

11. CONCLUSION

AB Enviro Consult was appointed by the Ga-Segonyana Local Municipality to apply for Authorization for the "Proposed" Establishment of a Township on the site. A site inspection held on 22 May 2018 revealed that construction activities on site has already commenced. The EAP then arranged a meeting with Ms. Tshepiso Lekwene from the DENC and she confirmed that the process that will have to be followed will be to apply for the rectification of unlawful commencement or continuation of a listed activity in terms of Section 24G of the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended.

The Applicant was not aware that they required Environmental Authorization before starting with provision of essential services in the area.

The intension of this application is thus to legalise the commencement of the clearance of 361.4146 ha of indigenous vegetation in order to formalise a township, currently known as "Promised Land" situated on a Portion of the Remaining Extent of Erf 1 and Erf 3 Kuruman and a Portion of the Remaining Extent of Portion 3 of the Farm Kuruman Reserve No. 690 within the Ga-Segonyana Local Municipality, Northern-Cape Province.

The proposed formalised Township will consist of the following land uses:

LEGEND					
Proposed Zoning	Proposed Land use	Number of Erven	Erf Number	Area in Ha	% of Area
Residential zone III	Flats, Residential building	2	*	3.2142ha	%
Residential zone IV	Residential house, low cost housing (Minimum 350m ²)	5469	*	228.7591ha	%
Business zone I	Business premises including, Institution, Authority use, Flats, Residential building	1	*	1.1486ha	%
Business zone II	Shop	11	*	2.1415ha	%
Institutional zone I	Place of instruction (Primary School)	2	*	6.1037ha	%
	Place of instruction (Creche)	3	*	0.3626ha	%
Institutional zone II	Public place of worship (Church)	12	*	1.6673ha	%
Institutional zone III	Institution (Thusong Centre/Community Hall)	1	*	0.4484ha	%
Open space zone I	Public open space	28	*	20.5678ha	%
Open space zone II	Private open space (Sportsfield)	2	*	2.4894ha	%
	Private open space (Cemetery)	1	*	0.3359ha	%
Transport zone I	Transport use (Taxi rank)	1	*	0.2664ha	%
Transport zone II	Public street	124	*	80.9733ha	%
Authority zone I	Authority use (Municipal)	5	*	6.9364ha	%
TOTAL		5662	*	361.4146ha	%

Informal settlement has already taken place on site, as such the need for housing in the area is highlighted. As in the rest of South Africa, there is a housing shortage in the area. This is undesirable as informal settlements consist of non-conventional housing built without complying with legal building procedures. Broadly, these crude dwellings mostly lack proper indoor infrastructure, such as water supply, sanitation, drainage, waste disposal and proper road access. There is also a bond between poor housing and environmental conditions in informal settlements which also reflects poverty.

Linking basic services such as water to health is viewed as a false separation as these services are 'intimately related to housing'. It becomes a housing issue if children playing outside the house contract diarrhea via ingesting pathogens from fecal matter which contaminates the land on which they play. Otherwise, it is the house which provides for shelter against injury, weather and disease. Improving the surroundings of the house is to limit severe health risks existing within poor quality housing.

One of the objectives of an EIA is to investigate alternatives to the proposed project. The IEM procedure stipulates that the environmental investigation needs to consider feasible alternatives for any proposed development. Therefore, a number of possible proposals or alternatives for accomplishing the same objectives should be identified and investigated. In order to ensure that the proposed development enables sustainable development, feasible alternatives must be explored (S. Cliff, 2015).

The identification, description, evaluation and comparison of alternatives are important for ensuring a sound environmental scoping process. Alternatives should be considered as a norm within the Environmental Process (S. Cliff, 2015).

The alternatives considered for the proposed development includes land use alternatives (including the No-go option). The various alternatives will be assessed in the EIAR, in terms of environmental, social and technical feasibility.

Land Use Alternatives

Mixed land use township (Alternative 1)

Alternative Site layouts have been developed for the proposed development.

The appointed Town and Regional planner have produced the proposed layout plan.

Although the emphasis is on housing, complimentary land uses have been included in the township. People want easy access to job opportunities, shops, banking facilities, clinics, etc. and want their living environment, such as residential townships to be placed at strategic positions with good access routes in close proximity to these amenities.

A mixed land use development is *socially responsible* based on the following:

- It covers the mixed and lower income bracket by providing a higher density housing option;
- The development will inevitably support the use of public transport;
- The development will include supporting social infrastructure (schools), as well as some retail or commercial activities;
- The layout of the development must respond to the future road planning for the area, to facilitate and maximise pedestrianisation and public transport.
- Commercial erven can accommodate a shopping centre, to service the existing formalised and informal settlements in the area. The commercial node will:
 - Promote entrepreneurial services and products;

- Be within walking distance to places of refreshment and trade for residents;
- Provide Job opportunities; and
- Improve neighbourhood quality.

Single land use: Housing only (Alternative 2)

By providing only one land use type (i.e., housing), mixed income development and social integration across race and income levels, cannot be achieved.

A Commercial node on site is commonly utilised as a "Multi-Purpose Community Centre/Rural Service Centre" which is defined as "a focal point at which a range of essential services can be obtained by people living in its vicinity". In turn, a commercial node acts as a pool of human and physical resources from which the inputs necessary for development can be distributed efficiently, and from which a community can draw to promote their development".

By restricting a township to one land use only, the above benefits to the local community, and subsequent council area, cannot be realised, and hence, is not a preferred land use option.

No-go Alternative

The only other alternative that exists for the proposed development is the "no-go" option which will imply that the status quo will prevail. This is unacceptable as Informal settlements consist of non-conventional housing built without complying with legal building procedures. Broadly, these crude dwellings mostly lack proper indoor infrastructure, such as water supply, sanitation, drainage, waste disposal and proper road access. There is also a bond between poor housing and environmental conditions in informal settlements which also reflects poverty. Linking basic services such as water to health is viewed as a false separation as these services are 'intimately related to housing'. It becomes a housing issue if children playing outside the house contract diarrhoea via ingesting pathogens from faecal matter which contaminates the land on which they play. Otherwise, it is the house which provides for shelter against injury, weather and disease. Improving the surroundings of the house is to limit severe health risks existing within poor quality housing.

The proposed development is to formalize a township and to provide the services associated with a town to people in the area. It was envisioned to develop the proposed town as early as 2015, however, detailed site surveys had to be conducted as the area is known for dolomitic instability. These have now been completed and formalization of the town is highly desirable as it will eliminate the negatives associated with informal housing as described above.

As soon as the applicant became aware of the fact that he needed Environmental Authorization, he appointed AB Enviro-Consult to obtain the necessary authorizations. An Environmental Screening Process was conducted by the EAP to ensure that all the relevant Environmental Legislation is taken into consideration. Desk top studies were conducted and alternatives assessed. Site inspections were carried out to verify the outcomes of the desktop studies, and the preferred alternative defined. A Botanical Specialist was appointed to conduct a Botanical survey of the area. This included a vegetation and habitat study to determine possible fatal flaws and to identify sensitive / no-go areas.

A full Public Participation Process was followed to obtain inputs from interested and affected parties. All the information obtained from the above mentioned processes was used to assess the Environmental Impact that the proposed development may have on the Environment and vice versa. The inputs from the Specialists, interested and affected parties, together with the knowledge of the EAP was used to determine measures to avoid, mitigate and manage potential impacts. These measures are described in the Environmental Management Programme

12. RECOMMENDATION OF 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)?

YES	NO

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process 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:

- | |
|--|
| <ol style="list-style-type: none"> 1. The mitigation measures as described in this report must be implemented. 2. The mitigation measures contained in this report are legally binding. 3. Mitigation measures must be made known to personnel, contractors and sub-contractors associated with this project. 4. Erosion control measures as specified in the Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) must be controlled as specified in the act. 5. Weeds and invader plants that are declared in terms of the Conservation of Agricultural Resource Act (Act 43 of 1983) must be controlled as prescribed in the act. 6. In the event that protected trees cannot be avoided, the developer must apply for a Forest Act License. 7. An environmental control officer (ECO) must ensure that conditions stipulated in the EA are complied with. 8. The contractor/s responsible for construction must leave the site free from erosion, pollution and/or unwanted material. 9. If during the construction phase any artefacts are discovered, the work in the direct vicinity of the find must be stopped. Under no circumstances shall any artefacts be destroyed. Such a site must be demarcated and fenced off and SAHRA notified within 48 hours. 10. As far as possible, employment opportunities should be given to the local labour force in order to stimulate growth in the local and regional economy. 11. In the event of non-compliance to any of the conditions contained in the Environmental Authorisation, the contractor/applicant will be held responsible. 12. Following a request to the Council for Geo-Science regarding the formal houses on areas designated as D4 (Zone III) in terms of the Dolomite Stability Investigation, the Council for Geo-Science did not recommend the relocation or demolishing of formal houses but recommend strict adherence the following precautionary requirements: <ul style="list-style-type: none"> ➤ Site specific Dolomite Risk Management Plan in accordance with SANS 1936-4:2012 must be compiled and implemented for these houses / formal structures in D4 Land. The owners/responsible persons must be made aware of the risks involved in building on dolomite, and be informed about how to be vigilant and act pro-actively by applying sound water management principles. ➤ General precautionary measures as set out in SANS 1936 Part 3: Design and construction of buildings, structures and infrastructure, must be studied and implemented. 13. The applicant is responsible for all costs necessary to comply with the above conditions unless otherwise specified in the contracts of the contractor/s. |
|--|

Is an EMPr attached?

YES	NO
-----	----

The EMPr must be attached as Appendix E.

13. AFFIRMATION BY EAP

I ---JP DE VILLIERS--(name of person representing EAP) of --AB ENVIRO-CONSULT CC---(name of company) declare that the information provided is correct and relevant to the activity/ project and that, the information was made available to interested and affected parties for their comments. All specialist (s) reports are relevant for the competent authority to make informed decision.



