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**BASIC ASSESSMENT REPORT**  
FOR THE  
**PROPOSED TOWNSHIP DEVELOPMENT ON ERVEN 563, 564 AND 698 IN  
COLIGNY WITHIN THE NORTHWEST PROVINCE**

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**DRAFT**

APRIL 2022

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## EXECUTIVE SUMMARY

### Background

Housing Development Agency would like to construct residential units on ERF 563, 564 and 698 in Coligny Township. The subject project is 2.75 hectares and will result in the loss of indigenous vegetation. GKM Environmental Services was appointed by Corridor Consultants as an independent Environmental Assessment (EAP) to undertake a Basic Assessment Report (BAR), Ecological Assessment as well as Heritage Impact Assessment and apply for the necessary Environmental Authorisation (EA) for the proposed project.

### Project Description

Proposed development entails the provision of services for the bulk services i.e., sewer, water, storm water and electricity. Thereafter, residential units suited for middle income earners will be constructed. The above-mentioned project scope triggers the following listed activities according to National Environmental Management Act, Act 107 of 1998. The following listed activities are applicable to this proposed development:

Table 2 – Applicable Listed Activity

LISTING NOTICE 1 (GNR 983 OF 4 DECEMBER 2014) AS AMENDED		
ACTIVITY NO	LISTED ACTIVITY	REASON FOR INCLUSION
1 (27)	The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation	The proposed subject property is 2.75 hectares and for the applicant to construction the proposed low-cost housing all of the current indigenous vegetation have to be cleared.

