburg – as an upper-middle-class economy – has enabled a growing middle class. A strong middle class indicates that an economy is showing progress and could have a positive effect in the following ways:

- The middle class grows the economy, not the rich, as the middle class continuously increase the demands for consumer goods and credit.
- A strong middle class is a prerequisite for robust entrepreneurship and innovation.
- A strong middle class will increase the purchasing power which, in turn, will stimulate the economy to provide to the increase in demands for goods and services.
- With a stronger middle class, commercial and tax revenues will be boosted.
- A strong middle class promotes better governance so as to grow the economy, i.e. the middle class promotes efficient and honest delivery of government services.
- A stronger middle class also invests more in education, which will have a positive returning effect on a city that advances freedom and opportunity

The poverty rate (P = 37%) and inequality (Gini = 0.66) are still very high and pose social challenges. Poverty increases public agitation and potential social unrest. This affects the poor and marginalised, as well as the middle class. Poverty conditions exacerbate demands for economic development in the sense that when these demands are not met, social unrest occur and may lead to increases in crime. An inability to react to these demands, entrenches the deprivation cycle and create fertile ground for unrest to take root. The middle class, on the other hand, is also affected as social unrest will affect the middle class via increased violent crime, disruption in business and consumer patterns, as well as the withdrawal of investors. In essence, this has a shackling effect on the magnitude and quality of economic growth. It is, therefore, in the interest of all sectors in society – public, private and social – that inequality is addressed.

10. CULTURAL/HISTORICAL FEATURES

Please be advised that if section 38 of the National Heritage Resources Act 25 of 1999 is applicable to your proposal or alternatives, then you are requested to furnish this Department with written comment from the South African Heritage Resource Agency (SAHRA) – Attach comment in appropriate annexure

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50m in length;

(c) any development or other activity which will change the character of a site-

(i) exceeding 5 000 m2 in extent; or

(ii) involving three or more existing erven or subdivisions thereof; or

(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resource authority;

(d) the re-zoning of a site exceeding 10 000 m^2 in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Are there any signs of culturally (aesthetic, social, spiritual, environmental) or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or close (within 20m) to the site?	YES	**NO**

If YES, explain:

n/a

If uncertain, the Department may request that specialist input be provided to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist if one was already appointed:

The site lies in the Buffer are of the COHWHS, close to the Lanseria Airport and where the development pressure is very high. Refer to Figure 12 which reflect the number of buildings the vicinity of the proposed development. The application will be circulated to the COHWHS Management Authority

Figure 11: Site is located in the buffer area of the COHWHS

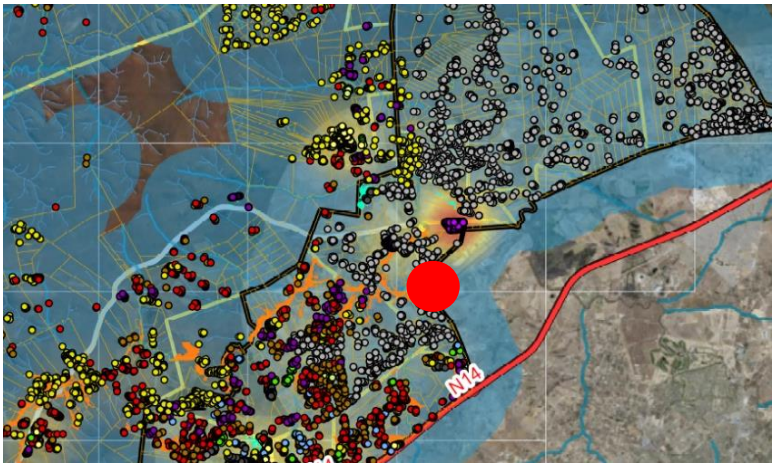


Figure 12: Development pressure in the vicinity of the site.

G & A Heritage was appointed to assess the study area in terms of Section 38 (8) of the NHRA as part of the Basic Assessment (BA) for this project. A complete report may be found in **Annexure G3**

The Proposed Development is located near the Kromdraai Conservancy (Maropeng – Cradle of Humankind – is approximately 17km west of the proposed development). It was established to protect the caves, old gold mines, fossil sites, trout farm and a game reserve in the area. The caves in the area, known as the Sterkfontein caves have an extensive number of fossils and dolomite caverns.

A well--known fossil site is also named Kromdraai and it, along with such sites as Sterkfontein, Coopers, Swartkrans and Plovers Lake form part of the conservancy. Part of the Kromdraai conservancy also falls within the Cradle of Humankind World Heritage Site, proclaimed by UNESCO in 1998.

In terms of the built environment of the area (Section 34), several structures were identified, however these buildings could not be older than 32 years and similarly no burial sites (Section 36) were recorded. One building was found that could possibly be older than 60 years but will not be affected by the development. It is recommended that obscured subterranean sites be managed should they be encountered.

The study area is surrounded by numerous small farms, small holdings and nurseries and areas with less development impact was investigated closer to determine whether any sites of heritage value could still occur sub--surface, however no indications of such sites were evident (such as graves, shell middens disposed pot sherd etc.).

The site was found to be devoid of any heritage site with significance.
From a heritage point of view, provided that the recommendations in the Heritage Impact Assessment are followed, G & A Heritage is of the view there is no reason as to why the development cannot continue.

Will any building or structure older than 60 years be affected in any way?	YES	**NO**
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	YES	**NO**
If yes, please attached the comments from SAHRA in the appropriate Appendix		

SECTION C: PUBLIC PARTICIPATION (SECTION 41)

Note: The Environmental Assessment Practitioner must conduct public participation process in accordance with the requirement of the EIA Regulations, 2014.

1. LOCAL AUTHORITY PARTICIPATION

Local authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of the application at least thirty (30) calendar days before the submission of the application to the competent authority.

Was the draft report submitted to the local authority for comment?	YES	**NO**

If yes, has any comments been received from the local authority?	YES	**NO**
Comments from the local authority will be included in the final report.		

If "YES", briefly describe the comment below (also attach any correspondence to and from the local authority to this application):

Not Applicable

If "NO" briefly explain why no comments have been received or why the report was not submitted if that is the case.

The public participation report is attached as **Annexure E**. As part of the initial assessment and viability of the proposed development, the City of Johannesburg Metropolitan Municipality - Environmental Management Department of the was invited participate. The Ward councillor of the area; received emails including documents like the Background Information Document. Comment from the municipality on the Draft BA will be included in the Public participation report of this Final Basic Assessment.

2. CONSULTATION WITH OTHER STAKEHOLDERS

Any stakeholder that has a direct interest in the activity, site or property, such as servitude holders and service providers, should be informed of the application at least **thirty (30) calendar days** before the submission of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?	YES	**NO**

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

No applicable

If "NO" briefly explain why no comments have been received

There was no objection from stakeholders regarding the proposed development.

3. GENERAL PUBLIC PARTICIPATION REQUIREMENTS

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

The EAP must record all comments and respond to each comment of the public / interested and affected party before the application report is submitted. The comments and responses must be captured in a Comments and Responses Report as prescribed in the regulations and be attached to this application.

4. APPENDICES FOR PUBLIC PARTICIPATION

All public participation information is to be attached in the appropriate Appendix. The information in this Appendix is to be ordered as detailed below:

Annexure E provides details of the public consultation process that will be followed during the project.

Appendix 1 - Proof of site notices
Appendix 2 - Written notices issued; Emails, Faxes, Letters & BID
Appendix 3 - Proof of newspaper advertisements
Appendix 4,7,8,10 - Communications to and from registered I&APs
Appendix 5 - Minutes of any public and or stakeholder meetings
Appendix 6 - Comments and Responses Report
Appendix 9 - Copy of the I&AP Register
Appendix 11 -Other

SECTION D: RESOURCE USE AND PROCESS DETAILS

Note: Section D is to be completed for the proposal and alternative(s) (if necessary)

Instructions for completion of Section D for alternatives

1) For each alternative under investigation, where such alternatives will have different resource and process details (e.g. technology alternative), the entire Section D needs to be completed.
2) Each alternative needs to be clearly indicated in the box below.
3) Attach the above documents in a chronological order.

