Draft Basic Assessment Report

Eldorette Extension 53

Gaut 002/16-17/E0325

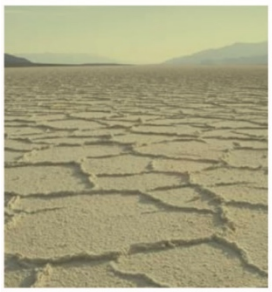
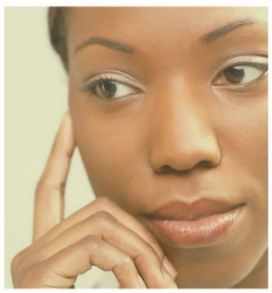
April 2017

TEXTURE
ENVIRONMENTAL CONSULTANTS







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Acronyms

BAR	Basic Assessment Report
CBA	Critical Biodiversity Area
CMA	Catchment Management Agencies
CR	Critically Endangered
DBAR	Draft Basic Assessment Report
DWS	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
ECA	Environment Conservation Act, 1989 (Act No. 73 of 1989)
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMPr	Environmental Management Programme
EN	Endangered
ESA	Ecological Support Area
FSR	Final Scoping Report
IDP	Integrated Development Plan
HGM	Hydrogeomorphic
HIA	Heritage Impact Assessment
I&APs	Interested and Affected Parties
IBA	Important Bird Areas
IEM	Integrated Environmental Management
LT	Least Threatened
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMWA	National Environmental Management Waste Act, 2008 (Act No. 59 of 2008)
NEMAQA	National Environment Management: Air Quality Act (No.39 of 2004)
NFEPA	National fresh water ecosystem priority areas
NPAES	National protected areas expansion strategy
NWA	National Water Act (Act 36 of 1998)
PDA	Primary Drainage Area
PES	Present Ecological State
PPP	Public Participation Process
PoS	EIA Plan of Study for Environmental Impact Assessment
QDA	Quaternary Drainage Areas
QDS	Quarter Degree Square
REMC	Recommended Ecological Management Class
SR	Scoping Report
SAHRA	South African Heritage Resources Agency
SWSA	Strategic water source areas of South Africa
VU	Vulnerable
WMA	Water Management Areas

Glossary of Terms

Activity (Development) – an action either planned or existing that may result in environmental impacts through pollution or resource use.

Alternative – a possible course of action, in place of another, of achieving the same desired goal of the proposed project. Alternatives can refer to any of the following but are not limited to: site alternatives, site layout alternatives, design or technology alternatives, process alternatives or a no-go alternative. All reasonable alternatives must be rigorously explored and objectively evaluated.

Applicant – the project proponent or developer responsible for submitting an environmental application to the relevant environmental authority for environmental authorisation.

Biodiversity – the diversity of animals, plants and other organisms found within and between ecosystems, habitats, and the ecological complexes.

Construction – means the building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity but excludes any modification, alteration or expansion of such a facility, structure or infrastructure and excluding the reconstruction of the same facility in the same location, with the same capacity and footprint.

Cumulative Impacts – impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities to produce a greater impact or different impacts.

Direct impacts – impacts that are caused directly by the activity and generally occur at the same time and at the same place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally quantifiable.

Ecosystem – a dynamic system of plant, animal (including humans) and micro-organism communities and their non-living physical environment interacting as a functional unit. The basic structural unit of the biosphere, ecosystems are characterised by interdependent interaction between the component species and their physical surroundings. Each ecosystem occupies a space in which macro-scale conditions and interactions are relatively homogenous.

Environment – In terms of the National Environmental Management Act (NEMA) (Act No 107 of 1998) (as amended), "Environment" means the surroundings within which humans exist and that are made up of:
a) the land, water and atmosphere of the earth;
b) micro-organisms, plants and animal life;
c) any part or combination of (i) of (ii) and the interrelationships among and between them; and
d) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.

Environmental Assessment (EA) – the generic term for all forms of environmental assessment for projects, plans, programmes or policies and includes methodologies or tools such as environmental impact assessments, strategic environmental assessments and risk assessments.

Environmental Authorisation – an authorisation issued by the competent authority in respect of a listed activity, or an activity which takes place within a sensitive environment.

Environmental Assessment Practitioner – the individual responsible for planning, management and coordination of environmental impact assessments, strategic environmental assessments, environmental management programmes or any other appropriate environmental instrument introduced through the EIA Regulations.

Environmental Impact – a change to the environment (biophysical, social and/ or economic), whether adverse or beneficial, wholly or partially, resulting from an organisations, activities, products or services.

Environmental Impact Assessment (EIA) – the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made.

Environmental Issue – a concern raised by a stakeholder, interested or affected parties about an existing or perceived environmental impact of an activity.

Environmental Management - ensuring that environmental concerns are included in all stages of development, so that development is sustainable and does not exceed the carrying capacity of the environment.

Environmental Management Programme - A detailed plan of action prepared to ensure that recommendations for enhancing or ensuring positive impacts and limiting or preventing negative environmental impacts are implemented during the life cycle of a project. The EMPr focuses on the construction phase, operation (maintenance) phase and decommissioning phase of the proposed project.

Expansion - means the modification, extension, alteration or upgrading of a facility, structure or infrastructure at which an activity takes place in such a manner that the capacity of the facility or the footprint of the activity is increased.

Fatal Flaw – issue or conflict (real or perceived) that could result in developments being rejected or stopped.

General Waste – household water, construction rubble, garden waste and certain dry industrial and commercial waste which does not pose an immediate threat to man or the environment.

Hazardous Waste – waste that may cause ill health or increase mortality in humans, flora and fauna.

Indirect impacts – indirect or induced changes that may occur as a result of the activity. These types if impacts include all of the potential impacts that do not manifest immediately when the activity is undertaken or which occur at a different place as a result of the activity.

Integrated Environmental Management – a philosophy that prescribes a code of practice for ensuring that environmental considerations are fully integrated into all stages of the development and decision-making process. The IEM philosophy (and principles) is interpreted as applying to the planning, assessment, implementation and management of any proposal (project, plan, programme or policy) or activity – at local, national and international level - that has a potentially significant effect on the environment. Implementation of this philosophy relies on the selection and application of appropriate tools for a particular proposal or activity. These may include environmental assessment tools (such as strategic environmental assessment and risk assessment), environmental management tools (such as monitoring, auditing and reporting) and decision-making tools (such as multi-criteria decision support systems or advisory councils).

Mitigate – the implementation of practical measures designed to avoid, reduce or remedy adverse impacts or enhance beneficial impacts of an action.

No-Go Option – in this instance the proposed activity would not take place, and the resulting environmental effects from taking no action are compared with the effects of permitting the proposed activity to go forward.

Open Space – environmentally sensitive areas which are not suitable for development and consist of watercourses, buffers, floodplains, steep slopes, sensitive biodiversity and/or areas of cultural or heritage significance.

Registered Interested and Affected Party – an interested and affected party whose name is recorded in the register opened for that application in terms of regulation 42.

Rehabilitation – a measure aimed at reinstating an ecosystem to its original function and state (or as close as possible to its original function and state) following activities that have disrupted those functions.

Scoping – the process of determining the spatial and temporal boundaries (i.e. extent) and key issues to be addresses in an environmental assessment. The main purpose of scoping is to focus the environmental assessment on a manageable number of important questions. Scoping should also ensure that only significant issues and reasonable alternatives are examined.

Sensitive environment – any environment identified as being sensitive to the impacts of the development.

Significance – significance can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. magnitude, intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of significance and acceptability). It is an anthropocentric concept, which makes use of value judgements and science-based criteria (i.e. biophysical, social and economic).

Stakeholder engagement – the process of engagement between stakeholders (the proponent, authorities and I&APs) during the planning, assessment, implementation and/or management of proposals or activities.

Sustainable Development – development which meets the needs of current generations without hindering future generations from meeting their own needs.

Watercourse – means:
a) a river or spring;
b) a natural channel or depression in which water flows regularly or intermittently;
c) a wetland, lake or dam into which, or from which, water flows; and
d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act No. 36 of 1998) and a reference to a watercourse includes, where relevant, its bed and banks.

Wetland – means 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.

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

(For official use only)

NEAS Reference Number:						
File Reference Number:	Gaut 002/16-17/E0325					
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.

N/A

Is a closure plan applicable for this application and has it been included in this report? N/A

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

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? Yes

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

If no, state reasons for not attaching the list.

N/A

Have State Departments including the competent authority commented? No

If no, why?

Comment is requested on the draft BAR.

SECTION A: ACTIVITY INFORMATION

1 PROPOSAL OR DEVELOPMENT DESCRIPTION

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

Eldorette Extension 53

Select the appropriate box

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

Does the activity also require any authorisation other than NEMA EIA authorisation?

YES	NO
X	

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

An application for a General Authorisation is to be submitted to the Department of Water and Sanitation (DWS), for a water use authorisation in terms of the General Notice 509, Government Gazette 40229, dated 26 August 2016, "General Authorisation in terms of Section 39 of the National Water Act, 1998 (Act No. 36 of 1998)".
The application will be completed in terms of the requirements of NWA and policies of DWS for a water use authorisation (Section 22 of the NWA), "to change the beds, banks or characteristics of a watercourse" (Section 21(i) of the NWA), as required in terms of Section 40 of the NWA.
The study area is affected by a 1:100 year flood line. Should storm water be discharged into the Boepens Spruit it will require a General Authorisation in terms of the National Water Act. In addition, any civil services to be developed in the flood line area will require authorization.

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

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:
National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).	National & Provincial	1998
National Environmental Management: Waste Act (Act 59 of 2008) (as amended)	National & Provincial	2008
National Environmental Management: Air Quality Act (Act 39 of 2004)	National & Provincial	2004
National Water Act, 1998 (Act No. 36 of 1998)	National & Provincial	1998
National Heritage Resources Act (Act No 25 of 1999)	National & Provincial	1999
National Environmental Management: Biodiversity Act (Act 10 of 2004)	National & Provincial	2004
National Road Traffic Act (Act No 93 of 1996)	National & Provincial	1996
Occupational Health and Safety Act (Act No. 85 of 1993)	National & Provincial	1993
Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) (as amended)	National & Provincial	1983
All relevant Provincial regulations and Municipal bylaws	Provincial & Local	

Description of compliance with the relevant legislation, policy or guideline:	
Legislation, policy of guideline	Description of compliance
GN R983/2014 Activity 19 The **infilling or depositing of any material of more than 5 cubic metres into**, or the dredging, **excavation, removal or moving of soil**, sand, shells, shell grit, pebbles or **rock of more than 5 cubic metres** from – **(i) a watercourse;** (ii) the seashore; or (iii) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever is the greater – but excluding where such infilling, depositing, dredging, excavation, removal or moving – (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; or falls within the ambit of activity 21 of this Notice, in which case that activity applies.	To make provision for the excavation or infilling of more than 5 cubic metres of soil from a watercourse if required. Infilling and / or **excavation within the 1:100 year flood lines** will have to be done to construct roads and civil services along the southern peripheral edge of the site.
GN R983/2014 Activity 27 The **clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation**, except where such clearance of indigenous vegetation is required for – (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	The construction of the proposed development will entail the clearance of more that 1 hectares of indigenous vegetation, but less than 20 hectares. The impacted study area is 5,1379 ha of which 3,3804 ha will be zoned as private open space and maintained as park area. As a result, approximately **1,7575 hectares of indigenous vegetation** will thus be cleared.
GN R985/2014 Activity 4 The **development of a road wider than 4 metres** with a reserve less than 13,5 metres. (c) **In Gauteng:** i. A protected area identified in terms of NEMPAA, excluding conservancies; ii. National Protected Area Expansion Strategy Focus Areas; iii. Gauteng Protected Area Expansion Priority Areas; iv. **Sites identified** as Critical Biodiversity Areas (CBAs) and **Ecological Support Areas (ESAs) in the Gauteng Conservation Plan** or in bioregional plans; v. Sites identified within threatened ecosystems listed in terms of the National Environmental Management Act: Biodiversity Act (Act No.10 of 2004); vi. Sensitive areas identified in an environmental management framework adopted by relevant environmental authority; vii. Sites identified as high potential agricultural land in terms of Gauteng Agricultural Potential Atlas; viii. Important Bird and Biodiversity Area (IBA); ix. Sites or areas identified in terms of an International Convention; x. Sites managed as protected areas by provincial authorities, or declared as nature reserves in terms of the Nature Conservation Ordinance (Ordinance 12 of 1983) or the National Environmental Management: Protected Areas Act (Act No. 57 of 2003); xi. Sites designated as nature reserves within municipal SDFs; or xii. Sites zoned for a conservation or public open space or equivalent zoning.	According to the Gauteng Conservation Plan (C-Plan) version 3.3, the study area is outside of Critical Biodiversity Areas (CBAs), but borders on an Ecological Support Area (ESA). The demarcated ESA is the small stream that flows south and east of the study area. Access to the development will be via an extension of Rose street from the existing First Avenue at the northern boundary of the site. This extension of Rose street will be in the form of a cul de sac with a turning circle and this **road will be 5.5 metres wide**.
GN R985/2014 Activity 14 The development of- (i) canals exceeding 10 square metres in size; (ii) **channels** exceeding 10 square metres in size; (iii) bridges exceeding 10 square metres in size; (iv) dams, where the dam, including infrastructure and water surface area, exceeds 10 square metres in size;	According to the Gauteng Conservation Plan (C-Plan) version 3.3, the study area borders on an Ecological Support Area (ESA). The demarcated ESA is the small stream that flows south and east of the study area. Excavation of **channels within the 1:100 year flood lines** will have to be done to construct civil services along the periphery of the site.