**SIGNATURE OF
EAP**

14/05/2019

DATE

SECTION F: APPENDICES

The following appendices are attached:

Appendix A: A3 Locality Map

Appendix B: Layout Plan and Sensitivity Maps

Appendix C: Photographs

Appendix D: Facility illustration(s)

Appendix E: Confirmation of services by Municipality (servitude and infrastructure planning)

Appendix F: Details and expertise of Specialist and Declaration of Interest

Appendix G: Specialist reports (including terms of reference)

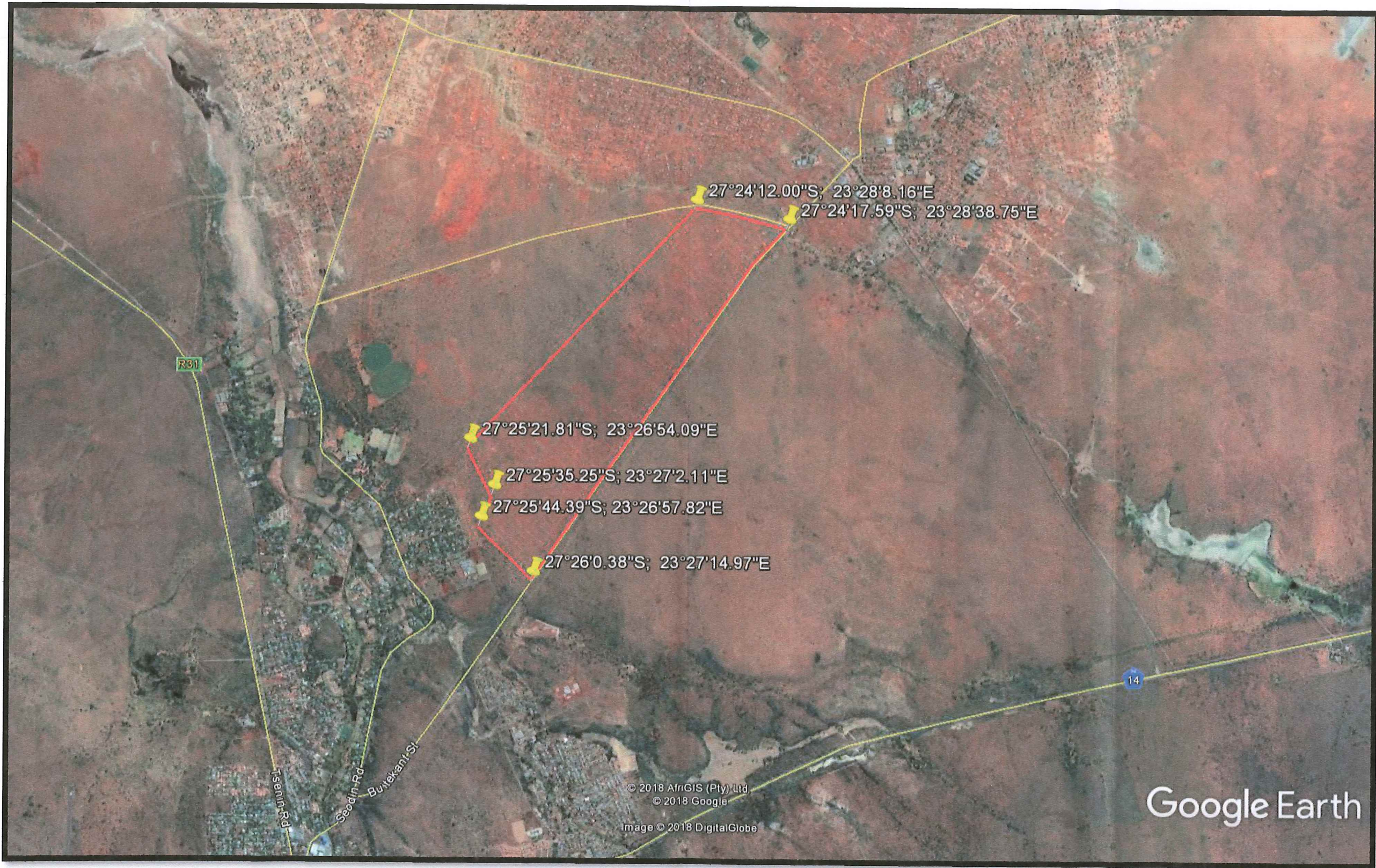
Appendix H: Impact Assessment

Appendix I: Public Participation

Appendix J: Environmental Management Programme (EMPr)

Appendix K: Details of EAP and expertise

APPENDIX A: LOCALITY MAP



27°24'12.00"S; 23°28'8.16"E

27°24'17.59"S; 23°28'38.75"E

27°25'21.81"S; 23°26'54.09"E

27°25'35.25"S; 23°27'2.11"E

27°25'44.39"S; 23°26'57.82"E

27°26'0.38"S; 23°27'14.97"E

R31

Isent Rd

Seodin Rd

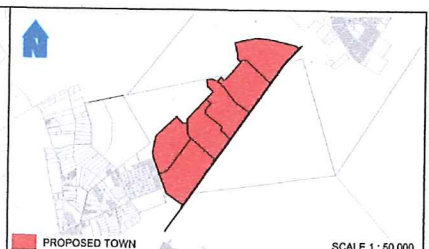
Bulekant St

14

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Image © 2018 DigitalGlobe

Google Earth

**APPENDIX B:
LAYOUT PLAN AND SENSITIVITY MAPS**



LEGEND

Proposed Zoning	Proposed Land use	Number of Erfs	Area in Ha	% of Area
Residential zone III	Flats, Residential building	2	3.2142ha	%
Residential zone IV	Residential house, low cost housing (Minimum 30sqm)	5469	228.7991ha	%
Business zone I	Business premises including, Institution, Authority use, Flats, Residential building	1	1.1485ha	%
Business zone II	Shop	11	2.1415ha	%
Institutional zone I	Place of Instruction (Primary School)	2	6.1037ha	%
Institutional zone II	Place of Instruction (Church)	3	0.3826ha	%
Institutional zone III	Public place of worship (Church)	12	1.6673ha	%
Institutional zone III	Institution (Thursong Centre/Community Hall)	1	0.4484ha	%
Open space zone I	Public open space	28	20.5876ha	%
Open space zone II	Private open space (Sportsfields)	2	2.4894ha	%
Open space zone II	Private open space (Demerary)	1	0.3350ha	%
Transport zone I	Transport use (Taxi rank)	1	0.2664ha	%
Transport zone II	Public street	124	68.9733ha	%
Authority zone I	Authority use (Municipal)	5	6.9304ha	%
TOTAL		5662	361.4146ha	%

STREETS

Reserve Width	Length in Metre	% of Street Length
m	m	%
TOTAL	m	100%

NOTES:
The figure A-B-C-D-E-F-G-H-I-K-L-A represents the proposed towns Promise Land Extensions 1 to 6.

Average Residential ERF Size : 418.3m²
ERF sizes and dimensions subject to final survey.
1:100 YEAR FLOODLINE
It is hereby certified in terms of the provisions of Section 144 of the National Water Act, 1998 (Act No.36 of 1998) that the township is not affected by a public stream.

PR ENGINEER
It is hereby certified that the town layout complies with the conditions and recommendations as stated in the Geologist Report.

PR ENGINEER

STREETS:
Maximum slope 1 :
Minimum slope 1 :
DESIGN OF TOWN LAYOUT
Maxim Planning Solutions (Pty) Ltd
K. Raubenheimer P.O. Box A9524999
Tel. (018) 458 6369

CONTOURS
The contour survey is in accordance with the standards laid down by the Regulations relating to Township Establishment and Land Use.
Digital Orthophoto by: *Azu*
Tel: (012) 8030348
Date of Photography: June 2018
System: WGS84 Central Meridian: 1225

DETAIL LAYOUT MAP
PROPOSED TOWNSHIPS
PROMISE LAND EXTENSIONS 1 TO 6

240m 180m 120m 60m 0m 60m 120m 180m 240m
1:240 = 42m
SCALE 1:5 000

THE PROPOSED TOWN IS SITUATED ON A PORTION OF THE REMAINING EXTENT OF ERF 1 AND A PORTION OF THE REMAINING EXTENT OF ERF 3, KURUMAN TOWNSHIP AND ON A PORTION OF THE REMAINING EXTENT OF PORTION 3 OF THE FARM KURUMAN REEFERVE No. 696, DIVISION KURUMAN.

GA-SECONYANA LOCAL MUNICIPALITY NORTHERN CAPE PROVINCE

Drawing Compiled by: A. Rossouw
Drawings Nr.: 8/34/7
Date: 2019-01-07
Revision: 01

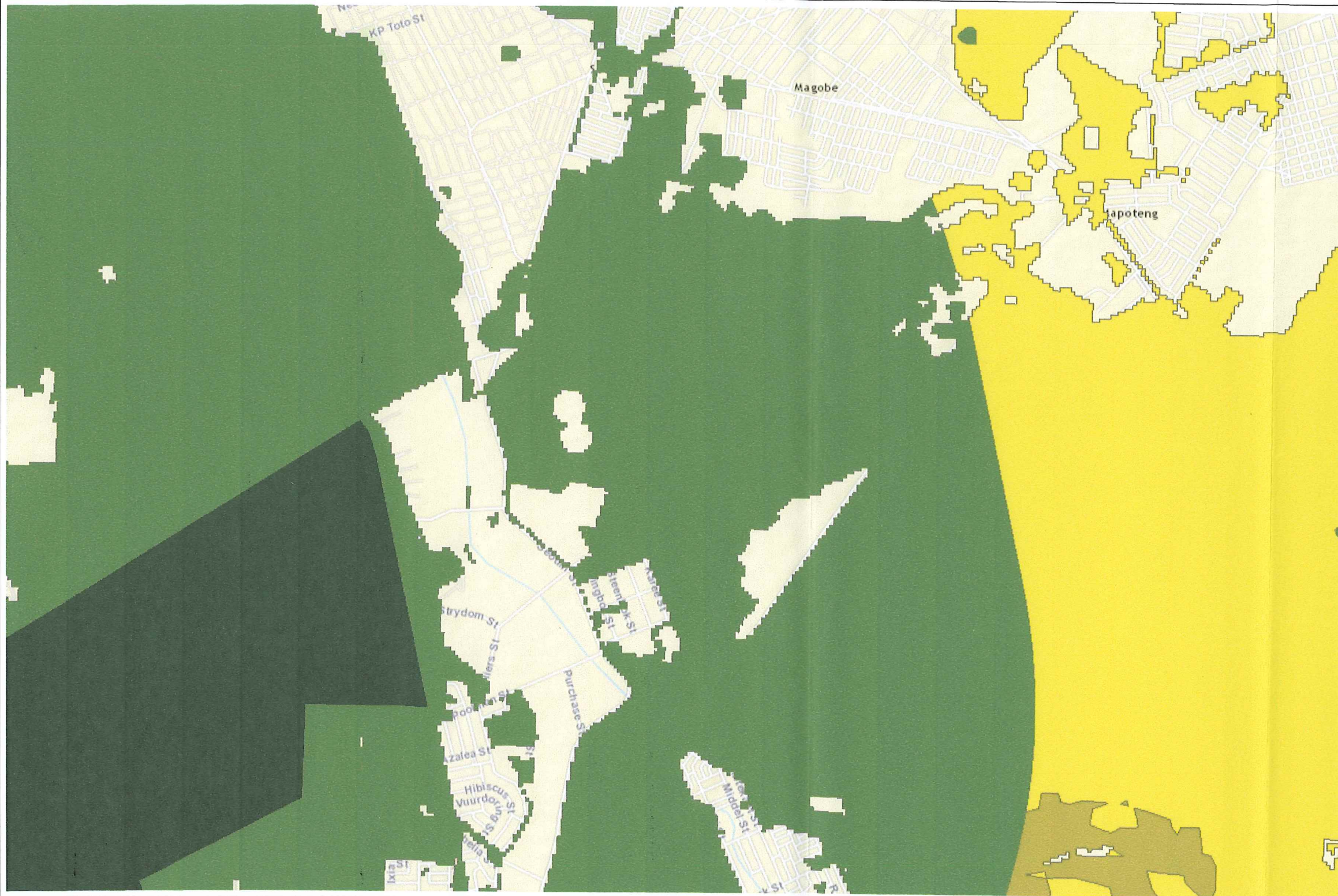
Tel (018) 458-6300
Fax (018) 468-6378
info@maxim.co.za