Section D has been duplicated for alternatives (complete only when appropriate)	**0**	times
Section D Alternative No.	**0**	(complete only when appropriate for above)

1. WASTE, EFFLUENT & EMISSION MANAGEMENT

Solid Waste Management

Will the activity produce solid construction waste during the construction/initiation phase?	**YES**	NO
If yes, what estimated quantity will be produced per month?	**Unknown at this stage**	

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

The building rubble and solid construction waste (such as sand, gravel, concrete and waste material) that cannot be used for filling and rehabilitation and other litter and waste generated during the construction phase will be removed from site and be disposed of safely and responsibly at a licensed landfill site, i.e. a landfill licensed in terms of Section 20 of the Environmental Conservation Act, 1989 (Act No. 73 of 1989).

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

All non-recycled general waste will be removed by a registered waste Contractor and taken to the licensed Landfill Site.

Will the activity produce solid waste during its operational phase?	**YES**	NO
If yes, what estimated quantity will be produced per month?	**Unknown at this stage**	

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

Solid waste during the operational phase will primarily be household waste. It will be picked-up by private contractor and discarded at a registered landfill site. The food waste may be taken to a piggery close by as food supplement.

Has the municipality or relevant service provider confirmed that sufficient air space exists for treating/disposing of the solid waste to be generated by this activity?	YES	**NO**

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

Waste will feed into the City of Johannesburg Metropolitan Municipality's waste stream.

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

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

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

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

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

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

Recycling facilities for paper and glass will be available within the small waste transfer station on the property.

General Waste Management

- Litter and rubble on the construction site and in the construction, camp will be monitored strictly by a dedicated housekeeping team.
- All waste generated on site will be separated into metal, paper, plastic, glass & contaminated paper, glass, plastic and polystyrene and will be recycled.

Construction rubble

- All rubble from demolition activities will be used on site as part of the existing development or will be taken off the construction site and disposed at an appropriate landfill.
- No material shall be left on site that may harm man or animals. Broken, damaged and unused nuts, bolts and washers shall be picked up and removed from site.
- Surplus concrete will not be dumped indiscriminately.
- Concrete water will be re-used in the batching process

Operational waste

- Waste is to be sorted and recycled at source.

Liquid Effluent (other than domestic sewage)

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	YES	**NO**
If yes, what estimated quantity will be produced per month?		**n/a**
If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the liquid effluent to be generated by this activity(ies)?	**n/a**	**n/a**

Will the activity produce any effluent that will be treated and/or disposed of on site?	Yes	**NO**
If yes, what estimated quantity will be produced per month?		**n/a**

If yes describe the nature of the effluent and how it will be disposed.

Not Applicable

Note that if effluent is to be treated or disposed on site the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA

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

If yes, provide the particulars of the facility:

Facility name:	**n/a**		
Contact person:	**n/a**		
Postal address:	**n/a**		
Postal code:	**n/a**		
Telephone:	**n/a**	Cell:	**n/a**
E-mail:	**n/a**	Fax:	**n/a**

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

No waste water will be produced for this proposed activity.

Liquid Effluent (Domestic Sewage)

Will the activity produce domestic effluent that will be disposed of in a municipal sewage system?	**YES**	NO
If yes, what estimated quantity will be produced per month?	To be confirmed	
If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the domestic effluent to be generated by this activity(ies)?	YES	**NO**

Will the activity produce any effluent that will be treated and/or disposed of onsite?	YES	**NO**

If yes describe how it will be treated and disposed off.

n/a

Emissions into the Atmosphere

Will the activity release emissions into the atmosphere?	YES	**NO**
If yes, is it controlled by any legislation of any sphere of government?	YES	**NO**

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

If no, describe the emissions in terms of type and concentration:

Emissions during construction will mostly be in the form of dust and smoke. Odour from the refuse yards are to be combated by the provision of a compaction unit and is to be walled. The EMPr attached in **Annexure H** of the Basic Assessment Report indicates various ways in which these emissions will be minimized and controlled.

2. WATER USE

Indicate the source(s) of water that will be used for the activity

Municipal	Directly from water board	groundwater	river, stream, dam or lake	other	the activity will not use water

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate
the volume that will be extracted per month: Not Application

If Yes, please attach proof of assurance of water supply, e.g. yield of borehole, in the appropriate Appendix

Does the activity require a water use permit from the Department of Water Affairs?	**YES**	NO

If yes, list the permits required

An Application for a Water Use License is being undertaken.

If yes, have you applied for the water use permit(s)?	YES	**NO**
If yes, have you received approval(s)? (attached in appropriate appendix)	YES	**NO**

3. POWER SUPPLY

Please indicate the source of power supply e.g. Municipality / Eskom / Renewable energy source

Electricity to the subject site is provided by Eskom.

If power supply is not available, where will power be sourced from?

Not Applicable

4. ENERGY EFFICIENCY

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

The following energy savings methods shall be investigated for possible implementation for the proposed development:

- Use of energy efficient lighting,
- Use of day light wherever possible in lieu of artificial lighting,
- Use of renewable solar powered lighting for external lighting,
- Switching off of all electrical appliances at night and times not in use,
- Use of high-efficient HVAC systems,
- Possibility of co-generation in co-operation with the supply authority,
- Use of solar water heating,
- Setting thermostats of water heaters at the most efficient level,
- Insulation of hot water pipes and hot water storage tanks,
- Use of low-flow shower heads,
- Use of high-efficient electric motors,

- Use of variable speed drives on electric motors,
- Use of appropriate conductor size to reduce distribution losses,
- Use of control methods to reduce maximum demand and exploit off peak electricity tariffs,
- Insulation of windows, walls, ceilings and roofs.

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

The design intent is to make use of renewable solar powered lighting for external lighting.

SECTION E: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts as well as the impacts of not implementing the activity (Section 24(4)(b)(i).

1. ISSUES RAISED BY INTERESTED & AFFECTED PARTIES

Summarise the issues raised by interested and affected parties.

(Refer to Annexure E) These are detailed in the Comments & Response Report.

Summary of response from the practitioner to the issues raised by the interested and affected parties (including the manner in which the public comments are incorporated or why they were not included)
(A full response must be provided in the Comments and Response Report that must be attached to this report):

Not Applicable

2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION & OPERATIONAL PHASE

Briefly describe the methodology utilised in the rating of significance of impacts.

A combination of the following methods was used to identify impacts during the Basic Assessment:

2.1. Specialist Study Findings

A minimum of legally responsible specialist studies is conducted (as usually required by the relevant authority). These usually include a red data fauna & flora assessment and heritage impact assessment. The findings of such specialist studies will highlight potential impacts on protected or endangered species or environments**.**

2.2. Site Inspection

The EAP and specialists conduct several site visits and identified potential sensitive environments. These areas are then red-flagged to be investigated further and excluded from development if necessary.

2.3 Technical / Desktop Studies

Technical and specialist reports such as the geotechnical and agricultural assessments are used to identify those areas and aspects that may be impacted on, but that will not be identified through the other specialists' studies.

2.4 Public Participation

Conducting public participation produces an issues list. Such a list needs to be screened for relevant impacts which then need to be addressed by specialist studies or identified for further investigation.

2.5 GDARD Policies, Review / Terms of Reference

GDARD C-Plan 3 as well as the policies provides the red flags that must be investigated by the specialists. Furthermore, the GDARD officials and the different sub-directorates within the department review the application

and give comments to the relevant environmental officer. The issues identified are forwarded to the environmental consultant and these issues are addressed or translated as impacts.

2.5 Methodology to determine significance of impacts

The significance of the identified impacts will be determined using the approach outlined below. This incorporates two aspects or assessing the potential significance of impacts (terminology from the Department of Environmental Affairs and Tourism Guideline document on EIA Regulations, April 1998), namely occurrence and severity, which are further sub-divided as follows:

Table 1: Methodology to Assess Impacts

Occurrence		**Severity**	
Probability of occurrence	Duration of occurrence	Magnitude (severity) of impact	Scale / extent of impact

To assess each of these factors for each impact, the following four ranking scales are used:

Probability	**Duration**
5 – Definite/don't know	5 – Permanent
4 – Highly probable	4 – Long-term
3 – Medium probability	3 –Medium-term (8-15 years)
2 – Low probability	2 – Short-term (0-7 years) (impact ceases after the operational life of the activity)
1 – Improbable	1 – Immediate
0 – None	
Scale	**Magnitude**
5 – International	10 – Very high/don't know
4 – National	8 – High
3 – Regional	6 – Moderate
2 – Local	4 – Low
1 – Site only	2 – Minor
0 – None	

Once these factors are ranked for each impact, the significance of the two aspects, occurrence and severity, is assessed using the following formula:

SP (significance points) = (probability + duration + scale) x magnitude

The maximum value is 150 significance points (SP). The impact significance will then be rated as follows:

SP >75	Indicates **high** environmental significance	An impact which could influence the decision about whether or not to proceed with the project regardless of any possible mitigation.
SP 30 – 75	Indicates **moderate** environmental significance	An impact or benefit which is sufficiently important to require management and which could have an influence on the decision unless it is mitigated.
SP <30	Indicates **low** environmental significance	Impacts with little real effect and which should not have an influence on or require modification of the project design.