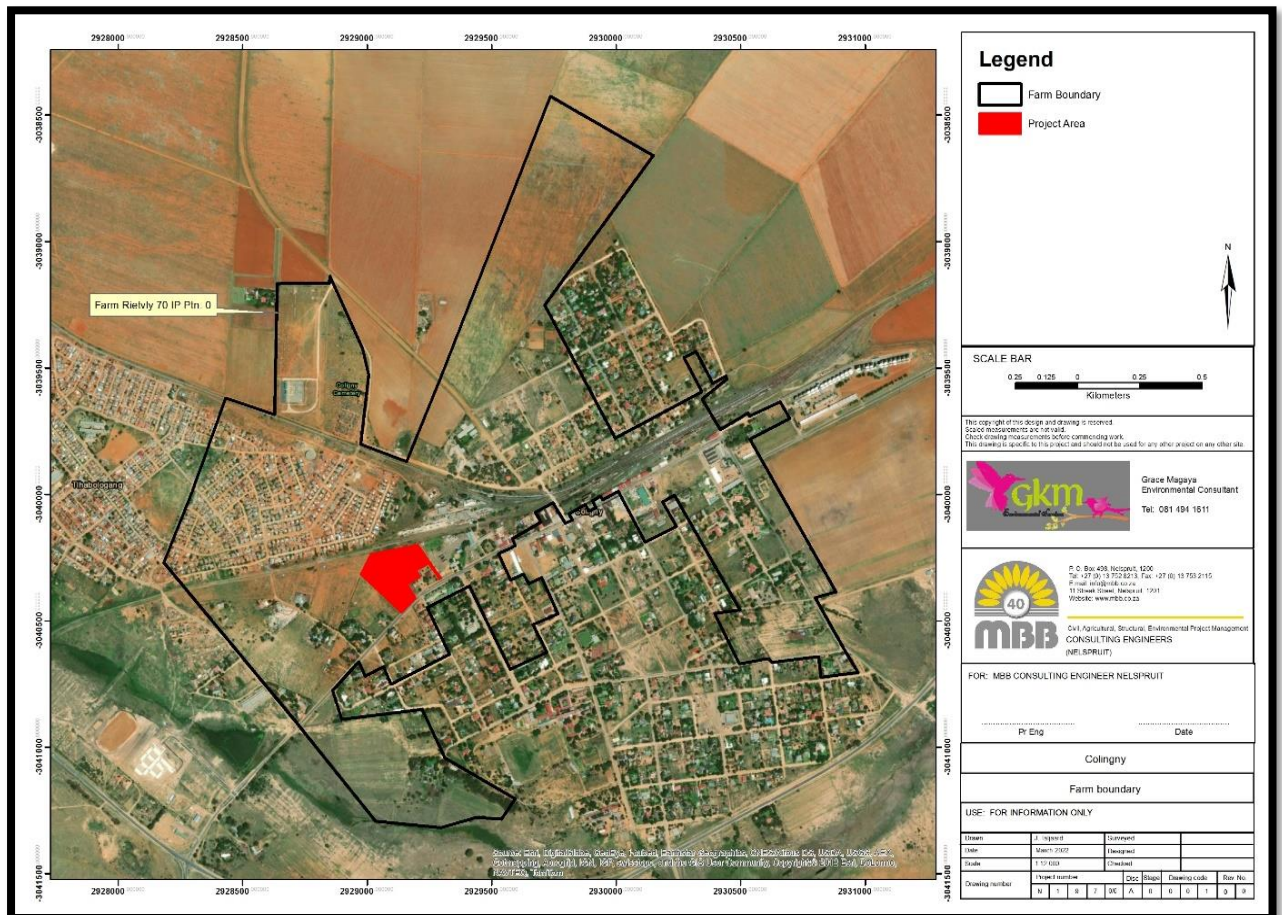
### Location

The subject property falls on erf 563, 564 and 698 in Coligny township within Ditsobotla Local Municipality in the Northwest Province.

Table 1 – Property Details

Property Name	ERF	Portion
Coligny Township	563IP	0
Coligny Township	564IP	0
Coligny Township	698IP	0

Figure 1 – Locality Map



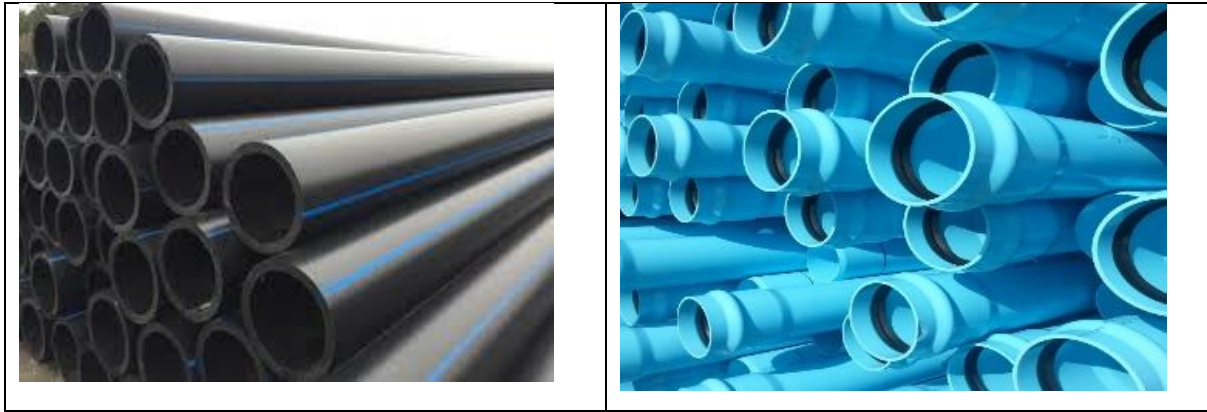
Alternative Considered

Two (02) options were considered i.e., the type of material to be used for the sewer and water reticulation; these are:

Table 2 - Alternatives

Preferred – HDPE	Alternative – uPVC
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### Public Participation Process

Public consultation is a legal requirement throughout the BA process. The following in line with NEMA Regulation have been done thus far and also includes what will be done until the end of this application

- Placing notice boards on site – reference is made to Appendix E2, site notices were posted in 6 different areas on and around the subject property.
- Identifying and registering Interested and Affected Parties (I&APs) and relevant stakeholders – all owners adjacent to the property were identified, reference is made to Appendix E9. Written notices were given out by the ward councillor Mr. Cobus van Tonder. We are still waiting for feedback by way of queries and concerns. Register for all interested and affected members will be kept and updated until the end of this application. Reference is made to Appendix E9.
- Notify the Ward Councillor – the ward councillor was identified, and formal communication was given to the councillor. Reference is made to Appendix E4.
- Legal Notice in the newspaper – newspaper advert was placed in the Noordwester on the 8<sup>th</sup> of April 2022. Reference is made to Appendix E3.
- Comments and Response – all comments received will be addressed. A copy of the comments and response is included to this application as Appendix E6.