MAXIM
planning solutions
ACCREDITED TOWN AND REGIONAL PLANNERS

























Sensitivity Map

Description

Portion of the r/e of erf 1 & 3 Kuruman and a
Portion of the r/e of the farm Kuruman Reserve 690



Legend

- Northern Cape Critical Biodiversity Areas 2011**
-  Critical Biodiversity Area One
 -  Critical Biodiversity Area Two
 -  Ecological Support Area
 -  Other Natural Areas
 -  Protected Area
- South African parent farm cadaster**
-  South African parent farm cadaster
 -  Formal protected areas (NBA 2011)
 -  Informal protected areas (NPAES)
 -  Marine Protected Areas MPAs (NBA 2011)
- World Street Map**
-  Addo Biodiversity Conservation Plan
 -  Cape Winelands DMA Biodiversity Assessment
 -  Cape Town Biodiversity Network
 -  Central Karoo Biodiversity Assessment
 -  Eastern Cape Biodiversity Conservation Plan
 -  FSP Bergrivier
 -  FSP Breede Valley
 -  FSP Cederberg
 -  FSP Hessequa
 -  FSP Langeberg
 -  FSP Matzikama
 -  FSP Mossel Bay
 -  FSP Saldanha Bay
 -  FSP Witzenberg
 -  Garden Route Biodiversity Sector Plan

1: 36 112



1,8 0 0,92 1,8 Kilometers

WGS_1984_Web_Mercator_Auxiliary_Sphere
© Latitude Geographics Group Ltd.

