



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:						
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.

An extension of timeframe was requested and granted by GDARD. The granted request can be viewed in Annexure I.

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

Not Applicable

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

The application for environmental authorization is for the establishment of a new development. At this stage it is not foreseen that the proposed activity will be decommissioned. However please refer to the mitigation measures proposed in the EMPr and Ecological Assessment pertaining to rehabilitation of disturbed areas.

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

A list of state departments can be found in Appendix E9

If no, state reasons for not attaching the list.

Have State Departments including the competent authority commented?

No

If no, why?

The Draft Basic Assessment report has been submitted to State Departments and comments and responses will be added to the Final BAR.

SECTION A: ACTIVITY INFORMATION

1. PROPOSAL OR DEVELOPMENT DESCRIPTION

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

Montana Elderly Care Centre on Holding 19 Montana Agricultural Holdings

The proposed Montana Elderly Care Centre is situated on Holding 19 of the Montana Agricultural Holdings. Please refer to Figure 1: Locality Map and Figure 2: Aerial Map.

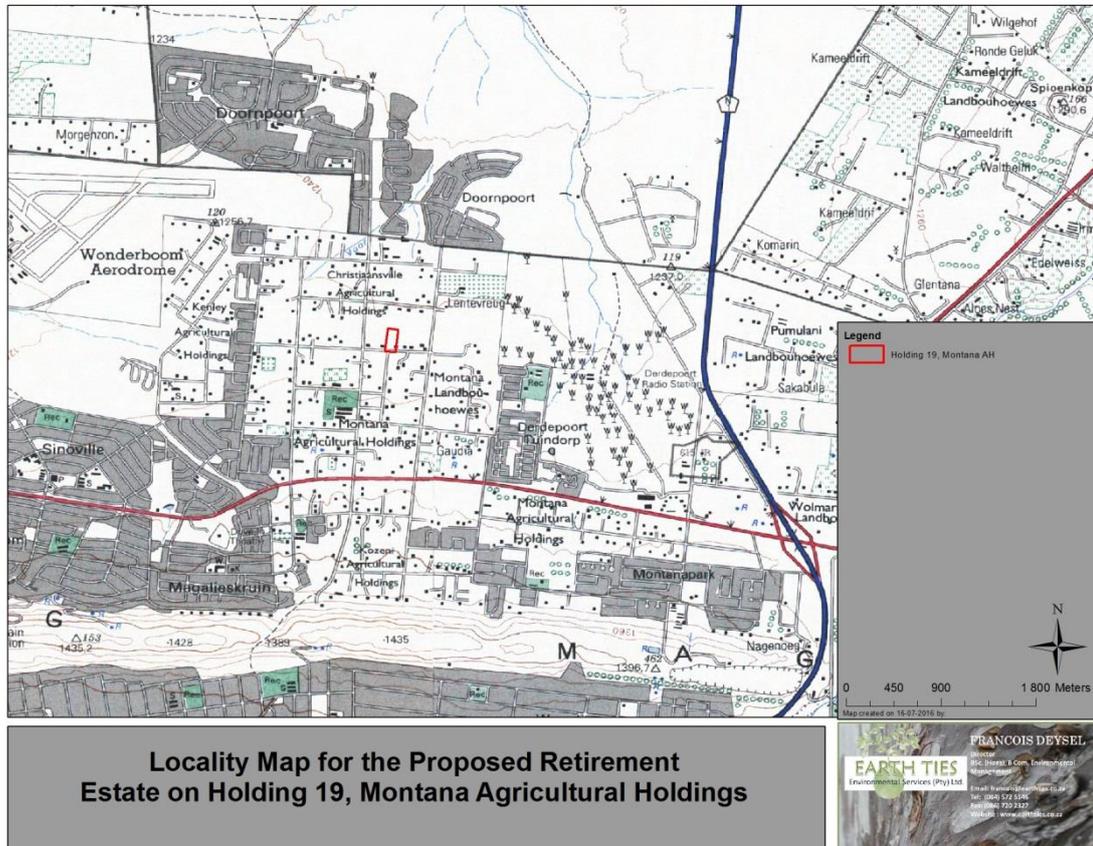


Figure 1: Locality Map

The Application is made for a zoning of "Special" for a Retirement Centre at 83 Units per hectare.

Current planning allows for 160 retirement units, with 1 unit of the retirement centre to be used as frail care facilities and 1 unit to be used as step down facilities with 20 beds each.

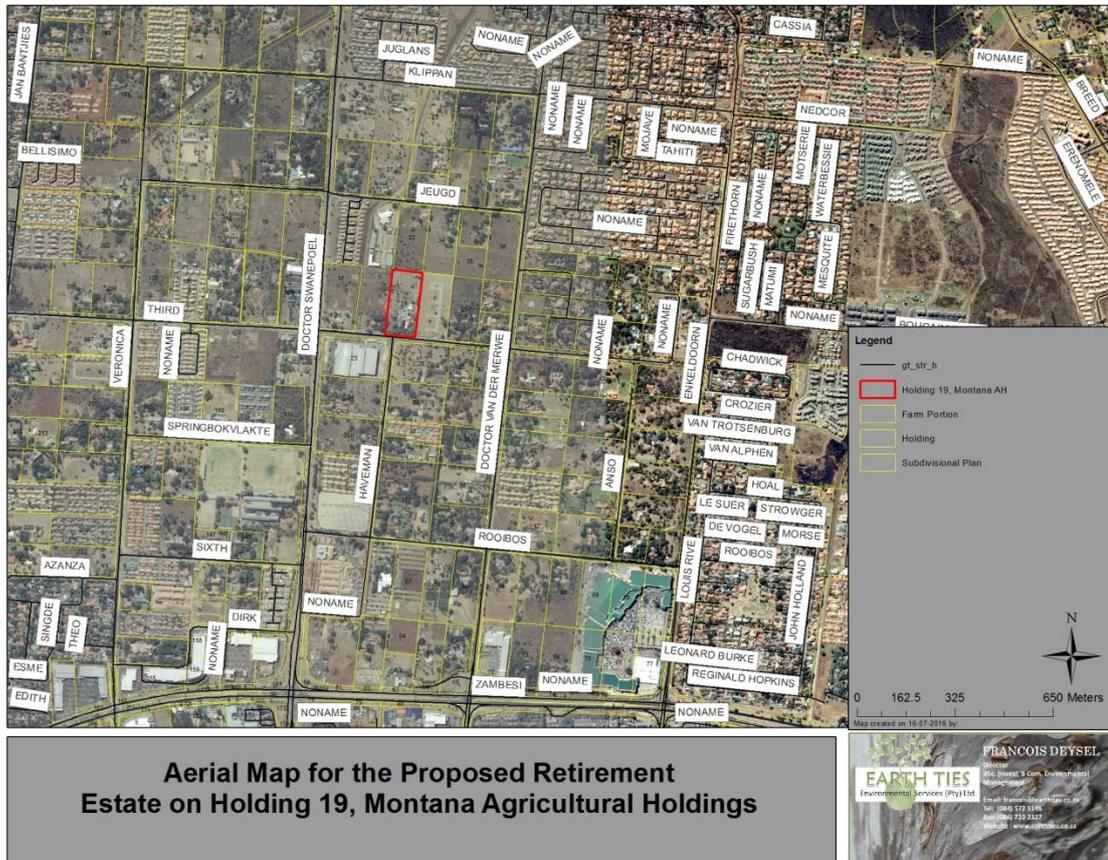


Figure 2: Aerial Map

Activities Applied for in terms of NEMA:

In terms of Regulation No. R982 published in the Government Notice No. 38282 of 04 December 2014 of the National Environment Management Act (Act No. 107 of 1998) a specific list of activities was identified which could have a detrimental impact on the receiving environment. These listed activities require Environmental Authorization from the Competent Authority, i.e. the Gauteng Department of Agricultural and Rural Development (GDARD).

The application will be submitted for the following activities in terms of the Government Listing Notice 1 (R983), 04 December 2014:

EIA Regulations December 2014	Activity	Description
Listing Notice 1: GN 983	24	The development of- (i) a road for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or (ii) a road with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres; but excluding- (a) roads which are identified and included in activity 27 in Listing Notice 2 of 2014; or (b) roads where the entire road falls within an urban area.
	27	The clearance of an area of 1 hectares 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.

	28	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or afforestation on or after 01 April 1998 and where such development: (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.
Listing Notice 3: GN 985	4	The development of a road wider than 4 metres with a reserve less than 13, 5 metres. (c) In Gauteng: (v) Sites identified within threatened ecosystems listed in terms of the National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004);
	12	The clearance of an area of 300 square metres or more of Indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. (a) In Eastern Cape, Free State, Gauteng , Limpopo, North West and Western Cape provinces: (i) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the endangered in the purposes undertaken in National Spatial Biodiversity Assessment 2004;

Select the appropriate box

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

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

YES NO

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

A rezoning application will be submitted by Etienne Du Randt Property Consultancy CC in terms of the City of Tshwane Land Use Management By-law, 2016. Please see Appendix G2 - Proof of name reservation

If yes, have you applied for the authorisation(s)?
If yes, have you received approval(s)? (attach in appropriate appendix)

YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>

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	27 November 1998
the City of Tshwane Land Use Management By-law, 2016	Metropolitan Municipality	02 March 2016

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

Legislation, policy of guideline	Description of compliance
National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended), 2014 EIA Regulations (R983, R984 and R985)	In terms of the National Environmental Management Act, (Act 107 of 1998) and the new 2014 EIA Regulations, an Environmental Impact Assessment is a requirement which must be completed for any listed activities stipulated in one of the four listing notices (R983, R984 and R985) specified in the 2014 EIA regulations. The proposed activity requires environmental authorisation as it triggers specific activities under the Environmental Impact Assessment Regulations of 2014 and requires authorization from the Gauteng Department of Agriculture and Rural Development (GDARD). This Basic Assessment Report is completed in support of the Environmental Authorization for the proposed activities.

National Heritage Resource Act, 1999 (Act No. 25 of 1999)	A Heritage Impact Assessment was conducted as part of the Environmental Assessment process, which indicated that no heritage resources of significance were identified on site.
National Environmental Management: Biodiversity Act, 2004 (NEM:BA) (Act No. 10 of 2004)	An Ecological Assessment was conducted as part of the Environmental Assessment process, which indicated that no critically endangered or endangered fauna and flora species were identified on site.
National Water Act, 1998 (NWA) (Act No. 36 of 1998)	Construction activities will take place within the identified riparian vegetation in the form of the storm water attenuation dams, as well as upgrade of the existing internal road crossing the drainage line. The Department of Water Affairs and Sanitation will be consulted in this regard in order to get their comments with regards to the applicability of a water use license.
Gauteng Provincial Environmental Management Framework (2014)	The Gauteng Provincial EMF was reviewed in order to identify potential environmental control zones and areas with environmental constraints within the project area. Although the proposed site is earmarked as an Ecological Support Area, the ecological assessment conducted pointed out that the drainage line and wetland on site shows signs of degradation and as such only have a moderate sensitivity. Although most of the wetland and drainage line is excluded from the proposed development, specific mitigation measures included in the EMFR must be adhered to in order to mitigate impacts in these areas.
Gauteng Noise Control Regulations, 1999	During the construction phase of the proposed development, the impact of noise could be problematic, but such impacts are generally short term. One should note that practical mitigation measures for noise pollution are low, but certain measures can be implemented to mitigate the severity.

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

Various alternatives were considered during the pre-feasibility phase, however due to eliminating factors only a layout alternative was evaluated in more detail. The objective was to find the design solution that is optimal in terms of economic benefit, while being the most environmentally sustainable and ecologically responsive layout of activities on the proposed site. The alternatives considered during the pre-feasibility phase included the following:

- **Site alternative** - the proposed site was identified for the mentioned development, due to the site's location within an area earmarked for development and expansion. Existing services within the surrounding area, as well as good local and regional accessibility also contributed to the developer's decision to opt for the proposed site. Subsequently no additional location alternatives were considered as the proposed activities will complement the surrounding land uses and the fact that the applicant has access to this site only.
- **Activity Alternative** – during the planning phase different activity alternatives were considered to optimally use the selected site.
- **Services alternative** – services alternatives were considered, however due to the close proximity of existing services within the area, as well as minimal environmental impacts, the proposed activities pertaining to the installation of water and sewage pipelines were opted for. Services alternative considered included the utilization of sewage septic tanks in order to manage the disposal of sewage, however the proximity of existing sewage infrastructure on the corner of Austin road and Old Olifantsfontein road, as well as the associated potential negative environmental impacts, made the use of sewage septic tank unfeasible.
- **Design alternatives** – various design alternatives were considered and evaluated during the pre-feasibility phase and design of the activities and current layout was subsequently developed in order to come up with a sustainable solution with the least associated negative environmental impacts.

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	The developer proposes to construct a retirement village consisting of the following zoning: <ul style="list-style-type: none"> An Application is made for a zoning of "Special" for a Retirement Centre at 83 Units per hectare. Current planning allows for 160 retirement units, with 1 unit of the retirement centre to be used as frail care facilities and 1 unit to be used as step down facilities with 20 beds each.
2	Alternative 1	Light Industrial
3	Alternative 2	Not Applicable
	Etc.	