(v) weirs, where the weir, including infrastructure and water surface area, exceeds 10 square metres in size; (vi) bulk storm water outlet structures exceeding 10 square metres in size; (vii) marinas exceeding 10 square metres in size; (viii) jetties exceeding 10 square metres in size; (ix) slipways exceeding 10 square metres in size; (x) buildings exceeding 10 square metres in size; (xi) boardwalks exceeding 10 square metres in size; or (xii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs- a) within a watercourse; b) in front of a development setback; or c) if no development setback has been adopted**, within 32 metres of a watercourse**, measured from the edge of a watercourse; - excluding- the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; **(a) In Gauteng:** (i) A protected area identified in terms of NEMPAA, excluding conservancies; (ii) National Protected Area Expansion Strategy Focus Areas; (iii) Gauteng Protected Area Expansion Priority Areas; (iv) Sites identified as Critical biodiversity areas (CBAs) and **Ecological Support Areas (ESAs) in the Gauteng Conservation Pan** or in bioregional plans;- (v) Sites identified within threatened ecosystems listed in terms of the National Environmental Management Act; Biodiversity Act (Act No. 10 of 2004); (vi) Sensitive areas identified in an environmental management framework adopted by relevant environmental authority; (vii) Sites or areas identified in terms of an International Convention; (viii) Sites managed as protected areas by provincial authorities, or declared as nature reserves in terms of the Nature Conservation Ordinance (Ordinance 12 of 1983) or the National Environmental Management: Protected Areas act (Act No. 57 of 2003); (ix) Sites designated as nature reserves within municipal SDFs ; or (x) Sites zoned for conservation or public open space or equivalent zoning.	

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

Layout design alternatives were assessed and a preferred layout identified. No off-site or other site location alternatives have been investigated due to the fact that this property is part of a purchase agreement between the registered owner and developer, and located within an urban area. The limitations inherent in this scenario are understood. In addition, Activity Alternatives have been investigated and the preferred activity identified.

Provide a description of the alternatives considered

No.	**Alternative type**, either alternative: site on property, properties, activity, design, technology, energy, operational or other(provide details of "other")	**Description**
1	Proposal Layout Proposed	The sensitivity assessment takes a number of issues into consideration. These include the terrestrial and the aquatic ecology of the site and immediate surrounding area; the conservation status of the vegetation type in which the study site is situated, which in this case is endangered (EN); the presence of pristine veldtypes; the presence of red data fauna and flora species; and the presence of ideal habitats for priority species (which include, but are not limited to red data species), the presence of heritage resources etc. Most of the study site is assessed to be of medium sensitivity. This is because although there are no areas of pristine Marikana Thornveld on site and seemingly no presence of red data species either, the veldtype is endangered (EN). If, for example, the entire site was pristine the sensitivity might have been high. Most of the study site was historically cultivated. Therefore, there are still scars evident and results of this and no pristine thornveld present. This could have resulted in the site been of low sensitivity, but mainly for the facts that the veldtype is endangered and the lack of open veld in the urbanised area. A small section of the study area in the northwest corner has a sensitivity rating of Low. This is because there are existing buildings and formal gardens, with no to little indigenous vegetation or Marikana Thornveld. According to the Gauteng Conservation Plan (C-Plan) version 3.3, the study area is outside of any Critical Biodiversity Areas (CBAs), but borders on an Ecological Support Area (ESA). The demarcated ESA is the small, semi-perennial stream, the Boepenspruit that flows south and east of the study area. The Boepenspruit, a tributary of the Apies river, is just outside of the boundaries of the study area in the south, but flows just within the southeast corner. The small stream has been partially impounded (blocked) by hand-dug trenches and soil mounds along the northeast of the study area, immediately south of 1st Avenue. The area of the study site is flat to very flat and the 1:100 year flood plain of the small stream is fairly large and covers a large area within the south and east of the study area. These areas should ideally be viewed during project planning and development as 'No-Go' zones. The layout options were investigated in terms of the layout for the proposed establishment so as to accommodate the floodline area. The property is impacted by flood lines as indicated and endorsed by the relevant engineer on the Layout Plan. The floodline Assessment was conducted by SRK Consulting Civil Engineers. (Appendix G refers) The preferred (proposed) Layout was with consideration of the flood lines. Refer to App A2 for the Preferred Alternative. No development is to be situated within the 1:100 year floodline except for the civil services and a road on the southern peripheral edge of the site.
2	Layout Alternative 1	This layout Alternative 1 was without consideration of the floodlines and the sensitive area of the watercourse. As seen in the Layout Plan in App A3 a huge portion of the development is in the flood line areas.
3	Alternative 2	N/A
4	Alternative Property	This property is part of a purchase agreement between the registered owner and the applicant and it is not feasible to consider other sites in terms of location alternatives. Alternative locations are therefore currently not available and would involve the lease or purchase of land / other sites. The proposed development is compatible with the surrounding land uses and should blend in well with the predominant residential charter of the surrounding developments. Layout and design alternatives have been considered.
5	Alternative Activity - Agriculture	The agricultural potential of the study area in terms of crop production is medium. The agricultural potential in terms of cattle farming is 'low potential grazing land'. In summary, the study area as a single unit has medium/low agricultural potential. Agriculture could therefore not be considered as an alternative for this property. Cognisance should also be taken of the fact that several of the surrounding agricultural holdings are in the process of being developed. Examples hereof includes Eldorette Extension 51 situated on the

		opposite side of First Avenue, Eldorette Extension 34, Extension 42 and Extension 26 which is situated successively to the west of the subject property.
6	Alternative Activity –Residential Development with complementary non-residential land uses Proposal and Preferred	The proposed residential township with complementary non-residential land uses on the subject property will comprise of four (4) erven to be zoned “Residential 3”, “Educational” and “Private Open Space”. Although the emphasis is on housing, complementary land uses have been included in the township. People want easy access to job opportunities, shops, community facilities, etc. and want their living environment, such as residential townships to be placed at strategic positions with good access routes in close proximity to these amenities. Included in the proposed township are large pockets of green public open spaces to keep the “green lungs” in the development. The Educational facilities node on site is defined as “a focal point at which essential services can be obtained by people living in its vicinity”. Neighbourhoods are enriched by the integration of different social groups and income levels. Physical and functional integration include provision of essential services within walking distance to limit the need for motorized transport, integration of private and public spaces and of the built and green environment. Mixed use allows and encourages multiple activities, including living, working, trading, accessing services, appropriate structures and recreation in the same areas, as opposed to the old single-use zoning approaches. This is essential to support the informal economy and local economic development. Based on the above benefits to the community the proposed mixed-use development is regarded as the preferred land use alternative.
7	Alternative Activity – Residential Development	By providing a residential development only the benefits associated with a mixed-use development to the local community, and subsequent council area, cannot be realised, and hence, is not a preferred land use option.

No-Go Alternative

It is suggested that to maintain the status quo is not the best option for the macro environment. The do-nothing (“no go”) option would entail not using the site and maintaining the site as is. From certain perspectives this is not a viable option as the site is situated within an urban area surrounded by either upcoming or already existing residential communities. By not developing the site, the site will be anomalous in the context of the surrounding urban residential land-uses, and some of the direct and indirect socio-economic benefits (i.e. job creation, etc.) will not materialise.
The proposed development is situated in an established urban area where economic and social amenities are readily available such as; the Akasia Golf Club, the Akasia High School, Theresapark Primary School, the Hatfield Christian Church North, Heatherdale Cemetery, the Wonderpark Shopping Centre, the Akasia Netcare Hospital, the Akasia Town Hall and the Akasia Municipal Office.
The densification and compaction of the area by means of the proposed development will have the advantages of a more compact urban form that discourages dispersed urban sprawl; and the provision of a wider range of housing typologies in the area.
Further, the proposed development is compatible with the surrounding land uses due to the following factors:

- The proposed land use will be residential and should blend in well with the predominant residential charter of the surrounding developments; and
- The proposed residential development will also be subject to a density of 80 units per hectare (maximum of 105 dwelling units) with an overall height of 15m, 45% coverage and an FSR of 0.75.

From an environmental perspective, the site has a certain degree of ecological sensitivity due to the presence of the Boepenspruit that flows south and east of the study area. The stream is just outside of the boundaries of the study area in the south, but flows just within the southeast corner. The site is impacted by flood lines as indicated and endorsed by the relevant engineer.
However much of the ecological linkages between the site and surrounding natural areas have been lost due to the increase in development around the site. Not developing the site will assist in protecting the natural features on the site, however the development as proposed will maintain the floodline/ watercourse area as an undeveloped but importantly as an actively managed and controlled area. The floodline areas are proposed to be zoned as private open space (erf 4). This will entail 3,3804 ha and approximately 65% of the township.
The No-Go development alternative could therefore not be considered the responsible way to manage the site.

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

N/A

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)*		**1,7575 ha**
Alternatives:		
Alternative 1		**5,1379 ha**
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		**5,1379 ha**
Alternatives:		
Alternative 1		**5,1379 ha**
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 X	NO
If NO, what is the distance over which a new access road will be built		m
Describe the type of access road planned:		
A 16m street inside the development is planned. Rose street will be extended to the south with a cul de sac, and the intersection will be converted into a traffic circle. Refer to Traffic Impact Assessment in App G.		

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?	YES X	NO
If NO, what is the distance over which a new access road will be built		m
Describe the type of access road planned:		
Refer to above.		

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		Number of times

(only complete when applicable)

6. LAYOUT OR ROUTE 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

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

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	**0**	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		(complete only when appropriate for above)

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

1. PROPERTY DESCRIPTION

Property description: (Including Physical Address and Farm name, portion etc.)	Holding 45, Heatherdale AH, City of Tshwane, Gauteng Province

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.

Proposed Alternative:	**Latitude (S):**	**Longitude (E):**
Site excluding floodline areas	25°39'57.22"S	28° 7'32.06"
Alternative 1:	**Latitude (S):**	**Longitude (E):**
Total site inclusive of floodline areas	25°39'59.39”	28° 7'33.34

In the case of linear activities:

Alternative:	Latitude (S):	Longitude (E):
Starting point of the activity	°	°
Middle point of the activity	°	°
End point of the activity	°	°

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 21-digit Surveyor General code of each cadastral land parcel

PROPOSAL	**T**	**0**	**J**	**R**	**0**	**1**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**5**	**0**	**0**	**0**	**0**	**0**
ALT. 1	**T**	**0**	**J**	**R**	**0**	**1**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**5**	**0**	**0**	**0**	**0**	**0**
etc.																					

3. GRADIENT OF THE SITE

Indicate the general gradient of the site.

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

(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 X
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):	
°	°	

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

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

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 4)?	YES	NO X

Agricultural potential was established. Refer to Section A 3: Alternatives. Item 5 : Agriculture

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).