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the construction phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

Refer to Tables below

2.1 Significance scores of expected impacts

Preferred Alternative – Proposed commercial development & associated infrastructure to be known as Lanseria Extension 76 on Portion 15 of the Farm Botesdal 529 JQ within City of Johannesburg Municipality_ Construction Phase

Table 2: Assessment of Potential Impact of the Proposed Potential impacts

Potential Impact	Scale	Duration	Probability	Magnitude	Significance Points	Impacts Significance	Confidence
Biophysical Environment							
1. Issue: Air Quality							
1.1 Dust/Air pollution - The generation of fugitive dust associated with construction activities & earthworks.	**Site Only (1)**	**Immediate (1)**	**High Probability (4)**	**Moderate (6)**	**36**	**Moderate environmental significance**	**High**
2. ISSUE TOPOGRAPHY							
2.1 Visual impacts: Topographical features contribute to the landscape character and sense of place of an area cutting and embankments and areas devoid of vegetation are most obvious when located on elevated areas in the landscape	**Local (2)**	**Long term (4)**	**Highly Probability (4)**	**Minor (2)**	**20**	**Moderate environmental significance**	**High**
2.2 Bulk earthworks: Deep cuttings, high embankments disposal of soil, and excavations cause local changes to topography	**Site only (1)**	**Long term (4)**	**Highly probability (4)**	**Minor (2)**	**18**	**Low environmental significance**	**High**
3. ISSUE GEOLOGY AND SOILS							
3.1 Soil erosion, loss of topsoil, deterioration of soil quality	**Site only (1)**	**Long term (4)**	**Highly probable (4)**	**Minor (2)**	**18**	**Low environmental significance**	**High**
3.2 Soil pollution (due to hydrocarbon spillages)	**Site only (1)**	**Medium term (3)**	**Medium probability (2)**	**Moderate (6)**	**36**	**Moderate environmental significance**	**High**
ISSUE FOUNA AND FLORA							

Potential Impact	Scale	Duration	Probability	Magnitude	Significance Points	Impacts Significance	Confidence
4.1 Degradation, destruction of habitats/ ecosystem	**Site only (1)**	**Medium term (3)**	**Definite probability (5)**	**Very high (10)**	**90**	**High environmental significance**	**High**
4.2 Increase of alien invasive plant species.	**Site only (1)**	**Medium term (3)**	**Highly probable (4)**	**High (8)**	**64**	**Moderate environmental significance**	**High**
4.3 Impacts on fauna and flora	**Local (1)**	**Medium term (4)**	**Definite probability (5)**	**Very high (10)**	**100**	**High environmental significance**	**High**
ISSUE HYDROLOGY							
5.1 Storm water flaw and damage- Developments cause the modification of the drainage patterns. Storm water may be concentrated at certain points, increasing the velocity of flow in one area and reducing flow in another. This may contribute to flooding, soil erosion, sedimentation, scouring and channel modification downstream of the development.	**Regional (3)**	**Long term (4)**	**Low probability (2)**	**Moderate (6)**	**54**	**Moderate environmental significance**	**High**
5.2 Impact on water quality (due to hydrocarbon spillages)	**Regional (3)**	**Long term (4)**	**Low probability (2)**	**Moderate (6)**	**54**	**Moderate environmental significance**	**High**
SOCIO-ECONOMIC AND CULTURAL HISTORICAL ENVIRONMENT							
4. ISSUE AESTHETICS, LANDSCAPE CHARACTER AND SENSE OF PLACE							
6.1 Noise/ vibration	**Site only (1)**	**Immediate (1)**	**Highly probable (4)**	**Minor (2)**	**12**	**Low environmental significance**	**High**
6.2 Visual impact on adjacent residents and motorists	**Site only (1)**	**Short term (2)**	**Medium probability (3)**	**Minor (2)**	**12**	**Low environmental significance**	**High**

Potential Impact	Scale	Duration	Probability	Magnitude	Significance Points	Impacts Significance	Confidence
7. ISSUE SOCIAL WELL-BEING AND QUALITY OF THE ENVIRONMENT							
7.1 Safety and Security	**Local (2)**	**Short term (2)**	**Low probability (2)**	**Minor (2)**	**12**	**Low environmental significance**	**High**
7.2 Employment opportunities	**Region (3)**	**Long term (4)**	**Highly Probable (4)**	**Moderate (6)**	**66**	**Moderate environmental significance**	**Medium**
8. ISSUE HISTORICAL ENVIRONMENT							
8.1 Destruction of palaeontological resources	**Site only (1)**	**Medium term (3)**	**Highly Probable (4)**	**- Moderate (6)**	**48**	**Moderate environmental significance -**	**High**
8.2 Destruction of heritage resources	**Site only (1)**	**Medium term (3)**	**Highly Probable (4)**	**- Moderate (6)**	**48**	**Moderate environmental significance -**	**High**
9. ISSUE INFRASTRUCTURE AND SERVICES/WASTE							
9.1 Generation of waste	**Site only (1)**	**Short time (3)**	**Medium probability (3)**	**Minor (2)**	**14**	**Low environmental significance**	**High**
9.2 Pressure on existing infrastructure and services	**Region (3)**	**Long term (4)**	**Low probability (2)**	**Moderate (6)**	**54**	**Moderate environmental significance**	**Medium**
10. ISSUE DESIGN AND LAYOUT							
10.1 Functional design	**Local (2)**	**Long term (4)**	**Low Probability (2)**	**Minor (2)**	**16**	**Low environmental significance**	**Medium**

Operation Phase Impact

Proposed commercial development & associated infrastructure to be known as Lanseria Extension 76 on Portion 15 of the Farm Botesdal 529 JQ within City of Johannesburg Municipality

Table 3: Assessment of Potential Impact of the Proposed Potential impacts

Potential Impact	Scale	Duration	Probability	Magnitude	Significance Points	Impacts Significance	Confidence
Biophysical Environment							
5. Issue: Air Quality							
1.1 Dust/Air pollution - The generation of fugitive dust associated with construction activities & earthworks.	**Site Only (1)**	**Short term (2)**	**High Probability (4)**	**Moderate (6)**	**42**	**Moderate environmental significance**	**High**
6. ISSUE TOPOGRAPHY							
2.1 Visual impacts: Topographical features contribute to the landscape character and sense of place of an area cutting and embankments and areas devoid of vegetation are most obvious when located on elevated areas in the landscape	**Local (2)**	**Medium term (3)**	**Highly Probability (4)**	**Moderate (6)**	**54**	**Moderate environmental significance**	**High**
2.2 Bulk earthworks: Deep cuttings, high embankments disposal of soil, and excavations cause local changes to topography	**Site only (1)**	**Long term (4)**	**Highly probability (4)**	**Low (4)**	**36**	**Moderate environmental significance**	**High**
7. ISSUE GEOLOGY AND SOILS							
3.1 Soil erosion, loss of topsoil, deterioration of soil quality	**Site only (1)**	**Long term (4)**	**Highly probable (4)**	**Moderate (6)**	**54**	**Moderate environmental significance**	**High**
3.2 Soil pollution (due to hydrocarbon spillages)	**Site only (1)**	**Medium term (3)**	**Medium probability (2)**	**Moderate (6)**	**36**	**Moderate environmental significance**	**High**
ISSUE FOUNA AND FLORA							