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:

Proposed activity (**Total environmental (landscaping, parking, etc.) and the building footprint**)

Size of the activity:

1.968 ha

Alternatives:

Alternative 1 (if any)

1.968 ha

Alternative 2 (if any)

Ha/ m²

or, for linear activities:

Proposed activity

Length of the activity:

Alternatives:

Alternative 1 (if any)

Alternative 2 (if any)

m/km

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

Proposed activity

Size of the site/servitude:

Alternatives:

Alternative 1 (if any)

Alternative 2 (if any)

Ha/m²

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:

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:

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

Alternative 2

Does ready access to the site exist, or is access directly from an existing road?

Not Applicable

If NO, what is the distance over which a new access road will be built

m

Describe the type of access road planned:

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

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

Section A 6-8 has been duplicated

0

Number of times

(only complete when applicable)

6. LAYOUT OR ROUTE PLAN

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 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 alternative 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 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.)

The proposed development is situated on Holding 19 of the Montana Agricultural Holdings, Pretoria North, City of Tshwane Metropolitan Municipality.

2. ACTIVITY POSITION

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

Alternative:	Latitude (S):	Longitude (E):
	25.667109 °	28.246117 °

In the case of linear activities: Not Applicable

Alternative:	Latitude (S):	Longitude (E):
	°	°
	°	°
	°	°

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

The 21 digit Surveyor General code of each cadastral land parcel

PROPOSAL	T	O	J	R	0	1	6	9	0	1	9	0	0	0	0						
ALT. 1	No site alternatives have been considered, as such the portions for the proposed alternative and alternative 1 are the same.																				
ALT. 2																					
etc.																					

3. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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4. LOCATION IN LANDSCAPE

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

Ridgeline	Plateau	Side slope of hill/ridge	Valley	Plain	Undulating plain/low hills	River front
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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	NO X
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	NO X
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

Prof J Louis van Rooy was appointed as a specialist Engineering Geologist on the proposed development. The following were found (please refer to Appendix G1):

1. GEOLOGY

1.1 GENERAL

According to the 1:250 000 geological sheet 2528 Pretoria, the site is underlain by norite of the Rustenburg Layered Suite, Bushveld Igneous Complex.

No intact bedrock was identified on-site, and only residual norite was encountered at depths where TLB refusal occurred in olive, calcified silty residuum. No boulders (corestones) were encountered during the fieldwork phase, but may be present as is typical in many residual norite profiles. This site is not underlain by dolomitic bedrock and a stability investigation is therefore not required. According to the geological maps and accompanied explanation, no specific mineral deposits are present on the site. No linear structures or any intrusive dykes are indicated on the map in the vicinity of the site

1.2 SOIL PROFILE

A brief description of the various soil horizons encountered in the trial pits excavated is given below with a summary in the table below:

Table 1: Test pit summary: Encountered depths of different materials (m)

Test Pit	Topsoil	Black clay Residual norite	Olive silt residual norite	Test pit depth (m)
M01	0 – 0.15	0.15 – 1.70	1.70 - 1.80	1.80
M02	0 – 0.26	0.26 – 1.48	1.48 – 2.00	2.00
M03	0 – 0.26	0.26 – 1.50	1.50 – 2.10	2.10
M04	0 – 0.20	0.20 – 1.40	1.40 – 1.80	1.80
M05	0 – 0.26	0.26 – 1.25	1.25 – 2.20	2.20

R-Refusal; AR – Approaching refusal; EOH – End of hole



Topsoil

The site is covered with a colluvial horizon with an average thickness of 0.22 m. This horizon was described on-site as slightly moist, dark greyish brown to black, stiff, shattered and slickensided, sandy clayey SILT with roots.

Black clay residual norite

Residual norite occurs in all test pits from an average depth of 0,22 m below surface and was described on-site as slightly, black, firm to stiff, slickensided, silty CLAY. The lower part of this horizon is occasionally speckled white, dark reddish brown or dark brown. The average thickness of this horizon is 0,44 m but varies between 0,2 m to 0,99 m.

Olive silt residual norite

Less weathered norite was encountered in all test pits from an average depth of 1,48 m and was described on-site as olive speckled white, stiff, shattered and occasionally slickensided, clayey silt.

1.3 GROUNDWATER

No groundwater seepage was observed in any of the test pits, nor was any evidence of a perched water table identified.

The regional groundwater in this area will occur in intergranular and fractured aquifers with an average depth to the groundwater table of between 20 and 30m. Surface runoff and groundwater flow will follow the topography that slopes towards the northwest, although existing developments surrounding this holding will influence the natural runoff regime.

2. GEOTECHNICAL EVALUATION

The geotechnical appraisal is based on the field observations, local knowledge of the area, interpretations on site and available laboratory test results obtained during this investigation.

2.1 ENGINEERING AND MATERIAL CHARACTERISTICS

The foundation indicator test results conducted on the samples retrieved from the various test pits on site are discussed below and summarised in Table 2.

Table 2: Indicator test results

Test pit	Depth (m)	Description	Soil composition				Atterberg Limits		GM	LS %	Activity	AASHO classification
			Clay %	Silt %	Sand %	Gravel %	LL %	PI %				
M01	0.5	Black clay	30	39	31	0	77	35	0.31	17	V.High	A-7/MH
M01	1.8	Olive silt	25	35	37	3	99	43	0.48	20	High	A-7/MH
M02	1.6	Olive clay	42	37	20	1	97	44	0.22	18.5	V.High	A-7/MH
M03	1.4	Black clay	41	40	19	0	98	45	0.16	18	V.High	A-7/MH
M03	2.0	Olive silt	27	42	30	1	125	51	0.27	24	V.High	A-7/MH
M04	0.4	Black clay	42	35	23	0	73	42	0.23	15	V.High	A-7/CH
M05	2.0	Olive silt	40	44	16	0	165	73	0.07	25	V.High	A-7/MH

LL – Liquid limit; PI – Plasticity index; LS 19– Linear shrinkage; GM – grading modulus; SP – slightly plastic

The results obtained indicate the following for both the black and olive residual norite (clay):

- The residual soils grade as sandy silty clay to clayey silty sand with high plasticity, very high linear shrinkage and very high potential expansiveness.
- According to the AASHO and Unified Soil Classifications the residual norite falls in the “MH” and “A-7” Groups.
- Soil in these groups will typically be poor subgrade and not suitable for any road pavement layer construction. Drainage and compaction characteristics will be poor and compressibility and expansion are expected to be high. The shear strength will be poor when compacted and saturated.
- Using the very conservative Van der Merwe (1964) method total heave on surface if the soil wets up from dry is calculated up to 80 mm.

The very high electrical conductivity values indicate extremely corrosive conditions.

The consistency in the residual norite horizons varies between firm and stiff in the slightly moist condition and can be correlated to allowable bearing pressures of 50 - 300 kPa. This is well within the typical pressure from a single storey masonry structure. This disregards the effect of soil moisture changes. The structure of the upper soils on site is generally described as shattered and slickensided implying soil volume changes with soil moisture changes. This is also confirmed by the high to very high potential expansiveness from the plasticity chart plots. The in profile soil consistencies are therefore no longer an indication of soil shear strength due to the large variation in strength with moisture changes (very soft when wet to very stiff when dry).

2.2 SLOPE STABILITY AND EROSION

The slope gradients are typically between less than 2o to the north and natural slope instabilities are not expected on this site. Due to the site gradient no cut to fill site preparation is expected either.

The clayey nature of the soils on site will reduce infiltration with increased runoff or due to the low gradient possible surface ponding occurring. Erosion is not regarded as a high risk.

2.3 EXCAVATION CLASSIFICATION WITH RESPECT TO SERVICES

Based on excavation conditions in the trial holes, no excavation difficulty is expected down to depths of 2.0 m. Excavation to greater depths over portions of the site may however be cumbersome via TLB due to highly weathered norite bedrock.

The average depth of the test pits varied between 1.80 m and 2.20 m. The material on site may therefore be classified as being soft (SABS 2100, 1988) and a TLB will suffice to excavate to depths below 1.5 m across the majority of the site.

The site soils are generally too clayey for use as fill and bedding for pipelines.

2.4 IMPACT OF THE GEOTECHNICAL CHARACTER OF THE SITE ON HOUSING DEVELOPMENTS

The impact of the geotechnical constraints on housing development may be evaluated according to Table 4 (Appendix E), which is a summary of the general geotechnical constraints relevant to urban development (Partridge, Wood and Brink, 1993). The Class column indicates the severity of the specific constraint for this site.

The main expected geotechnical constraints for this site are:

- High expansiveness of soil horizons (3C).

3. SITE CLASSIFICATION AND FOUNDATION RECOMMENDATIONS

The site has been classified into one Site Class Designation zone (Figure 3), based on the above constraints and the criteria as set out in the NHBRC (1999) guideline document of which the appropriate tables have been included in Appendix E. The classification and foundation recommendations are based on results from this and proximate investigations.

Site Class Designation H3/3C

The one major geotechnical constraint is expected heave (up to 80 mm).

The possible foundation options recommended on this holding, according to the Joint Structural Division (SAICE, 1995) Code of Practice, for single storey masonry residential dwellings founded below the loose upper horizons are (SAICE, 1995):

- Stiffened or cellular raft
- Soil raft

Additional measures will be necessary in the case where higher foundation loads are imposed and foundation invert levels are at different levels to normal strip footings (Tables 4 to 6, Appendix E).

Additional surface water drainage as well as plumbing precautions will also be necessary. It is recommended that the structural engineers calculate the best economical foundation option for the proposed development based on the type of structure and the different available construction methods.

4. CONCLUSIONS

Development of this site will need appropriate design measures to prevent damage to structures due to soil heave. The main concern is differential soil volume changes and appropriate foundation designs, and building procedures will be necessary as listed in this report.

Potential expansiveness on the clayey colluvium and residuum is expected to be fall between 45 and 100 mm on surface if

the soils wet up from the dry state.

The recommended foundation options for single storey masonry residential units include stiffened or cellular rafts and soil rafts.

Good site drainage will be necessary as seasonal moisture changes are expected and this will aggravate heave and shrinkage in the site soils.

The site soils will not be suitable as backfill, platform fill and subgrade for roads. All paved areas and driveways need to be placed on inert material replacing excavated and removed in situ clay soils.

The pits were backfilled by the TLB without proper compaction in layers. If structures are to be positioned over or across these pits proper compaction must be executed to prevent differential settlements from taking place. The same will apply to development across possible waste pits, previous foundations, root areas of removed medium to large trees, thick fill and old septic tanks.

It is assumed that the development will be serviced by the usual municipal services and no recommendations are made on on-site sanitation, waste disposal, cemetery and stormwater reticulation services.

The corrosiveness of the site soils is extremely high and plastic pipes rather than steel pipes should be used for subsurface services with flexibly couplings to accommodate some soil movements.

6. AGRICULTURE

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)?

YES	NO X
-----	------

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 % =	Natural veld with scattered aliens % =	Natural veld with heavy alien infestation % =	Veld dominated by alien species % =	Landscaped (vegetation) 60 %
Sport field % =	Cultivated land % =	Paved surface (hard landscaping) 5 %	Building or other structure 35 %	Bare soil % =

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:

Emile van der Westhuizen (STS Environmental)

Qualification(s) of the specialist:

BSc. (Hons) Plant Science, B.Sc. Botany and Environmental Management

Postal address:

PO Box 751779, Gardenview

Postal code:

2047

Telephone:

011 616 7893

Cell: 082 850 7753

E-mail:

emile@sasenvironmental.co.za

Fax: 086 724 3132

Are any further specialist studies recommended by the specialist?

YES	NO X
-----	------

If YES,
specify:

--

If YES, is such a report(s) attached?

YES X

NO

If YES list the specialist reports attached below

Please refer to Annexure G3

Signature of specialist:

Specialist Declaration and signature
attached in Specialist report in
Appendix G3

Date:

1 August 2016

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

Scientific Terrestrial Services (STS) was appointed to conduct a Terrestrial Sensitivity scan as part of the Environmental Impact Assessment (EIA) and authorisation process for the proposed development project on Holding 19, within Montana, Pretoria, Gauteng Province, hereafter referred to as the "study area". The study area is bordered by 3rd Avenue to the south, and is further situated approximately 200m east of Dr. Swanepoel Road and 280m west of Dr. van der Merwe Road. The N1 Highway is situated approximately 2.6 km to the east of the study area, and the N4 Highway 2.5 km to the North. The Wonderboom Airport is located approximately 2 km west of the study area. The study area is located within moderately high developed residential area with the immediate surrounding areas comprising mainly of small holdings and residential cluster developments.

Specific outcomes required for this report include the following:

- To define the Present Ecological State (PES) of the terrestrial ecological resources within and in the vicinity of the study area;
- To conduct a Species of Conservation Concern (SCC) assessment, including potential for such species to occur within the study area;
- To identify and consider all sensitive landscapes including rocky ridges, wetlands and any other ecologically important features, if present; and
- To determine the environmental impacts that the development of the development may have on the terrestrial ecology associated with the study area and to develop mitigation and management measures for all phases of the development.