Environmental Impact Assessment SummaryTable 3 – Summary of potential impacts

	Before mitigation	After mitigation
Loss of Vegetation	Medium	Low
Loss of items of cultural value	Low	low
Loss of sense of place	Medium – Positive	High – Positive
Loss of habitat	Medium	Low
Impact on local services	High	Low

Heritage Impact Specialist Recommendation - There are no pre-colonial heritage sites evident in the study area. This can be attributed to previous agricultural and infrastructure development activities in the study and greater study area. There are no historical sites or items situated on the site earmarked for development. Very little remains of the original landscape.

Ecologist Specialist Recommendation - The proposed developments are to be situated in the area that have been highly disturbed, has been highly modified with the high number of alien plants. There was invasion of problem weeds and category 1b alien invasive plant species. The site is surrounded by the established townships in all the directions and, therefore it is concluded that the site doesn't support any functional ecology and can't be used to conserve the endangered ecosystem and therefore it can be a preferred site for the proposed development.

Conclusion

After taking into consideration comments by the specialist and the EAPS assessment, the EAP recommends that the project be approved because it does not result in fatal flaws. All identified impacts can be mitigated. An environmental authorisation valid for at least 10-years is recommended because it gives the applicant enough time to plan and implement the proposed development. All proposed mitigation measure must be included in the environmental authorisation as conditions for licensing and a recommendation to have a fulltime environmental control officer during all the phases of the implementation must be included.

## TABLE OF CONTENTS

Executive Summary .....	II
Background .....	II
Project Description .....	II
Location.....	II
Table 1 – Property Details.....	III
Figure 1 – Locality Map.....	III
Alternative Considered.....	III
Table 2 - Alternatives .....	III
Public Participation Process.....	IV
Environmental Impact Assessment Summary .....	V
Table 3 – Summary of potential impacts.....	V
TABLE OF CONTENTS .....	1
DOCUMENT CONTROL.....	3
RECORD OF REVISIONS .....	3
Appendix 1 Checklist.....	4
Table 3: Checklist.....	4
1. Introduction.....	7
1.1 Background.....	7
1.2 Location of the activity .....	7
Table 4 – Property Jurisdiction.....	7
Table 5 – Property Details.....	7
Figure 3: C-Plan .....	9
1.3 Description of the receiving environmental.....	10
1.3.1 Climate .....	10
1.3.2 Vegetation and Landscape Features .....	10
1.3.3 Geology and Soils .....	10
1.3.4 Socio-economic context .....	10
1.3.5 Heritage features .....	13
2. Project Need And Desirability .....	14
Table 6: Need and Desirability .....	14
3. Applicable Legislation, Policies and Guidelines.....	27
Table 8 - Legislation, policies, and guidelines .....	27
Table 9: Description of compliance with legislation, policies, and guidelines .....	28
4. Participation Process .....	30
4.1 Site Notice.....	31
4.2 Newspaper Advertisement.....	31

4.3	I&AP and Stakeholder Notifications.....	31
4.4	Registration of Stakeholders.....	32
4.5	Review of Basic Assessment Report.....	32
4.6	A summary of the issues raised by interested and affected members.....	32
5.	Details of the alternatives considered .....	33
5.1	Alternatives considered .....	33
5.2	Evaluation of alternatives.....	33
	Table 12: Alternatives considered.....	34
6.	Impact Assessment and methodology .....	35
8.1	Methodology.....	35
	Table 13: Geographical extent of impact .....	36
	Table 14: Duration of impact.....	37
	Table 15: Severity of impact.....	37
	Table 16: Probability of impact.....	37
	Table 17 : Significance Rating .....	37
8.2.	Potential Impact and Proposed Mitigation Measures .....	38
6.1.1	PREFERRED .....	38
6.1.2	ALTERNATIVE .....	50
8.3	Cumulative impacts.....	61
6.2	Outcome of the site selection matrix .....	62
6.3	Motivation for No-Alternatives.....	62
6.4	Concluding statement indicating preferred alternatives including preferred location of the activity 62	
	Preferred Alternatives – .....	62
7.	findings by specialist and impact management measures .....	63
	Table 21 – summary of specialist findings .....	63
10.	Environmental impact statement.....	64
	Figure 22 – Sensitivity Map.....	64
	Table 22 – Summary of positive and negative impacts .....	65
11.	EAP and Specialist conditions for inclusion in the ea .....	66
12.	Gaps in knowledge, assumptions .....	66
13.	A reasoned opinion on whether development should or should not be authorised .....	66
14.	The period for which the authorisation should be valid.....	67
15.	Details of Financial Provisions for the rehabilitation, closure and ongoing post-decommissioning .....	67
16.	Other Information as required by authority .....	67
17.	Other information as required in terms of section 24(4)(a) and (b) of the Act .....	67