Potential Impact	Scale	Duration	Probability	Magnitude	Significance Points	Impacts Significance	Confidence
4.1 Degradation, destruction of habitats/ ecosystem	**Site only (1)**	**Medium term (3)**	**Highly probable (4)**	**Moderate (6)**	**48**	**Moderate environmental significance**	**High**
4.2 Increase of alien invasive plant species.	**Site only (1)**	**Short term (2)**	**Medium probability (3)**	**Low (4)**	**24**	**Low environmental significance**	**High**
4.3 Impacts on fauna and flora	**Local (2)**	**Short term (2)**	**Medium probability (3)**	**Low (4)**	**28**	**Low environmental significance**	**High**
ISSUE HYDROLOGY							
5.1 Storm water flaw and damage- Developments cause the modification of the drainage patterns. Storm water may be concentrated at certain points, increasing the velocity of flow in one area and reducing flow in another. This may contribute to flooding, soil erosion, sedimentation, scouring and channel modification downstream of the development.	**Regional (3)**	**Long term (4)**	**Low probability (2)**	**Moderate (6)**	**54**	**Moderate environmental significance**	**High**
5.2 Impact on water quality (due to hydrocarbon spillages)	**Regional (3)**	**Long term (4)**	**Low probability (2)**	**Moderate (6)**	**54**	**Moderate environmental significance**	**High**
SOCIO-ECONOMIC AND CULTURAL HISTORICAL ENVIRONMENT							
8. ISSUE AESTHETICS, LANDSCAPE CHARACTER AND SENSE OF PLACE							
6.1 Noise/ vibration	**Site only (1)**	**Short term (2)**	**Highly probable (4)**	**Low (4)**	**28**	**Low environmental significance**	**High**
6.2 Visual impact on adjacent residents and motorists	**Site only (1)**	**Short term (2)**	**Medium probability (3)**	**Moderate (6)**	**36**	**Moderate environmental significance**	**High**

Potential Impact	Scale	Duration	Probability	Magnitude	Significance Points	Impacts Significance	Confidence
7. ISSUE SOCIAL WELL-BEING AND QUALITY OF THE ENVIRONMENT							
7.1 Safety and Security	**Local (2)**	**Short term (2)**	**Low probability (2)**	**Moderate (6)**	**36**	**Moderate environmental significance**	**High**
7.2 Employment opportunities	**Region (3)**	**Long term (4)**	**Highly Probable (4)**	**Moderate (6)**	**66**	**Moderate environmental significance**	**Medium**
8. ISSUE HISTORICAL ENVIRONMENT							
8.1 Destruction of palaeontological resources	**Site only (1)**	**Short term (2)**	**Medium probability (3)**	**Moderate (6)**	**36**	**Moderate environmental significance**	**High**
8.2 Destruction of heritage resources	**Site only (1)**	**Short term (2)**	**Medium probability (3)**	**Low (4)**	**24**	**Low environmental significance**	**High**
9. ISSUE INFRASTRUCTURE AND SERVICES/WASTE							
9.1 Generation of waste	**Site only (1)**	**Short time (3)**	**Medium probability (3)**	**Minor (2)**	**14**	**Low environmental significance**	**High**
9.2 Pressure on existing infrastructure and services	**Region (3)**	**Long term (4)**	**Low probability (2)**	**Moderate (6)**	**54**	**Moderate environmental significance**	**Medium**
10. ISSUE DESIGN AND LAYOUT							
10.1 Functional design	**Local (2)**	**Long term (4)**	**Low Probability (2)**	**Minor (2)**	**16**	**Low environmental significance**	**Medium**

Table 4: Assessment of potential impacts and proposed mitigation measures during construction and operation

Potential Impacts	Significance rating of impacts before mitigation	Proposed mitigation	Significance rating of impacts after mitigation
2.1 Visual Impacts - Topographical changes	Medium	• The site area is to be physically screened off with a shade cloth fence at least 1.8m in height. • The site must be managed appropriately, and all rubbish and rubble removed to a recognized waste facility. • Excess soil and bedrock should be disposed of at an appropriate facility. • A certificate of disposal must be obtained for any waste that is disposed of. • Waste must not remain on site for more than 2 weeks. • Refuse bins must be provided by the Contractor for rubbish to be used by staff. • Excess concrete must be disposed of correctly and at an appropriate facility. • No waste may be placed in any excavations on site. • The construction camp must be located as far from other properties as possible. • Light pollutions should be minimised. • The construction footprint must be minimised. • Construction / management activities must be limited to the daylight hours between 7:00am and 5:30pm weekdays; 7:00am and 1:30pm on Saturdays. • Lighting on site is to be sufficient for safety and security purposes, but shall not be intrusive to neighbouring residents, disturb wildlife, or interfere with road traffic. • Should overtime/night work be authorized, the Contractor shall be responsible to ensure that lighting does not cause undue disturbance to neighbouring residents. • In this situation, low flux and frequency lighting shall be utilised.	Low
3.1 Soil erosion, loss of topsoil, deterioration of soil quality	High	• Appropriate erosion and stormwater management structures must be installed around the construction site. • All construction vehicles, plant, machinery and equipment must be properly maintained to prevent leaks. • Plant and vehicles are to be repaired immediately upon developing leaks. Drip trays shall be supplied for all repair work undertaken on machinery on site or campsite area. • Drip trays are to be utilised during daily greasing and re-fueling of machinery and to catch incidental spills and pollutants. • Drip trays are to be inspected daily for leaks and effectiveness and emptied when necessary. This is to be closely monitored during rain events to prevent overflow. • Vehicles to be used during the construction phase are to be kept in good working condition and should not be the source of excessive fumes. • Fuels and chemicals must be stored in adequate storage facilities that are secure, enclosed and bunded. • All excavations and foundations must be inspected regularly.	Medium

Potential Impacts	Significance rating of impacts before mitigation	Proposed mitigation	Significance rating of impacts after mitigation
		• Once earthworks are complete, disturbed areas are to be stabilised with mulch, straw or other approved method.	
3.2 Soil Pollution	High	• Ensure correct position of construction caps, equipment yards, refueling depots, concrete batching plant etc. to avoid areas susceptible to soil and water pollution. • Ensure appropriate handling of hazardous substances • Remediate polluted soil. • The maintenance of vehicles and equipment used for any purpose during the development will take place only in the maintenance yard. Any breakdown in the field requires the presence of a spill treatment team and equipment. This team must prevent and mitigate any spills that occur in this situation. • Equipment used in the development process must be adequately maintained so that during operations it does not spill oil, diesel, fuel, or hydraulic fluid. • In the event of spills from vehicles, the area should be cleaned immediately using a bioremediation product, such as *Petro-Clean ™* The absorbent and soil must be placed in a bin and removed from the site by a certified company and disposed of as a hazardous waste at a licensed commercial facility. No Hydrocarbons may escape into the environment. A spill recovery kit must be on site, along with trained personnel.	Medium
4.1 Degradation, destruction or elimination of habitats/ecosystems	**High - The** proposed development site, can therefore be mitigated through observing the ecological sensitivity map.	• Red data plant species may occur (suitable habitat for several species, though presence not confirmed during field survey) on the proposed development. Wetland habitat along the eastern side of the site has been designated as ecologically sensitive. • No development will occur within the 32m buffer zone of the drainage line. • Site clearing is to be limited to only the area necessary for carrying out the specified works and the destruction of vegetation should be minimised. • No littering by construction workers is permitted. Any litter will be collected and removed off-site to a registered waste site. • Cleared indigenous vegetation can be stockpiled for possible reuse in later rehabilitation or landscaping, or as a brush pack for erosion prevention. • Stockpiles of vegetation are only to be located in areas approved by the ECO and may not exceed 2m in height. Methods of stacking must take cognisance of the possible creation of a fire hazard. • No burning of stockpiled vegetation is permitted. • All alien plants that occur in South Africa. None of these species may be introduced and they must all be controlled. • The alien plants on site will be removed during construction. • Care must be taken to avoid the introduction of alien plant species to the site and surrounding areas. (Particular attention must be paid to imported material).	Medium