Results of the Desktop Analysis

- According to the National Threatened Ecosystem database (2011), the study area is located within the Marikana Thornveld vegetation type, which is considered to be Endangered (Mucina & Rutherford, 2011);
- According to the Gauteng Conservation (C-Plan, 2011)) the study area is not located within a Critical Biodiversity Area (CBA) or Ecological Support Area (ESA).

Floral Scan

- A single habitat unit was identified during the field assessment, namely the Transformed Habitat Unit. The vegetation structure and composition has been transformed and comprised mainly of alien plant species and garden ornamentals such as Melia azedarach, Ligustrum japonicum and Phoenix canariensis amongst other. The study area is also no longer considered representative of the Marikana Thornveld vegetation type. The resultant historic and ongoing anthropogenic activities, notably that of the landscape maintenance activities (garden) has largely excluded indigenous floral species, and provided suitable habitat for the proliferation of garden ornamentals and alien plant species; and
- The Probability of Occurrence (POC) of all South African National Biodiversity Institute (SANBI) floral SCC, as well as the Gauteng Department of Agriculture and Rural Development (GDARD) Red and Orange listed plants species listed for the Quarter Degree Square (QDS) 2528CC was calculated;
- During the field assessment no floral SCC were encountered and none of the species listed scored a POC of 60% or higher. It is highly unlikely that any floral SCC will occur within the study area, due to overall lack of suitable habitat and transformation within the study area and surrounding areas.

Faunal Scan

- High levels of historic and ongoing anthropogenic activities associated with the study area and the surrounding areas, have led to the transformation of natural faunal habitat;
- Only commonly occurring faunal species such as Vanellus coronatus (Crowned Lapwing) Passer domesticus (House sparrow) and Acridotheres tristis (Common Myna), adapted to urban environments, were observed within the study area; and
- No faunal SCC were observed during the field assessment. The likelihood that any such species will be encountered in or near the study area is considered low, due to the current high levels of habitat transformation associated with the study area and the immediate vicinity.

Terrestrial Impact Assessment:

The tables below summarise the findings of the impact assessment, indicating the significance of the impact before mitigation takes place and the likely impact if effective management and mitigation takes place. From the tables it is evident that prior to mitigation the impacts on floral and faunal SCC are low level impacts. If effective mitigation takes place, all impacts may be reduced to very low level impacts.

A summary of the results obtained from the impact assessment for the construction phase.

Impact	Unmanaged	Managed
1: Impact on Floral Species of Conservation Concern	Low	Very-Low
2: Impact on Faunal Species of Conservation Concern	Low	Very-Low

A summary of the results obtained from the impact assessment for the operational phase.

Impact	Unmanaged	Managed
1: Impact on Floral Species of Conservation Concern	Low	Very-Low
2: Impact on Faunal Species of Conservation Concern	Low	Very-Low

Sensitivity

From an ecological perspective, the study area is considered to be of low floral and faunal ecological sensitivity, attributable to the increased level of habitat transformation within the study and surrounding area, resulting in an increased loss of ecological habitat connectivity and a very low probability of floral or faunal SCC occurrence. Thus, no significant impact is anticipated should the development proceed.

8. LAND USE CHARACTER OF SURROUNDING AREA

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

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

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

	8	8	8	8	8	
	9	15	8	8	8	
WEST	8	9		9	8	EAST
	9	12	8	8	8	
	9	8	8	8	8	
	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
If yes indicate the type of reports below

YES

NO X

9. SOCIO-ECONOMIC CONTEXT

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

The Montana, Pretoria North area has seen considerable growth in residential properties over the past years with townhouse complexes and commercial developments leading a way to create a sustainable environment for citizens to live and raise their families. With the exception of a few retirement developments, the elderly care market has not been experiencing the same rate of growth as the rest.

- The proposed development promotes the use and development of land that optimizes the use of existing resources and seems to follow the land use regime of the area.
- The proposed development will contribute to the development of the Montana area by creating job opportunities during the construction and operational phase.
- The proposed development will provide much needed elderly care for senior citizens and provide the social service to the community.

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:

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:

Mr Anton Pelser from APAC Heritage Consultants were appointed to conduct a phase 1 Heritage Impact Assessment on Holding 19 of Montana Agricultural Holdings: He concluded the following:

In conclusion it is possible to say that the Phase 1 HIA for the proposed Residential Development (Self-Care Units) on Plot 19, Montana Agricultural Holdings, in Montana (Pretoria North) in Tshwane, Gauteng, was conducted successfully. Background (desktop) research indicated that there are no known archaeological and/or historical sites or features in the specific study area, although there are some in the larger geographical area within which the assessed land parcel falls. The area has been extensively disturbed in the recent past through agricultural activities, as well as urban residential developments, so if any significant sites did exist here in the past it would have been disturbed or even destroyed to a large degree as a result.

Will any building or structure older than 60 years be affected in any way?
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999
(Act 25 of 1999)?
If yes, please attached the comments from SAHRA in the appropriate Appendix

YES	NO X
YES	NO X

SECTION C: PUBLIC PARTICIPATION (SECTION 41)

1. 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?

YES NO X

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

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

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 NO X

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

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

The Draft Basic Assessment Draft has been made available for public and stakeholder comment on 8 November 2016 to 8 December 2016. Comments and responses received will be incorporated in the final BAR.

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.

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
- 4) Each alternative needs to be clearly indicated in the box below
- 5) Attach the above documents in a chronological order

Section D has been duplicated for alternatives times (complete only when appropriate)

Section D Alternative No. (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
30 m ³	

If yes, what estimated quantity will be produced per month?

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

The solid waste generated during the construction phase of the activity will be disposed of by means of tipper trucks transporting the waste to a registered waste disposal site within the surrounding area.

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

At a registered municipal landfill site one of the following would be used:

LANDFILL SITE	YEAR OPENED	LIFETIME EXPECTANCY	HOURS	ADDRESS	PERMIT INFO	LOCATION	WASTE TYPE
Bronkhorstspuit	1996	10 to 15 years		Kungwini Road	B33/2/220/116	Region 7	General
Ga-Rankuwa	1995	10 to 15 years	Closed on Sundays	Molefe Makinta Drive Ga-Rankuwa	GMB Permit 16/2/7/A230/D9/Z3/P489 12 Aug 2003	Ward 30 Region 2	General
Hatherley	1998	5 to 10 years		Solomon Mahlangu Drive, M10, Nellmapius	GLB Permit 16/2/7/A230/D7/Z8/P383 16 Aug 2000	Ward 40 Region 6	General
Onderstepoort	1997	1 year		Rosslyn, Onderstepoort, R566	GMB Permit B33/2/123/7/P6 21 Feb 1992	Ward 49 Region 2	General
Soshanguve	1995	10 to 15 years	Closed on Sundays	Cnr Soutpan Road and Molefe Makinta Drive	GMB Permit B33/2/123/101/P43 Sep 1990	Ward 28 Region 2	Gener

Will the activity produce solid waste during its operational phase?

YES X	NO
5 m ³	

If yes, what estimated quantity will be produced per month?

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

The solid waste generated during the construction phase of the activity will be disposed of at a registered waste disposal site in the surrounding area.

Has the municipality or relevant service provider confirmed that sufficient air space exists for treating/disposing of the solid waste to be generated by this activity?

YES	NO X
-----	-------------

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

The table above detailing the municipal landfill sites and the life expectancy were obtained from the City of Tshwane Metropolitan Municipality website (accessed 06 October 2016). From the table it can be seen that the life expectancy of all but the Onderstepoort Landfill site are well over 5 years. Thus it is foreseen that sufficient capacity exists.

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:

An integrated waste management approach must be implemented on site meaning that waste must be reduced, recycled and re-used as far as practically possible. Waste should be managed effectively with the placement of designated bins for different types of waste. Bins must be emptied on a regular basis and must be placed in an area demarcated for waste management. The bins must be marked with the necessary signage in order to promote recycling of paper, plastic, glass and metals.

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?

m³

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 X
-----	-------------

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?

m³

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

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:

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:

It is not foreseen that the proposed activity will generate any waste water. The only non-potable water on site will be captured and managed via two proposed storm water attenuation ponds with discharge structures.

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?

3615 m³

If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the domestic effluent to be generated by this activity(ies)?

YES	NO X
-----	-------------

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.

PVA Consulting Engineers were appointed as the Civil Engineering Contractors and after consultation with the City of Tshwane: Water and Sanitation department it was verbally confirmed that sufficient capacity exists and after the official Services Report was received the confirmation of services letter will be issued..

Emissions into the atmosphere

Will the activity release emissions into the atmosphere?

YES	NO X
-----	-------------

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:

The only emissions that will be created by the activity, will be dust and exhaust fumes generated by construction vehicles during the construction phase of the project. However it is not anticipated that this will have a detrimental impact on the environment. Refer to the Environmental Management Program for mitigation measures proposed for this impact.

2. WATER USE

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

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

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

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 NO

If yes, list the permits required

If yes, have you applied for the water use permit(s)?

YES NO

If yes, have you received approval(s)? (attached in appropriate appendix)

YES NO

3. POWER SUPPLY

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

The proposed activity will connect to the existing power supply infrastructure within the surrounding area. ESKOM has indicated that there is capacity for electrical supply and existing infrastructure within the area will be upgraded in order to ensure capacity for the proposed activity.

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

4. ENERGY EFFICIENCY

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

The following recommendations regarding structural designs are proposed by the environmental consultant:

- The use of building material that requires extreme amounts of energy to manufacture should be minimised as far as possible,
- Recyclable building material should be used as far as possible,
- The use of building material originating from sensitive or scarce environmental resources should be avoided,
- Building material should be legally obtained by the supplier, e.g. legally harvested wood and sand and gravel should be obtained from legal commercial borrow pits,
- All landscaping that forms part of the proposed development will be endemic to the local environment, thereby reducing the amount of landscape maintenance required.
- Storm water management infrastructure will be designed in such a manner as to gravitate off-site in order

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

Local building material should be used as far as possible as this will reduce transportation impacts and enhance local job creation. The use of low wattage light must be used as far as possible. Buildings should be designed in such a way as to promote energy efficiency (ea. prevent heat loss during the winter and enhance heat loss during the summer).

Section D Alternative No.

2

(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?

30 m³

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

The solid waste generated during the construction phase of the activity will be disposed of by means of tipper trucks transporting the waste to a registered waste disposal site within the surrounding area.

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

At a registered municipal landfill site one of the following would be used:

LANDFILL SITE	YEAR OPENED	LIFETIME EXPECTANCY	HOURS	ADDRESS	PERMIT INFO	LOCATION	WASTE TYPE
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Ga-Rankuwa	1995	10 to 15 years	Closed on Sundays	Molefe Makinta Drive Ga-Rankuwa	GMB Permit 16/2/7/A230/D9/Z3/P489 12 Aug 2003	Ward 30 Region 2	General
Hatherley	1998	5 to 10 years		Solomon Mahlangu Drive, M10, Nellmapius	GLB Permit 16/2/7/A230/D7/Z8/P383 16 Aug 2000	Ward 40 Region 6	General
Onderstepoort	1997	1 year		Rosslyn, Onderstepoort, R566	GMB Permit B33/2/123/7/P6 21 Feb 1992	Ward 49 Region 2	General
Soshanguve	1995	10 to 15 years	Closed on Sundays	Cnr Soutpan Road and Molefe Makinta Drive	GMB Permit B33/2/123/101/P43 Sep 1990	Ward 28 Region 2	Gener

Will the activity produce solid waste during its operational phase?
If yes, what estimated quantity will be produced per month?

YES X	NO
5 m ³	

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

The solid waste generated during the construction phase of the activity will be disposed of at a registered waste disposal site in the surrounding area.

Has the municipality or relevant service provider confirmed that sufficient air space exists for treating/disposing of the solid waste to be generated by this activity?

YES	NO X
-----	------

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

The table above detailing the municipal landfill sites and the life expectancy were obtained from the City of Tshwane Metropolitan Municipality website (accessed 06 October 2016). From the table it can be seen that the life expectancy of all but the Onderstepoort Landfill site are well over 5 years. Thus it is foreseen that sufficient capacity exists.

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
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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:

An integrated waste management approach must be implemented on site meaning that waste must be reduced, recycled and re-used as far as practically possible. Waste should be managed effectively with the placement of designated bins for different types of waste. Bins must be emptied on a regular basis and must be placed in an area demarcated for waste management. The bins must be marked with the necessary signage in order to promote recycling of paper, plastic, glass and metals.

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
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If yes, what estimated quantity will be produced per month?

m ³	
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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 X
-----	------

Will the activity produce any effluent that will be treated and/or disposed of on site?

Yes	NO X
m ³	

If yes, what estimated quantity will be produced per month?

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

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:

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:

It is not foreseen that the proposed activity will generate any waste water. The only non-potable water on site will be captured and managed via two proposed storm water attenuation ponds with discharge structures.

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? YES NO X **3615 m³**

If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the domestic effluent to be generated by this activity(ies)? YES NO X

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.

PVA Consulting Engineers were appointed as the Civil Engineering Contractors and after consultation with the City of Tshwane: Water and Sanitation department it was verbally confirmed that sufficient capacity exists and after the official Services Report was received the confirmation of services letter will be issued..