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

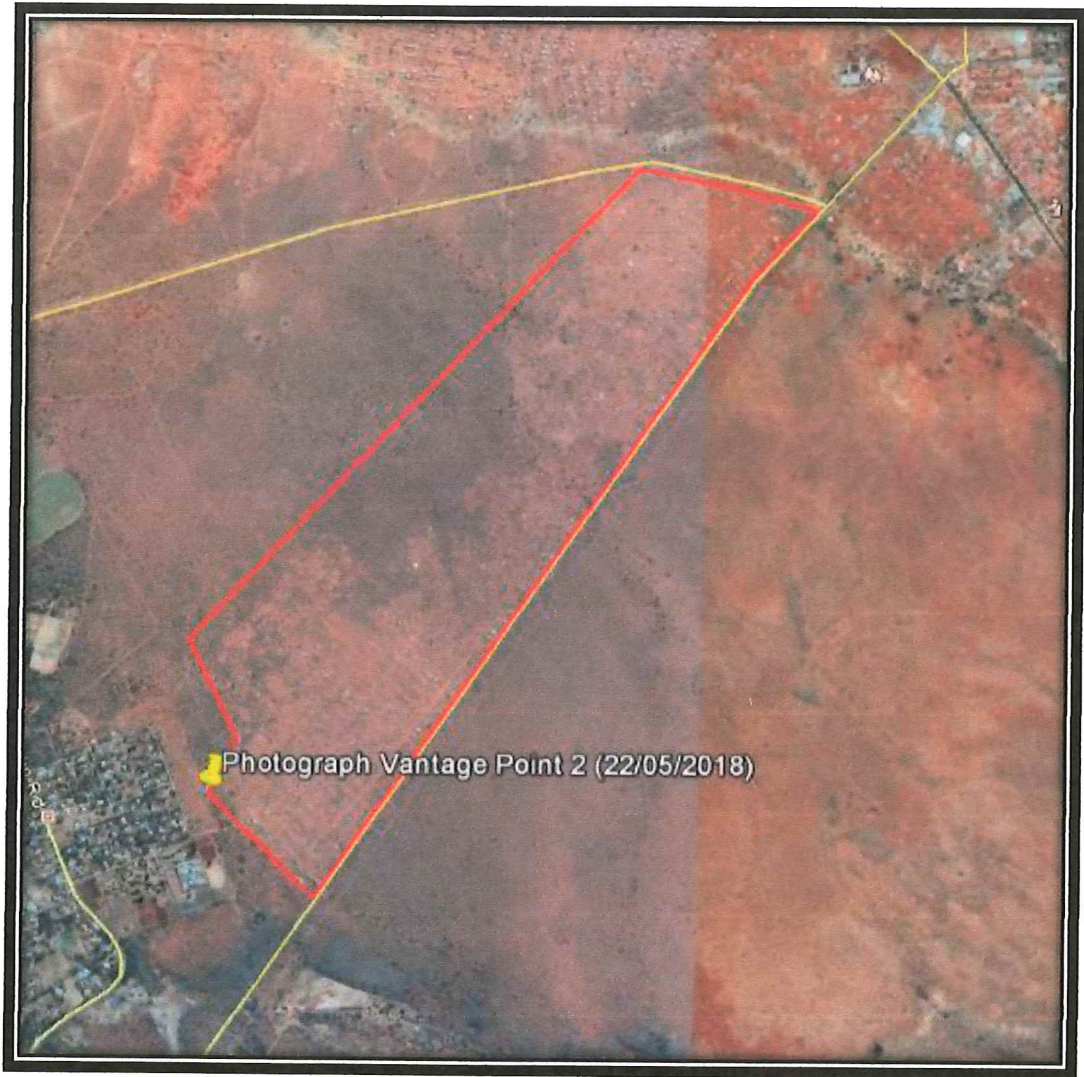


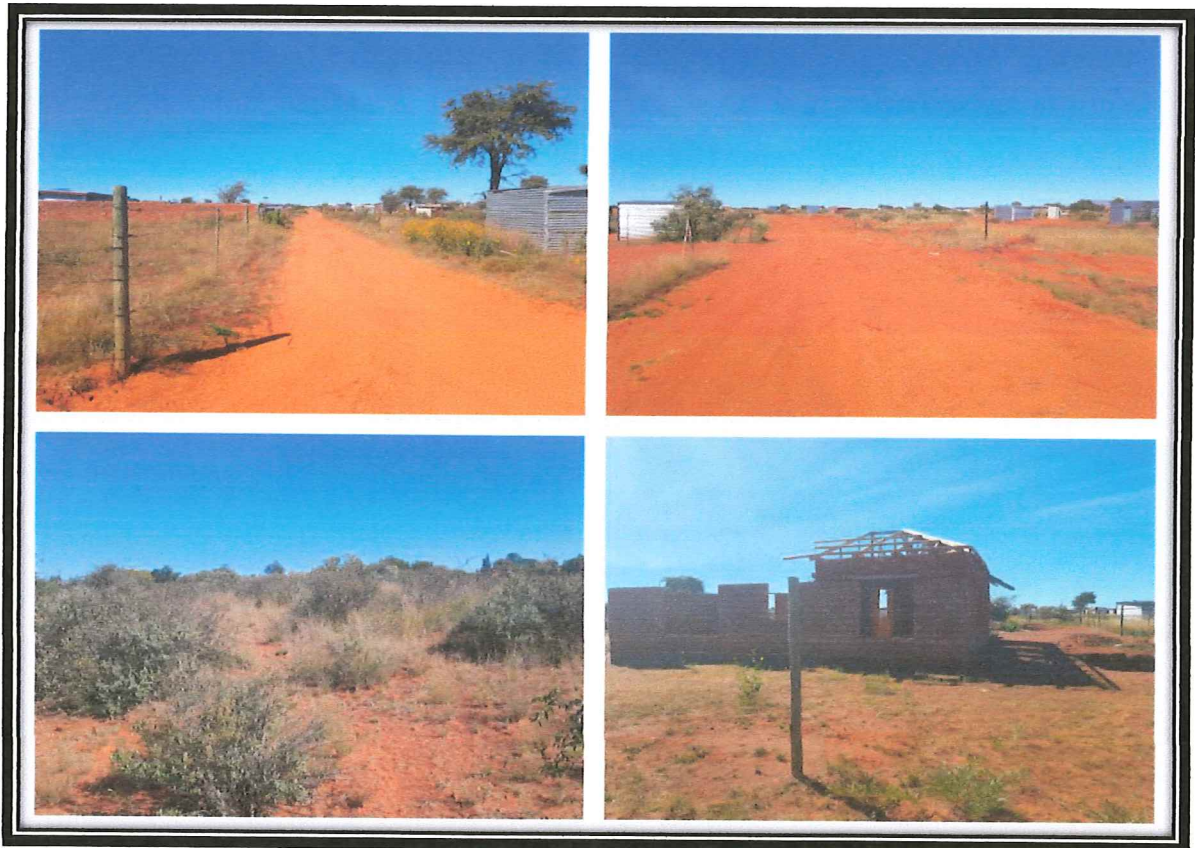
**APPENDIX C:
PHOTOGRAPHS**

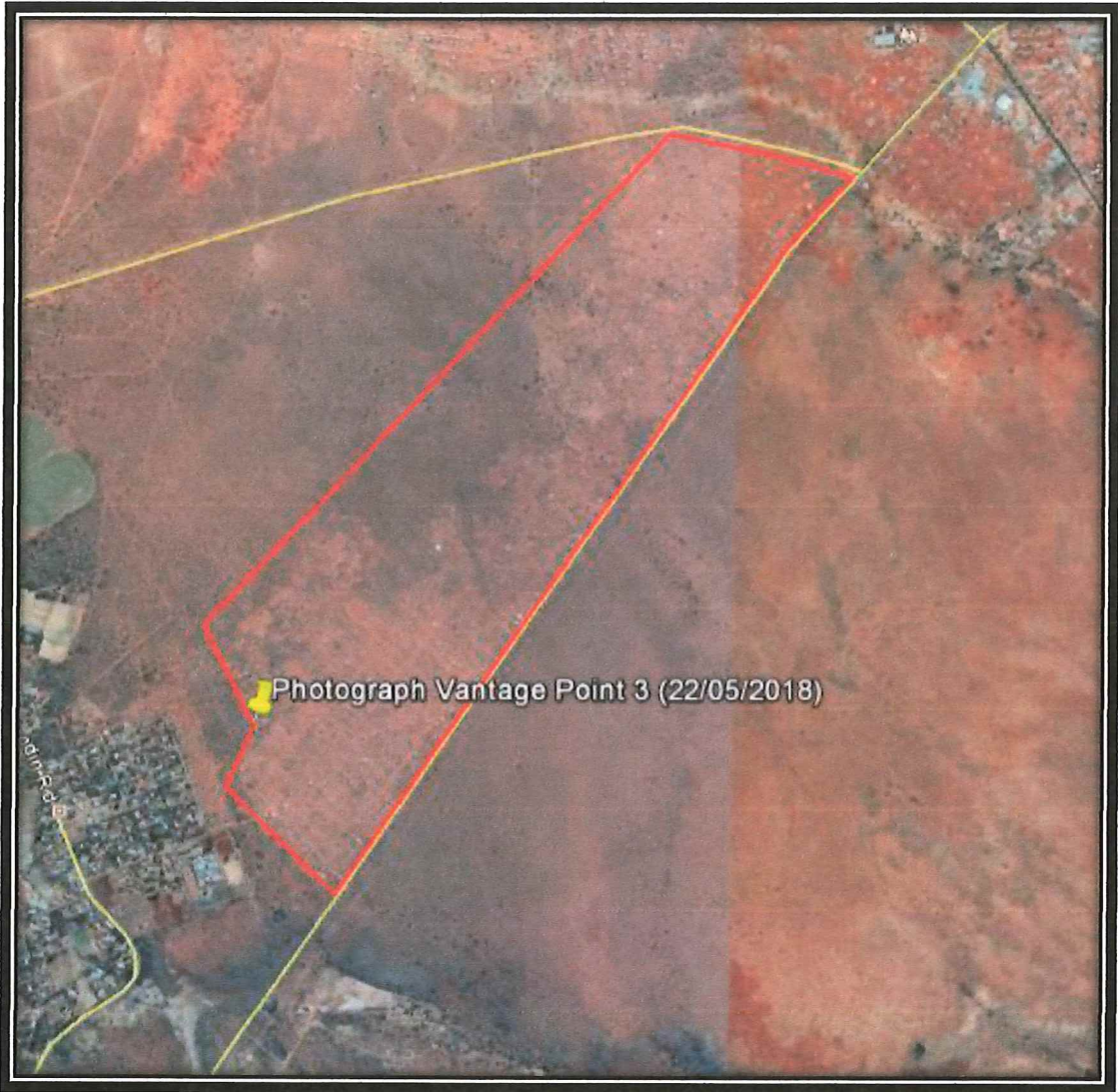


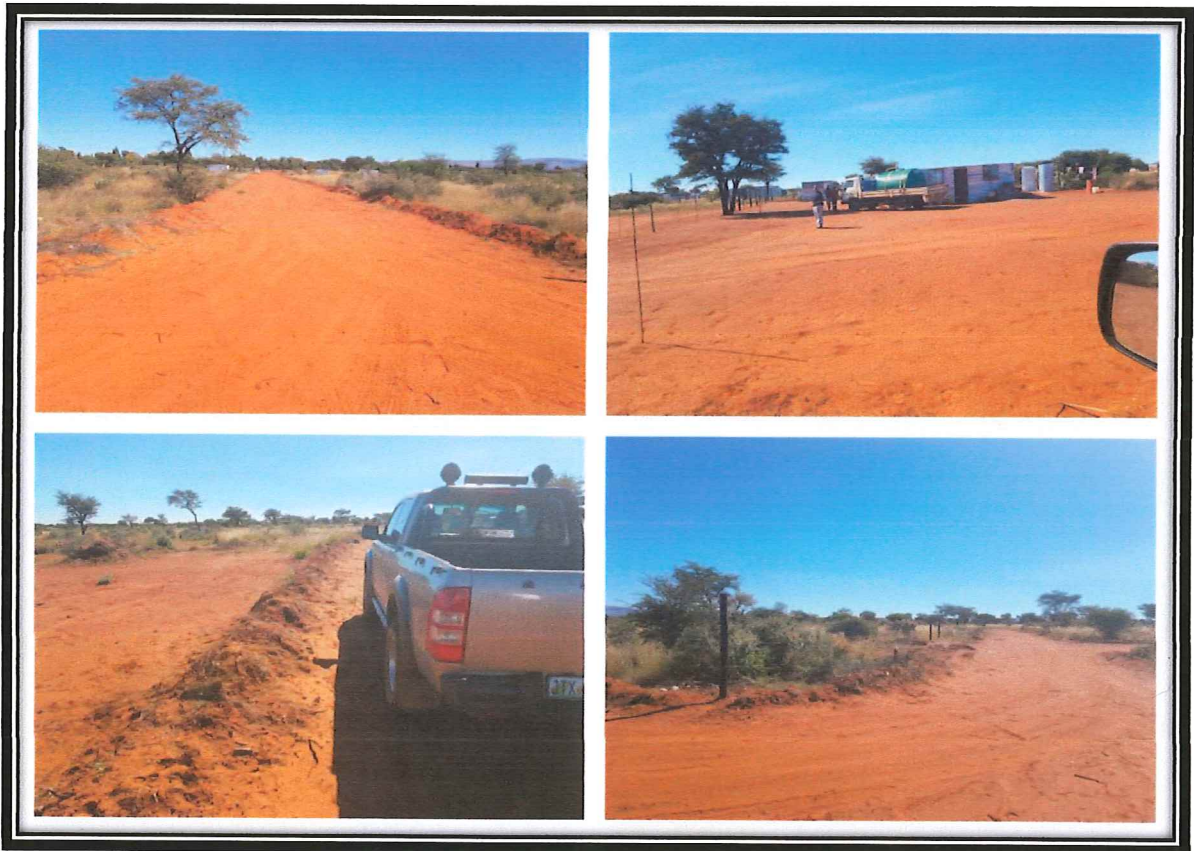
Photograph Vantage Point 1 (22/05/2018)