Potential Impacts	Significance rating of impacts before mitigation	Proposed mitigation	Significance rating of impacts after mitigation
		• Alien vegetation re-growth must be controlled throughout the entire site during the construction period. • Remaining indigenous trees (naturally occurring in the area) should be retained wherever possible • The wetland area including the buffer zone should be fenced–off during the construction phase. • Currently very few alien plants occur within this plant community (excluding the wattle bush). • An alien invasive management programme must be incorporated into the Environmental Management Programme • (particularly the wattle bush); • Ongoing alien plant control must be undertaken; • Areas which have been disturbed will be quickly colonised by invasive alien species. An ongoing management plan must be implemented for the clearing/eradication of alien species. • Monitor all sites disturbed by construction activities for colonisation by exotics or invasive plants and control these as they emerge. • Avoid planting of exotic plant species in public areas or home gardens, use indigenous species. • Use indigenous plant species in all gardens	
4.2 Impacts on fauna and flora	Medium-low	• No RDL or otherwise sensitive fauna or flora is thought to inhabit the actual proposed development site due to the generally poor PES of the area. Wetland habitat along the eastern side of the site has been designated as ecologically sensitive. • Other than the road crossing the wetland and services crossing within the road reserve no development will occur within the 15m buffer zone of the wetland • The contractor must ensure that no fauna species are disturbed, trapped, hunted or killed during the construction phase. • Disturbance to birds, animals and reptiles and their habitats should be prevented at all times. • The illegal hunting or capture of wildlife will not be tolerated. Such matters will be handed over to the relevant authorities for prosecution. • These species should then be relocated to a natural habitat. • During the construction phase, artificial lighting must be restricted to areas under construction only. Where lighting is required for safety or security reasons, this should be targeted at the areas requiring attention. Yellow sodium lights or Compressed Flourescent Bulbs (CFL"s) should be prescribed as they do not attract as many invertebrates (insects) at night and will not disturb the existing wildlife. Sodium lamps require a third less energy than conventional light bulbs. • Ideally fences should not restrict the natural migratory movements of certain animals. The site offers limited suitable migratory habitat. Electric fences have a negative impact on	Low

Potential Impacts	Significance rating of impacts before mitigation	Proposed mitigation	Significance rating of impacts after mitigation
		certain animal species including Bushbabies, geckoes, chameleons, bullfrogs and tortoises. Palisade fencing with adequate gaps is recommended for the conserved public open spaces. • Before any vegetation is removed, a suitably qualified person (i.e. on ECO request of a vegetation specialist) shall inspect the study area for any plant/ grass/ tree species that could be transplanted to other similar/ suitable areas. This includes all Red Data or Protected, or rare plants that may be found during the flora site assessment or during construction operations. • No other medicinal / protected / Red Data Flora was found on the site however should any medicinal/ protected/ Red Data flora that will have to be removed shall be removed by a suitably qualified specialist and relocated. The applicable responsible person at the provincial department must be notified in the event of such plants being identified, who will then advise the ECO regarding what steps need to be taken and who will be responsible for the relocation and transplantation processes. • All invader or exotic plant species must be removed from the site and disposed of at a landfill site. • All Declared Weeds and invaders must be removed from the site. • Where herbicides are used to clear vegetation, specimen-specific chemicals should be applied to individual plants only. General spraying should be prohibited. • Only indigenous floral species (preferably using endemic o local species from the area), which are water wise and require minimal horticultural practices may be used during landscaping and rehabilitation. • Remaining indigenous trees (naturally occurring in the area) should be retained wherever possible • The body corporate should be encouraged to plant indigenous non-invasive plants. The attention of property owners must be drawn to the most recent Declared Weeds List (2001) in the *Conservation of Agricultural Resources Act* 43 of 1983 and the associated penalties and prohibitions • The least environmentally damaging insecticides, to manage invertebrate pests, must be applied. Pyrethroids and Phenylpyrazoles are preferable to Acetylcholines. Use insecticides that are specific to the pest (species specific) in question. The lowest effective dosages must be applied. The suppliers advice should always be sought. Do not irrigate for 24 hours after applying insecticides in areas where there is a chance of contaminating water-courses or dams, fungal pathogens should be used in preference to chemical insecticides.	
5.1 Stormwater flow, drainage and	Medium	• Natural storm water must flow freely, either as sheet flow or where necessary in open grass swales, to allow for infiltration	Low

Potential Impacts	Significance rating of impacts before mitigation	Proposed mitigation	Significance rating of impacts after mitigation
increased runoff due to hardened surfaces		and retention. Natural veld grass must be left undisturbed as far as possible, to allow natural drainage. • Drainage channels must be constructed along access roads every 50m to divert runoff during construction period. • Energy dissipaters (gabions/grass bales etc.) must be installed at all potential large flow volume areas, especially during the construction phase where large areas will be open soil. • Where feasible the use of vegetated swales should be used to accommodate surface runoff, in order to increase infiltration into the soil. The swales should be vegetated with indigenous, riparian vegetation in order to provide habitat for bird life and other aquatic and semi-aquatic species. Where feasible, the swales should be provided adjacent to the property boundaries along the natural gradient • The cross-section of the swale should be parabolic or trapezoidal in shape with side slopes no steeper than 1:3, to maximise the wetted channel perimeter. It is recommended that the longitudinal slope not exceed 2% where possible and that a maximum slope of 4% be used. Where a 4% slope must be exceeded, check dams should be provided at a minimum interval of 17m. As a rule of thumb the total surface area of the swale must be 1% of the area that drains into the swale. The surface of the swale must be carefully constructed, to avoid compaction, which will inhibit dense vegetation growth and effective runoff infiltration. The installation of vegetated filter strips parallel to the top of the channel banks can help to treat sheet flows entering the swale. • Maintenance of the swale should include periodic mowing of the grass (never shorter than the design flow depth of the channel). Bare areas should be re-seeded, and debris and blockages regularly removed. Sediment depositions should be regularly removed from the swale, to prevent pollution of the runoff from contaminants contained therein. • Please note that the recommendations for the design of the swales are guidelines only and that the designs of the swales, sedimentation ponds and check dams must be done by a hydrological engineer. • Permeable paving should be used to reduce runoff and increase infiltration and ground water recharge. • As much as possible water should be retained on site to be reused again for irrigation and habitat creation. • Both storm water and excess effluent intended for irrigation must be purified according to DWS standards.	
5.2 Impacts Drainage line and water quality	Medium	• Utilize proper waste management practices. • Cover any wastes that are likely to wash away or contaminate storm water • Ensure handling, transport and disposal of hazardous substances are adequately controlled and managed.	Low

Potential Impacts	Significance rating of impacts before mitigation	Proposed mitigation	Significance rating of impacts after mitigation
		• Provide containment areas for potential pollutants at construction camps, refueling depot and concrete batching plants. • Fuel storage shall be within the construction camp, and within a bunded area with at least 110% of the volume of the amount of fuel stored, as per agreement and approval of the ECO. No storage of any fuel will be allowed on site, other than what is approved by the applicable provincial government departments. • Drip trays (min 10cm deep) are to be placed under all vehicles if they stand for more than 3 hours. The drip tray must be able to contain 110% of the total amount/ volume of oil in the vehicle. Spill kits must be available in all vehicles that transport hydrocarbons for dispensing to other vehicles on the site. The dispensing devices (pump heads) must be compatible with the vehicles to which they are dispensing. In addition, the dispensing devices must be fitted with the necessary valves/ apparatus that will ensure that the nozzles do not drip fuel after pumping has stopped. • Cement mixing shall be done only at specifically selected sites. After construction activities ended the cement shall be crushed and removed from the site. This mixing area shall then be ripped and rehabilitated. Limit the construction footprint and support areas (e.g. temporary access servitudes) as far as possible; • No indiscriminate destruction of wetland vegetation should be allowed; • Make use of geotextiles within disturbed areas of steeper topography to avoid erosion through surface water runoff; • Stormwater management along informal roadways to reduce gulley erosion formation; • Construct within the low-flow (dry) period; • Correct site reinstatement and landscaping following any disturbances will abate channel and gulley formation; • Proper re-instatement of soils and landscaping to limit erosion gulley formation. • Soil layers within wetland zones are to be stored in their respective layers and replaced after entrenching has occurred in reverse order i.e. the original soil layering must be retained should entrenching within wetland habitat found to be necessary. Provision for this should be detailed within a rehabilitation plan and the site reinstatement should be audited by suitably qualified personnel. • No dumping of any excess building material or other wastes or litter should be allowed within any wetland and buffer areas; • Exotic vegetation recruitment was observed as an impacting feature within the wetlands. It is recommended that an exotic vegetation management strategy be developed as part of a	