Emissions into the atmosphere

Will the activity release emissions into the atmosphere? YES NO X

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:

The only emissions that will be created by the activity, will be dust and exhaust fumes generated by construction vehicles during the construction phase of the project. However it is not anticipated that this will have a detrimental impact on the environment. Refer to the Environmental Management Program for mitigation measures proposed for this impact.

2. WATER USE

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

Municipal X	Directly from water board	groundwater	river, stream, dam or lake	other	the activity will not use water
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month: **Not Applicable** 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 NO

If yes, list the permits required

If yes, have you applied for the water use permit(s)? YES NO

If yes, have you received approval(s)? (attached in appropriate appendix) YES NO

3. POWER SUPPLY

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

The proposed activity will connect to the existing power supply infrastructure within the surrounding area. ESKOM has indicated that there is capacity for electrical supply and existing infrastructure within the area will be upgraded in order to ensure capacity for the proposed activity.

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

4. ENERGY EFFICIENCY

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

- The following recommendations regarding structural designs are proposed by the environmental consultant:
- The use of building material that requires extreme amounts of energy to manufacture should be minimised as far as possible,
 - Recyclable building material should be used as far as possible,
 - The use of building material originating from sensitive or scarce environmental resources should be avoided,
 - Building material should be legally obtained by the supplier, e.g. legally harvested wood and sand and gravel should be obtained from legal commercial borrow pits,
 - All landscaping that forms part of the proposed development will be endemic to the local environment, thereby reducing the amount of landscape maintenance required.
 - Storm water management infrastructure will be designed in such a manner as to gravitate off-site in order

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

Local building material should be used as far as possible as this will reduce transportation impacts and enhance local job creation. The use of low wattage light must be used as far as possible. Buildings should be designed in such a way as to promote energy efficiency (ea. prevent heat loss during the winter and enhance heat loss during the summer).

Section D Alternative No. 3 (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
30 m ³	

If yes, what estimated quantity will be produced per month?

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

The solid waste generated during the construction phase of the activity will be disposed of by means of tipper trucks transporting the waste to a registered waste disposal site within the surrounding area.

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

At a registered municipal landfill site one of the following would be used:

LANDFILL SITE	YEAR OPENED	LIFETIME EXPECTANCY	HOURS	ADDRESS	PERMIT INFO	LOCATION	WASTE TYPE
Bronkhorstspuit	1996	10 to 15 years		Kungwini Road	B33/2/220/116	Region 7	General
Ga-Rankuwa	1995	10 to 15 years	Closed on Sundays	Molefe Makinta Drive Ga-Rankuwa	GMB Permit 16/2/7/A230/D9/Z3/P489 12 Aug 2003	Ward 30 Region 2	General
Hatherley	1998	5 to 10 years		Solomon Mahlangu Drive, M10, Nellmapius	GLB Permit 16/2/7/A230/D7/Z8/P383 16 Aug 2000	Ward 40 Region 6	General
Onderstepoort	1997	1 year		Rosslyn, Onderstepoort, R566	GMB Permit B33/2/123/7/P6 21 Feb 1992	Ward 49 Region 2	General
Soshanguve	1995	10 to 15 years	Closed on Sundays	Cnr Soutpan Road and Molefe Makinta Drive	GMB Permit B33/2/123/101/P43 Sep 1990	Ward 28 Region 2	Gener

Will the activity produce solid waste during its operational phase?

YES X	NO
5 m ³	

If yes, what estimated quantity will be produced per month?

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

The solid waste generated during the construction phase of the activity will be disposed of at a registered waste disposal site in the surrounding area.

Has the municipality or relevant service provider confirmed that sufficient air space exists for treating/disposing of the solid waste to be generated by this activity?

YES	NO X
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Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

The table above detailing the municipal landfill sites and the life expectancy were obtained from the City of Tshwane Metropolitan Municipality website (accessed 06 October 2016). From the table it can be seen that the life expectancy of all but the Onderstepoort Landfill site are well over 5 years. Thus it is foreseen that sufficient capacity exists.

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:

An integrated waste management approach must be implemented on site meaning that waste must be reduced, recycled and re-used as far as practically possible. Waste should be managed effectively with the placement of designated bins for different types of waste. Bins must be emptied on a regular basis and must be placed in an area demarcated for waste management. The bins must be marked with the necessary signage in order to promote recycling of paper, plastic, glass and metals.

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?

m ³	
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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 X
-----	-------------

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?

m ³	
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If yes describe the nature of the effluent and how it will be disposed.

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:

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:

It is not foreseen that the proposed activity will generate any waste water. The only non-potable water on site will be captured and managed via two proposed storm water attenuation ponds with discharge structures.

Liquid effluent (domestic sewage)

Will the activity produce domestic effluent that will be disposed of in a municipal sewage system?

YES X	NO
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If yes, what estimated quantity will be produced per month?

3615 m ³	
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If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the domestic effluent to be generated by this activity(ies)?

YES	NO X
-----	-------------

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.

PVA Consulting Engineers were appointed as the Civil Engineering Contractors and after consultation with the City of Tshwane: Water and Sanitation department it was verbally confirmed that sufficient capacity exists and after the official Services Report was received the confirmation of services letter will be issued..

Emissions into the atmosphere

Will the activity release emissions into the atmosphere?

YES	NO X
-----	-------------

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:

The only emissions that will be created by the activity, will be dust and exhaust fumes generated by construction vehicles during the construction phase of the project. However it is not anticipated that this will have a detrimental impact on the environment. Refer to the Environmental Management Program for mitigation measures proposed for this impact.

2. WATER USE

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

Municipal X	Directly from water board	groundwater	river, stream, dam or lake	other	the activity will not use water
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month: **Not Applicable** 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 NO

If yes, list the permits required

If yes, have you applied for the water use permit(s)? YES NO

If yes, have you received approval(s)? (attached in appropriate appendix) YES NO

3. POWER SUPPLY

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

The proposed activity will connect to the existing power supply infrastructure within the surrounding area. Eskom has indicated that there is capacity for electrical supply and existing infrastructure within the area will be upgraded in order to ensure capacity for the proposed activity.

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

4. ENERGY EFFICIENCY

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

The following recommendations regarding structural designs are proposed by the environmental consultant:

- The use of building material that requires extreme amounts of energy to manufacture should be minimised as far as possible,
- Recyclable building material should be used as far as possible,
- The use of building material originating from sensitive or scarce environmental resources should be avoided,
- Building material should be legally obtained by the supplier, e.g. legally harvested wood and sand and gravel should be obtained from legal commercial borrow pits,
- All landscaping that forms part of the proposed development will be endemic to the local environment, thereby reducing the amount of landscape maintenance required.
- Storm water management infrastructure will be designed in such a manner as to gravitate off-site in order

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

Local building material should be used as far as possible as this will reduce transportation impacts and enhance local job creation. The use of low wattage light must be used as far as possible. Buildings should be designed in such a way as to promote energy efficiency (ea. prevent heat loss during the winter and enhance heat loss during the summer).

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 comments on the application has been received from the registered I&APs

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):

The Draft Basic Assessment Draft has been made available for public and stakeholder comment on 8 November 2016 to 8 December 2016. Comments and responses received will be incorporated in the final BAR.

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

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

Potential environmental impacts and key issues were identified through a site visit, specialist studies, GIS and desktop studies and consultation with interested and affected parties. The significance of each of the potential impacts was calculated in order to determine to what extent the potential environmental impact have to be mitigated. The predicted impacts were divided into the following categories:

- 1) **Negligible** - The impact is not significant and does not require any mitigation.
- 2) **Low**- The impact has a low significance which may require partial mitigation.
- 3) **Moderate** - The impact is of importance and as a result might have a negative impact on the surrounding environment. Mitigation is there for required in order to reduce the negative impacts to tolerable levels.
- 4) **High** - The impact is of high importance and as a result might have a major impact on the surrounding environment. Mitigation measures needed to reduce the negative impacts to tolerable levels is vital in order to make the proposed development feasible.

The following factors were evaluated when determining the significance of the impacts:

Longevity

Short term: The duration of the impact will be over a short period of time.

Medium term: The duration of the impact will be over a medium period of time. Normally not longer than the last phase of the proposed project through implementation of adequate mitigation measures.

Long term: The duration of the impact will be over a long period of time. Normally throughout the operational phase of the proposed project through implementation of adequate mitigation measures.

Permanent: The impact will be permanent and will not even be addressed through implementation of adequate mitigation measures.

Intensity

Low: Natural processes are not affected or disturbed as a result of the impact.

Medium: Natural processes are affected or disturbed as a result of the impact, however continues in an altered manner.

High: Natural processes are affected or disturbed in such a manner that it is permanent. Natural processes are ceased as a result of the impact.

Probability

Improbable: The possibility of the impact occurring is very low to negligible.

Probable: The possibility of the impact occurring is still low, however must be taken into account during development of mitigation measures.

Highly Probable: The possibility of the impact occurring is highly likely.

Definite: The possibility of the impact occurring is certain.

Significance

Negligible: The implication of the impact is negligible.

Low: The implication of the impact is low and limited mitigation will be required.

Moderate: The implication of the impact is moderate and specific mitigation measures will be required.

High: The implication of the impact is high and extensive mitigation measures will be required.

Aspect	Description	Weight
Probability	Improbable	1
	Probable	2
	Highly Probable	4
	Definite	5
Scale/extent	Local	1
	Site	2
	Regional	3
	National	4
Duration	Short term	1
	Medium term	3
	Long term	4
	Permanent	5
Magnitude/Severity	Low	2
	Medium	6

	High	8
Significance	Sum (Scale, Duration, Magnitude) x Probability	
	Negligible	<20
	Low	<40
	Moderate	<60
	High	>60

Colour	Significance
	Impact of high significance
	Impact of moderate significance
	Impact of low significance
	Impact Negligible

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.

Proposal

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
PLANNING PHASE				
Adverse Impacts				
Cultural or Historical				
Low Potential for destroying potential cultural / historical sites.	Low	It is not anticipated that any graves or important cultural findings will be discovered during the construction of the external services.	Low	Low risk of study not being conducted.
Environmental legal compliance				
No financial provision for environmental management during construction and operational phase.	Moderate	Developer to budget for environmental mitigation measures such as eradication of alien plant within the development site, specialist that might be required if archaeological finds are unearthed during construction, or sensitive fauna or flora is identified during construction. Developer also to budget for ECO to be part of the development team.	Low	Developer might omit budgeting for environmental monitoring
CONSTRUCTION PHASE				
Beneficial impacts				
Fauna and flora				
Eradication of invasive species.	High	Eradication of invasive species during the construction phase would benefit the biophysical environment. Not necessary to mitigate.	None	No risk due to positive impact
Social & Economic Environment				
Creation of Job opportunities.	High	The proposed development would create job opportunities during the construction phase. Should the local community not benefit from these opportunities, it could lead to an influx of people from other areas. Only employing people from the local community could mitigate the potential adverse impact.	None	No risk due to positive impact
Increase in the rates and taxes payable to the City of Tshwane Metropolitan Municipality.	High	More rates and taxes will be paid to the City of Tshwane Metropolitan Municipality.	None	No risk due to positive impact
Adverse Impacts				
Fauna and Flora				
Loss of habitat specifically related to the Vulnerable Marikana Thornveld threatened Ecosystem	Low	Should any floral or faunal SCC be encountered within the study area during the construction phase, the following should be ensured: - Effective relocation of individuals to suitable similar habitat in	Low	This habitat unit is of low ecological importance and sensitivity. The southern half of the study area

		<ul style="list-style-type: none"> - the vicinity of the study area must be ensured; and - A rescue and relocation plan must be implemented and all rescue and relocation activities should be overseen by a suitably qualified specialist. 		contains residential premises and related infrastructures, with extensively maintained gardens. The northern half of the study area is more open, interspersed with trees, flower beds and short lawned areas. The large scale habitat transformation has resulted in the exclusion of faunal and floral SCC from the study area, a low floral and faunal diversity and limited habitat connectivity. Development related activities are therefore unlikely to impact on this habitat unit, as the habitat integrity is historically disturbed and located within an urban setting
Snaring and hunting of fauna and avi-fauna species during the construction phase and the destruction of habitats can have a detrimental effect on some species.	Moderate	<ul style="list-style-type: none"> - Strict measures to prevent the hunting/snaring/scaring of fauna species should be implemented; - The gathering of wood should not be allowed on site or on any adjacent properties; - Any person that is caught hunting, snaring or damaging existing vegetation (earmarked to be retained) should be fined. The responsible contractor will also be fined and will have to replace the fauna or flora species as specified by the ECO at the time; - The involved authorities should be informed of the activity, the fine and the replacement specifications; - Caught animals should be relocated to conservation areas in the vicinity; 	Low	
Possible spreading of invaders into the natural surrounding areas.	Low	No plants, not indigenous to the area, or exotic plant species should be introduced into the landscaping of the proposed development.	Low	Low risk of invaders spreading into surrounding areas.
Uncontrolled fires may cause damage and loss to vegetation and fauna in the area.	Moderate	<ul style="list-style-type: none"> - If fires are required for cooking and heating purposes, these fires will only be permitted in designated areas on site. The fire area should be an exposed area (no natural veld grass should be in close proximity of the fire area). - Construction workers should only be allowed to smoke in the fire area and fires should preferably be prevented while strong winds are blowing. 	Low	Vegetation Loss
Geology and soils				
Soil erosion due to drainage systems – During the construction phase temporary measures should be implemented to manage storm water and water flow on the application site. If the storm water and water flow is not regulated and managed on site and it could cause significant erosion of soil, as well as the pollution and siltation of drainage channels.	Moderate	<ul style="list-style-type: none"> - Only the identified areas should be cleared of vegetation. This should be done in stages as construction works progress; - Implement temporary storm water management measures that will help to reduce the speed of the water. These measures must also assist with the prevention of water pollution, erosion and siltation; - If excavations or foundations fill up with storm water, these areas should immediately be drained and measures to prevent further water 	Low	Soil erosion as well as damage to stormwater structures could occur if mitigation is not implemented.