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

Natural veld - good condition % = 0	Natural veld with scattered aliens % = 99,94	Natural veld with heavy alien infestation % = 0	Veld dominated by alien species % = 0	Landscaped (vegetation) % = 0
Sport field % = 0	Cultivated land % = 0	Paved surface (hard landscaping) % = 0	Building or other structure % = 0,06	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 X
If YES, specify and explain:		

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 X
If YES, specify and explain:		

Are there any special or sensitive habitats or other natural features present on the site?	YES	NO X
If YES, specify and explain:		

Was a specialist consulted to assist with completing this section	YES X	NO
If yes complete specialist details		
Name of the specialist:	Johannes O. Maree	
Qualification(s) of the specialist:	MSc; MBA, Pr.Sci.Nat.	
Postal address:	PO Box 7222; Modimolle	
Postal code:	0510	

Telephone:	082 564 1211	Cell:	082 564 1211
E-mail:	Johannes@flori.co.za	Fax:	-
Are any further specialist studies recommended by the specialist?		YES	NO X
If YES, specify:			
If YES, is such a report(s) attached?		YES	NO
If YES list the specialist reports attached below			
Terrestrial Ecological and Aquatic Impact Assessments			
Signature of specialist:		Date:	27 March 2017

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 X	2. River, stream, wetland X	3. Nature conservation area	4. Public open space	5. Koppie or ridge
6. Dam or reservoir	7. Agriculture	8. Low density residential X	9. Medium to high density residential X	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 X
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 X	
Other land uses (describe): X	Public School			

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

	LOW DENSITY	LOW DENSITY	LOW DENSITY	LOW DENSITY	LOW DENSITY
	LOW DENSITY	LOW DENSITY	LOW DENSITY	VETERINARY CLINIC	OPEN VELD
WEST	LOW DENSITY	OPEN VELD		OPEN VELD	OPEN VELD
	OPEN VELD	OPEN VELD	OPEN VELD	OPEN VELD	SCHOOL & FIELDS
	LOW DENSITY	LOW DENSITY	LOW DENSITY	LOW DENSITY	SCHOOL

EAST

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 X
If yes indicate the type of reports 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.

Population Demographics

The following information was obtained from the Integrated Development Plan (IDP) for the City of Tshwane (CoT) for the period 2011 – 2016.

According to the Stats SA 2007 Community Survey, the population in CoT has since 2001 grown by 18.3%, whilst the CoT's Household Survey 2008 indicates a growth of 3.4% between 2007 and 2008. The number of households has also increased with approximately 22% since 2001. The population of Kungwini Local Municipality (KLM) has been growing at an estimated 4,5% per annum. According to the Demarcation Board's Capacity Assessment Report Nokeng Tsa Taemane Local Municipality (NLM) had a decrease in population of 7,8% in the past six years. After the incorporation of KLM and NLM the CoT will have a population of approximately 2,5 million. The city is characterised by a rapidly growing population (a projected annual growth of 4,1%). The situation is exacerbated by immigration, resulting in an increase of informal settlements and an estimated 26.8% of all households residing in informal housing. The population of the municipalities is scattered all over with the highest density of people to be found within the previously disadvantaged areas, such as Atteridgeville, Mamelodi, Olievenhoutbosch, Soshanguve, Garankuwa in CoT, Ekangala, Zithobeni and Rethabiseng in KLM and Refilwe, Onverwacht and Jakaranda Park in NLM.

Employment

The unemployment figures of each municipality are as follows:

Unemployment figures of municipalities

Municipality	Unemployment	Earn less than R1 600 pm	Households on Indigent Register
CoT	20%	18%	Households on Indigent Register
KLM	19%		1 587(± 4 309 households underreported)
NLM	12%	56%	870

In order to assist those households that are not able to pay for municipal services, all three municipalities adopted a social package policy, known as the Indigent Policy, which allows for citizens to register as indigents. According to the principles set out in the Indigent Policy the first 50 units of electricity and 6kl of water will be provided free of charge to all registered indigent consumers. CoT has subsequently provided the first 100 units of electricity and 12kl of water free to registered indigent consumers.

The approved City of Tshwane Land Use Management By-law, 2016 incorporates processes to limit any financial, social, economic or environmental impacts.

The proposed development is aimed at providing residents with the much-needed housing while contributing to the economic growth of the area. The area of which the subject property forms part

of is under transition as several applications for development are currently pending at the Municipality. Therefore, due to the fact that the proposed development is of the same nature as the majority of the proposed developments in the area, it will not cause any detrimental impact to the surroundings.

By allowing for the redevelopment and revitalisation of older urban developed areas in terms of the spatial planning initiatives of the City of Tshwane, the City initiates economic growth within the areas. Not only does property value increase, but local economic centres benefit from the addition to the local population. It is therefore evident that the proposed increase in density will without doubt add to the economic wellbeing of the area.

The Regional Spatial Development Framework - Region 1, 2013 demarcates the area under discussion into two (2) zones. The zones identified are as follows:

- A 'Mixed Use Zone' land uses such as offices/ commercial/ residential/ industrial/ retail/ entertainment/ institutional etc. are supported in principle; and
- A 'Linear Density Zone' where densities of up to 80 dwelling units per hectare are supported in principle.

The development of the proposed residential township can subsequently be viewed as in line with the development directives put forth by the RSDF.

Implications for development
The proposed development could supply in the need for housing and job opportunities in the area.

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 resources authority;
(d) the re-zoning of a site exceeding 10 000 m2 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 X
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:
A cultural heritage impact assessment (HIA) was conducted for the proposed township development. No sites of cultural heritage significance were located in the surveyed area. The survey of the indicated area was completed successfully. The following is recommended: • Since nothing of heritage importance was identified the proposed development may continue. • This report is seen as ample mitigation. • It should be noted that the subterranean presence of archaeological and/or historical sites, features or artifacts is always a distinct possibility. Due to the density of vegetation it also is possible that some sites may only become known later on. Operating controls and monitoring should therefore be aimed at the possible unearthing of such features. Care should therefore be taken when development commences that if any of these are discovered, a qualified archaeologist be called in to investigate the occurrence.

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

SECTION C: PUBLIC PARTICIPATION

1. PUBLIC PARTICIPATION PROCESS

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

2. 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 X	NO

If yes, has any comments been received from the local authority? Comment pending	YES	NO

If "YES", briefly describe the comment below (also attach any correspondence to and from the local authority to this application):
Comment was requested to the draft BA report

If "NO" briefly explain why no comments have been received or why the report was not submitted if that is the case.
Comment to be provided to the Draft BAR – this document

3. 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 X	NO

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):
Written comment was received in the notification phase from: • Department of Agriculture, Forestry and Fisheries, Directorate Land Use and Soil Management – confirms that the application has been captured in their electronic AgriLand tracking and management system. • Regional Land Claims Commissioner: Gauteng – confirms that no land claim is registered against the property • Lourens Hayes, adjacent landowner - registered as I&AP • Department of Agriculture, Forestry and Fisheries, Directorate Land Use and Soil Management commented that the property is an agricultural holding and and is not agricultural land. Therefore, registrations or transactions on this property will not require a letter from this dept.

If "NO" briefly explain why no comments have been received
N/a

4. 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.

Public Participation Activities Undertaken

Refer to table below for details of the public participation tasks that have been undertaken to date.

Activity	Description and Purpose
Pre-Application	
Preparation of a preliminary stakeholder database	A preliminary database has been compiled of authorities (local and provincial), Non-Governmental Organisations, neighbouring landowners and other key stakeholders *(refer to Appendix E9).* This database of registered I&APs will be maintained and updated during the ongoing BA process.
Preparation and Distribution of a Background Information Document (BID)	On 01-12-2016 BIDs were distributed via email to all I&APs on the database. See *Appendix E2.* The BID provides an introduction to the Project and the BA process.
Advertisement of the Project and Erection of Site Notices	The Project was advertised on 02-12-2016 in the provincial newspaper Beeld (English). See proof of Advertisement in *Appendix E3.* Site notices have been placed at the following locations on 30-11-2016: • At the northern border of the site on First Avenue See proof of Advertisement in *Appendix E1.*
Development of an Initial Comments and Response Report	All comments received during the initial consultation period were recorded in a Comments and Responses Report. See included in *Appendix E6.*
BA Phase	
Release of draft Basic Assessment Report for Public Comment	The draft BA Report was released for a 30-day public comment period: 11 April 2017 to 22 May 2017. Notifications were sent to all stakeholders on the database and included details of the public open day (see below). The report was submitted to all I&APs and electronic copies could be downloaded with a link from the Texture website.
Development of a Comments and Response Report	All comments received during the Notification consultation period were recorded into a Comment and Responses Report. See included in *Appendix E6.*
Public Open Day	The Public Open Day to be held on 12-05-2017. The Attendance Register will be included in *Appendix E5*. All comments received, along with

	responses to be included in the final BAR in *Appendix E6.*
Notification of Environmental Authorisation	I&APs will be notified of the Environmental Authorisation and the statutory appeal period.

5. 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:

Appendix 1 – Proof of site notice
Appendix 2 – Written notices issued as required in terms of the regulations
Appendix 3 – Proof of newspaper advertisements
Appendix 4 –Communications to and from interested and affected parties
Appendix 5 – Minutes of any public and/or stakeholder meetings
Appendix 6 - Comments and Responses Report
Appendix 7 –Comments from I&APs on Basic Assessment (BA) Report
Appendix 8 –Comments from I&APs on amendments to the BA Report
Appendix 9 – Copy of the register of I&APs

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 alterative 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 **0** times (complete only when appropriate)

Section D Alternative No. Proposal and Alternative1 (complete only when appropriate for above)

1. WASTE, EFFLUENT, AND EMISSION MANAGEMENT

Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	YES X	NO
If yes, what estimated quantity will be produced per month?	Not known at this stage m^3	
How will the construction solid waste be disposed of (describe)?		
• All measures regarding waste management shall be undertaken using an integrated waste management approach; • Sufficient, covered waste collection bins (scavenger and weatherproof) shall be provided; • A suitably positioned and clearly demarcated waste collection site shall be identified and provided; • The waste collection site shall be maintained in a clean and orderly fashion; • Waste shall be segregated into separate bins and clearly marked for each waste type; • Staff shall be trained in waste segregation; • Recycling of waste types shall be maximised; • Bins shall be emptied regularly; • General waste shall be disposed of at recognised and registered waste disposal sites/ recycling company; • Hazardous waste shall be disposed of at a registered waste disposal site; • Certificates of disposal for general, hazardous and recycled waste shall be maintained; • Under no circumstances shall any waste be disposed of, burned or buried on site.		

Where will the construction solid waste be disposed of (describe)?		
Waste generated during the construction activities will be collected by the trucks of the appointed contractor and disposed of at a City of Tshwane landfill facility. A refuse area will be accommodated on site and waste will be disposed of at the municipal dumping site as per the requirements of the Municipal Health Bylaws.		

Will the activity produce solid waste during its operational phase?	YES X	NO
If yes, what estimated quantity will be produced per month?	Not known at this stage m^3	

How will the solid waste be disposed of (describe)?	
The collection of solid waste should be carried out by the CoT. A refuse area will be accommodated on site and waste will be disposed of at the municipal dumping site as per the requirements of the Municipal Health Bylaws.	

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 pending	NO
Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?		
N/A		

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 X
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 X
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:
Waste Minimisation and Recycling Waste separation and recycling can generate jobs as well as removing recyclable resources from landfill. Individuals and recycling cooperatives can collect and separate wastes and sell recyclable materials. Buyback centres can be established in neighbourhoods, where recyclers can buy recyclable materials for reprocessing. Organic materials can also be separated and made into compost, adding nutrients to soil for agricultural production and greening.

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 X
If yes, what estimated quantity will be produced per month?		N/A m^3
If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the liquid effluent to be generated by this activity(ies)?	YES	NO

Will the activity produce any effluent that will be treated and/or disposed of on site?	Yes	NO X
If yes, what estimated quantity will be produced per month?		N/A m^3

If yes describe the nature of the effluent and how it will be disposed.
N/A
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 X
If yes, provide the particulars of the facility: N/A				
Facility name:				
Contact person:				
Postal address:				
Postal code:				
Telephone:		Cell:		
E-mail:		Fax:		

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

Liquid effluent (domestic sewage)

Will the activity produce domestic effluent that will be disposed of in a municipal sewage system?	YES X	NO
If yes, what estimated quantity will be produced per month?	2150.712 m³	
If yes, has the municipality confirmed that sufficient capacity exists for treating / disposing of the domestic effluent to be generated by this activity(ies)?	YES X	NO

Will the activity produce any effluent that will be treated and/or disposed of on site?	YES	NO X
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 X	NO
If yes, is it controlled by any legislation of any sphere of government?	YES	NO X
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:		

Dust and emissions during construction generated by debris handling and debris piles, truck transport, bulldozing, general construction.