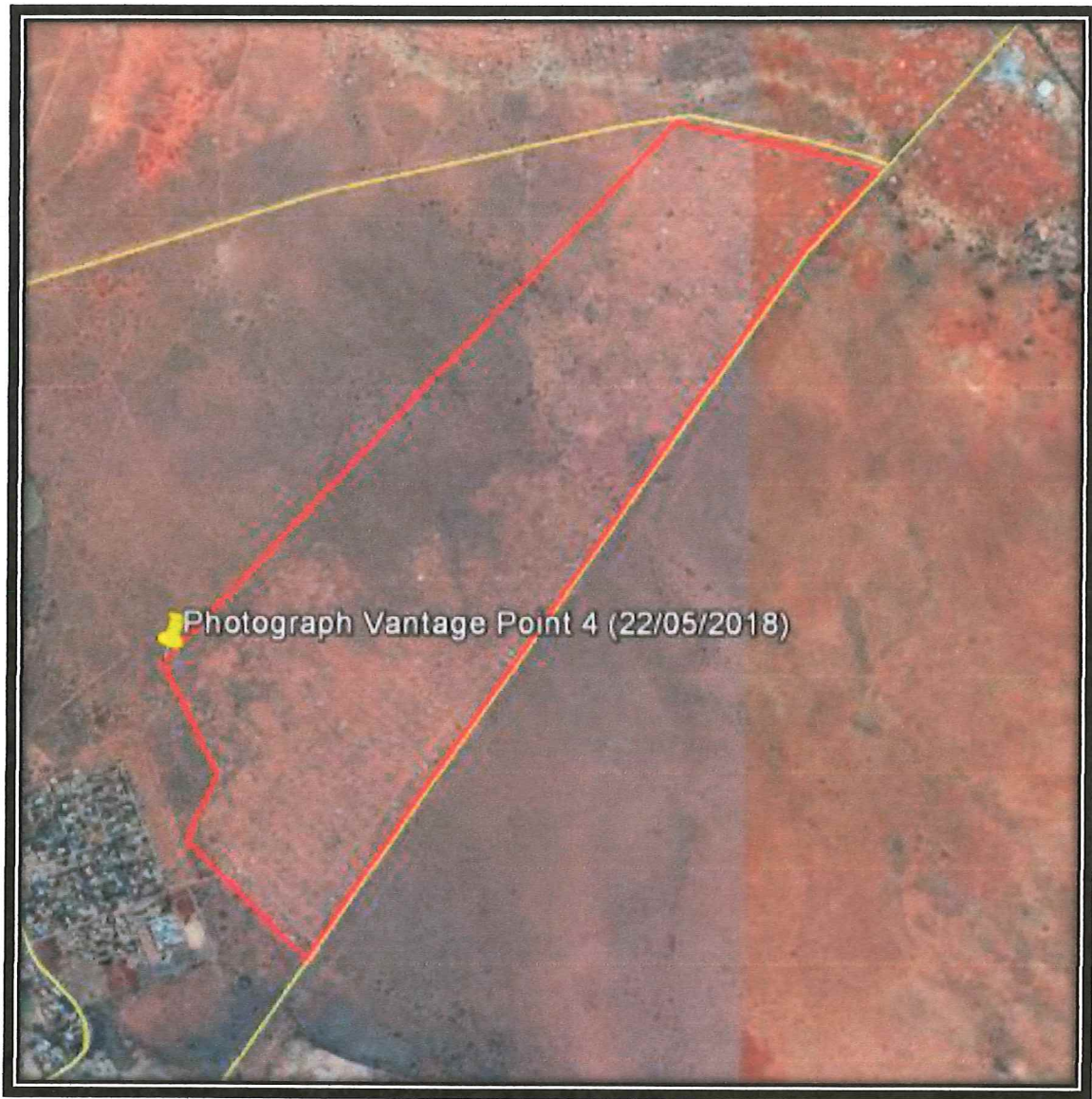










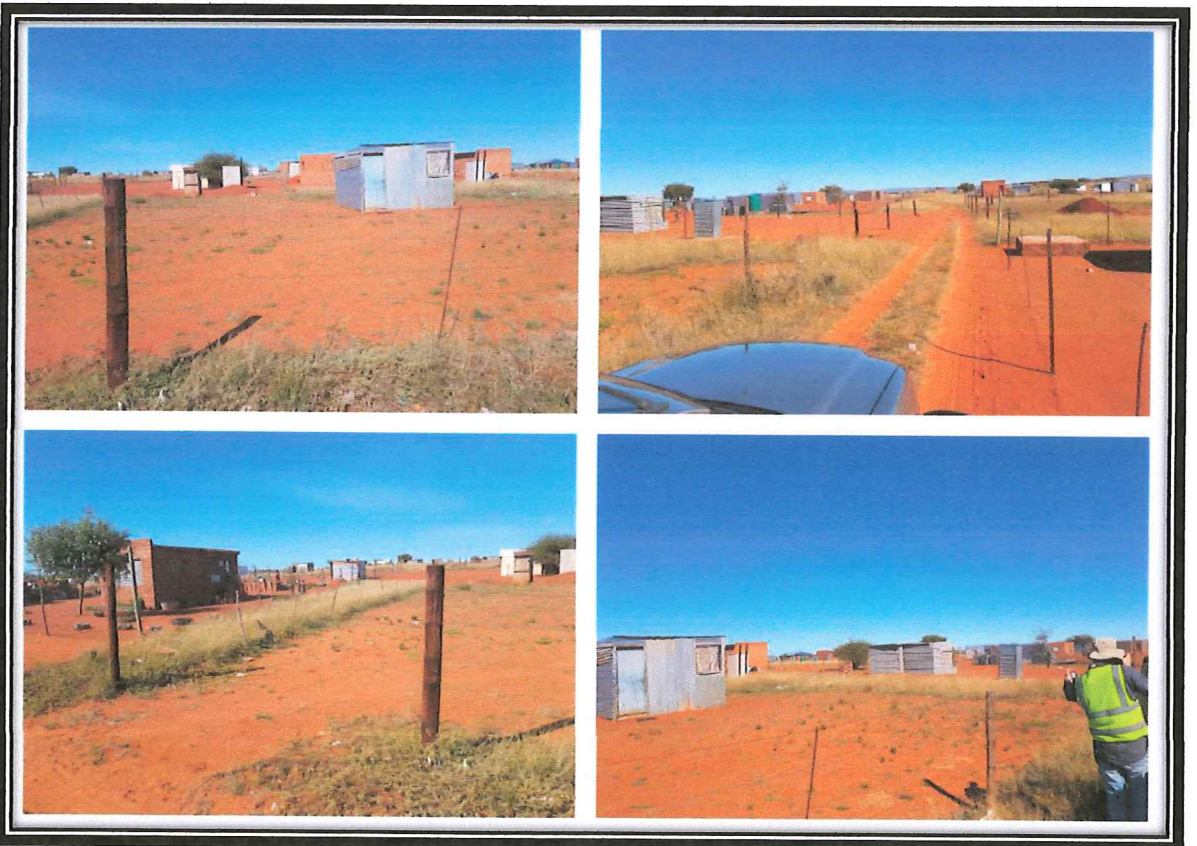
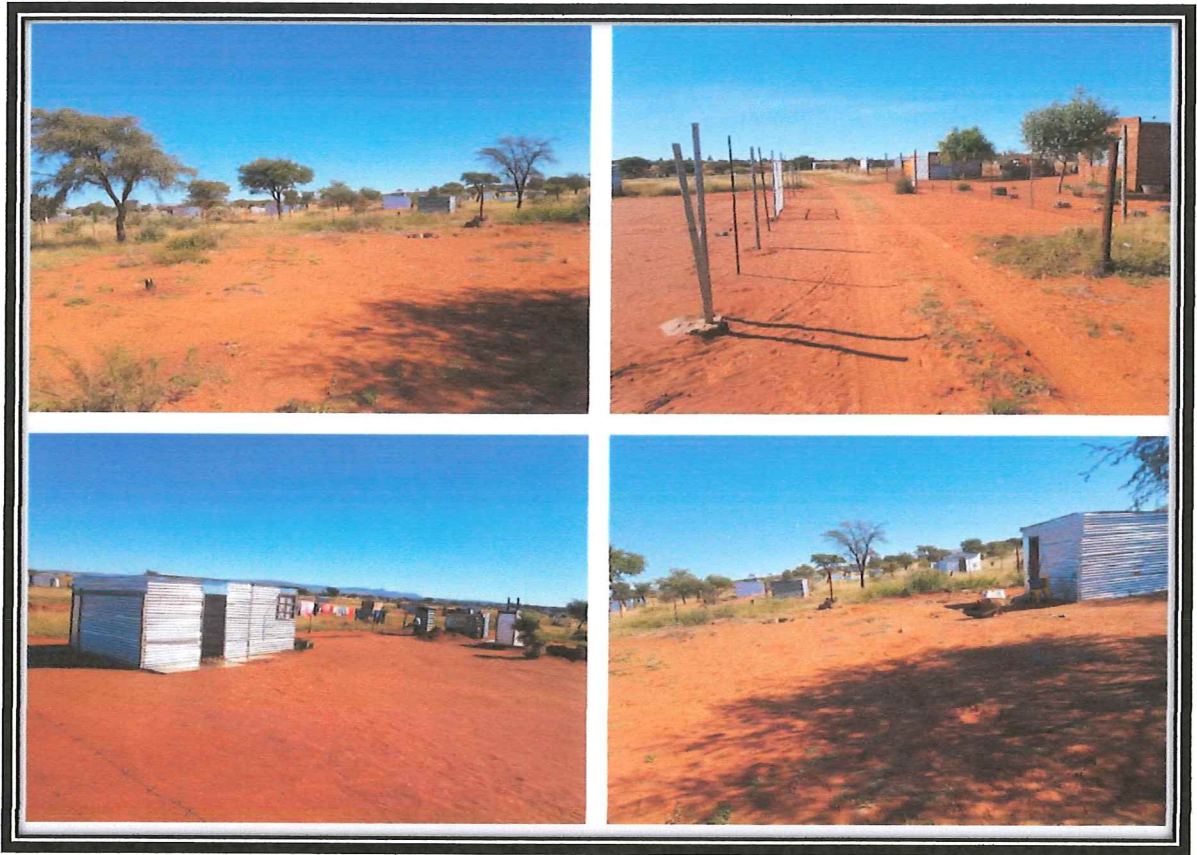