		<ul style="list-style-type: none"> - from entering the excavations should be implemented. - Biodegradable matting, geo-textiles and other means of erosion control should be implemented during the construction phase on large exposed areas and where storm water are temporarily channeled; - Any storm water outfalls should be designed and measures should be implemented to prevent erosion and water pollution at these points. Areas around buildings, where gutters and outlets are implemented should be paved; - The services which will be installed in the area, should be designed to run in the same direction as the existing services to make installation and maintenance easy; - Trees may not be planted any closer to services than 1.5 times their mature height; 		
If not planned and managed correctly topsoil will be lost.	Moderate	<ul style="list-style-type: none"> - A shake down area at the exits of the construction site should be established where the excessive soil on the tires of the construction vehicles can be brushed off and kept aside for later use during rehabilitation works or landscaping; - The layout of the construction site should be planned before any construction on the site should commence. The areas where soil will be compacted by construction activities, heavy vehicle movement, site camp, material storage areas and stockpiling areas should be marked out and the topsoil should be removed. - The areas where topsoil will not be removed and which will be conserved during the construction phase should be marked with barrier tape to ensure that vehicles do not move across these areas, and construction activities does not damage the in-situ topsoil. - The removed topsoil should be stored separately from all stockpiled materials and subsoil, according to the stockpiling methods as described below. The stockpiled topsoil should be used for rehabilitation and landscaping purposes after construction has been completed; - The installation of services could leave soils exposed and susceptible to erosion. Soils should be stored adjacent to the excavated trenches that are excavated to install services, and this should be filled up with the in-situ material as the services are installed. - All stones and rocks bigger than 80 mm should be removed from the top layer of soil and these disturbed areas should be re-vegetated immediately after works in a specific area are completed to prevent erosion; - Excavations on site must be kept to minimum and done only one section at a time. - Excavated soils must be stockpiled directly on the demarcated area on site. 	Low	Soil erosion could occur if mitigation is not implemented.
Collapse of structures due to soils that heave and unstable Geology	High	<ul style="list-style-type: none"> - Development of this site will need appropriate design measures to prevent damage to structures due to soil heave. - The main concern is differential soil volume changes and appropriate foundation designs, and building procedures will be necessary 	Low	The one major geotechnical constraint is expected heave (up to 80 mm). This can cause structural damage to buildings

		<p>Potential expansiveness on the clayey colluvium and residuum is expected to be fall between 45 and 100 mm on surface if the soils wet up from the dry state.</p> <ul style="list-style-type: none"> - The recommended foundation options for single storey masonry residential units include stiffened or cellular rafts and soil rafts. - Good site drainage will be necessary as seasonal moisture changes are expected and this will aggravate heave and shrinkage in the site soils. - The site soils will not be suitable as backfill, platform fill and subgrade for roads. All paved areas and driveways need to be placed on inert material replacing excavated and removed in situ clay soils. - The pits were backfilled by the TLB without proper compaction in layers. If structures are to be positioned over or across these pits proper compaction must be executed to prevent differential settlements from taking place. The same will apply to development across possible waste pits, previous foundations, root areas of removed medium to large trees, thick fill and old septic tanks. - The corrosiveness of the site soils is extremely high and plastic pipes rather than steel pipes should be used for subsurface services with flexibly couplings to accommodate some soil movements. - The possible foundation options recommended on this holding, according to the Joint Structural Division (SAICE, 1995) Code of Practice, for single storey masonry residential dwellings founded below the loose upper horizons are (SAICE, 1995): Stiffened or cellular raft Soil raft 		
Climate				
<p>Construction during the rainy season can cause delays and damage to the environment.</p>	Low	<ul style="list-style-type: none"> - It is recommended that the construction phase be scheduled for the winter months especially activities such as the installation of services, foundations, excavations and road construction; - It is also recommended that the precautionary measures be taken in order to prevent the extensive loss of soil during rainstorms. Large exposed areas should adequately be protected against erosion by matting or cladding; - Measures should be implemented during the rainy season to channel storm water away from open excavations and foundations. 	Low	<p>Soil Erosion could occur if mitigation measures are not put in place</p>
<p>Construction during the dry and windy season could cause excessive dust pollution during construction works.</p>	Low	<p>Regular and effective damping down working areas (especially during the dry and windy periods) must be carried out to avoid dust pollution that will have a negative impact on the surrounding environment. When necessary,</p>	Low	<p>Dust pollution could occur if mitigation is not implemented</p>

		these working areas should be damped down at least twice a day.		
Hydrology				
The use of insufficient drainage systems.	Moderate	A storm water management plan should be designed by an engineer to ensure sufficient drainage on site.	Low	Lack of stormwater management would cause excessive erosion of soils
Excavated materials that are stockpiled in wrong areas can interfere with the natural drainage.	Moderate	An area must be allocated for stockpiling of topsoil before any construction take place on the application site. The stockpiles must be situated away from any drainage channel. A sediment fence or barrier must be constructed around the stockpile, to prevent soil from washing away by rain or any water.	Low	Topsoil loss would occur.
Cultural or Historical Features				
Occurrence of cultural historical assets on the proposed development site.	Moderate	If archeological sites are exposed during construction work, it should immediately be reported to a museum, preferably where an archaeologist is available so that an investigation and evaluation of the site can be made.	Low	Cultural heritage finds Unearthed during construction, could be destroyed
Air Pollution				
Nuisance to neighbours in terms of dust generation due to construction during the dry and windy season.	Moderate	The application site must be damped at a regular basis with water to prevent dust pollution to nearby residential area and commuters utilising surrounding roads.	Low	Complaints from Neighbours
Roads and Traffic				
Heavy vehicle traffic increase could disrupt the surrounding landowners' daily routines.	Moderate	Heavy vehicles must be instructed to only use the main roads during off-peak hours.	Low	Could negatively affect Traffic
Restrictions of access to surrounding properties and the study area during construction phases.	Moderate	<ul style="list-style-type: none"> - To minimize the impacts or risks, heavy construction vehicles should avoid using the local road network during peak traffic times. - These vehicles should use only specific roads and strictly keep within the speed limits and abide to all traffic laws. No speeding or reckless driving should be allowed. Access to the site for construction vehicles should be planned to minimize the impact on the surrounding network; and - Warning signs should be erected on the roads that these vehicles will use, at big crossings/ access roads and on the site if needed. 	Low	Surrounding residents could complain about access to properties
Damage to roads	Moderate	Specific roads must be allocated for the use by construction vehicles.	Low	
Safety and Security				
During the construction phase safety and security problems (especially for the surrounding residents) are likely to occur.	Moderate	Construction must be completed in as short time as possible. No construction worker or relative may reside on the application site during the construction phase. All construction workers must leave the site at the end of a day's work. A security guard should be appointed on site to prevent any security problems.	Low	
The excavations associated with proposed development could pose a safety risk to pedestrians.	Moderate	The necessary safety precautions must be in place i.e. excavations must be fenced off with barrier tape; signage must be in place to identify excavations.	Low	

Construction activities could cause danger to children and animals of the surrounding residents	Moderate	<ul style="list-style-type: none"> - Although regarded as a normal practice, it is important to erect proper signs indicating the operation of heavy vehicles in the vicinity of dangerous crossings and access roads or even within the development site, if necessary; - It is also important to indicate all areas where excavations took place / are taking place and warning signs that clearly indicate areas with excavations must be placed immediately adjacent to excavations; - A barrier should be established around dangerous excavation areas; - With the exception of appointed security personnel, no other worker, friend or relatives will be allowed to sleep on the construction site (weekends included), in the public open space or on adjacent properties; and - No worker should be allowed to enter adjacent private properties without written consent of the legal owners to the contractor. 	Low	
Visual Impact				
Dumping of builder's rubble on neighbouring properties.	Low	A specific location for building rubble must be allocated on site, to concentrate and collect the building rubble and cart it to a certified landfill site. The allocated area must be out of sight of neighbouring properties to have a less visual impact.	Low	
Inappropriate stockpile areas for construction materials.	Moderate	An area on the site must be allocated for the stockpile of construction materials. The area must be situated on the application site, and must be situated to have a minimal visual impact on the neighbouring area.	Low	
Veld fires may cause damage to infrastructure, vegetation and neighboring properties.	Moderate	A specific area on site must be allocated, which will have the least impact on the environment and surrounding landowners, for fires of construction workers. This allocated area must be far from any structures and no fires may be lit except in the designated location.	Low	
The construction vehicles, the site camp and other construction related facilities will have a negative visual impact during the construction phase.	Moderate	Before any construction commence on site, an area on site must be demarcated for a site camp.	Low	
Waste Management				
Site office, camp and associated waste (visual, air and soil pollution)	Moderate	<ul style="list-style-type: none"> - Temporary waste storage points on site shall be determined. These storage points shall be accessible by waste removal trucks; - These points should not be located in areas highly visible from the properties of the surrounding landowners/ tenants / in areas where the wind direction will carry bad odours across the properties of adjacent tenants or landowners; - The site camp and the rest of the study area should appear neat at all times; - Waste materials should be removed from the site on a regular basis, to a registered dumping site; and - The site camp should not be located in a highly visual area on the study area, or a screen or barrier should be erected as not have a negative impact on the sense of place. 	Low	<ul style="list-style-type: none"> • Offensive odours, • rodents, • health implications, • complaints from neighbours
Disposal of building waste & liquids	Moderate	<ul style="list-style-type: none"> - All the waste generated by the proposed developments must be dumped at a preselected area on site to be carted to a registered landfill 	Low	

		<ul style="list-style-type: none"> - site; - These areas shall be predetermined and located in areas that are already disturbed. - Small lightweight waste items should be contained in skips with lids to prevent wind littering; - All waste must be removed to a recognized waste disposal site/ landfill site on a weekly basis. No waste materials may be disposed of on or adjacent to the site; - The storage of solid waste on site, until such time that it may be disposed of, must be in the manner acceptable to the local authority; and - Keep records of waste reuse, recycling and disposal for future reference. 		
OPERATIONAL PHASE				
Beneficial impacts				
Social & Economic Environment				
Creation of temporary and permanent jobs	Moderate	During the operational phase numerous permanent jobs will be created on various levels (house, garden, maintenance, etc.).	None	No risk due to positive impact
Increasing security in the area	High	In the long term the proposed development will improve the security of the area. The monitored access points will improve the security of the proposed site and surrounding areas.	None	No risk due to positive impact
Increase in rates and taxes payable to the City of Tshwane Metropolitan Municipality	Moderate	More rates and taxes will be paid to the CTMM.	None	No risk due to positive impact
Increase in surrounding property values	High	If planned and managed correctly, the proposed development could have a positive impact on property values. Due to the proposed theme, the development will generally be in line with the surrounding land uses.	None	No risk due to positive impact
Adverse Impacts				
Fauna and Flora				
Invasive plant species occurrence	Moderate	Alien plant eradication to continue during operational phase of the project. Should any alien plant species occur in the areas where construction works and ground works took place, it should be eradicated from the area.	Low	If mitigation is not implemented, invasive plants could spread.
Hydrology				
An increase in surface water runoff to storm water management systems (because of an increase of hard-surfaces such as roofs and paved areas), may have an impact on surface quality and quantities.	Low	<ul style="list-style-type: none"> - Storm water through the site should be managed to accommodate the higher quantities of runoff, - Sheet flow should be encouraged as far as possible, and channels should be designed sufficiently to address the problem or erosion, and Bio-swale system could be implemented to filter water from paved areas and especially from roads and parking areas to sufficiently clean water of heavy metals and other hazardous materials contained in storm water in a natural manner. This will further provide an opportunity for water to infiltrate the soil, break the energy of storm 	Low	Soil erosion as well as damage to stormwater structures could occur if mitigation is not implemented.

		water and keep the water on site for longer.		
Light Pollution				
The proposed development could cause a significant level of light pollution as the retirement village development will need some security lighting.	Low	Lighting within the proposed development, including security lighting, could easily glare into surrounding residences if not designed appropriately. It is recommended that all the lighting on site be designed to point downwards and designed in such a way as to not cause glare dispersal or unnecessary flickering.	Low	Could cause light pollution
Noise Pollution				
The generation of noise pollution – Additional traffic generated by the proposed development will have some impact on the ambient noise levels within the area.	Low	As mentioned previously, one has to note that the study area is wedged between agricultural holdings and existing residential developments which already generate ambient noise levels that exceed the acceptable levels for urban and residential areas. It is therefore, when one consider the above mentioned, that ambient noise levels generated by this particular development would not be that significant, as the proposed development, is located within an area that already exceed the acceptable noise levels.	Low	Could cause additional noise pollution, surrounding residents could complain