DOCUMENT CONTROL

<b>TITLE:</b>	Final Basic Assessment Report	
<b>REPORT STATUS:</b>	Draft	
<b>REVISION NUMBER:</b>	00	
<b>CLIENT:</b>	Housing Development Agency Thamsanq Naphakade 1 Maxwell Dr Sunninghill Johannesburg, 2175 Mobile No: 083 644 3763	
<b>CONSULTANT:</b>	GKM Consulting PTY LTD Grace Magaya 74 Third Street Northmead Benoni 1501 Mobile No: +27 81 494 1611	
<b>DATE:</b>	May 2022	
<b>REF NUMBER:</b>	QUO0000143	
<b>PREPARED BY:</b>	Grace Magaya	Environmental Consultant
<b>DISTRIBUTION LIST:</b>	<b>COMPANY</b>	<b>NAME &amp; SURNAME</b>
	Housing Development Agency	Thamasang Naphakade
	Corridor Consultants	Rothemba Ndouvhada

RECORD OF REVISIONS

REV. NO.	STATUS	DESCRIPTION OF REVISION	REV. DATE
00	Draft	Issued for comments	
01	Final	Submitted to Competent Authority	



Appendix 1 Checklist

The table below outlines the content of the Basic Assessment as part NEMA, 1998 EIA Regulations, 2014 (as amended).

Table 3: Checklist

BASIC ASSESSMENT REQUIREMENTS	SECTION OF REPORT
a) Details of: <ul style="list-style-type: none"> <li>i. The EAP who prepared the report; and</li> <li>ii. The expertise of the EAP, including a curriculum vitae.</li> </ul>	4
b) The location of the activity, including: <ul style="list-style-type: none"> <li>i. The 21-digit Surveyor General code of each cadastral land parcel.</li> <li>ii. Where available, the physical address and farm name.</li> <li>iii. Where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties.</li> </ul>	4
c) A plan that locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale.	27
d) A description of the scope of the proposed activity, including: <ul style="list-style-type: none"> <li>i. All listed and specified activities triggered and being applied for; and</li> <li>ii. A description of the activities to be undertaken including associated structures and infrastructure.</li> </ul>	II
e) A description of the policy and legislative context within which the development is proposed, including: <ul style="list-style-type: none"> <li>i. An identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and</li> <li>ii. How the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks and instruments.</li> </ul>	27
f) A motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location.	14
g) A motivation for the preferred site, activity, and technology alternative.	33
h) A full description of the process followed to reach the proposed preferred alternative within the site, including: <ul style="list-style-type: none"> <li>i. Details of the alternatives considered;</li> </ul>	33
<ul style="list-style-type: none"> <li>ii. Details of the public participation process undertaken in terms of Regulation 41 of the Regulations, including copies of the supporting documents and inputs;</li> </ul>	30
<ul style="list-style-type: none"> <li>iii. A summary of the issues raised by interested and affected parties and an indication of the manner in which the issues were incorporated, or the reasons for not including them;</li> </ul>	32
<ul style="list-style-type: none"> <li>iv. The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;</li> </ul>	10
<ul style="list-style-type: none"> <li>v. The impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration, and probability of the impacts, including the degree to which these impacts:</li> </ul>	35