- Dust must be suppressed on the construction site and during the transportation of material during dry periods by the regular application of water. Water used for this purpose must be used in quantities that will not result in the generation of run-off.
- Loads could be covered to avoid loss of material in transport, especially if material is transported off site.
- Dust and mud should be controlled at vehicle exit and entry points to prevent the dispersion of dust and mud beyond the site boundary.
- Facilities for the washing of vehicles should be provided at the entry and exit points.
- A speed limit of 40 km/hr should be set for all vehicles travelling over exposed areas.
- During the transfer of materials, drop heights should be minimised to control the dispersion of mater being transferred.
- The height of all stockpiles on site should be a maximum of 2m.
- Use of dust retardant road surfacing if made necessary due to the exceedance of Air Quality Guidelines.

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
X					

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:	N/A liters

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 X	NO
If yes, list the permits required		
An application for a General Authorisation is to be submitted to the Department of Water and Sanitation (DWS), for a water use authorisation in terms of the General Notice 509, Government Gazette 40229, dated 26 August 2016, “General Authorisation in terms of Section 39 of the National Water Act, 1998 (Act No. 36 of 1998)”.		

The application will be completed in terms of the requirements of NWA and policies of DWS for a water use authorisation (Section 22 of the NWA), "to change the beds, banks or characteristics of a watercourse" (Section 21(i) of the NWA), as required in terms of Section 40 of the NWA.		
If yes, have you applied for the water use permit(s)?	YES X	NO
If yes, have you received approval(s)? (attached in appropriate appendix) Application in process	YES	NO

3. POWER SUPPLY

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

An overhead MV network exist in First Avenue. An application is being lodged with City of Tshwane to upgrade the existing connection to a bulk connection in the range of 300kVA or 250kVA depending on standard available connection sizes.

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

4. ENERGY EFFICIENCY

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

Sustainable design and conventional design alternatives were investigated.
Built environment professionals, government officials and community members all have a vital role to play in making the shift toward building more sustainable settlements and neighbourhoods. (Information obtained from Sustainable Neighbourhood Design Manual published by the Sustainability Institute).

Sustainable design criteria should include:
- Thermally Efficient Design
- Sustainable building materials
- Renewable energy options
- Sustainable water and sanitation systems
- Waste minimisation and recycling

Thermally Efficient Design

Orientation and Placement of Windows
Windows allow solar energy to enter a building which is unwanted in summer and desirable in winter. In the southern hemisphere, houses should be orientated to face North. In general, windows facing the north should be larger (for heat gain during winter) but not too large (increased heat losses in winter and heat gains in summer) while windows facing south should be smaller (to prevent heat losses during winter).

The sun changes position in the sky during the year and by designing an appropriate overhang above the window, the summer sun will be blocked while the winter sun can enter. This is a very cost effective and sustainable way of regulating temperatures within a house or building. An overhang or awning can also be fitted to an existing window.

Appropriate Use of Thermal Mass

Thermal mass is the ability of a material to absorb heat energy. A great portion of heat energy is required to change the temperature of high density materials e.g. concrete, stone, brick and tiles. These materials are therefore considered to have high thermal mass. Lightweight materials such as timber have low thermal mass.

Through the correct application of thermal mass internal temperatures are moderated by averaging the day/ night extremes. This increases comfort and reduces energy costs. The ignorant use of thermal mass can exacerbate the worst extremes of the climate and can be a huge energy and comfort liability. To be effective, thermal mass must be integrated with sound passive design techniques. This means having appropriate areas of glazing facing appropriate directions with appropriate levels of shading, insulation and thermal mass.

The appropriate use of thermal mass can delay heat flow through the building envelope by as much as 10 to 12 hours producing a warmer house at night in winter and a cooler house during the day in summer. Building materials with high thermal mass include adobe brick, stone, brick, etc.

Sustainable Building Materials

According to the Western Cape Human Settlement Strategy, building construction and operation results in 50% of all CO^2 emissions worldwide (Department of Local Government and Housing. 2007). The average middle income house uses five to ten tons of cement in the building process, and for every ton of cement manufactured, a ton of CO^2 is released.

Thermally efficient, low carbon emission, structurally sound and inexpensive building materials exist that have been used for centuries in household design. Hemp has huge potential in the building market, as do adobe, sand bag construction, cob, thatch, brick, stone and recycled materials. Other 'low cement' options, including SABS approved compressed earth blocks (CEBs) using 6% soil stabilisers, are currently being investigated and proposed in sustainable neighbourhood designs.

Energy Efficiency Applications

Some of the most common, cost effective energy efficiency applications are listed below.

Ceilings

The benefits associated with ceiling installations include a reduction in expenditure on indoor heating, improved health as a result of improved air quality and more stable internal air temperatures (particularly in households which use paraffin, coal and other heating systems which damage respiratory health), increased productivity resulting from improved health and increased quality of life.

Heat loss through the roof is often greater than heat loss in other areas of the house, thus one of the most effective ways to insulate a house is to put in a ceiling. In cold climactic regions, or regions with cold winters, a ceiling can reduce space heating costs by up to 50 per cent. The Department of Housing's Draft Framework on Environmentally Efficient Housing has identified ceilings as an important intervention within the social housing frameworks.

Insulation

One of the best ways to make a house more efficient is to reduce the flow of heat into and out of the house. Ceiling and roof insulation serve to conserve heat in winter, and maintain cooler temperatures in summer. Climactic regions can make a difference in the level of insulation necessary for a comfortable living environment within a home.

Sky Lights

A skylight is a window placed in the roof of a building or in the ceiling of a room to admit light into the room. Designs include transparent roof plates, glass windows and plastic domes with a circular ducts connected to the room. Skylights should ideally be incorporated in the building design to keep the costs down, but can be retrofitted to existing buildings with significant contributions to increased light levels and accompanied energy savings.

Solar Blinds
When an existing building does not have an appropriate overhang, a solar blind can be fitted. These blinds block all the summer sun and let the majority of winter sun through. These fixed blinds let sunlight through and does not block the view since they are placed horizontally and are never closed or adjusted. They can be manufactured locally and are cost effective.

CFL Bulbs
The use of energy efficient lighting is one of the best and most cost effective ways of reducing energy consumption. Efficient lighting will reduce energy consumption and in particular peak demand, which will improve energy security, Eskom also recognizes that efficient lighting will play a major role in its demand side management (DSM) process.

Renewable energy applications

Solar Water Heaters
Lack of access to hot water can have negative safety and health impacts on low income households. SWHs can replace the use of "dirtier" fuels, such as paraffin, for water heating. Also, the time lost in heating water by using more 'traditional' fuels, such as wood, could be saved by using solar water heaters. Solar water heaters in the low income sector should become a stronger focus.

Sustainable water and sanitation systems
Water efficiency measures can include low flow fixtures in sinks and showers, dual flush systems in toilets, rain water harvesting and water recycling. Dry or urine diversion toilets can also reduce water consumption in households by approximately 40%. Urine diversion toilets also produce compost, which can be used in agricultural production. Grey water recycling in settlements can be inexpensive and can provide nutrients for agricultural production and greening. On-site sewage systems such as vertically integrated wetlands, membrane filtration systems, biolytix systems and biogas digestors can provide nutrients for agriculture, recycled water for toilet flushing and energy for household use.

Waste Minimisation and Recycling
Waste separation and recycling can generate jobs as well as removing recyclable resources from landfill. Individuals and recycling cooperatives can collect and separate wastes and sell recyclable materials. Buyback centres can be established in neighbourhoods, where recyclers can buy recyclable materials for reprocessing. Organic materials can also be separated and made into compost, adding nutrients to soil for agricultural production and greening.

In order to ensure a more sustainable development, sustainable design is regarded as the preferred alternative.

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

The following energy alternatives will be encouraged when the different housing units are built:

- Solar geysers
- Heat pumps
- Photovoltaic cells
- Gas stoves
- Gas push through geysers

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 AND AFFECTED PARTIES

Summarise the issues raised by interested and affected parties.

No real issues were raised at this stage of the project

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):

No real issues were raised at this stage of the project

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

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

The potential impacts of the proposed development were identified through a desktop study, a site visit, specialist studies and comments received during the public participation process. It is evident that the biggest impact of the project on the environment is expected to occur during the construction phase. It is expected that with the proposed mitigation of impacts and the implementation of the Environmental Management Plan, the expected negative impact could be mitigated to acceptable measures.

SIGNIFICANCE DESCRIPTION METHODOLOGY

The potential environmental impacts associated with the project will be evaluated according to its nature, extent, duration, intensity, probability and significance of the impacts, whereby:

- **Nature:** A brief written statement of the environmental aspect being impacted upon by a particular action or activity.
- **Extent:** The area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment phase of a project in terms of further defining the determined significance or intensity of an impact. For example, high at a local scale, but low at a regional scale;
- **Duration:** Indicates what the lifetime of the impact will be;
- **Intensity:** Describes whether an impact is destructive or benign;
- **Probability:** Describes the likelihood of an impact actually occurring; and
- **Cumulative:** In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

TABLE 1: CRITERIA TO BE USED FOR RATING OF IMPACTS

Criteria	Description			
Extent	**National (4)** The whole of South Africa	**Regional (3)** Provincial and parts of neighbouring provinces	**Local (2)** Within a radius of 2 km of the construction site	**Site (1)** Within the construction site
Duration	**Permanent (4)** Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient	**Long-term (3)** The impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter. The only class of impact which will be non-transitory	**Medium-term (2)** The impact will last for the period of the construction phase, where after it will be entirely negated	**Short-term (1)** The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase
Intensity	**Very High (4)** Natural, cultural and social functions and processes are altered to extent that they permanently cease	**High (3)** Natural, cultural and social functions and processes are altered to extent that they temporarily cease	**Moderate (2)** Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way	**Low (1)** Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected

Probability of occurrence	Definite (4)	Highly Probable (3)	Possible (2)	Improbable (1)
	Impact will certainly occur	Most likely that the impact will occur	The impact may occur	Likelihood of the impact materialising is very low

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

TABLE 2: CRITERIA FOR THE RATING OF CLASSIFIED IMPACTS

Low impact (4 - 6 points)	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.
Medium impact (7 - 9 points)	Mitigation is possible with additional design and construction inputs.
High impact (10 - 12 points)	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.
Very high impact (13 - 20 points)	Permanent and important impacts. The design of the site may be affected. Intensive remediation is needed during construction and/or operational phases. Any activity which results in a "very high impact" is likely to be a fatal flaw.
Status	Denotes the perceived effect of the impact on the affected area.
Positive (+)	Beneficial impact.
Negative (-)	Deleterious or adverse impact.
Neutral (/)	Impact is neither beneficial nor adverse.
It is important to note that the status of an impact is assigned based on the status quo – i.e. should the project not proceed. Therefore not all negative impacts are equally significant.	

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.