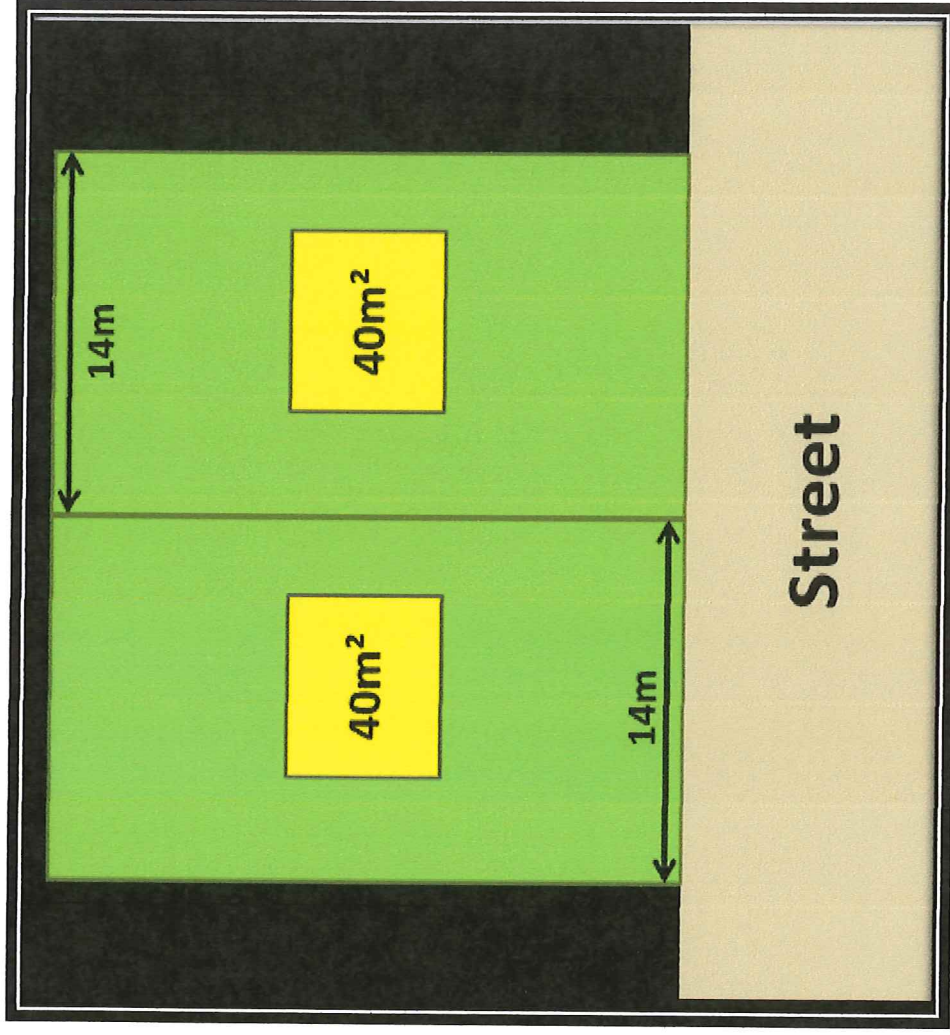


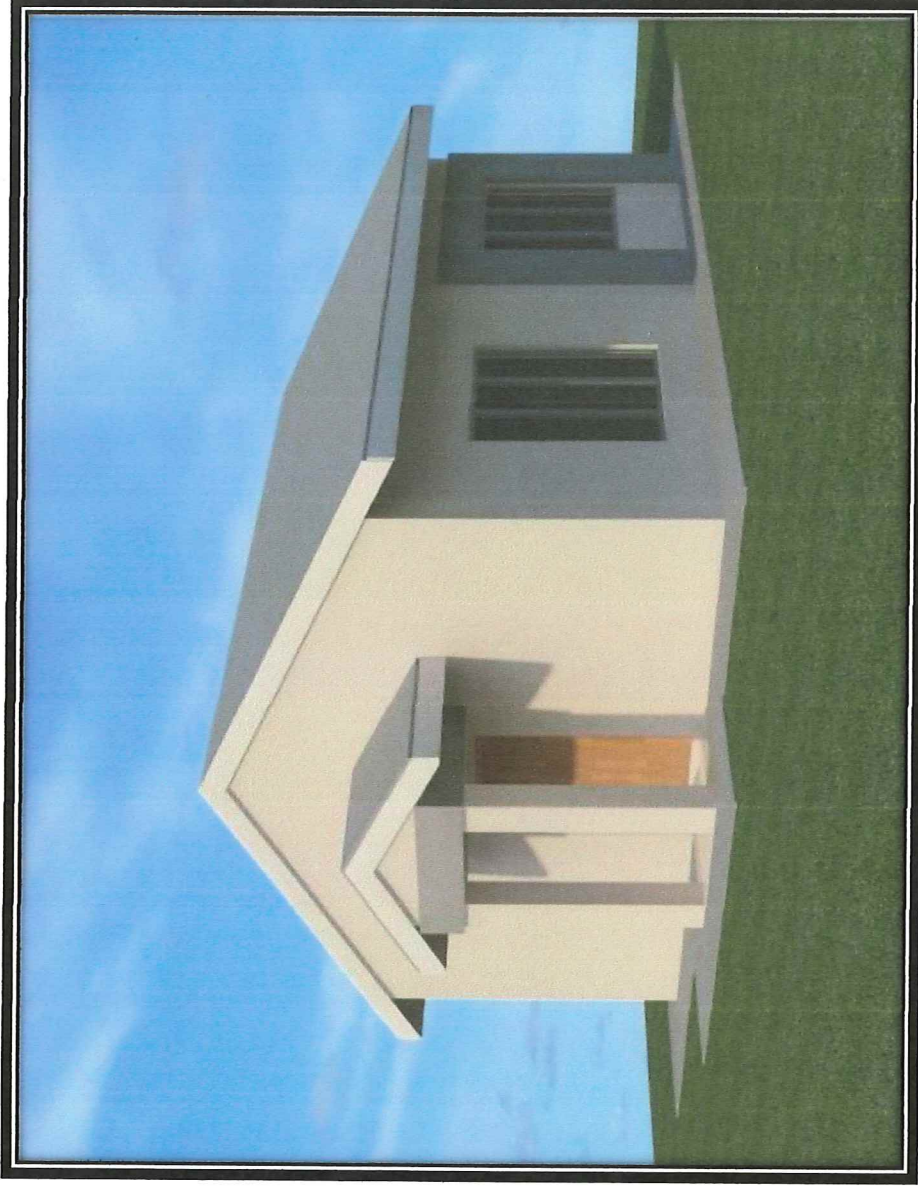




**APPENDIX D:
FACILITY ILLUSTRATION(S)**

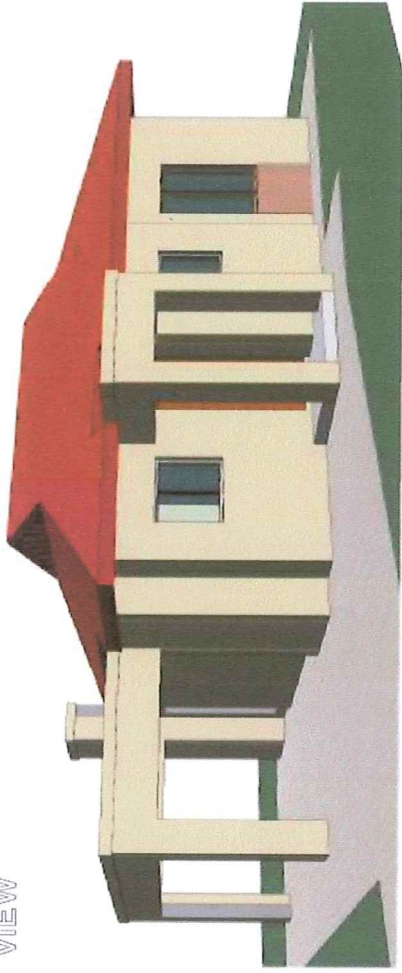
A stand of 350m² with a subsidised house of 40m² provides more than sufficient outdoor space as well as potential for additional over time.



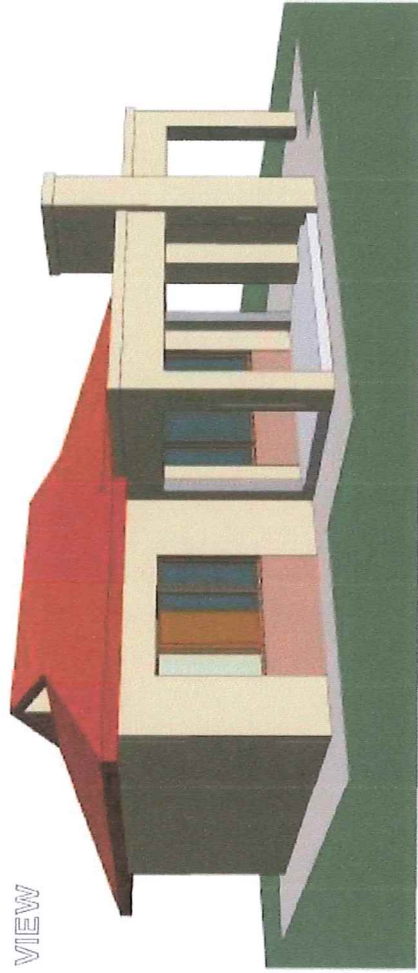


Stands of 350m² also provides sufficient space for FLISP (GAP) as well as affordable bonded houses of between 53m², 63m² and 72m².

TYPICAL SOUTH WEST VIEW



TYPICAL NORTH EAST VIEW



TYPE: 50m²

**APPENDIX E:
CONFIRMATION OF SERVICES BY
MUNICIPALITY**

An application for Rezoning has been submitted to the Local Municipality by Maxim Planning Solutions. Confirmation of services will only be available once this process has been completed and may take up to six months.

Please note that the provision of services will form part of this legislative process and that formalization will not take place before this process has been completed.

This application (The Section 24 G process) for legalization of a unlawful activity relates to the clearance of indigenous vegetation and aspects relating to this activity has been considered. Provision of services will form part of the Rezoning application, although a Services Report has been compiled for this Development.

Should the installation of services trigger additional Listed activities, these will have to be applied for in a separate application.

**APPENDIX F:
DETAILS AND EXPERTISE OF
SPECIALIST AND DECLARATION OF
INTEREST**

**APPENDIX G:
SPECIALIST REPORTS (INCLUDING
TERMS OF REFERENCE)**

**APPENDIX G 1:
CIVIL SERVICES REPORT**

**APPENDIX G 2:
BOTANICAL SPECIALIST REPORT**

**APPENDIX G 3:
GEO-TECHNICAL REPORT**

**APPENDIX G 4:
ELECTRICAL SERVICES REPORT**

APPENDIX G 5: SAHRA REPORT

APPENDIX H: IMPACT ASSESSMENT

ENVIRONMENTAL IMPACT ASSESSMENT

INTRODUCTION

The purpose of this document is to adhere to the requirements for compilation of Environmental Impact Assessment Reports as amended and published in Government Notice R.326 of 7 April 2017, Appendix 2, and the National Environmental Management Act (Act 107 of 1998) (NEMA) for the Legalization of the commencement of the clearance of 361.4146 ha of indigenous vegetation in order to formalise a township, currently known as "Promised Land" situated on a Portion of the Remaining Extent of Erf 1 and Erf 3 Kuruman and a Portion of the Remaining Extent of Portion 3 of the Farm Kuruman Reserve No. 690 within the Ga-Segonyana Local Municipality, Northern-Cape Province.

DESCRIPTION OF THE PROCESS FOLLOWED

In order to assess a proposed development it is important to take into consideration the principles of NEMA. These principles are outlined in Chapter 1 and read as follows:

- 5) *"The principles set out in this section apply throughout the Republic to the actions of all organs of state that may significantly affect the environment and—*
 - f. *shall apply alongside all other appropriate and relevant considerations, including the State's responsibility to respect, protect, promote and fulfil the social and economic rights in Chapter 2 of the Constitution and in particular the basic needs of categories of persons disadvantaged by unfair discrimination;*
 - g. *serve as the general framework within which environmental management and implementation plans must be formulated;*
 - h. *serve as guidelines by reference to which any organ of state must exercise any function when taking any decision in terms of this Act or any statutory provision concerning the protection of the environment;*
 - i. *serve as principles by reference to which a conciliator appointed under this Act must make recommendations; and*
 - j. *guide the interpretation administration and implementation of this Act, and any other law concerned with the protection or management of the environment.*
- 6) *Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.*
- 7) *Development must be socially, environmentally and economically sustainable.*
- 8) (a) *Sustainable development requires the consideration of all relevant factors including the following:*
 - (i) *That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;*
 - (ii) *that pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;*
 - (iii) *that the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;*
 - (iv) *that waste is avoided. or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner;*
 - (v) *that the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource;*
 - (vi) *that the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised;*
 - (vii) *that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and*

- (viii) *that negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented. are minimised and remedied.*
- (b) *Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option.*
- (c) *Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons.*
- (d) *Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being must be pursued and special measures may be taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination.*
- (e) *Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.*
- (f) *The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation and participation by vulnerable and disadvantaged persons must be ensured.*
- (g) *Decisions must take into account the interests, needs and values of all interested and affected parties, and this includes recognizing all forms of knowledge, including traditional and ordinary knowledge.*
- (h) *Community wellbeing and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.*
- (i) *The social, economic and environmental impacts of activities, including disadvantages and benefits must be considered, assessed and evaluated and decisions must be appropriate in the light of such consideration and assessment.*
- (j) *The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected.*
- (k) *Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.*
- (l) *There must be intergovernmental co-ordination and harmonisation of policies, legislation and actions relating to the environment.*
- (m) *Actual or potential conflicts of interest between organs of state should be resolved through conflict resolution procedures.*
- (n) *Global and international responsibilities relating to the environment must be discharged in the national interest.*
- (o) *The environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.*
- (p) *The costs of remedying pollution, environmental degradation consequent adverse health effects and of preventing, controlling or minimizing further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.*
- (q) *The vital role of women and youth in environmental management and development must be recognised and their full participation therein must be promoted.*
- (r) *Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure."*