Potential Impacts	Significance rating of impacts before mitigation	Proposed mitigation	Significance rating of impacts after mitigation
		rehabilitation plan to manage the present and future emergent exotic vegetation; • Subsistence hunting or harvesting of fauna or flora within the wetland zones should be prohibited;	
6.1 Noise/ vibration	Medium	• Noise levels shall be kept within acceptable limits, and construction crew must abide by National Noise Laws and local by-laws regarding noise. • If work is to be undertaken outside of normal work hours permission, must be obtained. Prior to commencing any such activity, the Contractor is also to advise the potentially affected neighbouring residents. Notification could include letter-drops. • No sound amplification equipment such as sirens, loud hailers or hooters are to be used on site except in emergencies and no amplified music is permitted on site. • Construction / management activities involving use of the service vehicle, machinery, hammering etc., must be limited to the hours between 7:00am and 5:30pm weekdays; 7:00am and 1:30pm on Saturdays; no noisy activities may take place on Sundays or Public Holidays. • Activities that may disrupt neighbours (e.g. delivery trucks, excessively noisy activities etc.) must be preceded by notice being given to the affected neighbours at least 24 hours in advance. • Equipment that is fitted with noise reduction facilities (e.g. side flaps, silencers etc.) must be used as per operating instructions and maintained properly during site operations	Low
6.2 Visual Impact	Medium	• Structures that are to be erected should be aesthetically pleasing and blend into the area as far as possible to minimise the visual impact. • Buildings are to reflect and residential scale and design with finishes matching the existing styles and finishes. Buildings must adhere to the local zoning code. • Buildings must be maintained in good standing at all times	Low
7.1 Safety and Security	Low	• A fence will be constructed around the site prior to commencement of construction • The Applicant will be in contact with the local security firms. • Signs should be erected on all entrance gates indicating that no temporary jobs are available, thereby limiting opportunistic labourers and crime. • The site and crew are to be managed in strict accordance with the Occupational Health and Safety Act (Act No. 85 of 1993) and the National Building Regulations • All structures that are vulnerable to high winds must be secured (including toilets). • Potentially hazardous areas such as trenches are to be cordoned off and clearly marked at all times. • The Contractor is to ensure traffic safety at all times and shall implement road safety precautions for this purpose when works are undertaken on or near public roads.	Low

Potential Impacts	Significance rating of impacts before mitigation	Proposed mitigation	Significance rating of impacts after mitigation
		• Necessary Personal Protective Equipment (PPE) and safety gear appropriate to the task being undertaken is to be provided to all site personnel (e.g. hard hats, safety boots, masks etc.). • All vehicles and equipment used on site must be operated by appropriately trained and / or licensed individuals in compliance with all safety measures as laid out in the Occupational Health and Safety Act (Act No. 85 of 1993) (OHSA). • An environmental awareness training programme for all staff members shall be put in place by the Contractor. Before commencing with any work, all staff members shall be appropriately briefed about the EMP and relevant occupational health and safety issues. • All construction workers shall be issued with ID badges and clearly identifiable uniforms. • Access to fuel and other equipment stores is to be strictly controlled. • Emergency procedures must be produced and communicated to all the employees on site. This will ensure that accidents are responded to appropriately and the impacts thereof are minimised. This will also ensure that potential liabilities and damage to life and the environment are avoided. • Adequate emergency facilities must be provided for the treatment of any emergency on the site. • The nearest emergency service provider must be identified during all phases of the project as well as its capacity and the magnitude of accidents it will be able to handle. Emergency contact numbers are to be displayed conspicuously at prominent locations around the construction site and the construction crew camps at all times. • The Contractor must have a basic spill control kit available at each construction crew camp and around the construction site. The spill control kits must include absorptive material that can handle all forms of hydrocarbon as well as floating blankets / pillows that can be placed on water courses. • The Contractor shall make available safe drinking water fit for human consumption at the site offices and all other working areas. • Washing and toilet facilities shall be provided on site and in the Contractors camp. • Adequate numbers of chemical toilets must be maintained in the Contractors camp to service the staff using this area. At least 1 toilet must be available per 20 workers using the camp. Toilet paper must be provided. • The chemical toilets servicing the camp must be maintained in a good state, and any spills or overflows must be attended to immediately. • The chemical toilets must be emptied on a regular basis.	

Potential Impacts	Significance rating of impacts before mitigation	Proposed mitigation	Significance rating of impacts after mitigation
		• The Contractors site must be located on the high side of the site so any leakages or spillages will be contained on site. • HIV AIDS awareness and education should be undertaken by all Contractor staff.	
7.2 Economic opportunities	Low	• Make use of local labour • Provide clear and realistic information regarding employment opportunities and other benefits for local communities in order to prevent unrealistic expectations. Provide skills training for construction workers.	Medium
8.1 Destruction of cultural / heritage sites No sites of cultural or heritage importance were found during the Heritage impact Assessment	Low	• Ensure that construction staff members are aware that heritage resources could be unearthed and the scientific importance of such finds. • Ensure that heritage objects are not to be moved or destroyed without the necessary permits from the South African Heritage Resources Agency (SAHRA) in place.	Low
9.1 Waste	Low	• Adequate number of waste disposal receptacles are to be positioned at strategic locations within the development. • Temporary waste storage points on site shall be determined. These storage points shall be accessible by waste removal trucks and these points should not be located in areas highly visible from the properties of the surrounding landowners/tenants/in areas. These areas should also be already disturbed. The storage of solid waste on site, until such time that it may be disposed of, must be in the manner acceptable to the relevant Authority. • No waste materials shall at any stage be disposed of in public areas or adjacent properties, or where the wind direction will carry bad odours across the properties of adjacent tenants or landowners. The piling of any material that could rot and release unpleasant smells into the air will not be permitted. Burning of waste is not permitted. Spot fines of up to R100 may be administered if the employees are found to be polluting the area in any way. • Several waste bins must be provided and clearly marked or colour coded according to industry standards to allow for recycling of waste into o Paper o Biodegradable o Glass o Plastics o General • No burning of waste. • Wayleaves required for all disposed waste. • The waste bins shall be cleared by municipal services on a weekly basis. During municipal strikes special arrangements must be made to have the waste removed via private waste removal services.	Low

Potential Impacts	Significance rating of impacts before mitigation	Proposed mitigation	Significance rating of impacts after mitigation
10.1 Functional design	Medium	• Scale and design must fit with adjacent land uses • Areas where services infrastructure has been installed must be rehabilitated with indigenous vegetation on completion.	Low

NO GO:

No-Go Alternative

The No- Go alternative is the option of not implementing the activities. This implies that the site be left as is and that no development be done. Since the applicant lives on the property and already runs an event management company as a separate venture. He thus wishes to bring his business to the property and improve the facilities to run it as a wedding venue.

This option has the following potential impacts:

- Many direct and indirect spin-off benefits, such as job creation, capacity building, rates for the municipality and the upgrading of supply of services will not be realised.
- Invasive vegetation would probably continue to spread in areas where land is vacant and not actively used in its entirety.
- If not developed, the site will derive no income and will not contribute to the services and total income of the area.

It is reasonable to state that the no-go option is less favourable than some of the other options presented.

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

Annexure G1: Ecology Assessment
Annexure G2: Wetland Assessment
Annexure G3: Heritage Assessment

Describe any gaps in knowledge or assumptions made in the assessment of the environment and the impacts associated with the proposed development.

- **Assumptions**

In undertaking this BAR, it has been assumed that:

- Since a rezoing has already been approved, all requirements from the local authority will be met by the proponent as a separate undertaking to the EIA process;
- The information provided by the proponent and the project planning team / specialists is accurate and discloses all information relevant to EIA, proposed project and possible impacts.
- Where supporting or baseline information was unavailable, a precautionary approach is adopted.

- **Gaps in Knowledge**

All specialist studies are conducted to certain levels of confidence, but in all instances known methodologies have been used and confidence levels are generally high. This means that in most cases the situation described in the pre-construction environment is accurate at high certainty levels, but there exists a low probability that some issues have not been identified during the studies. Furthermore, statistical analyses and mathematical models are merely tools which assist the researcher in assessing field observations and have innate assumptions which can reduce

objectivity of the results obtained. This is not seen as a major flaw but should always be considered when assessing results.

Gaps in knowledge known to LEAP at this time, includes:

- Predicting the impact to the socio-economic and bio-physical environment for the life-cycle of the proposed project (i.e. 25-50 years) although it is expected to be positive since the social contribution will be extremely high

3. IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING & CLOSURE PHASE – NOT APPLICABLE

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the decommissioning and closure phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

The decommissioning or closure of the proposed project is not anticipated.

Proposal

Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact and mitigation not being implemented**

Alternative 1

Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact and mitigation not being implemented**

Alternative 2

Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact and mitigation not being implemented**

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

Not Applicable

Where applicable indicate the detailed financial provisions for rehabilitation, closure and ongoing post decommissioning management for the negative environmental impacts.