2.1 PLANNING AND DESIGN PHASE

ALTERNATIVE PROPOSAL				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
Impact on the Natural Habitat and watercourses <u>Layout</u> Insensitive layout can cause a negative impact on the natural habitat of not only the site itself, but also on the surrounding natural environment. The context of the development site within the macro area in terms of conservation areas also plays a major role when suitable areas for development are being considered. The development site (or parts thereof) could form part of important ecological corridors and such corridors could be destroyed if the functioning thereof is not being supported by the development proposal. <u>The development site</u> A Biodiversity Impact Assessment concluded that the Boepenspruit (Stream) is regarded as sensitive. The stream is just outside of the boundaries of the study	NEGATIVE MEDIUM	• Any temporary storage or accommodation facilities to be setup during construction to be within disturbed areas only. • No temporary facilities, temporary accommodation, temporary storage, or portable toilets to be setup within 50m of any watercourse. • Do not remove any indigenous trees from the floodline areas. • The 1:100 year flood lines had been determined. The 1:100 year flood lines areas must be avoided where possible and viewed as sensitive. • An application for a General Authorisation to be submitted for construction activities within the 1:100 year floodline. • Ensure a proper Stormwater Management Plan is compiled and implemented. • The development as proposed will maintain the floodline areas as an undeveloped but importantly as an actively managed and controlled area. The floodline areas are proposed to be zoned as private open space (erf 4). This will entail 3,3804 ha and approximately 65% of the township.	NEGATIVE LOW	LOW

area in the south, but flows just within the southeast corner. Thus from a conservation and ecosystem functioning point of view the watercourse are regarded as having high conservation value.				
Visual Impact (change of character and atmosphere of the area, change in land use) The visibility of the study area creates the opportunity to design a development that will enhance the "Sense of Place" of the study area and the surrounding area.	NEGATIVE MEDIUM	• The architectural styles and finishes must blend in tastefully with the surrounding environment. • Landscaping plays a crucial factor in reducing the visual impact of a development and proper planning is therefore required. The following guidelines should apply: • The general aim with landscaping should be to integrate it with the natural environment of the site and its surrounding area. Therefore, indigenous and generous landscaping, combined with the eradication of exotic vegetation, will conserve and enhance the natural character of the site and its surrounds. • The establishment of indigenous landscaped gardens and rehabilitation of the natural areas will contribute to the biodiversity of fauna in the area, which would add to the aesthetic experience of the site. More detail with regards to landscaping principles and recommendations are stipulated in the Environmental Management Plan.	NEGATIVE LOW	LOW
Light Pollution • Wrong placement, excessive brightness and careless light direction of especially security lights could cause sky glow, glare and light trespass. There is a general perception that 'more and brighter are better', and that it will provide for improved security. This perception can have a severe negative impact on the adjacent properties and surrounding area. • Drivers could be severely affected should lights within the development be too bright and incorrectly directed at roads. The glare of these lights might impair drivers' vision and cause dangerous driving conditions.	NEGATIVE MEDIUM	In order to minimise light pollution and light nuisance, the following design principles should be adhered to when the lighting plan is finalised: • All lighting should have a clear purpose - avoid use of lights simply to create a `presence' at night. Unnecessary, obtrusive light will not be allowed. • Mount lights below the roof height of buildings and perimeter fencing and direct light downwards, to where it is needed. Lights can also be positioned so that they are shielded by buildings and trees in order to reduce overall visibility. • Avoid lights mounted on the side of buildings which shine directly out, dazzling adjacent residents as well as road users. • Fittings must be shielded or hooded to minimise sky glow by controlling upward light spillage. • Lights that minimise light spill are widely available and should be the only type of lights that are used. • Outside lighting should be designed to minimise impacts on fauna, reducing intensity of lights for nocturnal species and avoiding attraction / disruption of arthropod populations. Avoid fluorescent and mercury vapour lighting and use sodium vapour (yellow) lights.	NEGATIVE LOW	LOW
INDIRECT IMPACTS				
No indirect impacts were identified during the planning and design phase.				

CUMULATIVE IMPACTS				
No cumulative impacts were identified during the planning and design phase.				

ALTERNATIVE 1				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
Impacts as described under Proposal above are applicable to Alternative 1 **except for the impact on the Natural Habitat and watercourses due to construction within the 1:100 year flood lines.**				
Impact on the Natural Habitat and watercourses <u>Layout</u> Insensitive layout can cause a negative impact on the natural habitat of not only the site itself, but also on the surrounding natural environment. The context of the development site within the macro area in terms of conservation areas also plays a major role when suitable areas for development are being considered. The development site (or parts thereof) could form part of important ecological corridors and such corridors could be destroyed if the functioning thereof is not being supported by the development proposal. <u>The development site</u> A Biodiversity Impact Assessment concluded that the Boepenspruit (Stream) is regarded as sensitive. The stream is just outside of the boundaries of the study area in the south, but flows just within the southeast corner. Thus from a conservation and ecosystem functioning point of view the watercourse are regarded as having high conservation value.	NEGATIVE HIGH	• Any temporary storage or accommodation facilities to be setup during construction to be within disturbed areas only. • No temporary facilities, temporary accommodation, temporary storage, or portable toilets to be setup within 50m of any watercourse. • Do not remove any indigenous trees from the floodline areas. • The 1:100 year flood lines had been determined. The 1:100 year flood lines areas must be avoided where possible and viewed as sensitive. • An application for a General Authorisation to be submitted for construction activities within the 1:100 year floodline. • Ensure a proper Stormwater Management Plan is compiled and implemented. • The development as proposed will maintain the floodline areas as an undeveloped but importantly as an actively managed and controlled area. The floodline areas are proposed to be zoned as private open space (erf 4). This will entail 3,3804 ha and approximately 65% of the township.	NEGATIVE HIGH	HIGH
INDIRECT IMPACTS				
No indirect impacts were identified during the planning and design phase.				
CUMULATIVE IMPACTS				
No cumulative impacts were identified during the planning and design phase.				

NO GO ALTERNATIVE				
DIRECT IMPACTS				

Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
No direct impacts were identified during the planning and design phase.				
INDIRECT IMPACTS				
No indirect impacts were identified during the planning and design phase.				
CUMULATIVE IMPACTS				
No cumulative impacts were identified during the planning and design phase.				

2.2 CONSTRUCTION PHASE

ALTERNATIVE PROPOSAL				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Impact on the vegetation This impact is associated with disturbance to and/or destruction of the flora component. During construction the activities could cause a negative impact where insensitive clearing for construction and access purposes, etc. is required. Insensitive clearing can cause the destruction of habitat. Not only does vegetation removal represent a loss of seed and organic matter, but it is also a loss of protection to plants and small animals. Insensitive vegetation clearance can also cause erosion. Pressure on the natural environment will occur as a result of an influx of labourers into the area that could involve the collection of firewood and medicinal plants, as well as uncontrolled veld fires.	NEGATIVE MEDIUM	Detail mitigation measures are stipulated in the EMP and include the following: • Any temporary storage or accommodation facilities to be setup during construction to be within existing disturbed areas only. • No temporary facilities or portable toilets to be setup within 50m of any watercourse. • Do not remove any indigenous trees from the floodline area. • Ensure a proper Stormwater Management Plan is compiled and implemented. • No fires whatsoever may be made for the burning of vegetation and waste. Fire fighting equipment must be readily available on site. • The exact clearing areas must be identified and demarcated. • Alien vegetation shall be managed and Category 1, 2 and 3 plants shall be controlled to the extent necessary to prevent or to contain the occurrence, establishment, growth, multiplication, propagation, regeneration and spreading of such plants.	NEGATIVE MEDIUM	LOW

<u>The development site</u> Most of the study site is assessed to be of medium sensitivity. This is because although there are no areas of pristine Marikana Thornveld on site and seemingly no presence of red data species either, the veldtype is endangered (EN). Most of the study site was historically cultivated.				
Impacts on fauna • Noise and vibration during construction • Loss of habitat <u>The Development site</u> No priority faunal species (which includes red data species) were encountered during field investigations	NEGATIVE MEDIUM	• Provide all equipment with standard silencers. • Maintain silencer units in vehicles and equipment in good working order • All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability. • All operations should meet the noise standard requirements of the Occupational Health and Safety Act (Act No. 85 of 1993). • No poaching of wildlife or selling of firewood will be allowed. • No animals or birds may be fed, disturbed, hunted or trapped.	NEGATIVE LOW	LOW
Impact on Water Sources During construction, the risk of pollution of surface and groundwater can generally be related to diesel, oil and concrete spills that may result in a change in water quality with the associated negative impact on humans and the natural habitat. Groundwater pollution during the construction phase is also associated with poor construction techniques. Diesel, oil and lubricant spills are the main concern in respect of water pollution during construction together with organic pollution caused by inadequately managed facilities at the work sites. <u>The development site</u> The Boepenspruit (watercourse) is regarded as having	NEGATIVE HIGH	Mitigation measures in the Environmental Management Plan include measures to ensure acceptable construction practices to minimise or avoid the risk of contamination of water sources. These include: Construction Site • No temporary facilities or portable toilets to be setup within 50m of any watercourse. • Do not develop within the floodline areas. • Do not remove any indigenous trees from the floodline areas. • Encourage the construction contractor to employ local people as far as is reasonably practical and encourage the contractor to transport them daily to and from site. This would reduce solid and liquid waste production and water demand at the site camp. • During and after construction, stormwater control measures should be implemented especially around stockpiled soil, excavated areas, trenches etc. so that export of soil into any watercourse is avoided. Diesel, hydraulic fluid and lubricants • Minimise on-site storage of petroleum products; • Ensure measures to contain spills readily available on site (spill kits). • All petrochemical leaks and spills must be appropriately contained and disposed of at a licensed waste disposal site. Construction Vehicles • All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability. No repairs may be undertaken beyond the contractor laydown area.	NEGATIVE MEDIUM	LOW

high conservation value. The stream is just outside of the boundaries of the study area in the south, but flows just within the southeast corner.		• Should any transfer of vehicle fuel take place on site, it is important to demarcate a specific area for this purpose. This area should be covered with an impermeable layer to prevent any penetration of fuel and oil spillage into the soil. The area could also be sloped towards an oil trap or sump to ease collection of spilled substances. • All construction vehicles should be serviced on a regular basis to minimise the risk of oil spillage on site. • Servicing of vehicles or equipment must take place off-site at appropriate workshop facilities. • When not in use, construction vehicles must be parked in an area provided with an impermeable layer to prevent leaks and spills from penetrating the substrate. Construction site domestic waste and sewage • Minimise on-site accommodation. • Deposit solid waste in containers and dispose at municipal waste disposal sites regularly. • Dispose of liquid waste (grey water) with sewerage. • Install appropriate ablution facilities. • Preferably utilise municipal systems or chemical toilets. Construction site inert waste (waste concrete, reinforcing rods, waste bags, wire, timber etc) • Ensure compliance with stringent daily clean up requirements on site. • Dispose at municipal waste disposal sites. Construction site hazardous waste • All hazardous substances must be stored on an impervious surface in a designated bunded area, able to contain 110% of the total volume of materials stored at any given time. • Material safety data sheets (MSDSs) are to be clearly displayed for all hazardous materials. • The integrity of the impervious surface and bunded area must be inspected regularly and any maintenance work conducted must be recorded in a maintenance report. • Employees should be provided with absorbent spill kits and disposal containers to handle spillages. • Train employees and contractors on the correct handling of spillages and precautionary measures that need to be implemented to minimise potential spillages. • Employees should record and report any spillages to the responsible person. • An Emergency Preparedness and Response Plan will be developed and implemented should and incident occur. • Access to storage areas on site must be restricted to authorised employees only. • Contractors will be held liable for any environmental damages caused by spillages.		
Geology	NEGATIVE MEDIUM	• The foundation recommendations supplied by the geotechnical engineer must be implemented.	NEGATIVE LOW	LOW