Alternative 1

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
PLANNING PHASE				
Adverse Impacts				
Cultural or Historical				
Low Potential for destroying potential	Low	It is not anticipated that any graves or important cultural findings will be discovered during the construction of the external services.	Low	Low risk of study not being conducted.
Environmental legal compliance				
No financial provision for environmental management during construction and operational phase.	Moderate	Developer to budget for environmental mitigation measures such as eradication of alien plant within the development site, specialist that might be required if archaeological finds are unearthed during construction, or sensitive fauna or flora is identified during construction. Developer also to budget for ECO to be part of the development team.	Low	Developer might omit budgeting for environmental monitoring
CONSTRUCTION PHASE				

Beneficial impacts				
Fauna and flora				
Eradication of invasive species.	High	Eradication of invasive species during the construction phase would benefit the biophysical environment. Not necessary to mitigate.	None	No risk due to positive impact
Social & Economic Environment				
Creation of Job opportunities.	High	The proposed development would create job opportunities during the construction phase. Should the local community not benefit from these opportunities, it could lead to an influx of people from other areas. Only employing people from the local community could mitigate the potential adverse impact.	None	No risk due to positive impact
Increase in the rates and taxes payable to the City of Tshwane Metropolitan Municipality.	High	More rates and taxes will be paid to the City of Tshwane Metropolitan Municipality.	None	No risk due to positive impact
Adverse Impacts				
Fauna and Flora				
Loss of habitat specifically related to the Vulnerable Marikana Thornveld threatened Ecosystem	Low	<p>Should any floral or faunal SCC be encountered within the study area during the construction phase, the following should be ensured:</p> <ul style="list-style-type: none"> - Effective relocation of individuals to suitable similar habitat in the vicinity of the study area must be ensured; and - A rescue and relocation plan must be implemented and all rescue and relocation activities should be overseen by a suitably qualified specialist. 	Low	This habitat unit is of low ecological importance and sensitivity. The southern half of the study area contains residential premises and related infrastructures, with extensively maintained gardens. The northern half of the study area is more open, interspersed with trees, flower beds and short lawned areas. The large scale habitat transformation has resulted in the exclusion of faunal and floral SCC from the study area, a low floral and faunal diversity and limited habitat connectivity. Development related activities are therefore unlikely to impact on this habitat unit, as the habitat integrity is historically disturbed and located within an urban setting
Snaring and hunting of fauna and avi-fauna species during the construction phase and the destruction of habitats can have a detrimental effect on some species.	Moderate	<ul style="list-style-type: none"> - Strict measures to prevent the hunting/snaring/scaring of fauna species should be implemented; - The gathering of wood should not be allowed on site or on any adjacent properties; - Any person that is caught hunting, snaring or damaging existing vegetation (earmarked to be retained) should be fined. The responsible contractor will also be fined and will have to replace the 	Low	

		<ul style="list-style-type: none"> - fauna or flora species as specified by the ECO at the time; - The involved authorities should be informed of the activity, the fine and the replacement specifications; - Caught animals should be relocated to conservation areas in the vicinity; 		
Possible spreading of invaders into the natural surrounding areas.	Low	No plants, not indigenous to the area, or exotic plant species should be introduced into the landscaping of the proposed development.	Low	Low risk of invaders spreading into surrounding areas.
Uncontrolled fires may cause damage and loss to vegetation and fauna in the area.	Moderate	<ul style="list-style-type: none"> - If fires are required for cooking and heating purposes, these fires will only be permitted in designated areas on site. The fire area should be an exposed area (no natural veld grass should be in close proximity of the fire area). - Construction workers should only be allowed to smoke in the fire area and fires should preferably be prevented while strong winds are blowing. 	Low	Vegetation Loss
Geology and soils				
Soil erosion due to drainage systems – During the construction phase temporary measures should be implemented to manage storm water and water flow on the application site. If the storm water and water flow is not regulated and managed on site and it could cause significant erosion of soil, as well as the pollution and siltation of drainage channels.	Moderate	<ul style="list-style-type: none"> - Only the identified areas should be cleared of vegetation. This should be done in stages as construction works progress; - Implement temporary storm water management measures that will help to reduce the speed of the water. These measures must also assist with the prevention of water pollution, erosion and siltation; - If excavations or foundations fill up with storm water, these areas should immediately be drained and measures to prevent further water from entering the excavations should be implemented. - Biodegradable matting, geo-textiles and other means of erosion control should be implemented during the construction phase on large exposed areas and where storm water are temporarily channeled; - Any storm water outfalls should be designed and measures should be implemented to prevent erosion and water pollution at these points. Areas around buildings, where gutters and outlets are implemented should be paved; - The services which will be installed in the area, should be designed to run in the same direction as the existing services to make installation and maintenance easy; - Trees may not be planted any closer to services than 1.5 times their mature height; 	Low	Soil erosion as well as damage to stormwater structures could occur if mitigation is not implemented.
If not planned and managed correctly topsoil will be lost.	Moderate	<ul style="list-style-type: none"> - A shake down area at the exits of the construction site should be established where the excessive soil on the tires of the construction vehicles can be brushed off and kept aside for later use during rehabilitation works or landscaping; - The layout of the construction site should be planned before any construction on the site should commence. The areas where soil will be compacted by construction activities, heavy vehicle movement, site camp, material storage areas and stockpiling areas should be marked out and the topsoil should be removed. - The areas where topsoil will not be removed and which will be conserved during the construction phase should be marked with 	Low	Soil erosion could occur if mitigation is not implemented.

		<ul style="list-style-type: none"> - barrier tape to ensure that vehicles do not move across these areas, and construction activities does not damage the in-situ topsoil. - The removed topsoil should be stored separately from all stockpiled materials and subsoil, according to the stockpiling methods as described below. The stockpiled topsoil should be used for rehabilitation and landscaping purposes after construction has been completed; - The installation of services could leave soils exposed and susceptible to erosion. Soils should be stored adjacent to the excavated trenches that are excavated to install services, and this should be filled up with the in-situ material as the services are installed. - All stones and rocks bigger than 80 mm should be removed from the top layer of soil and these disturbed areas should be re-vegetated immediately after works in a specific area are completed to prevent erosion; - Excavations on site must be kept to minimum and done only one section at a time. - Excavated soils must be stockpiled directly on the demarcated area on site. 		
Collapse of structures due to soils that heave and unstable Geology	High	<ul style="list-style-type: none"> - Development of this site will need appropriate design measures to prevent damage to structures due to soil heave. - The main concern is differential soil volume changes and appropriate foundation designs, and building procedures will be necessary Potential expansiveness on the clayey colluvium and residuum is expected to be fall between 45 and 100 mm on surface if the soils wet up from the dry state. - The recommended foundation options for single storey masonry residential units include stiffened or cellular rafts and soil rafts. - Good site drainage will be necessary as seasonal moisture changes are expected and this will aggravate heave and shrinkage in the site soils. - The site soils will not be suitable as backfill, platform fill and subgrade for roads. All paved areas and driveways need to be placed on inert material replacing excavated and removed in situ clay soils. - The pits were backfilled by the TLB without proper compaction in layers. If structures are to be positioned over or across these pits proper compaction must be executed to prevent differential settlements from taking place. The same will apply to development across possible waste pits, previous foundations, root areas of removed medium to large trees, thick fill and old septic tanks. - The corrosiveness of the site soils is extremely high and plastic pipes rather than steel pipes should be used for subsurface services with 	Low	The one major geotechnical constraint is expected heave (up to 80 mm). This can cause structural damage to buildings

		flexibly couplings to accommodate some soil movements.		
		<ul style="list-style-type: none"> - The possible foundation options recommended on this holding, according to the Joint Structural Division (SAICE, 1995) Code of Practice, for single storey masonry residential dwellings founded below the loose upper horizons are (SAICE, 1995): Stiffened or cellular raft Soil raft 		
Climate				
Construction during the rainy season can cause delays and damage to the environment.	Low	<ul style="list-style-type: none"> - It is recommended that the construction phase be scheduled for the winter months especially activities such as the installation of services, foundations, excavations and road construction; - It is also recommended that the precautionary measures be taken in order to prevent the extensive loss of soil during rainstorms. Large exposed areas should adequately be protected against erosion by matting or cladding; - Measures should be implemented during the rainy season to channel storm water away from open excavations and foundations. 	Low	Soil Erosion could occur if mitigation measures are not put in place
Construction during the dry and windy season could cause excessive dust pollution during construction works.	Low	Regular and effective damping down working areas (especially during the dry and windy periods) must be carried out to avoid dust pollution that will have a negative impact on the surrounding environment. When necessary, these working areas should be damped down at least twice a day.	Low	Dust pollution could occur if mitigation is not implemented
Hydrology				
The use of insufficient drainage systems.	Moderate	A storm water management plan should be designed by an engineer to ensure sufficient drainage on site.	Low	Lack of stormwater management would cause excessive erosion of soils
Excavated materials that are stockpiled in wrong areas can interfere with the natural drainage.	Moderate	An area must be allocated for stockpiling of topsoil before any construction take place on the application site. The stockpiles must be situated away from any drainage channel. A sediment fence or barrier must be constructed around the stockpile, to prevent soil from washing away by rain or any water.	Low	Topsoil loss would occur.
Cultural or Historical Features				
Occurrence of cultural historical assets on the proposed development site.	Moderate	If archeological sites are exposed during construction work, it should immediately be reported to a museum, preferably where an archaeologist is available so that an investigation and evaluation of the site can be made.	Low	Cultural heritage finds Unearthed during construction, could be destroyed
Air Pollution				
Nuisance to neighbours in terms of dust generation due to construction during the dry and windy season.	Moderate	The application site must be damped at a regular basis with water to prevent dust pollution to nearby residential area and commuters utilising surrounding roads.	Low	Complaints from Neighbours
Roads and Traffic				

Heavy vehicle traffic increase could disrupt the surrounding landowners' daily routines.	Moderate	Heavy vehicles must be instructed to only use the main roads during off-peak hours.	Low	Could negatively affect Traffic
Restrictions of access to surrounding properties and the study area during construction phases.	Moderate	<ul style="list-style-type: none"> - To minimize the impacts or risks, heavy construction vehicles should avoid using the local road network during peak traffic times. - These vehicles should use only specific roads and strictly keep within the speed limits and abide to all traffic laws. No speeding or reckless driving should be allowed. Access to the site for construction vehicles should be planned to minimize the impact on the surrounding network; and - Warning signs should be erected on the roads that these vehicles will use, at big crossings/ access roads and on the site if needed. 	Low	Surrounding residents could complain about access to properties
Damage to roads	Moderate	Specific roads must be allocated for the use by construction vehicles.	Low	
Safety and Security				
During the construction phase safety and security problems (especially for the surrounding residents) are likely to occur.	Moderate	Construction must be completed in as short time as possible. No construction worker or relative may reside on the application site during the construction phase. All construction workers must leave the site at the end of a day's work. A security guard should be appointed on site to prevent any security problems.	Low	
The excavations associated with proposed development could pose a safety risk to pedestrians.	Moderate	The necessary safety precautions must be in place i.e. excavations must be fenced off with barrier tape; signage must be in place to identify excavations.	Low	
Construction activities could cause danger to children and animals of the surrounding residents	Moderate	<ul style="list-style-type: none"> - Although regarded as a normal practice, it is important to erect proper signs indicating the operation of heavy vehicles in the vicinity of dangerous crossings and access roads or erven with in the development site, if necessary; - It is also important to indicate all areas where excavations took place / are taking place and warning signs that clearly indicate areas with excavations must be placed immediately adjacent to excavations; - A barrier should be established around dangerous excavation areas; - With the exception of appointed security personnel, no other worker, friend or relatives will be allowed to sleep on the construction site (weekends included), in the public open space or on adjacent properties; and - No worker should be allowed to enter adjacent private properties without written consent of the legal owners to the contractor. 	Low	
Visual Impact				
Dumping of builder's rubble on neighbouring properties.	Low	A specific location for building rubble must be allocated on site, to concentrate and collect the building rubble and cart it to a certified landfill site. The allocated area must be out of sight of neighbouring properties to have a less visual impact.	Low	
Inappropriate stockpile areas for construction materials.	Moderate	An area on the site must be allocated for the stockpile of construction materials. The area must be situated on the application site, and must be situated to have a minimal visual impact on the neighbouring area.	Low	