	<ul style="list-style-type: none"> <li>a) Can be reversed.</li> <li>b) May cause irreplaceable loss of resources.</li> <li>c) Can be avoided, managed, or mitigated;</li> </ul>	
vi.	The methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	35
vii.	Positive and negative impacts that the proposed activity and alternatives have on the environment and on the community that may be affected, focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	38
viii.	The possible mitigation that could be applied and level of residual risk;	38
ix.	The outcome of the site selection mix;	62
x.	If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and	62
xi.	A concluding statement indicating the preferred alternatives, including preferred location of the activity.	62
i)	<p>A full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including:</p> <ul style="list-style-type: none"> <li>i. A description of all environmental issues and risks that were identified during the environmental impact assessment process; and</li> <li>ii. An assessment of the significance of each issue and risk, and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.</li> </ul>	38
j)	<p>An assessment of each identified potentially significant impact and risk, including:</p> <ul style="list-style-type: none"> <li>i. Cumulative impacts.</li> <li>ii. The nature, significance and consequences of the impact and risk.</li> <li>iii. The extent and duration of the impact and risk.</li> <li>iv. The probability of the impact and risk occurring.</li> <li>v. The degree to which the impact and risk can be reversed.</li> <li>vi. The degree to which the impact and risk may cause irreplaceable loss of resources; and</li> <li>vii. The degree to which the impact and risk can be avoided, managed or mitigated.</li> </ul>	38
k)	Where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in this draft report.	63
l)	<p>An environmental impact statement which contains:</p> <ul style="list-style-type: none"> <li>i. A summary of the key findings of the environmental impact assessment.</li> <li>ii. A map at an appropriate scale that superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers; and</li> </ul>	64

iii.	A summary of the positive and negative impacts and risks of the proposed activity and identified alternatives.	
m)	Based on the assessment and, where applicable, impact management measures from specialist reports, the recording of the proposed impact management outcomes for the development for inclusion in the EMPr.	66
n)	Any aspects that were conditional to the findings of the assessment either by the EAP or by the specialist that are to be included as conditions of authorisation.	66
o)	A description of any assumptions, uncertainties and gaps in knowledge that relate to the assessment and mitigation measures proposed.	66
p)	A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation.	66
q)	Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised.	67
r)	An undertaking under oath or affirmation by the EAP in relation to i. The correctness of the information provided in the reports, ii. The inclusion of comments and inputs from stakeholders and I&APs, iii. The inclusion of inputs and recommendations from the specialist reports where relevant, and iv. Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties.	Appendix I
s)	Where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts.	67
t)	Any specific information that may be required by the competent authority.	67
u)	Any other matters required in terms of Section 24(4)(a) and (b) of the Act;	67

## 1. INTRODUCTION

### 1.1 Background

Housing Development Agency would like to construct residential units on ERF 563, 564 and 698 IN Coligny Township. The subject project is 2.75 hectares and will result in the loss of indigenous vegetation. GKM Environmental Services was appointed by Corridor Consultants as an independent Environmental Assessment (EAP) to undertake a Basic Assessment Report (BAR), Ecological Assessment as well as Heritage Impact Assessment and apply for the necessary Environmental Authorisation (EA) for the proposed project.

### 1.2 Location of the activity

The subject property falls on erf 563, 564 and 698 in Coligny township within Ditsobotla Local Municipality in the Northwest Province.

Table 4 – Property Jurisdiction

<b>Competent Authority</b>	Department of Economic Development, Environment, Conservation and Tourism
<b>Local Municipality</b>	Ditsobotla Local Municipality Mr. TD Mosane Health and Environmental Department Mobile :+27 76 423 2894 Email: <a href="mailto:mosanetd@yahoo.com">mosanetd@yahoo.com</a>
<b>District</b>	Ngaka Modiri Molema District Municipality Ms Dushu <a href="mailto:dushuc@yahoo.com">dushuc@yahoo.com</a> 0837909620
<b>Province</b>	Northwest

Table 5 – Property Details

Property Name	ERF	Portion
Coligny Township	563IP	0
Coligny Township	564IP	0
Coligny Township	698IP	0