The above mentioned principals and the applicable legislation, Policies and Guidelines as described in Section A, Paragraph 11 of the Basic Assessment Report were taken into account in the assessment of the Environmental Impacts for the proposed development. The process followed can be described as follows:

- 1) AB Enviro Consult was appointed by the Ga-Segonyana Local Municipality to apply for Authorization for the "Proposed" Establishment of a Township on the site.
- 2) A site inspection held on 22 May 2018 revealed that the development has commenced.
- 3) The EAP then arranged a meeting with Ms. Tshepiso Lekwene from the DENC and she confirmed that the process to be followed; will be to apply for the rectification of unlawful commencement or continuation of a listed activity in terms of Section 24G of the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended.
- 4) The Applicant was not aware that Environmental Authorization was required before starting provision of essential services in the area.
- 5) An Environmental Screening Process was conducted by the EAP to ensure that all the relevant Environmental Legislation is taken into consideration.
- 6) Desk top studies were conducted and alternatives assessed.
- 7) Site inspections were carried out to verify the outcomes of the desktop studies, and the preferred alternative defined.
- 8) A Botanical Specialist was appointed to conduct a Botanical survey of the area. This included a vegetation and habitat study to determine possible fatal flaws and to identify sensitive / no-go areas.
- 9) A Town and Regional Planner designed the proposed development in such a way that the layout of the proposed development, takes into account the measures described by the Civil Engineer and that the layout satisfies the needs of future occupiers of the site.
- 10) A Geotechnical Engineer was appointed to determine whether the Geology and Soils of the site is suitable for the proposed development
- 11) The Civil Engineer was appointed to determine the capability of existing infrastructure to be linked to proposed development and readily available bulk services. He also designed the proposed infrastructure.
- 12) A SAHRA Specialist has been appointed to determine the possible impact of the development on Archaeological and Cultural features.
- 13) A full Public Participation Process was followed to obtain inputs from interested and affected parties.
- 14) All the information obtained from the above mentioned processes was used to assess the Environmental Impact that the proposed development may have on the Environment and vice versa.
- 15) The inputs from the Specialists, interested and affected parties, together with the knowledge of the EAP was used to determine measures to avoid, mitigate and manage potential impacts. These measures are described in the Environmental Management Programme.

ASSESSMENT CRITERIA

Impacts were rated using the following methodology:

Nature of the potential impact		Description of the effect, and the affected aspect of the environment
Duration (time scale)	Short term	Up to 5 years
	Medium term	6 – 15 years
	Long term	More than 15 years
Extent (area)	Local	Confined to study area and its immediate surroundings
	Regional	Region (cadastral, catchment, topographic)

Nature of the potential impact		Description of the effect, and the affected aspect of the environment
	National	Nationally (The country)
	International	Neighboring countries and the rest of the world.
Magnitude (Intensity)	Low	Site-specific and wider natural and/or social functions and processes are negligibly altered. ((A low intensity impact will not affect the natural, cultural, or social functions of the environment).
	Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way. (Medium scale impact will alter the different functions slightly).
	High	Site-specific and wider natural and/or social functions and processes are severely altered. (A High intensity impact will influence these functions to such an extent that it will temporarily or permanently cease to exist).
Probability	Improbable	Possibility of occurrence is very low. (Such an impact will have a very slight possibility to materialise, because of design or experience).
	Possible	There is a possibility that the impact will occur
	Probable	It is most likely that the impact will occur
	Definite	The impact will definitely occur
Significance	Insignificant	Impact is negligible and will not have an influence on the decision regarding the proposed activity (No mitigation is necessary)
	Very Low	Impact is very small and should not have any meaningful influence on the decision regarding the proposed activity (No mitigation is necessary)
	Low	The impact may not have a meaningful influence on the decision regarding the proposed activity (No mitigation is necessary)
	Medium	The impact should influence the decision regarding the proposed activity (The project can only be carried through if certain mitigatory steps are taken)
	High	The impact will influence the decision regarding the proposed activity
	Very High	The proposed activity should only be approved under special circumstances
Reversibility	Low	There is little chance of correcting the adverse impact
	Medium	There is a moderate chance of correcting the adverse impact
	High	There is a high chance in correcting the adverse impact
Risk	Low	Assessing a risk involves an analysis of the consequences and likelihood of a hazard

Nature of the potential impact		Description of the effect, and the affected aspect of the environment
		being realized. In decision-making, low-consequence / low-probability risks (green) are typically perceived as acceptable and therefore only require monitoring.
	Medium	Other risks (amber) may require structured risk assessment to better understand the features that contribute most to the risk. These features may be candidates for management
	High	High-consequence / high-probability risks (red) are perceived as unacceptable and a strategy is required to manage the risk.

Attributes associated with the alternatives were assessed and is outlined below:

Geographical attributes

The Geographical attributes of an area relates to the characteristics of a particular region, area or place. It influences the determination of site alternatives as it relates to the location of a site in relation to relevant features in the area.

Physical attributes

Physical attributes of an area relates to the processes and patterns in the natural environment. For the purpose of this assessment, the following processes and patterns have been investigated. Geology, soil, topography and landforms, climate and meteorology, surface water and ground water.

Biological attributes

Biological attributes for the purpose of this study includes the distribution of species and ecosystems in geographic space and through geological time. Organisms and biological communities often vary in a regular fashion along geographic gradients of latitude, elevation, isolation and habitat area. The two main branches assessed will be:

Phytogeography is the branch of biogeography that studies the distribution of plants.

Zoogeography is the branch that studies distribution of animals.

Social attributes

Social attributes is closely related to social theory in general and sociology in particular, dealing with the relation of social phenomena and its spatial components.

Economic attributes

Economic attributes includes the location, distribution and spatial organization of economic activities and also takes into account social, cultural, and institutional factors in the spatial economy of the development.

Heritage attributes

The broad generic term Cultural Heritage Resources refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of paleontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

Cultural attributes

Cultural attributes relates to the specific characteristics such as language, religion, ethnic and racial identity, and cultural history & traditions of people. These attributes influences family life, education, economic and political structures, and, of course, business practices.

It should be noted that the above mentioned attributes do not occur in isolation and it is not uncommon for an identified impact to overlap with two or more of these attributes. Also note, not all risks require comprehensive and detailed assessment. Solid problem formulation should allow decision-makers to evaluate the extent of subsequent analysis required. The level of effort put into assessing each risk should be proportionate to its significance and priority in relation to other risks, as well as its complexity, by reference to the likely impacts. Consideration should be given to stakeholders' perceptions of the nature of the risk.

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 1: Mixed land use township (Preferred Alternative)					
Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
DIRECT IMPACTS:					
Geographical Physical Social Economic	361.4146 hectares of indigenous vegetation will be eradicated in order to establish the development.	Duration	Long term	Obtain the necessary environmental authorization for the development.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	High		High
		Probability	Definite	Conduct a Fauna and Flora Habitat survey to determine the sensitivity of the area.	Definite
		Significance	Medium		Medium
		Reversibility	Low		Low
		Risk	Low	Implement the mitigation measures as described in the Environmental Management Plan.	Medium
	A total of 121 households are situated on Zone III dolomite areas of which 15 are formal houses and 106 informal houses	Duration	Long term	Following a request to the Council for Geo-Science regarding the formal houses on areas designated as D4 (Zone III) in terms of the Dolomite Stability Investigation, the Council for Geo-Science did not recommend the relocation or demolishing of formal houses but recommend strict adherence the following precautionary requirements: A. Site specific Dolomite Risk Management Plan in accordance with SANS 1936-4:2012 must be compiled and implemented for these houses / formal structures in D4 Land. The owners/responsible persons must be made aware of the risks involved in building on dolomite, and be informed about how to be vigilant and act pro-actively by applying sound water management principles. B. General precautionary measures as set out in SANS 1936 Part 3: Design and construction of buildings, structures and infrastructure, must be studied and implemented.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	High		High
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Low		Low
		Risk	Medium		Medium
Two protected tree species <i>Vachellia erioloba</i> (Camel Thorn) and <i>Boscia albitrunca</i> (Shepherd's Tree) are found at the site Two protected tree species <i>Vachellia erioloba</i> (Camel Thorn) and <i>Boscia albitrunca</i> (Shepherd's Tree) are found at the site	Extent	Local	In terms of a part of section 15(1) of the National Forests Act No. 84 of 1998, no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a license granted by the Minister. If developments are approved, such a permit should be applied for In terms of a part of section 15(1) of the National Forests Act No. 84 of 1998, no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a license granted by the Minister. If	Local	
	Magnitude (Intensity)	Medium		Medium	
	Probability	Definite		Definite	
	Significance	High		High	
	Reversibility	Low		Low	
	Risk	Medium		Medium	
	Extent	Local		Local	

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)

ALTERNATIVE 1: Mixed land use township (Preferred Alternative)

Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
				developments are approved, such a permit should be applied for	
	The development will have an impact on graveyard that was found on site.	Duration	Permanent	Graves always carry a High Cultural Significance rating and should not be impacted if possible and be left intact. If the site cannot be avoided then the graves can be exhumed and relocated after all due processes (social consultation/getting consent/permits have been obtained) have been successfully completed. The best would be however to keep the site fenced-off and protected.	Permanent
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan for the provision of services for the development.	Duration	Long term	Appoint a Civil Engineer to assess the availability and design of services to ensure a sustainable development. Ensure that services are available before formalization takes place A Site specific Dolomite Risk Management Plan in accordance with SANS 1936-4:2012 must be compiled and implemented for these houses / formal structures in D4 Land. The owners/responsible persons must be made aware of the risks involved in building on dolomite, and be informed about how to be vigilant and act pro-actively by applying sound water management principles. B. General precautionary measures as set out in SANS 1936 Part 3: Design and construction of buildings, structures and infrastructure, must be studied and implemented.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	High		High
		Probability	Definite		Definite
		Significance	Medium		High
		Reversibility	Low		Low
		Risk	Low		High
	Plan to rehabilitate disturbed surfaces which can lead to erosion and dust pollution. Prepare method statements to this effect.	Duration	Short term	Start the rehabilitation of disturbed surfaces as soon as possible. Spray bare surfaces with water to prevent dust pollution.	Medium term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan for the eradication of foreign and invader plant species which are likely to invade disturbed areas.	Duration	Short term	Start the extermination of any invasive species as soon as possible and maintain the eradication programme.	Medium term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Low
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan for the provision and maintenance of ablation facilities for construction workers to prevent pollution of surface and underground water.	Duration	Short term	Provide portable ablation facilities that will not cause pollution during the construction phase. There should be 1 Chemical toilet for every 30 workers on site.	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
		Duration	Long term		Long term