Veld fires may cause damage to infrastructure, vegetation and neighboring properties.	Moderate	A specific area on site must be allocated, which will have the least impact on the environment and surrounding landowners, for fires of construction workers. This allocated area must be far from any structures and no fires may be lit except in the designated location.	Low	
The construction vehicles, the site camp and other construction related facilities will have a negative visual impact during the construction phase.	Moderate	Before any construction commence on site, an area on site must be demarcated for a site camp.	Low	
Waste Management				
Site office, camp and associated waste (visual, air and soil pollution)	Moderate	<ul style="list-style-type: none"> - Temporary waste storage points on site shall be determined. These storage points shall be accessible by waste removal trucks; - These points should not be located in areas highly visible from the properties of the surrounding landowners/ tenants / in areas where the wind direction will carry bad odours across the properties of adjacent tenants or landowners; - The site camp and the rest of the study area should appear neat at all times; - Waste materials should be removed from the site on a regular basis, to a registered dumping site; and - The site camp should not be located in a highly visual area on the study area, or a screen or barrier should be erected as not have a negative impact on the sense of place. 	Low	<ul style="list-style-type: none"> • Offensive odours, • rodents, • health implications, • complaints from neighbours
Disposal of building waste & liquids	Moderate	<ul style="list-style-type: none"> - All the waste generated by the proposed developments must be dumped at a preselected area on site to be carted to a register landfill site; - These areas shall be predetermined and located in areas that are already disturbed. - Small lightweight waste items should be contained in skips with lids to prevent wind littering; - All waste must be removed to a recognized waste disposal site/ landfill site on a weekly basis. No waste materials may be disposed of on or adjacent to the site; - The storage of solid waste on site, until such time that it may be disposed of, must be in the manner acceptable to the local authority; and - Keep records of waste reuse, recycling and disposal for future reference. 	Low	
OPERATIONAL PHASE				
Beneficial impacts				
Social & Economic Environment				
Creation of temporary and permanent jobs	Moderate	During the operational phase numerous permanent jobs will be created on various levels (house, garden, maintenance, etc.).	None	No risk due to positive impact
Increasing security in the area	High	In the long term the proposed development will improve the security of the area. The monitored access points will improve the security of the	None	No risk due to positive impact

		proposed site and surrounding areas.		
Increase in rates and taxes payable to the City of Tshwane Metropolitan Municipality	Moderate	More rates and taxes will be paid to the CTMM.	None	No risk due to positive impact
Increase in surrounding property values	High	If planned and managed correctly, the proposed development could have a positive impact on property values. Due to the proposed theme, the development will generally be in line with the surrounding land uses.	None	No risk due to positive impact
Adverse Impacts				
Groundwater Pollution				
Spillages occurring from the movement and storage of hazardous substances could cause groundwater pollution	High	Special care needs to be taken to ensure that emergency measures are in place to clean up spillages immediately.	Moderate	Could cause groundwater pollution if emergency measures are not implemented.
Fauna and Flora				
Invasive plant species occurrence	Moderate	Alien plant eradication to continue during operational phase of the project. Should any alien plant species occur in the areas where construction works and ground works took place, it should be eradicated from the area.	Low	If mitigation is not implemented, invasive plants could spread.
Soils				
Spillages occurring from the movement and storage of hazardous substances could cause soil pollution	High	Special care needs to be taken to ensure that emergency measures are in place to clean up spillages immediately.	Moderate	Could cause soil pollution if emergency measures are not implemented.
Hydrology				
An increase in surface water runoff to storm water management systems (because of an increase of hard-surfaces such as roofs and paved areas), may have an impact on surface quality and quantities.	Low	<ul style="list-style-type: none"> - Storm water through the site should be managed to accommodate the higher quantities of runoff, - Sheet flow should be encouraged as far as possible, and channels should be designed sufficiently to address the problem or erosion, and Bio-swale system could be implemented to filter water from paved areas and especially from roads and parking areas to sufficiently clean water of heavy metals and other hazardous materials contained in storm water in a natural manner. This will further provide an opportunity for water to infiltrate the soil, break the energy of storm water and keep the water on site for longer. 	Low	Soil erosion as well as damage to stormwater structures could occur if mitigation is not implemented.
Light Pollution				
The proposed development could cause a significant level of light pollution as the retirement village development will need some security lighting.	Low	Lighting within the proposed development, including security lighting, could easily glare into surrounding residences if not designed appropriately. It is recommended that all the lighting on site be designed to point downwards and designed in such a way as to not cause glare dispersal or unnecessary flickering.	Low	Could cause light pollution
Noise Pollution				
The generation of noise pollution – Additional traffic generated by the proposed development will have some impact on the ambient noise levels within the area.	Low	As mentioned previously, one has to note that the study area is wedged between agricultural holdings and existing residential developments which already generate ambient noise levels that exceed the acceptable levels	Low	Could cause additional noise pollution, surrounding residents could complain

		for urban and residential areas. It is therefore, when one consider the above mentioned, that ambient noise levels generated by this particular development would not be that significant, as the proposed development, is located within an area that already exceed the acceptable noise levels.		
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No Go

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
<p>The no-go alternative will result in no development taking place within the area. No positive impacts are foreseen for the no-go alternative, as it would result in the application site remaining in its current state.</p> <p>The social and economic benefits associated with the potential development will not be realized if the development does not go ahead. There will be no job opportunities for the local community during the short and long term.</p>				

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

- Appendix G1 - Geotechnical Site Investigation
- Appendix G3 - Terrestrial Ecological Scan
- Appendix G4 - Heritage Impact Assessment
- Appendix G5 - Traffic Impact Assessment
- Appendix G6 - Services Reports

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 DECOMMISSIONING 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.

Proposal

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Environmental legal compliance				
No financial provision for environmental management during decommissioning and closure phase.	Moderate	Developer to budget for environmental mitigation measures such as eradication of alien plant within the development site. Developer also to budget for ECO to be part of the development team.	Low	Developer might omit budgeting for environmental monitoring
Fauna and flora				
Not immediately rehabilitating disturbed areas resulting in spread if invasive plants and weeds.	High	Eradication of invasive species during the decommissioning and closure phase would benefit the biophysical environment.	Low	The spreading of alien invasive species could occur.
Social & Economic Environment				
Demolition teams must be appointed to deconstruct and demolish structures.	High	Job creation through the appointment of a local demolition company.	None	Positive impact: Job creation
A rehabilitation team / company must be appointed to vegetate the area after deconstruction and demolition is completed	High	Job creation through the appointment of a local rehabilitation team/ company.	None	Positive impact: Job creation
Geology and soils				
Soil erosion, siltation and gully formation.	Moderate	Demolition works must be kept to a minimum on site and only be done one section at a time to prevent excessive open soil areas that could lead to soil erosion, siltation and excessive compaction.	Low	If no mitigation measures are implemented, erosion of fill material could occur.
If not planned and managed correctly, topsoil will be lost.	Moderate	<p>A shake down area at the exit of the site should be established where the excessive soil on the tires of vehicles can be brushed off and kept aside for later use during rehabilitation works;</p> <ul style="list-style-type: none"> - The site should be planned before any decommissioning activities take place on site. - The areas where soil will be compacted, heavy vehicle movement (on site construction routes), site camp, material storage areas and stockpiling areas should be marked out and the topsoil should be removed; - The areas where topsoil will not be removed and that will be conserved should be marked with barrier tape to ensure vehicles do not move across these areas and decommissioning activities do not damage the in situ topsoil; - The removed topsoil should be stored separately from all stockpiled materials and subsoil, according to the stockpiling methods as described below. The stockpiled topsoil should be used for rehabilitation purposes after decommissioning has been completed; and - Rehabilitation works must be done immediately after the 	Low	Loss of topsoil could occur if the mitigation measures are not implemented

		involved works in an area is completed to prevent erosion.		
Hydrology				
Not reinstating natural run-off/drainage following completion of the decommissioning phase.	Moderate	Due to construction/decommissioning activities such as excavations and stockpiling, the natural drainage of the area will temporarily be changed. Following completion of the decommissioning phase and completion of rehabilitation, natural drainage should be reinstated to its former (prior to construction) state.	Low	Damage to natural drainage could occur if mitigation measures are not followed
Demolition works during the rainy season can cause unnecessary delays and damage to the environment, especially damage to existing roads in the area.	Moderate	Should decommissioning take place in the wetter months, frequent rain could cause very wet conditions, which makes it extremely difficult to do the necessary rehabilitation works of disturbed areas. Wet soils are vulnerable to compaction. Wet conditions often cause delays and the draining of water away from the works (in the case of high water tables).	Low	Unnecessary erosion and damage to roads could occur if mitigation measures are not followed
Air and Noise Pollution				
Demolition works during the dry and windy season.	Moderate	Regular and effective damping down of working areas (especially during the dry and windy periods) must be carried out to avoid dust pollution that will have a negative impact on the surrounding environment. When necessary, these working areas should be damped down at least twice daily.	Low	Air pollution could occur if mitigation measures are not followed
The noise created by decommissioning activities will result in an increase in ambient noise levels. This will be short term, being generated only during the day.	Moderate	All decommissioning and closure activities must be restricted to normal working hours from 8:00 in the morning to no later than 18:00 in the afternoons. No construction/ decommissioning may take place on Sundays and public holidays.	Low	Noise pollution could occur if mitigation measures are not followed
Roads and Traffic				
Heavy vehicle traffic increase could disrupt the surrounding landowners' daily routines.	Moderate	Heavy vehicles must be instructed to only use the main roads during off-peak hours.	Low	Could negatively affect traffic
Restrictions of access to surrounding properties and the study area during decommissioning and closure phases.	Moderate	<ul style="list-style-type: none"> - To minimize the impacts or risks, heavy demolition vehicles and trucks should avoid using the local road network during peak traffic times. - These vehicles should use only specific roads and strictly keep within the speed limits and abide to all traffic laws. No speeding or reckless driving should be allowed. Access to the site for construction vehicles should be planned to minimize the impact on the surrounding network; and - Warning signs should be erected on the roads that these heavy demolition vehicles and trucks will use, at big crossings/ access roads and on the site if needed. 	Low	Surrounding residents could complain about access to properties
Damage to roads	Moderate	Specific roads must be allocated for the use by construction vehicles.	Low	Road damage could occur
Safety and Security				
Decommissioning activities could cause danger to drivers and pedestrians.	Moderate	The necessary safety precautions must remain in place until decommissioning phase is concluded i.e. signage must be in place to identify activities in progress.	Low	Dangerous conditions for pedestrians and drivers
Waste Management				

Disposal of builders waste and waste materials.	Moderate	<ul style="list-style-type: none"> - All waste generated during the decommissioning phase of the project is to be collected and disposed of at a registered landfill site. - Records must be kept of waste reused, recycled, and disposed for inspection by authorities. 	Low	Unnecessary pollution could occur if mitigation measures are not followed
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Alternative 1

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Environmental legal compliance				
No financial provision for environmental management during decommissioning and closure phase.	Moderate	Developer to budget for environmental mitigation measures such as eradication of alien plant within the development site. Developer also to budget for ECO to be part of the development team.	Low	Developer might omit budgeting for environmental monitoring
Fauna and flora				
Not immediately rehabilitating disturbed areas resulting in spread of invasive plants and weeds.	High	Eradication of invasive species during the decommissioning and closure phase would benefit the biophysical environment.	Low	The spreading of alien invasive species could occur.
Social & Economic Environment				
Demolition teams must be appointed to deconstruct and demolish structures.	High	Job creation through the appointment of a local demolition company.	None	Positive impact: Job creation
A rehabilitation team / company must be appointed to revegetate the area after deconstruction and demolition is completed	High	Job creation through the appointment of a local rehabilitation team/company.	None	Positive impact: Job creation
Geology and soils				
Soil erosion, siltation and gully formation.	Moderate	Demolition works must be kept to a minimum on site and only be done one section at a time to prevent excessive open soil areas that could lead to soil erosion, siltation and excessive compaction.	Low	If no mitigation measures are implemented, erosion of fill material could occur.
If not planned and managed correctly, topsoil will be lost.	Moderate	<p>A shake down area at the exit of the site should be established where the excessive soil on the tires of vehicles can be brushed off and kept aside for later use during rehabilitation works;</p> <ul style="list-style-type: none"> - The site should be planned before any decommissioning activities take place on site. - The areas where soil will be compacted, heavy vehicle movement (on site construction routes), site camp, material storage areas and stockpiling areas should be marked out and the topsoil should be removed; 	Low	Loss of topsoil could occur if the mitigation measures are not implemented