Stability of structures and excavations. <u>Development site</u> No seepage or perched water was encountered; however it is expected that perched water levels or seepage water may occur during years of normal or high rainfall.		• It is critical that site drainage and storm water be planned carefully to ensure efficient drainage. No storm water or surface runoff should accumulate or pond within 1.5m of the structures. Services and plumbing precautions must be put in place to ensure that underground services are not disrupted by the heaving action of expansive in situ soils. • The area below the 1:100 year flood line is not deemed suitable for the proposed development as is without extensive site modifications. • Excavations exceeding 1,5m should be adequately stabilized and or protected by means of retaining walls. • Embankments should be adequately compacted and protected from erosion. • Good site drainage should be ensured across the site. • Damp proofing precautions should be taken underneath all structures and provision will have to be made to prevent ingress of water beneath foundations. • The site investigated is considered suitable for the proposed development as indicated on the site development plan provided that the recommendations made in the Geotechnical report are implemented and/or adhered too.		
Topographical Impacts Alteration of topography due to stockpiling of soil, building material and debris and waste material on site.	NEGATIVE MEDIUM	• All stockpiles must be restricted to designated areas and are not to exceed a height of 2 metres. • Stockpiles created during the construction phase are not to remain during the operational phase. • The contractor must be limited to clearly defined access routes to ensure that sensitive and undisturbed areas are not disturbed.	NEGATIVE LOW	LOW
Impact of erosion Unnecessary clearing of vegetation can result in exposed soil prone to erosive conditions. Insufficient soil coverage after placing of topsoil especially during construction where large surface areas are applicable could also cause erosion. To cause the loss of soil by erosion is an offence under the law. <u>The development site</u> The site is dipping very gradually to the east, north east. An average gradient of less than 1% was calculated. For all practical purposes the site can be described as flat with no topographical extremes.	NEGATIVE MEDIUM	A combination of erosion prevention principles is discussed in detail in the EMPr. These include the use of mulch / fertiliser, matting, vegetation, retaining walls, topsoil coverage, diversion channels and berms, etc. Other factors which should be taken into account during the planning phase are the following: • Unnecessary clearing of flora resulting in exposed soil prone to erosive conditions should be avoided. • Land disturbance must be minimized in order to prevent erosion and run-off - this includes leaving exposed soils open for a prolonged period of time. As soon as vegetation is cleared (including alien) the area must be re-vegetated if it is not to be developed on in future. • Large exposed areas during the construction phases should be limited. Where possible areas earmarked for construction during later phases should remain covered with vegetation coverage until the actual construction phase. This will prevent unnecessary erosion and siltation in these areas. • The total area of exposed soil must be reduced during the rainy season. • Specifications for topsoil storage and replacement to ensure sufficient soil coverage as soon as possible after construction must be implemented.	NEGATIVE LOW	LOW

		• All embankments must be adequately compacted and planted with grass to stop any excessive soils erosion and scouring of the landscape. • Any inlet to the piped stormwater system shall be fitted with a screen, or grating to prevent debris and refuse from entering the stormwater system. This must be done immediately on installation of the piped system. • A storm water management plan must be compiled for the construction and operational phases of the proposed development. • Storm water diversion measures are recommended to control peak flows during thunder storms.		
Soils and Agricultural Impacts Removal and compaction of soil during construction activities. Erosion, degradation and loss of topsoil due to construction activities as well as surface and stormwater run-off. <u>The development site</u> The study area as a unit has medium/low agricultural potential.	NEGATIVE MEDIUM	• Strip topsoil prior to any construction activities. • Reuse topsoil to rehabilitate disturbed areas. • Topsoil must be kept separate from overburden and must not be used for building purposes or maintenance or access roads. • Minimise the clearance of vegetation to avoid exposure of soil. • Protect areas susceptible to erosion with mulch or a suitable alternative. • Implement the appropriate topsoil and stormwater runoff control management measures as per the EMPr to prevent the loss of topsoil. • Topsoil should only be exposed for minimal periods of time and adequately stockpiled to prevent the topsoil loss and run-off.	NEGATIVE LOW	LOW
Air Quality Impacts Dust and emissions during construction generated by debris handling and debris piles, truck transport, bulldozing, general construction.	NEGATIVE MEDIUM	• Dust must be suppressed on the construction site and during the transportation of material during dry periods by the regular application of water. Water used for this purpose must be used in quantities that will not result in the generation of run-off. • Loads could be covered to avoid loss of material in transport, especially if material is transported off site. • Dust and mud should be controlled at vehicle exit and entry points to prevent the dispersion of dust and mud beyond the site boundary. • Facilities for the washing of vehicles should be provided at the entry and exit points. • A speed limit of 40 km/hr should be set for all vehicles travelling over exposed areas. • During the transfer of materials, drop heights should be minimised to control the dispersion of mater being transferred. • The height of all stockpiles on site should be a maximum of 2m. • Use of dust retardant road surfacing if required due to the exceedance of Air Quality Guidelines.	NEGATIVE LOW	LOW
Impacts associated with construction activities such as noise, and safety The negative impact of noise, generally associated with	NEGATIVE MEDIUM	<u>Noise mitigation measures</u> • All construction activities should be undertaken according to daylight working hours between the hours of 07:00 – 17:00 on weekdays and 7:30 –13:00 on Saturdays. • No construction activities may be	NEGATIVE MEDIUM	LOW

construction activities, are temporary, occurring mostly during the construction phase. In terms of safety, it should be noted that the project involves deep excavations and open trenches. Excavations and open trenches can act as a trap for children (and also snakes, small mammals and lizards).		undertaken on Sunday. • Provide all equipment with standard silencers. • Maintain silencer units in vehicles and equipment in good working order. • All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability. • Construction staff working in area where the 8-hour ambient noise levels exceed 60 dBA must have the appropriate Personal Protective Equipment (PPE). • All operations should meet the noise standard requirements of the Occupational Health and Safety Act (Act No. 85 of 1993). <u>Safety mitigation measures</u> • The area affected by construction must be fenced prior to any activities taking place. • All excavated areas must be clearly marked and barrier tape must be placed around them for safety purposes. • A Fire Management Plan has to be identified during the pre-construction phase and must be implemented throughout the construction and operation phases of the development		
Traffic (construction vehicles) The construction phase is likely to generate additional traffic in terms of construction vehicles and heavy vehicles delivering materials to the site.	NEGATIVE MEDIUM	• The heavy construction vehicles should avoid the local roads during peak traffic times and large deliveries should also be scheduled outside the peak traffic times. • Signs should be erected in the vicinity of the site. • Construction vehicles are to avoid main roads during peak traffic hours. • All vehicles entering the Site are to be roadworthy. • When using heavy or large vehicles / equipment, “spotters” are to be present to assist the driver with his blind spots. • Any incident or damage to a vehicle must be reported immediately.	NEGATIVE MEDIUM	LOW
Traffic (road network) The proposed development would have a significant impact on the current road network when developed to its full potential	NEGATIVE HIGH	The impact of the development traffic can be mitigated by means of the following road intersection improvements: • Intersection First Avenue and Rose street: That Rose street be extended to the south with a cul de sac, and that the intersection be converted into a traffic circle. • First Avenue/ Oribi street/ Willem Cruywagen Lane intersection: It is proposed that the existing all-way stop intersection be converted into a traffic circle and that the service road be closed. • In addition, it is proposed that a 2m wide paved sidewalk be constructed along the frontage to facilitate ease of movement.	NEGATIVE MEDIUM	LOW
Impact of Labourers An uncontrolled influx of labourers with resulting increase in crime and squatting would place pressure on the natural environment (placement of snares, removal of trees for firewood, careless waste disposal, etc.). This	NEGATIVE MEDIUM	• Mitigation measures to counter impact on the natural environment and limit potential for crime during the construction phase should include specifications in terms of control of construction workers (i.e. provision of toilet and cooking facilities, provision of either accommodation facilities or transport facilities, implementation of Environmental Educational Programmes, etc.). • Accommodation for labourers must either be limited to guarding personnel on the construction site (with labourers transported to and from existing neighbouring towns) or a separate fenced	NEGATIVE LOW	LOW

could be severe, resulting in permanent damage to the environment if not mitigated properly.		and controlled area where proper accommodation and relevant facilities are provided. • Part of the adjudication process for the successful contractor to undertake the civil works must be the use of casual and unskilled labour to stimulate local job creation through the use of labour intensive methods where possible. • If possible all labour should be sourced locally. • Contractors and their families may not stay on site. • No informal settlements will be allowed		
Safety Public safety during construction.	NEGATIVE MEDIUM	• Members of the public adjacent to the construction site should be notified of construction activities in order to limit unnecessary disturbance or interference. • Construction activities will be undertaken during daylight hours and not on Sundays.	NEGATIVE LOW	LOW
Safety Construction staff safety during construction.	NEGATIVE MEDIUM	• Ensure the appointment of a Safety Officer to continuously monitor the safety conditions during construction. • All construction staff must have the appropriate PPE. • The construction staff handling chemicals or hazardous materials must be trained in the use of the substances and the environmental, health and safety consequences of incidents. • Report and record any environmental, health and safety incidents to the responsible person.	NEGATIVE MEDIUM	LOW
Impact on Cultural Heritage Resources No heritage resources were identified during the site visits. There is however always a probability that archaeological resources might be identified during excavations.	NEGATIVE LOW	• The construction teams should be inducted on the significance of archaeological resources that may be encountered during subsurface construction work before they work on the area in order to ensure appropriate treatment and course of action is afforded to any chance finds. • If archaeological materials are uncovered, work should cease immediately and the SAHRA be notified and activity should not resume until appropriate management provisions are in place. • If any evidence of archaeological sites or remains (eg, remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, marine shell and charcoal/ash concentrations), unmarked human burials, or other categories of heritage resources are found during the proposed activities, SAHRA APM Unit (Philip Hine, 021 462 4502) must be alerted immediately, and a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contacted as soon as possible to inspect the findings. If the newly discovered heritage resources prove to be of archaeological significance, a Phase 2 rescue operation might be necessary.	NEGATIVE LOW	LOW
Existing services and infrastructure Damage to the existing services and infrastructure during the construction phase and disruptions in	NEGATIVE LOW	• Determine areas where services will be upgraded and relocated well in advance; • Discuss possible disruptions with affected parties to determine most convenient times for service disruptions and warn affected parties well in advance of dates that service disruptions will take place	NEGATIVE LOW	LOW

services (i.e. electricity, water, damage to Telkom cables) during the construction phase.				
Waste Management <u>Builder's and domestic waste</u> The construction phase will create large quantities of builder's and domestic waste to be accommodated by local legal landfill sites.	NEGATIVE MEDIUM	• Prevent unhygienic usage on site and pollution of the natural assets. • Develop a central waste temporary holding site to be used during construction. (Near the access entrance). This site should comply with the following: • Skips for the containment and disposal of waste that could cause soil and water pollution, i.e. paint, lubricants, etc.; • Small lightweight waste items should be contained in skips with lids to prevent wind littering; • Bunded areas for containment and holding of dry building waste. • These areas shall be predetermined and located in areas that is already disturbed. • These areas shall not be in close proximity of any watercourse.	NEGATIV E LOW	LOW
<u>Sewage waste</u> Generation and disposal of sewage waste of temporary construction toilets.	NEGATIVE MEDIUM	• On-site chemical toilets will be provided for domestic purposes during construction phase. • The contractors will be responsible for the maintenance of the chemical toilets. • No temporary facilities or portable toilets to be setup within 50m of any watercourse. • No French drain systems may be installed. • Should any spills or incidents occur; the material will be cleaned up immediately and disposed off appropriately. • All incidents must be reported to the responsible site officer as soon as it occurs.	NEGATIVE LOW	LOW
Visual Impact Site clearing and removal of vegetation could partially alter the landscape as viewed from the surrounds of the site, with the emergence of exposed areas of bare soil.	NEGATIVE LOW	• Phased, rather than indiscriminate clearing of the site to be undertaken. • The architectural and landscape architectural guidelines for the proposed development will be developed to allow for a positive aesthetic influence on the surrounding environment. The guidelines will include aspects of finishes, lights pollution, colours to blend into the surrounding colours, heights of buildings, and roof finishes. Aesthetics and contextual appropriateness is to be a major aspect of these guidelines.	NEGATIVE LOW	LOW
Economic impacts Positive economic impacts are anticipated. The impact on employment would be positive, and although the impact is expected to be small; any contribution to more employment is an achievement in South Africa.	POSITIVE HIGH	Employment opportunities will be generated. • All labour (skilled and unskilled) and contractors should be sourced locally where possible. • A labour and recruitment policy must be developed, displayed and implemented by the contractor. • Recruitment at the construction site will not be allowed. • Where possible, labour intensive practices (as opposed to mechanised) should be practiced. • The principles of equality, BEE, gender equality and non-discrimination will be implemented.		
INDIRECT IMPACTS				

CUMULATIVE IMPACTS				
Visual Impact The development of the site would contribute to the cumulative effects of the gradual transformation of the area from an area with rural / part-natural landscape components to an area dominated by urban development. It should be noted that this cumulative visual change in the landscape is not necessarily negative as the site is located in an urban area, however this may be perceived as detracting from the aesthetics of the area in which rural / part natural components of the landscape are visible.		Refer to activity / phase specific mitigation measures above		