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)

ALTERNATIVE 1: Mixed land use township (Preferred Alternative)

Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
	Plan to manage possible impacts that the project can have on the soil and geology.	Extent	Local	Properly plan the construction phase in such a manner that impacts on the soil and geology of the area can be minimised. The findings of the Geotechnical Engineer must be incorporated into the design of the project.	Local
		Magnitude (Intensity)	Low		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan for the removal of vegetation (which will lead to the destruction of faunal and floral habitats) during the construction phase.	Duration	Short term	Start with the rehabilitation of vegetation to minimize the negative effects of the removal of plants. The rule must be to minimize the disturbance of animal life by keeping the footprint as small as possible. No snares may be set.	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
		Plan to safeguard open trenches in order to alleviate the danger of collapse on people or on equipment and people- especially small children who may fall into it.	Duration		Short term
	Extent		Local	Local	
Magnitude (Intensity)	Medium		Medium		
Probability	Definite		Definite		
Significance	Medium		Medium		
Reversibility	High		High		
Risk	Low		Medium		
Indirect impacts:					
Geographical Physical Social Economic	Plan to control dust generation from the proposed project which could impact on the surrounding area.	Duration	Short term	Spray water on open surfaces to ensure that dust does not cause air pollution during construction. Start the rehabilitation of disturbed surfaces as soon as possible	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
	Risk	Low	Medium		
	Plan and compile method statements to implement measures for the prevention and or handling of spills of lubricants / oils that can take place on bare soil.	Extent	Local	Prevent spills of lubricants/oils that can take place on bare soil. This will include the use of drip trays for vehicles that are standing for more than 24 hours. Ensure that all construction vehicles are in good working order and not leaking oil and or fuel. No vehicles may be serviced on site.	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan to provide method statements on the handling of waste materials such as glass,	Extent	Local	Implement the management plan to ensure that:	Local
		Magnitude (Intensity)	Low		Low

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)

ALTERNATIVE 1: Mixed land use township (Preferred Alternative)

Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)	
	plastic, metal or paper which may present a possible pollution hazard	Probability	Probable	All construction rubble is disposed of in a safe and environmentally acceptable manner. NO concrete, gravel or other rubbish will be allowed to remain on site after the construction phase. All cement is housed as to prevent spills (due to rain and or handling errors). NO glass, plastic, metal, or paper shall be allowed to pollute the area.	Probable	
		Significance	Medium		Medium	
		Reversibility	High		High	
		Risk	Low		Medium	
	Plan to ensure all involved is aware of the possible social and environmental problems that may be experienced as a result of non-compliance to the relevant legislation.	Extent	Local	Ensure that contractors (construction phase) abide by all the requirements of the Occupational Health and Safety Act. Ensure that all contractors are aware of the consequences of non-compliance to the relevant legislation regarding the above-mentioned act as well as with regard to the environment (acts, regulations, and special guidelines).	Local	
		Magnitude (Intensity)	Medium		Medium	
		Probability	Probable		Probable	
		Significance	Medium		Medium	
		Reversibility	High		High	
		Risk	Low		Medium	
	Plan to create new employment opportunities. Plan to use local labour to ensure local skills development will take place.	Extent	Local	No mitigation measures needed apart from the fact that contractors will have to ensure that they abide to the requirements of the Occupational Health and Safety Act and the Employment Equity Act.	Local	
		Magnitude (Intensity)	Medium		Medium	
		Probability	Definite		Definite	
		Significance	Medium		Medium	
		Reversibility	Medium		Medium	
		Risk	Low		Medium	
	Cumulative impacts:					
	Geographical Physical Social Economic	Plan the development to ensure the social well-being of the community for which the development is intended	Extent	Local	Ensure that the development is constructed as planned. The demand for housing will be partially addressed in the area.	Local
Magnitude (Intensity)			Medium	Medium		
Probability			Definite	Definite		
Significance			Medium	Medium		
Reversibility			Medium	Medium		
Risk			Low	Medium		
Plan to ensure that the services (Solid waste, bulk water supply water, sewage, electricity and storm water) are designed and constructed in such a manner that it will not cause Environmental degradation.		Extent	Local	Appoint a Civil Engineer to assess the availability and design of services to ensure a sustainable development. Ensure that the development is constructed as planned.	Local	
		Magnitude (Intensity)	Medium		Medium	
		Probability	Definite		Definite	
		Significance	High		High	
		Reversibility	High		High	
		Risk	Low		Medium	
Plan for the increase in traffic volumes that will result from the proposed development		Extent	Local	The Town and Regional Planner will have to design the layout of the development in such a way that accessibility will not become a problem.	Local	
		Magnitude (Intensity)	Medium		Medium	
		Probability	Definite		Definite	
		Significance	Medium		High	
		Reversibility	Low		Low	
		Risk	Medium		Medium	
Loss of indigenous vegetation.		Extent	Local	No mitigation measures possible.	Local	
		Magnitude (Intensity)	Medium		Medium	
		Probability	Definite		Definite	
		Significance	High		High	
		Reversibility	Low		Low	
		Risk	Medium		Medium	

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 2: Single land use: Housing only					
Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
DIRECT IMPACTS:					
Geographical Physical Social Economic	361.4146 hectares of indigenous vegetation will be eradicated in order to establish the development.	Duration	Long term	Obtain the necessary environmental authorization for the development. Conduct a Fauna and Flora Habitat survey to determine the sensitivity of the area. Implement the mitigation measures as described in the Environmental Management Plan.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	High		High
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Low		Low
		Risk	Low		Medium
	A total of 121 households are situated on Zone III dolomite areas of which 15 are formal houses and 106 informal houses	Duration	Long term	Following a request to the Council for Geo-Science regarding the formal houses on areas designated as D4 (Zone III) in terms of the Dolomite Stability Investigation, the Council for Geo-Science did not recommend the relocation or demolishing of formal houses but recommend strict adherence the following precautionary requirements: A. Site specific Dolomite Risk Management Plan in accordance with SANS 1936-4:2012 must be compiled and implemented for these houses / formal structures in D4 Land. The owners/responsible persons must be made aware of the risks involved in building on dolomite, and be informed about how to be vigilant and act pro-actively by applying sound water management principles. B. General precautionary measures as set out in SANS 1936 Part 3: Design and construction of buildings, structures and infrastructure, must be studied and implemented.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	High		High
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Low		Low
		Risk	Medium		Medium
Plan for the provision of services for the development.	Duration	Long term	Appoint a Civil Engineer to assess the availability and design of services to ensure a sustainable development. Ensure that services are available before formalization takes place A Site specific Dolomite Risk Management Plan in accordance with SANS 1936-4:2012 must be compiled and implemented for these houses / formal structures in D4 Land. The owners/responsible persons must be made aware of the risks involved in building on dolomite, and be informed about how to be vigilant and act pro-actively by applying sound water management principles. B. General precautionary measures as set out in SANS 1936 Part 3: Design and construction of buildings, structures and infrastructure, must be studied and implemented.	Long term	
	Extent	Local		Local	
	Magnitude (Intensity)	High		High	
	Probability	Definite		Definite	
	Significance	Medium		High	
	Reversibility	Low		Low	
	Risk	Low		High	
	Duration	Short term		Medium term	

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)						
ALTERNATIVE 2: Single land use: Housing only						
Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)	
	Plan to rehabilitate disturbed surfaces which can lead to erosion and dust pollution. Prepare method statements to this effect.	Extent	Local	Start the rehabilitation of disturbed surfaces as soon as possible. Spray bare surfaces with water to prevent dust pollution.	Local	
		Magnitude (Intensity)	Low		Medium	
		Probability	Definite		Definite	
		Significance	Medium		Medium	
		Reversibility	High		High	
		Risk	Low		Medium	
	Plan for the eradication of foreign and invader plant species which are likely to invade disturbed areas.	Duration	Short term	Start the extermination of any invasive species as soon as possible and maintain the eradication programme.	Medium term	
		Extent	Local		Local	
		Magnitude (Intensity)	Low		Low	
		Probability	Definite		Definite	
		Significance	Medium		Medium	
		Reversibility	High		High	
	Plan for the provision and maintenance of ablation facilities for construction workers to prevent pollution of surface and underground water.	Duration	Short term	Provide portable ablation facilities that will not cause pollution during the construction phase.	Short term	
		Extent	Local		Local	
		Magnitude (Intensity)	Medium		Medium	
		Probability	Definite		Definite	
		Significance	Medium		Medium	
		Reversibility	High		High	
	Plan to manage possible impacts that the project can have on the soil and geology.	Duration	Long term	Properly plan the construction phase in such a manner that impacts on the soil and geology of the area can be minimised. The findings of the Geotechnical Engineer must be incorporated into the design of the project. Plan to prevent spills of lubricants/oils that can take place on bare soil. This will include the use of drip trays for vehicles that are standing for more than 24 hours. The findings of the Geotechnical Engineer must be incorporated into the design of the project. Plan to prevent spills of lubricants/oils that can take place on bare soil. This will include the use of drip trays for vehicles that are standing for more than 24 hours.	Long term	
		Extent	Local		Local	
		Magnitude (Intensity)	Low		Medium	
Probability		Definite	Definite			
Significance		Medium	Medium			
Reversibility		High	High			
Risk		Low	Medium			
Plan for the removal of vegetation (which will lead to the destruction of faunal and floral habitats) during the construction phase.		Duration	Short term		Start with the rehabilitation of vegetation to minimize the negative effects of the removal of plants. The rule must be to minimize the disturbance of animal life by keeping the footprint as small as possible. No snares may be set.	Short term
		Extent	Local			Local
		Magnitude (Intensity)	Medium			Medium
		Probability	Definite			Definite
		Significance	Medium			Medium
	Reversibility	High	High			
Plan to safeguard open trenches in order to alleviate the danger of collapse on people or on equipment and people- especially small children who may fall into it.	Duration	Short term	Ensure that the trenches are dug according to specifications as prescribed by the Civil Engineer. Ensure that the trenches stay open for as short a time as possible.	Short term		
	Extent	Local		Local		
	Magnitude (Intensity)	Medium		Medium		
	Probability	Definite		Definite		
	Significance	Medium		Medium		