Figure 1 – Locality Map

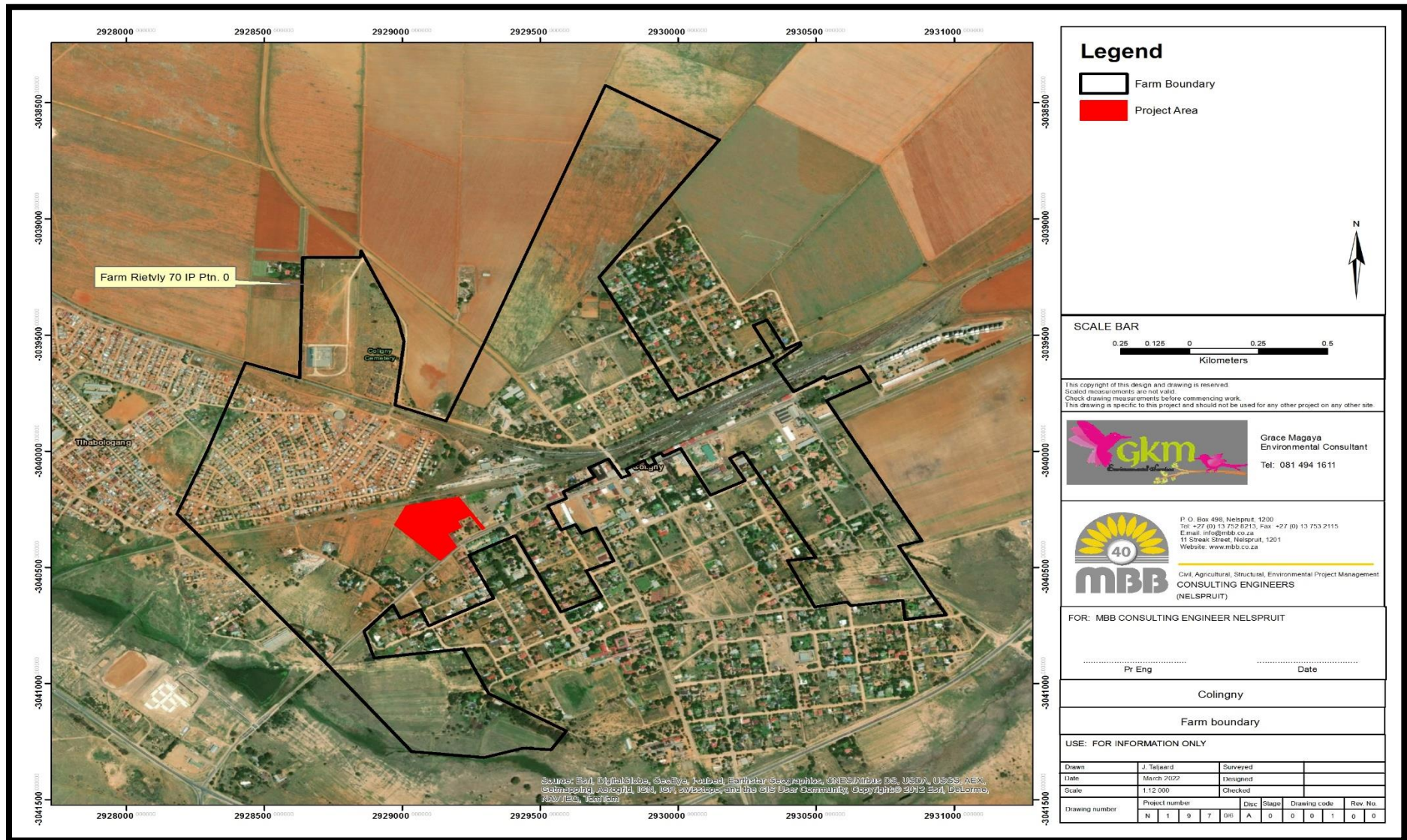