ALTERNATIVE 1				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Impacts as described under Proposal above are applicable to Alternative 1 **except for the impact on the Natural Habitat and watercourses due to construction within the 1:100 year flood lines.**				
Impact on the vegetation This impact is associated with disturbance to and/or destruction of the flora component. During construction the activities could cause a negative impact where insensitive clearing for construction and access purposes, etc. is required. Insensitive clearing can cause the destruction of habitat. Not only does vegetation removal represent a loss of seed and organic matter, but it is also a loss of protection to plants and small animals. Insensitive vegetation clearance can also cause erosion. Pressure on the natural environment will occur as a result of an influx of	NEGATIVE MEDIUM	Detail mitigation measures are stipulated in the EMP and include the following: • Any temporary storage or accommodation facilities to be setup during construction to be within existing disturbed areas only. • No temporary facilities or portable toilets to be setup within 50m of any watercourse. • Do not remove any indigenous trees from the floodline area. • Ensure a proper Stormwater Management Plan is compiled and implemented. • No fires whatsoever may be made for the burning of vegetation and waste. Fire fighting equipment must be readily available on site. • The exact clearing areas must be identified and demarcated. • Alien vegetation shall be managed and Category 1, 2 and 3 plants shall be controlled to the extent necessary to prevent or to contain the occurrence, establishment, growth, multiplication,	NEGATIVE MEDIUM	LOW

labourers into the area that could involve the collection of firewood and medicinal plants, as well as uncontrolled veld fires. The development site Most of the study site is assessed to be of medium sensitivity. This is because although there are no areas of pristine Marikana Thornveld on site and seemingly no presence of red data species either, the veldtype is endangered (EN). Most of the study site was historically cultivated.		propagation, regeneration and spreading of such plants.		
Impact on Water Sources During construction, the risk of pollution of surface and groundwater can generally be related to diesel, oil and concrete spills that may result in a change in water quality with the associated negative impact on humans and the natural habitat. Groundwater pollution during the construction phase is also associated with poor construction techniques. Diesel, oil and lubricant spills are the main concern in respect of water pollution during construction together with organic pollution caused by inadequately managed facilities at the work sites. The development site The Boepenspruit (watercourse) is regarded as having high conservation value. The stream is just outside of the boundaries of the study area in the south, but flows just within the southeast corner.	NEGATIVE HIGH	Mitigation measures in the Environmental Management Plan include measures to ensure acceptable construction practices to minimise or avoid the risk of contamination of water sources. These include: Construction Site • No temporary facilities or portable toilets to be setup within 50m of any watercourse. • Do not develop within the floodline areas. • Do not remove any indigenous trees from the floodline areas. • Encourage the construction contractor to employ local people as far as is reasonably practical and encourage the contractor to transport them daily to and from site. This would reduce solid and liquid waste production and water demand at the site camp. • During and after construction, stormwater control measures should be implemented especially around stockpiled soil, excavated areas, trenches etc. so that export of soil into any watercourse is avoided. Diesel, hydraulic fluid and lubricants • Minimise on-site storage of petroleum products; • Ensure measures to contain spills readily available on site (spill kits). • All petrochemical leaks and spills must be appropriately contained and disposed of at a licensed waste disposal site. Construction Vehicles • All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability. No repairs may be undertaken beyond the contractor laydown area. • Should any transfer of vehicle fuel take place on site, it is important to demarcate a specific area for this purpose. This area should be covered with an impermeable layer to prevent any penetration of fuel and oil spillage into the soil. The area could also be sloped towards an oil trap or sump to ease collection of spilled substances. • All construction vehicles should be serviced on a regular basis to minimise the risk of oil spillage on site.	NEGATIVE HIGH	HIGH

		• Servicing of vehicles or equipment must take place off-site at appropriate workshop facilities. • When not in use, construction vehicles must be parked in an area provided with an impermeable layer to prevent leaks and spills from penetrating the substrate. Construction site domestic waste and sewage • Minimise on-site accommodation. • Deposit solid waste in containers and dispose at municipal waste disposal sites regularly. • Dispose of liquid waste (grey water) with sewerage. • Install appropriate ablution facilities. • Preferably utilise municipal systems or chemical toilets. Construction site inert waste (waste concrete, reinforcing rods, waste bags, wire, timber etc) • Ensure compliance with stringent daily clean up requirements on site. • Dispose at municipal waste disposal sites. Construction site hazardous waste • All hazardous substances must be stored on an impervious surface in a designated bunded area, able to contain 110% of the total volume of materials stored at any given time. • Material safety data sheets (MSDSs) are to be clearly displayed for all hazardous materials. • The integrity of the impervious surface and bunded area must be inspected regularly and any maintenance work conducted must be recorded in a maintenance report. • Employees should be provided with absorbent spill kits and disposal containers to handle spillages. • Train employees and contractors on the correct handling of spillages and precautionary measures that need to be implemented to minimise potential spillages. • Employees should record and report any spillages to the responsible person. • An Emergency Preparedness and Response Plan will be developed and implemented should and incident occur. • Access to storage areas on site must be restricted to authorised employees only. Contractors will be held liable for any environmental damages caused by spillages.		
DIRECT IMPACTS				
No indirect impacts were identified during the construction phase.				

NO GO ALTERNATIVE				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented

All the impacts outlined above will not apply to the No-Go alternative as the status quo will apply and the environment will remain as it is currently. However, it is important to note that the benefits associated with the development will also not materialise, and it must be noted that the majority of the impacts identified for the development were mitigated to a negative low or positive impact once the measures for mitigation were applied, indicating that maintaining the status quo is to lose the opportunity of a beneficial development with negligible environmental impacts.				
DIRECT IMPACTS				
No indirect impacts were identified during the construction phase.				
CUMULATIVE IMPACTS				
No cumulative impacts were identified during the construction phase.				

2.3 OPERATIONAL PHASE

ALTERNATIVE PROPOSAL				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Impact on the natural habitat Due to the present degraded state of the development site, the removal of alien invasive plants coupled with indigenous landscaping as proposed will have a positive effect on the biodiversity of not only the site itself, but also its surrounds.	POSITIVE HIGH	Landscaping guidelines as stipulated in the EMPr must be followed during the operational phase of the project.		
Impact on water resources The proposed development could have a negative impact on water resources. Increased coverage of paved/hardened surfaces may increase the volume and velocity of stormwater runoff.	NEGATIVE HIGH	Stormwater Management are addressed in the Environmental Management Programme (EMPr). Development is only allowed outside the 1:100 year flood line area except for peripheral roads and civil services. A General Authorisation Application was submitted to apply for construction of the latter in the flood line area.	NEGATIVE MEDIUM	LOW
Hydrogeology Impacts Leaks of untreated water from pipelines may occur and impact on the groundwater quality.	NEGATIVE LOW	Any leaks should be fixed immediately and areas rehabilitated as needed.	NEGATIVE LOW	LOW

Traffic impact The proposed development could have a significant impact on the current road network when developed to its full potential.	NEGATIVE MEDIUM	The impact of the development traffic can be mitigated by means of the following road intersection improvements: • Intersection First Avenue and Rose street: That Rose street be extended to the south with a cul de sac, and that the intersection be converted into a traffic circle. • First Avenue/ Oribi street/ Willem Cruywagen Lane intersection: It is proposed that the existing all-way stop intersection be converted into a traffic circle and that the service road be closed. • In addition, it is proposed that a 2m wide paved sidewalk be constructed along the frontage to facilitate ease of movement.	NEGATIVE MEDIUM	LOW
Lighting pollution	NEGATIVE MEDIUM	• Security lighting must be carefully planned. These lights must not spill into the eyes of oncoming traffic and must not shine into adjacent properties; • Interior lighting must be subtle and in order to prevent it from lighting up the sky and from using energy, the implementation of movement switches (especially for large glassed interior areas that are highly visible) should be considered; • Exterior lighting, especially the lighting in the vicinity of the open space areas must be designed to shine downwards and the bulbs to be used should rather be “dim” that bright; • Prevent the implementation of exterior advertising signs and name boards that will flicker into the eyes of surrounding neighbours and into the eyes of oncoming traffic; • Obtain the necessary approvals for the erection of advertising and other signs.	NEGATIVE LOW	LOW
Socio-Economic Impact The impact on employment would be positive, and although the impact is expected to be small; any contribution to more employment is an achievement in South Africa. POSITIVE IMPACT	POSITIVE LOW			
Noise Impact Noise caused by place of childcare, movement of residents etc.	NEGATIVE LOW	• All operations should meet the noise standard requirements of the Occupational Health and Safety Act (Act No. 85 of 1993).	NEGATIVE LOW	LOW
Availability of civil services The availability of bulk water, sewer and electricity had been confirmed.	POSITIVE HIGH			

Energy Energy consumption	NEGATIVE HIGH	• It is recommended that renewable energy options and/or alternative energy sources be used. • Sustainable design principles must be implemented		
Waste Impact Contamination of the surface and site with general waste. General waste produced on site includes: • Operational waste (clean steel, wood, glass); and • General domestic waste (food, cardboards, paper, bottles, tins).	NEGATIVE MEDIUM	• An adequate number of general waste receptacles, including bins must be arranged around the site to collect all domestic refuse, and to minimise littering. • Bins must be provided on site for use by employees. • Bins should be clearly marked and lined for efficient control and safe disposal of waste. • Different waste bins, for different waste streams must be provided to ensure correct waste separation. • A fenced area must be allocated for waste sorting and disposal on the site. • Hazardous waste is not to be mixed or combined with general waste earmarked for disposal at the municipal landfill site. • Under no circumstances is waste to be burnt or buried on site. • Waste bins should be cleaned out on a regular basis to prevent any windblown waste and/or visual disturbance. • All general waste must be removed from the site at regular intervals and disposed of in suitable waste receptacle.	NEGATIVE LOW	LOW
INDIRECT IMPACTS				
CUMULATIVE IMPACTS				
Municipal Infrastructure The extra pressure that this development could place on the existing municipal infrastructure for waste and sewage disposal as well as water provisions could be significant when seen together with other developments within the greater municipal area.	NEGATIVE LOW	The availability of bulk water, sewer and electricity had been confirmed.		
Traffic The proposed development together with other developments in the region would have a significant impact on the current road network.	NEGATIVE MEDIUM	• Intersections which do not have sufficient spare capacity to accommodate the existing and future background traffic should be upgraded. • The upgrading of new roads and intersections as well as the intersections upgrades required to accommodate the anticipated development traffic impact should be conducted.		
Noise Noise pollution from vehicles, noise associated with human habitation as well as domestic animals, dogs etc.	NEGATIVE MEDIUM	• All operations should meet the noise standard requirements of the Occupational Health and Safety Act (Act No. 85 of 1993).		

ALTERNATIVE 1				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Impacts described under Alternative Proposal above are applicable to Alternative 1 **except for impacts on the natural habitat and water resources which are regarded as high due to contruction within the 1:100 year floodlines.**				
Impact on the natural habitat Due to the present degraded state of the development site, the removal of alien invasive plants coupled with indigenous landscaping as proposed will have a positive effect on the biodiversity of not only the site itself, but also its surrounds.	NEGATIVE HIGH	Landscaping guidelines as stipulated in the EMPr must be followed during the operational phase of the project.	NEGATIVE HIGH	HIGH
Impact on water resources The proposed development could have a negative impact on water resources. Increased coverage of paved/hardened surfaces may increase the volume and velocity of stormwater runoff.	NEGATIVE HIGH	Stormwater Management are addressed in the Environmental Management Programme (EMPr). Development is only allowed outside the 1:100 year flood line area except for peripheral roads and civil services. A General Authorisation Application was submitted to apply for construction of the latter in the flood line area.	NEGATIVE HIGH	HIGH
DIRECT IMPACTS				
Impacts described under Alternative Proposal above are applicable to Alternative 1.				
CUMULATIVE IMPACTS				
Impacts described under Alternative Proposal above are applicable to Alternative 1.				

NO GO ALTERNATIVE				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
All the impacts outlined above will not apply to the No-Go alternative as the status quo will apply and the environment will remain as it is currently. However, it is important to note that the benefits associated with the development will also not materialise, and it must be noted that the majority of the impacts identified for the development were mitigated to a negative low or positive impact once the measures for mitigation were applied, indicating that maintaining the				

status quo is to lose the opportunity of a beneficial development with negligible environmental impacts.				
DIRECT IMPACTS				
No indirect impacts were identified during the operational phase.				
CUMULATIVE IMPACTS				
No cumulative impacts were identified during the operational phase.				