Not Applicable

4. CUMULATIVE IMPACTS

Describe potential impacts that, on their own may not be significant, but is significant when added to the impact of other activities or existing impacts in the environment. Substantiate response:

Cumulative impacts are assessed with the combination effects of the Project with current and future development in the immediate area of the Project site. The cumulative impacts assessed depend on the status of other projects and the level of data available to characterise the magnitude of the impacts.

The large portions of the surrounding land are or has been utilised for tourism developments and as such it would make sense for these properties to be used for this purpose. In terms of density, the general typology of development in the area consists of similar low impact uses.

Cumulative Impacts

- **Litter and Waste**

Activities associated with use of the site results in littering. Similarly, the building process generates wastes that could pollute the site and its surrounds. For this reason, it is important that the waste management mitigation measures described in the EMP be followed. No illegal dumping will be tolerated during the construction phase and strict house keeping must be done. The litter will reduce as the construction phase ends. This will not result in a cumulative impact.

- **Vegetation and Fauna**

The proposed development will further transform the site and will lead to the partial loss of habitat for any potential plant of animal species. . Large areas in the vicinity of the site is still agricultural use with large undeveloped areas.

- **Stormwater Runoff**

The development of hard surfaces will give rise to greater volumes and velocity of runoff waters during high peak flows. This water will drain into the roads and stormwater management system. Localised flooding may result on negative impacts on bed and banks of the stream course due to the cumulative effects.

5. ENVIRONMENTAL IMPACT STATEMENT

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

Preferred Alternative

The identified impacts in both the construction and the operational phase are those usually experienced with rural development. The negative impacts identified, however, are not considered highly significant and with appropriate mitigation can be reduced to a lower significance.

- The Applicant has the capacity and resources to adequately implement the mitigation measures stipulated in the EMPr.
- Sensitive social receptors (surrounding landowners) are not located in close proximity of the development sites, the potential impacts on these receptors can be adequately mitigated.
- The creation of jobs for local people during operation, the rehabilitation of old lands and the removal and control of alien vegetation will result in moderately positive impacts locally.
- Most of the impacts will be as a result of the construction of the development, with the impacts of the operational phase being minimal / low in significance. With management and mitigation of the identified impacts, the significance of the overall impact of the development should be low / minimal.

Alternative 1

Not Applicable

Alternative 2

Not Applicable

No-go (compulsory)

The No- Go alternative is the option of not implementing the activities. This implies that the site be left as is and that no development be done.

3. IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE

Having assessed the significance of impacts of the proposal and alternative(s), please provide an overall summary and reasons for selecting the proposal or preferred alternative.

In accordance with GN No. 982, as amended by GNR 326 the Environmental Impact Phase is aimed at identifying and assessing potential impacts caused by the proposed development. The ability to mitigate any of the identified impacts are also addressed and summarised into a working / dynamic Environmental Management Programme (EMPr) for consideration by I&APs and ultimately by the GDARD.

Comments and/or concerns identified by Interested and Affected Parties (I&APs) during the review period of the Draft Basic Assessment will be incorporated into the Final Basic Assessment to be submitted to the GDARD for consideration.

Having assessed all the potential environmental impacts associated with the proposed development it is the opinion of the EAP that the proposed development of a Commercial development and associated infrastructure to be known as Lanseria Extension 76 on Portion 15 of the Farm Botesdal 529 JQ within the City of Johannesburg Municipality, Gauteng Province is issued with a positive Authorisation from the GDARD for the following reasons: **:**
Proposed commercial development & associated infrastructure to be known as Lanseria Extension 76 on Portion 15 of the Farm Botesdal 529 JQ within City of Johannesburg Municipality.

- The proposed development is not for human settlement outside the Urban Edge and thus does not contribute to urban sprawl.
- The proposed large business activity would make use of natural and human resources within the local community and as such complies to above factor.
- The site is located in a developing rural area, and close to major public transport routes. It is expected that the development will generate many employment opportunities for workers dependent on public transport for daily commuting. Staff will be sourced form nearby housing areas.

- The property is found in a developing- rural area with limited resources, social amenities, and infrastructure. The proposed development would contribute to all mentioned aspects. Therefore, the intensification of the property by means of the proposed township establishment application would result in the land and infrastructure being optimally utilised.

- The proposed development is sustainable in the sense that the infrastructure would be optimally used, and the proposed heritage site would create sustainable employment opportunities. The proposed use would be in an area earmarked for light industrial, mixed use and commercial activities and therefore would stimulate job-generating activity within the area and contribute to spatial sustainable growth.

Although a few potential negative biophysical, socio economic and cumulative impacts where identified, there are no fatal flaws that should prevent the development from proceeding. It was demonstrated that most of these impacts can also be mitigated effectively in order to reduce the significance. Refer to **Table 6** for a summary of the impact significance ratings – before and after mitigation.

Table 6: Proposed Activity: Impact Summary

Construction Phase	Before Mitigation	After Mitigation
BIOPHYSICAL ENVIRONMENT		
1.1 Dust/Air pollution - The generation of fugitive dust associated with construction activities & earthworks.	**Low**	**Low**
2.1 Visual Impacts: Topographical features contribute to the landscape character and sense of place of an area. Visual scarring due to cutting and embankments and areas devoid of vegetation are most obvious when located on elevated areas in the landscape.	**Low**	**Low**
3.1 Soil erosion, loss of topsoil, deterioration of soil quality	**Low**	**Low**
3.2 Soil pollution (due to hydrocarbon spillages)	**Low**	**Low**
4.1 Degradation, destruction of habitats/ ecosystem and impact on connectivity – classified as a Critical Biodiversity Area (CBA)	**Moderate**	**Low**
4.2 Impacts on fauna and flora	**Moderate**	**Low**
5.1 Stormwater flow and drainage- Developments cause the modification of drainage patterns. Stormwater may be concentrated at certain points, increasing the velocity of flow in one area and reducing flow in another. This may contribute to flooding, soil erosion, sedimentation, scouring and channel modification downstream of the development.	**Moderate**	**Low**

5.2 Impact on water quality (due to hydrocarbon spillages)	**Moderate**	**Low**
SOCIO-ECONOMIC ENVIRONMENT		
6.1 Noise/ vibration	**Medium**	**Low**
6.2 Visual impact on adjacent residents and motorists	**Low**	**Low**
7.1 Safety and Security	**Low**	**Low**
7.2 Employment opportunities	**Moderate (Positive)**	**High (Positive)**
8.1 Destruction of paleontological resources	**High**	**Moderate**
9.1 Waste	**Low**	**Low**
10.1 Functional design	**Low (Positive)**	**Moderate (Positive)**
OPERATIONS		
Impact of country estate development and residents / visitors on the wildlife and sensitive environments.	**High**	**Low**
Increase in traffic and air pollution (from dust) on the gravel road from traffic generated by the development.	**Moderate**	**Low**
Visual Impacts of buildings and infrastructure.	**Moderate**	**Low**
Light pollution	**Moderate**	**Low**
Increase in water use	**Moderate**	**Low**
Sewerage disposal and groundwater pollution	**High**	**Low**
Stormwater / surface run-off	**Medium**	**Low**
Solid Waste Disposal	**Medium**	**Low**
Noise	**Medium**	**Low**
Socio-economic	**Moderate (Positive)**	**Moderate (Positive)**
Property Value	**Low**	**Low**

7. SPATIAL DEVELOPMENT TOOLS

Indicate the application of any spatial development tool protocols on the proposed development and the outcome thereof.

Spatial Development Framework 2040 (SDF)

As a counter to increased urban sprawl on the periphery of the City's established areas and with a view to accommodating demand near places of employment, transportation routes and business nodes, as well as infrastructure availability densification is an economic imperative.