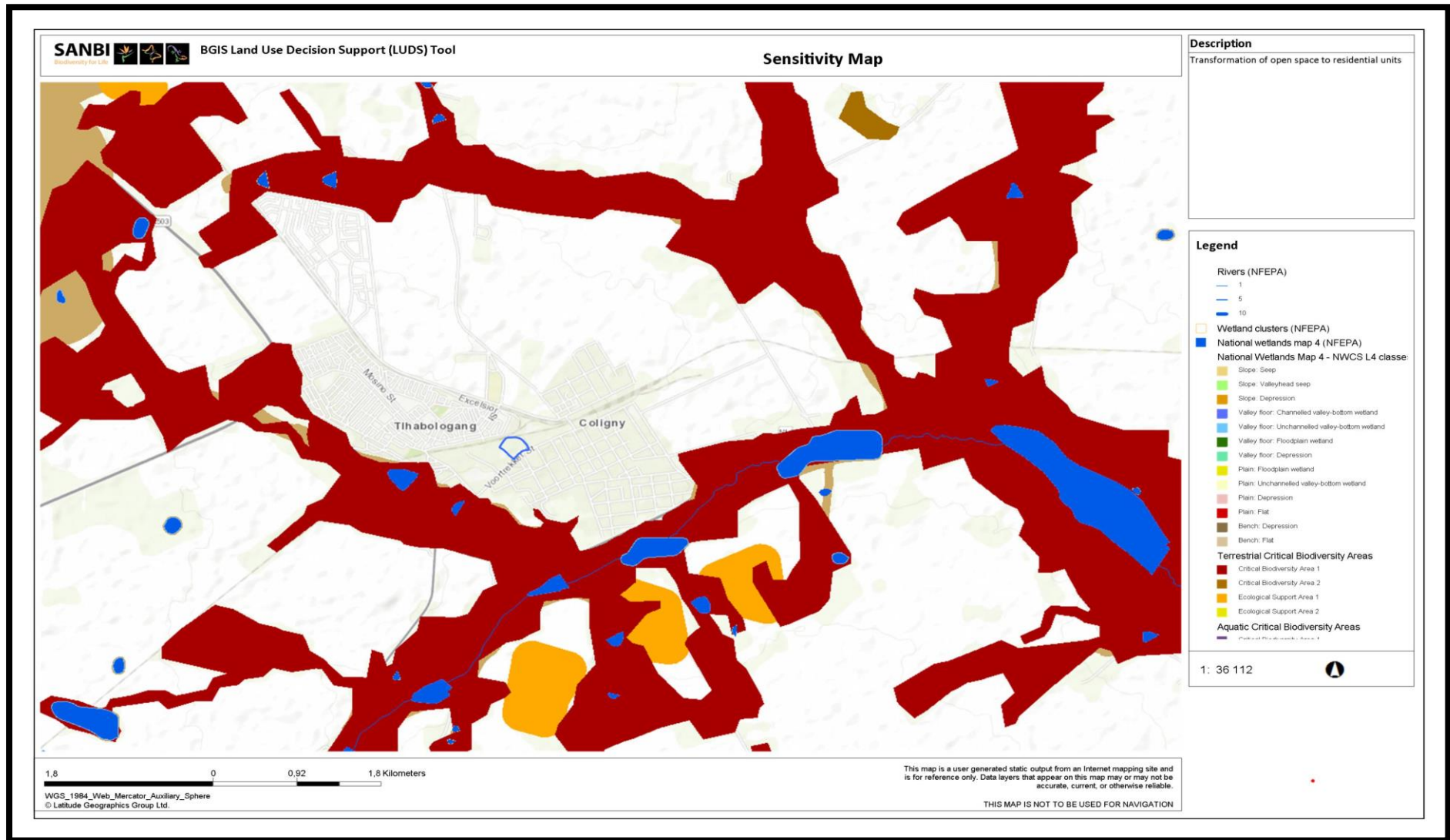