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

Biodiversity Assessment - Terrestrial and Aquatic Ecology
Heritage Impact Assessment
Geotechnical investigation
Electrical Services
Engineering Services
Flood line Assessment
Traffic Impact Assessment

All of the above attached in Appendix G.

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

3. IMPACTS THAT MAY RESULT FROM THE DECOMISSIONING AND CLOSURE PHASE

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.

Due to the permanent nature of this development proposal, decommissioning is highly unlikely and decommissioning therefore does not form part of this project proposal.

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

N/A

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

N/A

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:

Refer to *2: Impacts that may result from the construction and operational phase* for detailed information on the cumulative impacts.

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.

PLANNING & DESIGN PHASE (PROPOSAL)

Impact Description	Intensity	Extent	Duration	Probability Probability it would occur	Significance rating After Mitigation
Impact on Natural Habitat and watercourses	1	2	2	1	Low

Visual Impact	1	2	2	1	Low
Light Pollution	1	2	2	1	Low

CONSTRUCTION PHASE (PROPOSAL)

Impact Description	Intensity	Extent	Duration	Probability Probability it would occur	Significance rating After Mitigation
Impact on Natural Habitat	2	2	2	3	Medium
Impact on Water Resources	2	2	3	2	Medium
Geology: Stability of structures, stability of excavations and perched water table	1	1	3	1	Low
Impact on Erosion	2	1	1	2	Low
Impact of Noise, Safety and Dust	1	2	1	2	Low
Traffic Impact	2	2	3	2	Medium
Impact of Labourers	1	2	1	2	Low
Impact on Cultural Heritage Resources	1	1	2	1	Low
Existing Services and Infrastructure	1	2	2	1	Low
Waste Management	1	1	1	2	Low
Economic Impacts This will be a POSITIVE impact	3	2	2	3	High

OPERATIONAL PHASE (PROPOSAL)

Impact Description	Intensity	Extent	Duration	Probability Probability it would occur	Significance rating After Mitigation
Impact on Natural Habitat This will be a POSITIVE impact	2	2	3	3	High
Impact on water resources	2	2	3	2	Medium
Traffic impact	2	2	3	2	Medium
Lighting pollution	1	1	3	1	Low
Noise impacts	1	1	3	1	Low
Availability of services	2	2	3	3	High
Energy Consumption	1	3	3	2	Medium
Waste impact	1	1	3	1	Low
Socio-Economic Impacts	1	2	3	1	Medium

PLANNING & DESIGN PHASE (ALTERNATIVE 1)

Impact Description	Intensity	Extent	Duration	Probability Probability it would occur	Significance rating After Mitigation
Impact on Natural Habitat and watercourses	2	2	3	3	**HIGH**
Visual Impact	1	2	2	1	Low
Light Pollution	1	2	2	1	Low

CONSTRUCTION PHASE (ALTERNATIVE 1)

Impact Description	Intensity	Extent	Duration	Probability Probability it would occur	Significance rating After Mitigation
Impact on Natural Habitat	2	2	3	3	**HIGH**
Impact on Water Resources	2	2	3	3	**HIGH**
Geology: Stability of structures, stability of excavations and perched water table	1	1	3	1	Low
Impact on Erosion	2	1	1	2	Low
Impact of Noise, Safety and Dust	1	2	1	2	Low
Traffic Impact	2	2	3	2	Medium
Impact of Labourers	1	2	1	2	Low
Impact on Cultural Heritage Resources	1	1	2	1	Low
Existing Services and Infrastructure	1	2	2	1	Low
Waste Management	1	1	1	2	Low
Economic Impacts This will be a POSITIVE impact	3	2	2	3	High

OPERATIONAL PHASE (ALTERNATIVE 1)

Impact Description	Intensity	Extent	Duration	Probability Probability it would occur	Significance rating After Mitigation
Impact on Natural Habitat	2	2	3	3	**HIGH**
Impact on water resources	2	2	3	3	**HIGH**
Traffic impact	2	2	3	2	Medium
Lighting pollution	1	1	3	1	Low
Noise impacts	1	1	3	1	Low
Availability of services	2	2	3	3	High
Energy Consumption	1	3	3	2	Medium
Waste impact	1	1	3	1	Low
Socio-Economic Impacts	1	2	3	1	Medium

NO-GO (Compulsory)
All the impacts outlined above will not apply to the No-Go alternative as the status quo will apply and the environment will remain as it is currently. However, it is important to note that the benefits associated with the development will also not materialise, and it must be noted that the majority of the impacts identified for the development were mitigated to a negative low or positive impact once the measures for mitigation were applied, indicating that maintaining the status quo is to lose the opportunity of a beneficial development with negligible environmental impacts.

6 IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE

For proposal:

This alternative was in consideration of the flood line areas. It is the preferred alternative from an environmental perspective as the majority of the development falls within transformed degraded vegetation outside the 1:100 year flood line areas and will result in insignificant environmental impacts. Only the peripheral roads and civil services fall within the 1:100 year flood line areas.

The impact rating of the identified environmental aspects revealed that the majority of the negative environmental impacts will be experienced during the construction phase. The majority of these impacts will have a LOW significance. It is envisaged that these impacts can be easily mitigated and satisfactorily

managed. The management of the impacts identified in the BAR for the construction and operational phases, are outlined in the technical specialist reports recommendations and the EMPr.

For alternative:

This option is the least preferred. The layout was without consideration of the flood lines and the sensitive area of the watercourse. A huge portion of the development is within the 1:100 year flood line areas resulting in significant environmental impacts.

The impact rating of the identified environmental aspects revealed that the majority of the negative environmental impacts will be experienced during the construction phase. The majority of these impacts will have a LOW significance except for the HIGH significance impact on water resources and natural habitat due to construction within the 1:100 year floodlines.

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.

The development proposal is small in scale, and is located within an area which supports the utilisation of the mostly vacant property by formalizing acceptable land use in accordance with the development framework for the area, and the geotechnical restrictions of the site.

The majority of the negative environmental impacts will be experienced during the construction phase. The majority of these impacts will have a LOW significance. It is envisaged that these impacts can be easily mitigated and satisfactorily managed. The management of the impacts identified in the BAR for the construction and operational phases, are outlined in the technical specialist report recommendations and the EMPr.

It is the opinion of Texture Environmental Consultants that there are presently no environmental impacts emanating from the proposed activity that cannot be adequately managed. The management of the negative impacts will require the implementation of the necessary mitigatory measures detailed in the Environmental Management Programme (EMPr, refer to Appendix H) of this report.

Based on the assumption that the mitigation measures will be effectively implemented for the proposed Eldorette X 53 township and its associated infrastructure and that no fatal flaws have been identified to date, it is the opinion of the EAP that this activity should be authorized to proceed to the final stages of decision making.

7. SPATIAL DEVELOPMENT TOOLS

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

Spatial development tools used included ArcGIS v.10.2; Google Earth Professional; SANBI's BGIS MapViewer (www.bgis.sanbi.org) and Garmin Maps.

These tools, along with relevant datasets such as vegetation types, rivers, GDARD's C-Plan datasets, etc. were used in the desktop assessment as well as the final biodiversity specialist reports. ArcGIS as well as Google Earth Professional were used to produce the detailed maps used in the reports.
The outcome is that these spatial development tools give accurate layouts and positions of important data such as Critical Biodiversity Areas. The tools are also used to create accurate and visual maps showing floodlines, watercourses, sensitive areas, etc.

Gauteng Environmental Management Zones, GEMF 2015
In terms of Regulation 5(4) of the Environmental Management Framework Regulations, 2010, published under Government Notice R547 in Gazette 33306 on 18 June 2010, The Gauteng Provincial Environmental Management Framework in the Gauteng Province. The study area is located within EMZ 1: Urban development zone

The objective of the EMF is to project Critical Biodiversity Areas (CBAs) and properly integrate Ecological Support Areas (ESAs) as defined in the C-Plan, within urban and rural areas.

The study area was assessed in terms of the EMF, with focus on biodiversity, current land use, hydrology and other environmental factors. An environmental sensitivity assessment was conducted and sensitivity

delineations done in terms of Conservation status, Conservation priorities, Ridges, Surface hydrological features and current land use.

Intention
The intention with this zone is to streamline urban development activities in it and to promote development infill, densification and concentration of urban development, in order to establish a more effective and efficient city region that will minimise urban sprawl into rural areas.

Conditions
- Development in this area must be sustainable in respect to the capacity of the environment and specifically the hydrological system to absorb additional sewage and stormwater loads as a result of increased densities;
- Existing open spaces and urban parks should be retained as open space to cater for the open space needs of the foreseen increased densities; and
- Stormwater drainage must be in accordance with the Water Research Commission Report, 2012 and the South African Guidelines for Sustainable Drainage Systems.

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 X	NO

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

N/A

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:

9. THE NEEDS AND DESIRABILITY OF THE PROPOSED DEVELOPMENT

(as per notice 792 of 2012, or the updated version of this guideline)

Residential developments at an increase density have become a growing trend in South African cities. This is attributed to the notion that a compact urban form will provide more efficient and environmentally sustainable living and working environments in the long-run. In contrast, sprawling cities threatens the sustainability of the city through loss of valuable agricultural land while segregating living and working environments further. Densification in the South African perspective is also aimed at addressing problems experienced with already fragmented cities whilst catering for the growth of our population. The demand and need for higher density developments, instead of conventional single dwelling houses on large erven, can further be substantiated by the benefits that comes with densification such as the optimal use of resources (i.e. land and existing infrastructure) and lower maintenance cost and increased security for the end-user.

Current densification policies, at national, provincial and local levels, also encourage the densification of existing urban areas through the development of under-utilised vacant land within urban areas (infill development) and optimization of existing infrastructure (engineering services, roads, etc.). Densification in or close to established areas where economic and social amenities are readily available also contributes to the reduction of the ecological footprint due to shortened travel distances. The desirability of the development at this location can further be validated by the content of the local policies and guidelines which earmarked the area under discussion for densification.

The number of approved township near the subject property such as Eldorette Extension 51 situated on the opposite side of First Avenue, Eldorette Extension 34, Extension 42 and Extension 26 situated successively to the west of the subject property is also testimonial to the development trend in this area. Based on the identified changing nature of the surrounding area viz. conversion of agriculture holdings to higher density residential developments, the proposed residential development is expected to complement and enhance the emerging character of the area. The proposed development consisting of a maximum of 105 dwelling units also strives to provide a

variety of housing typologies to end-users by incorporating both one and two bedroom units. The proposed typology mixture will also aid in affording the wider population an opportunity to secure tenure close to existing economic opportunities and social amenities.

Having taken all the relevant factors into account, it is the applicant's submission that the proposed development is desirable in terms of the following:

1. The location of both the R80 Mabopane Highway (PWV 9) and the Platinum Highway (PWV 2) in proximity to the subject property ensure that the development will be well connected and easily accessible on a regional and local level.
2. The proposed development is situated in an established urban area where municipal engineering services and infrastructure are readily available as reflected in the specialist studies. Any upgrades required to the services infrastructure will be for the account of the developer. Bulk contributions will also be payable to the Municipality for purposes of the improvement and maintenance of the infrastructure network.
3. The proposed development is situated in an established urban area where economic and social amenities are readily available such as; the Akasia Golf Club, the Akasia High School, Theresapark Primary School, the Hatfield Christian Church North, Heatherdale Cemetery, the Wonderpark Shopping Centre, the Akasia Netcare Hospital, the Akasia Town Hall and the Akasia Municipal Office.
4. The densification and compaction of the area by means of the proposed development will have the following advantages:
    - A more compact urban form that discourages dispersed urban sprawl; and
    - The provision of a wider range of housing typologies in the area.
5. The proposed development is compatible with the surrounding land uses due to the following factors:
    - The proposed land use will be residential and should blend in well with the predominant residential charter of the surrounding developments; and
    - The proposed residential development will also be subject to a density of 80 units per hectare (maximum of 105 dwelling units) with an overall height of 15m, 45% coverage and an FSR of 0.75.

In view of the above it is the applicant's opinion that the proposed Township Establishment is desirable and will not have a detrimental impact on the surrounding properties or the environment.

10. THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

(consider when the activity is expected to be concluded)

5 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 X

SECTION F: APPENDIXES