		<ul style="list-style-type: none"> - The areas where topsoil will not be removed and that will be conserved should be marked with barrier tape to ensure vehicles do not move across these areas and decommissioning activities do not damage the in situ topsoil; - The removed topsoil should be stored separately from all stockpiled materials and subsoil, according to the stockpiling methods as described below. The stockpiled topsoil should be used for rehabilitation purposes after decommissioning has been completed; and - Rehabilitation works must be done immediately after the involved works in an area is completed to prevent erosion. 		
Light industrial working had the potential to cause huge amounts of spillages and contamination of Soils	High	<ul style="list-style-type: none"> - Soil samples must be collected and analyzed to determine the level of soil contamination/ (if any) on and around the site. - Appropriate measures must be taken as recommended by the Soil / geological specialist appointed In conjunction with the groundwater pollution samples that needs to be taken (see below groundwater impact) to remove soil from contaminated areas and rehabilitate accordingly. 		
Hydrology				
Not reinstating natural run-off/drainage following completion of the decommissioning phase.	Moderate	Due to construction/decommissioning activities such as excavations and stockpiling, the natural drainage of the area will temporarily be changed. Following completion of the decommissioning phase and completion of rehabilitation, natural drainage should be reinstated to its former (prior to construction) state.	Low	Damage to natural drainage could occur if mitigation measures are not followed
Demolition works during the rainy season can cause unnecessary delays and damage to the environment, especially damage to existing roads in the area.	Moderate	Should decommissioning take place in the wetter months, frequent rain could cause very wet conditions, which makes it extremely difficult to do the necessary rehabilitation works of disturbed areas. Wet soils are vulnerable to compaction. Wet conditions often cause delays and the draining of water away from the works (in the case of high water tables).	Low	Unnecessary erosion and damage to roads could occur if mitigation measures are not followed
Groundwater				
Light industrial working had the potential to cause huge amounts of spillages and contamination of groundwater	High	<ul style="list-style-type: none"> - Groundwater samples must be collected and analyzed to determine the quality of groundwater on and around the site. - Appropriate measures must be taken as recommended by the groundwater specialist appointed In conjunction with the soils pollution samples that needs to be taken (see above soil impact) to remove soil from contaminated areas and rehabilitate accordingly. 	Moderate	Impact could cause detrimental environmental damage.
Air and Noise Pollution				
Demolition works during the dry and windy season.	Moderate	Regular and effective damping down of working areas (especially during the dry and windy periods) must be carried out to avoid dust pollution that will have a negative impact on the surrounding environment. When necessary, these working areas should be damped down at least twice daily.	Low	Air pollution could occur if mitigation measures are not followed
The noise created by decommissioning activities will result in an increase in ambient noise levels. This will	Moderate	All decommissioning and closure activities must be restricted to normal working hours from 8:00 in the morning to no later than 18:00 in the	Low	Noise pollution could occur if mitigation measures are not followed

be short term, being generated only during the day.		afternoons. No construction/ decommissioning may take place on Sundays and public holidays.		
Roads and Traffic				
Heavy vehicle traffic increase could disrupt the surrounding landowners' daily routines.	Moderate	Heavy vehicles must be instructed to only use the main roads during off-peak hours.	Low	Could negatively affect traffic
Restrictions of access to surrounding properties and the study area during decommissioning and closure phases.	Moderate	<ul style="list-style-type: none"> - To minimize the impacts or risks, heavy demolition vehicles and trucks should avoid using the local road network during peak traffic times. - These vehicles should use only specific roads and strictly keep within the speed limits and abide to all traffic laws. No speeding or reckless driving should be allowed. Access to the site for construction vehicles should be planned to minimize the impact on the surrounding network; and - Warning signs should be erected on the roads that these heavy demolition vehicles and trucks will use, at big crossings/ access roads and on the site if needed. 	Low	Surrounding residents could complain about access to properties
Damage to roads	Moderate	Specific roads must be allocated for the use by construction vehicles.	Low	Road damage could occur
Safety and Security				
Decommissioning activities could cause danger to drivers and pedestrians.	Moderate	The necessary safety precautions must remain in place until decommissioning phase is concluded i.e. signage must be in place to identify activities in progress.	Low	Dangerous conditions for pedestrians and drivers
Waste Management				
Disposal of builders waste and waste materials.	Moderate	<ul style="list-style-type: none"> - All waste generated during the decommissioning phase of the project is to be collected and disposed of at a registered landfill site. - Records must be kept of waste reused, recycled, and disposed for inspection by authorities. 	Low	Unnecessary pollution could occur if mitigation measures are not followed

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

Appendix G1 - Geotechnical Site Investigation
Appendix G3 - Terrestrial Ecological Scan
Appendix G4 - Heritage Impact Assessment
Appendix G5 - Traffic Impact Assessment
Appendix G6 - Services Reports

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

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:

Please also refer to the cumulative impacts identified in the impact tables included for the different alternatives above. The cumulative impacts associated with the proposed project consist of the following:

Construction phase
Preferred Alternative

- Noise pollution may upset residents in the area – to prevent this, construction activities may only take place during the daytime;
- Surface water flows will be altered during the construction phase of the proposed development – a storm water management plan must therefore be implemented;
- The construction vehicles and facilities will have a negative impact on the study area and surrounding views – this impact may be minimized by locating the site camp in an area with low visibility from surrounding developments and road networks;
- Dust pollution could cause nuisance to surrounding residents – dust can be effectively controlled through the wetting of exposed surfaces, especially in the Winter Months;
- Traffic flow could be negatively affected by the proposed construction activities coupled with peak traffic hours. It is thus important that use of access roads be limited to off-peak hours;
- Cumulative negative visual impact on surrounding views due to camp site, movement of construction vehicles, building rubble storage, and construction works etc. This impact may be minimized by locating the site camp and rubble storage area in an area with low visibility from surrounding developments and road networks; and
- During the construction phase some safety problems (especially for the surrounding residents) are likely to occur – in order to minimise this, site workers are not to be allowed to sleep on the construction site at night and provision for adequate security site supervision must be made during the day.

Subsequently, the above mentioned cumulative impacts can be mitigated if activities are correctly planned and measures are implemented to manage activities which could cause any negative cumulative impacts.

Operational phase
Preferred Alternative

- Cumulative impact on traffic volumes during the operational phase.

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.

Proposal

The impact assessment conducted pointed out the potential environmental impacts which may arise from the proposed development. The associated impacts were further rated in order to establish the significance of these impacts (refer to section 2 of the BAR). The following environmental impacts are associated with the preferred alternative:

- Impact on surface and ground water due to poor management of existing and temporary ablution facilities
- Impact on drainage line during construction activities as a result of siltation and sedimentation
- Impact on surface and ground water due to vehicle maintenance
- Poor storm water management might impact on the quality of surface and ground water and the wetland as a result of contamination of storm water run-off and might further cause erosion
- Impact on water quality, ecology and soil due to poor waste management
- Spread and establishment of alien invasive species
- Impact on topsoil due to poor storm water management, poor stockpiling practices and poor waste management
- Noise impact of construction
- Traffic Impact of increased traffic volumes in the area.
- Impact on Air Quality through dust generation

- Impact on Safety and Security

Having assessed the associated impacts there are no detrimental environmental impacts associated with the proposed development, should the proposed mitigation measures be implemented.

The majority of the impacts will have a significance rating of low to negligible after the implementation of mitigation measures proposed.

Alternative 1

The impact assessment conducted pointed out the potential environmental impacts which may arise from the development of Alternative 1. The associated impacts were further rated in order to establish the significance of these impacts (refer to section 2 of the BAR). The following environmental impacts are associated with the preferred alternative:

- Impact on surface and ground water due to poor management of existing and temporary ablution facilities.
- Impact on Groundwater and stormwater through spillages and contamination on site.
- Impact on Soils and stormwater through spillages and contamination on site.
- Impact on drainage line during construction activities as a result of siltation and sedimentation
- Impact on surface and ground water due to vehicle maintenance
- Poor storm water management might impact on the quality of surface and ground water and the wetland as a result of contamination of storm water run-off and might further cause erosion
- Impact on water quality, ecology and soil due to poor waste management
- Spread and establishment of alien invasive species
- Impact on topsoil due to poor storm water management, poor stockpiling practices and poor waste management
- Noise impact of construction
- Traffic Impact of increased traffic volumes in the area.
- Impact on Air Quality through dust generation
- Impact on Safety and Security

Having assessed the associated impacts there are the pollution potential from soil and groundwater contamination associated with the development of Alternative 1.

Alternative 2

Not applicable

No-go (compulsory)

The impact assessment conducted pointed out the potential impacts which may arise as a result of the No-go alternative. The associated impacts were further rated in order to establish the significance of these impacts. As there is currently no formal storm water management infrastructure within the area, implementation of the no-go alternative will increase the potential of surface water contamination. The lack of formal storm water management infrastructure further increases the potential for erosion, as well as siltation and sedimentation of the wetland and drainage line.

The proposed project offers economic turnover as it will provide various employment opportunities to a number of skilled, semi-skilled and unskilled employees during the construction phase. The development in its operational phase will not only create permanent jobs but it will also create permanent jobs associated with community upliftment.

Therefore, the "No-Go" alternative is not regarded as a viable alternative.

6. IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE

For proposal:

The establishment of the proposed activity: the Montana Elderly Care Centre

For alternative:

Alternative 1: Light industrial.

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.

It is evident that based on the biophysical and sociological characteristics, the site is suitable for the proposed development of Montana Elderly Care Centre (only if the project is planned and managed in accordance with an approved Environmental Management Programme). The development will fit in with the surrounding area due to all the applications currently in process and create job opportunities during the construction and operational phase.

As already indicated, most of the construction related activities could be mitigated to an acceptable level. Furthermore no detrimental ecological impacts are anticipated; in fact the construction activities of the proposed development can lead to an improvement of the ecological conditions on the site as alien and invasive plant species will be eradicated and monitored. The proposed development will create several job opportunities during the construction and operational phase. If managed correctly, the proposed project could have a significant positive impact on the social and economic environments.

In the long term the impact of the proposed development will be more positive than negative for the Bio-physical, Social and Economic environments. The mitigations and adaptive monitoring outlined in this Basic Assessment and the EMP with respect to potential adverse impacts should result in limited adverse impacts on local and regional, natural and socio-economic resources. Balanced with the overall beneficial positive economic and environmental impacts identified, the potential net adverse effects attributable to the proposed development do not constitute a threat to local and regional

ecological resources and social systems. No "Fatal Flaws" or adverse impacts that cannot be mitigated are anticipated to be associated with the proposed development.

As a result of the above mentioned information, Earth Ties Environmental is of the opinion that the proposed development (only if planned, implemented and managed correctly) will in the long term have a significant positive impact on the larger regional system to which it is linked.

It is therefore requested that the development be allowed to proceed, so long as the mitigation measures contained in this report and in the Environmental Management Plan (Appendix H) are implemented, so as to achieve maximum advantage from beneficial impacts, and sufficient mitigation of adverse impacts.

7. SPATIAL DEVELOPMENT TOOLS

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

The following spatial development tools have been taken into account as part of this environmental assessment:

- City of Tshwane Open Space Framework – the TOSF indicates that the proposed development is in line for the land use proposed for the area, as the site falls within a development corridor earmarked for similar developments.
- Gauteng provincial environmental management framework - the municipality's EMF was reviewed in order to identify potential environmental control zones and areas with environmental constraints within the project area.
- Gauteng c-plan version 3.3 - the Gauteng c-plan consists of a systematic conservation plan for the Gauteng province which was undertaken by Gauteng nature conservation, a division within the Gauteng department of agriculture and rural development (GDARD). Areas of ecological importance included in the Gauteng c-plan, include critical biodiversity areas, ecological support areas and protected areas. C-plan was consulted during the environmental assessment in order to identify areas of ecological importance within the surrounding area. It became evident that an ecological support area (ESA) transects the site and as such had to be taken into consideration.

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

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

It is the professional opinion of Earth Ties Environmental Services (Pty) Ltd that the proposed development will not have any detrimental environmental impacts on the surrounding environment. No fatal flaws have been identified during the environmental assessment. The potential impacts have been highlighted and can be minimized with strict implementation of the mitigation measures included in the EMP. As such it is recommended that the proposed development should be authorised provided that the activities take place in an environmental sensitive manner along with compliance with the mitigation measures provided.

It is recommended that the following conditions and mitigation measures be considered for inclusion in the Environmental Authorisation:

- The site specific mitigation measures included in the attached Environmental Management Program must be implemented and adhered to,
- Compliance towards the Environmental Management Program, as well as the Environmental Authorisation must be monitored by an independent Environmental Control Officer on a monthly basis and compile monthly ECO Reports to be submitted to the contractor and GDARD,
- Should any significant incidents occur the relevant local authority will be informed immediately and the incident will be managed accordingly,

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

Elderly care emphasizes the social and personal requirements of senior citizens who need some assistance with daily activities and health care, but who desire to age with dignity. It is an important distinction, in that the design of housing, services, activities, employee training and such should be truly customer-centered.

Stats SA published the Profile of Older Persons in South Africa after the census of 2011 (Report No. 03-01-60) in this report it is noticed that the percentage of the population aged 60 years and above rose

from 7,1% in 1996 to 8,0% in 2011, constituting an increase from 2,8 million to 4,1 million individuals.

The report concludes that in the last 15 years, the elderly population in South Africa has gradually increased and will continue to do so, given the current levels of fertility and mortality. The projected growth in numbers of the elderly will have immense social, economic and health care implications. Such a shift in the age structure takes place in a country with high levels of unemployment, inequality and poverty. The challenge is thus to ensure that all elderly persons are able to experience the right to security and dignity. It is imperative that South Africa, a country whose population is already ageing, begins to evaluate the trade-offs of different policy options with the overall objective of improving welfare across the age cycle.

The development of the proposed Montana Elderly Care Centre will benefit the area and advance the goals of providing the correct care for elderly persons in the area.

The following serve as motivational factors with regards to the need and desirability of the proposed development and should be considered by the competent authority:

- The proposed development will create temporary jobs during the construction phase.
- The proposed development will add to local economic development and will supply a much needed retirement facility.

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

As the current economic conditions are unsure, it is proposed that the environmental authorization has a duration of 5 years. This will enable the applicant to implement the proposed mitigation measures properly through a timeous and detailed design phase.

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

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

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

Appendix A: Site plan(s) – *(must include a scaled layout plan of the proposed activities overlain on the site sensitivities indicating areas to be avoided including buffers)*

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Route position information

Appendix E: Public participation information

Appendix F: Water use license(s) authorisation, SAHRA information, service letters from municipalities, water supply information

Appendix G: Specialist reports

Appendix H: EMPr

Appendix I: Other information

CHECKLIST

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

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