The proposed development is consistent with the SDF 2040. More specifically it promotes the core principles of the GDS in that the proposed development will:

- Support the principle of building sustainable human settlements as the proposed development will promote the reduction of urban sprawl and traffic congestion by intensifying services in a single property. This is as the site is well located in relation to major transport routes as well as being well located in relation to major employment nodes;
- Creating economies of urbanisation;
- Support the principle of building and growing an inclusive economy;
- Focus on in-fill and redevelopment;
- Support the principle of ensuring resource security and environmental sustainability
- Although the Spatial Development Framework aims to make development proposals that respect the ecological integrity and environmental sustainability of the area, is has been necessary in certain instances to re-evaluate environmental potential against development potential in order to achieve the truly sustainable development of the area.
  Two specific areas that have been looked at in this regard are the following:
- The Cradle of Humankind World Heritage Buffer Zone on the western side of the N14, between Hendrik Potgieter Road and Malibongwe Drive has been evaluated in terms of the impact it has on the inherent development potential of the area of the the Lanseria Airport Node development. There are no imbalances as the property forms part of an earmarked rural area within the urban edge;
- The development of a corridor along the N14 of approximately 600 metres wide on the western side of the N14 the development of nodes around the intersection of the N14 and Hendrik Potgieter Road.
- The Muldersdrift area to the east of the N14 has been indicated as an urban development area, notwithstanding the presence of isolated pockets of environmentally sensitive land in this area. These pockets of land are not contributing to a larger ecological system (except for watercourses that run through the area). Measured against the inherent development potential of this area, these pockets of land should be re-evaluated and reconsidered in terms of the triage principle of allocating resources to those areas where a difference can be made.

The proposed N14/R28 development corridor currently contains the following elements that already begin to define the physical make-up of the corridor:

- The N14/R28 movement route, acting as the spine of the corridor.
- Lanseria Airport, Krugersdorp CBD and Randfontein as major destinations on the corridor, acting as forces of attraction.
- The Hendrik Potgieter Road, Beyers Naudé Drive, R512 (Malibongwe Drive), Randfontein Road and Ontdekkers Road/Voortrekker Road intersections on the N14/R28 which provide opportunities for the development of strong nodes (or beads) along the corridor.
- The R114 road between Beyers Naudé Drive and R512 (Malibongwe Drive) which provides local access to land uses along the corridor in the short term.
- One of the aspects that need attention and a great deal of public (or private) sector investment to unlock the development potential of the corridor is the development of local access routes to provide

access to land uses along the corridor. Direct access to land uses is not possible from the N14 or the section of the R28 which runs through Krugersdorp onto Randfontein.

- Land uses along development corridors are associated with a mixture of land uses such as residential and higher order commercial, retail, offices, sport and recreational, public facilities and manufacturing activities.

Refer to the Town Planning Consent Use Application **– ANNEXURE I1**

8. RECOMMENDATION OF THE PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the Environmental Assessment Practitioner as bound by professional ethical standards and the code of conduct of EAPASA).	**YES**	NO

If "NO", indicate the aspects that require further assessment before a decision can be made (list the aspects that require further assessment):

Not Applicable

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

It is recommended that the Proposed Activity is authorised and that the recommendations of the specialists be accommodated in the execution of the project

The recommendations to include, if the authorisation of the Proposed Activity is granted, are amongst others:

General:

- The monitoring of the construction site must be carried out by a professionally qualified Environmental Compliance Officer (ECO) with proven expertise in the field so as to ensure compliance to the Environmental Management Programme (EMP).
- All mitigation measures listed in the BAR as well as the EMPr must be implemented and adhered to.
- Rehabilitated as soon as possible and revegetated with indigenous species.
- The species should be indigenous to the specific area and the composition of the vegetation should reflect the natural vegetation
- The species used in rehabilitation of the proposed development should be indigenous to lessen the impact of exotic plant species on existing fauna and flora systems.
- The protected plant must be protected in situ and it will thus be necessary to adjust the building footprints to avoid any orange listed plant species.

Specific recommendations by the specialist include:
Ecology:

- The indiscriminate use of heavy machinery by uninformed operators leading to the unnecessary destruction of habitat through unnecessary expansion of the impacting footprint area is perceived to be the leading cause of ecological impacts that can be easily avoided.
- Careful planning, basic education of operators and on-site management will all enable the impacts to be significantly reduced.
- Reduce impact by ecologically-sensitive construction methods and the following of a carefully planned Environmental Management Programme (EMPr).
- By keeping the footprint of the impacts reduced to a minimum by only allowing heavy machinery to operate on designated access roadways and by avoiding the unnecessary degradation of habitat within areas adjacent to the actual construction areas, the ecological impacts can be greatly reduced.
- The perceived ecological impacts have been rated as medium to low, with the majority of the impacts rated higher being related to the wetland unit and the preservation thereof.
- It should be noted that wetland habitat units are regarded as inherently ecologically sensitive ecosystems, regardless of present ecological state, and that they should be treated as such. This is because local impacts can often manifest downstream of the site, affecting many habitat specialist species and the water resource.
- The impacts can be significantly reduced through the implementation of mitigation measures that are also proposed within the table and that these impacts can be regarded as low after implementation of the mitigation measures

Riverine area:

- No activities should take place in the riverine area and associated buffer zone.
- A temporary fence or demarcation must be erected around No-Go Areas outside the proposed works area prior to any construction taking place as part of the contractor planning phase when compiling work method statements to prevent access to the adjacent portions of the watercourse.
- Effective stormwater management should be a priority during both construction and operational phase. This should be monitored as part of the EMP. High energy stormwater input into the watercourses should be prevented at all cost. Changes to natural flow of water (surface water as well as water flowing within the soil profile) on the site above the river area resulting from the proposed road upgrade should be taken into account.
- Runoff water from roofs and paving etc. should be captured and allowed to infiltrate at the maximum vertical infiltration rate to the soil.

Paleontology:

- The overburden and inter-burden must be surveyed for fossils. Special care must be taken during the digging, drilling, blasting and excavating of foundations, trenches, channels and footings and removal of overburden not to intrude fossiliferous layers.

Heritage:

- Should archaeological sites or graves be exposed during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.

9. THE NEEDS AND DESIRABILITY OF THE PROPOSED DEVELOPMENT (as per notice 792 of 2012, or the updated version of this guideline)

Need

The need for the proposed land use can be established due to the following emerging factors:

- The locality of the subject property with respect to the high level of similar activities.
- The proposed land use is of such essence which needs to be located on the periphery of the city.
- The client has a highly successful business and has the need to expand it by utilizing the full potential of the subject property to grow his business

Desirability

The desirability of the rezoning application can be motivated in the following:

- The proposal will not in any way encumber the existing municipal infrastructure.
- All required parking can easily be provided on site
- Due to the high accessibility to access problems or interference with the existing traffic circulation patterns in the area are foreseen.
- The proposed land use will tie in with an anticipated increase in non-residential land uses in the vicinity due to the surrounding developments.
- The proposed land use is policy and legislative complaint.

In terms of the Mulderdrift Precinct Plan, 2011 the site falls within an area earmarked for "Eco-Tourism & Agri-Cooperation District". The primary role of the transition area is that it represents the urban-rural interface, which largely affects the sustainability of both the rural and urban environments. These zones could accommodate a wide range of land-uses, such as agriculture, tourism related land uses, forestry, art galleries, conference facilities etc. thus, the proposed rezoning is in line with the Muldersdrift Precinct Plan as it forms part of the desired uses within the area. It is therefore evident that there is a need and desirability.

10. THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED *(*CONSIDER WHEN THE ACTIVITY IS EXPECTED TO BE CONCLUDED)

10 years

11. ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR) (must include post construction monitoring requirements and when these will be concluded.)

If the EAP answers "Yes" to Point 7 above, then an EMP is to be attached to this report as an Appendix

EMPr attached	**YES**

SECTION F: APPENDIXES

The following appendixes must be attached as appropriate (this list is inclusive, but not exhaustive):

It is required that if more than one item is enclosed that a table of contents is included in the appendix

Annexure A1: Site Plan
Annexure A2: Location Plan
Annexure A3: Gauteng Environmental Framework Plan
Annexure A4: Sensitivity Map

Annexure B: Photographs

Annexure C: Facility illustration(s) – Not Applicable

Annexure D: Route position information – Not Applicable

Annexure E: Public participation information

Annexure F: Water use license(s) authorisation, SAHRA information, service letters from municipalities, water supply information - Not Applicable

Annexure G: Specialist reports
Annexure G1: Ecology Assessment
Annexure G2: Wetland Assessment
Annexure G3: Heritage Assessment
Annexure H: EMPr
Annexure I: Other information
Annexure I1: Town planning Memorandum
Annexure I2: Traffic Impact Assessment
Annexure I3: Services report
Annexure I4: Stormwater Management Plan
Annexure I5: EAP CV
Annexure I6: EAP declaration

CHECKLIST

To ensure that all information that the Department needs to be able to process this application, please check that:

- Where requested, supporting documentation has been attached;
- All relevant sections of the form have been complete