Figure 3: C-Plan



### 1.3 Description of the receiving environmental

#### 1.3.1 Climate

Warm-temperate, summer rainfall climate, with over all MAP of 530mm. high summer temperatures. Severe frost (37 days per year on average) occurs in winter.

#### 1.3.2 Vegetation and Landscape Features

Plains dominated landscape with some scattered, slightly irregular undulating plains and hills. Mainly low-tussock grasslands with an abundant karroid element. Dominance of *Themeda triandra* is an important feature of this vegetation unit. Locally low cover of *T. triandra* and the associated increase in *Elionurus muticus*, *Cymbopogon pospischilli* and *Aristida congesta* is attributed to heavy grazing and or erratic rainfall.

#### 1.3.3 Geology and Soils

Aeolian and colluvial sand overlying sandstone, mudstone, and shale of the Karoo Supergroup (mostly the Ecca Group) as well as older Ventersdorp Supergroup andesite and basement gneisses in the north. Soil forms are mostly Avalon, Westleigh and Clovelly. Dominant land type Bd, closely followed by Bc, Ae and Ba.

#### 1.3.4 Socio-economic context

Ditsobotla Local Municipality is in Ngaka Modiri Molema District Municipality, Northwest. As one of the five local municipalities in this district, it has three major towns namely Biesiesvlei, Coligny and Lichtenburg. The subject property is in Coligny. Socio economic status is as provided by statistics South Africa ([https://www.statssa.gov.za/?page\\_id=4286&id=10929](https://www.statssa.gov.za/?page_id=4286&id=10929)). See tables below:

Figure 4 – People

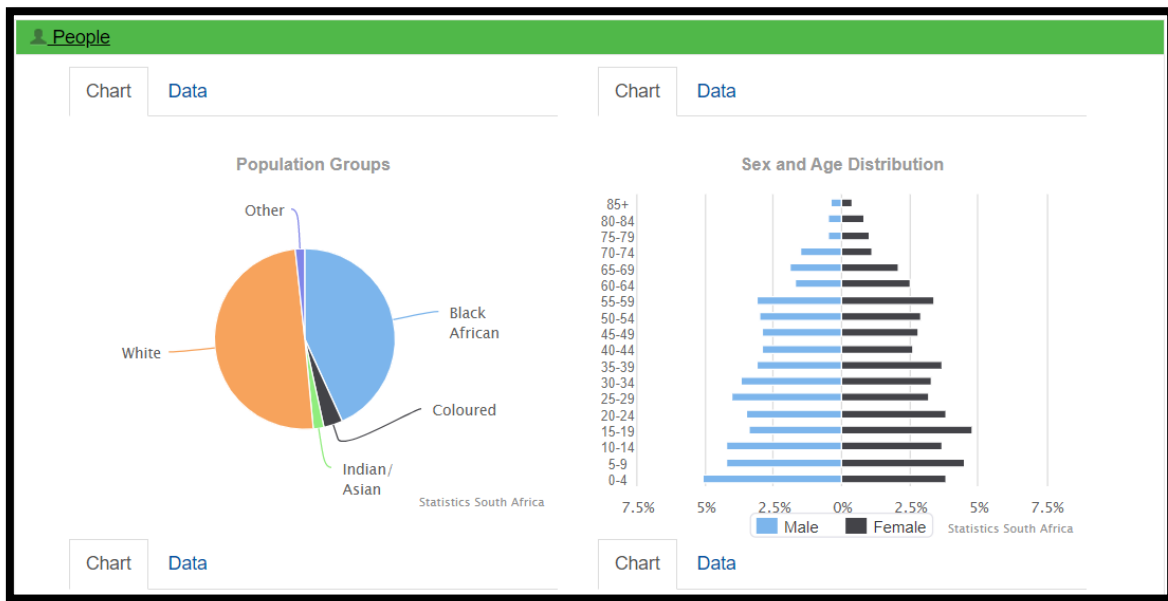
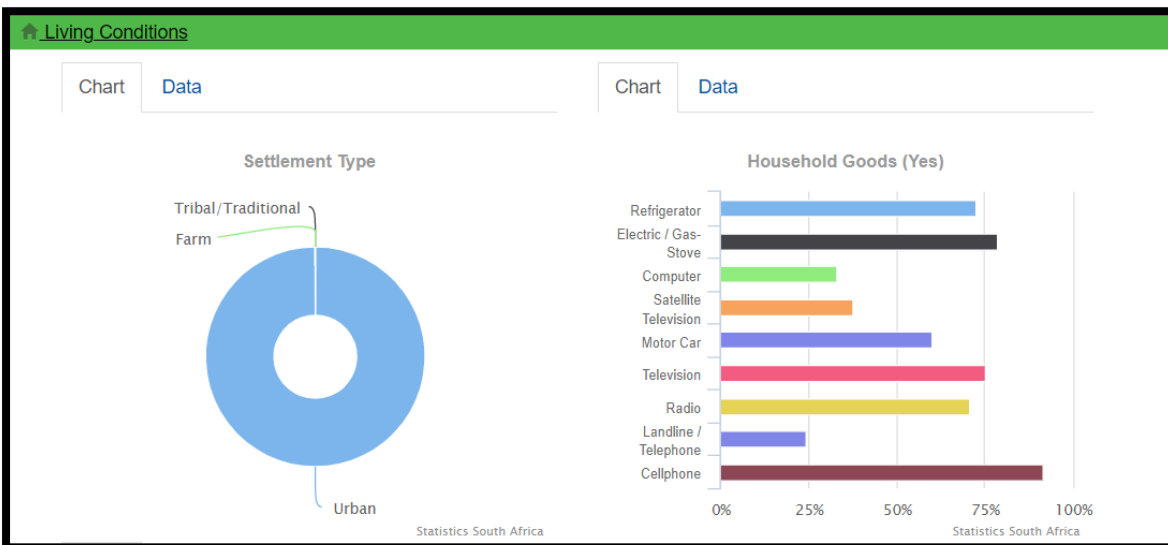
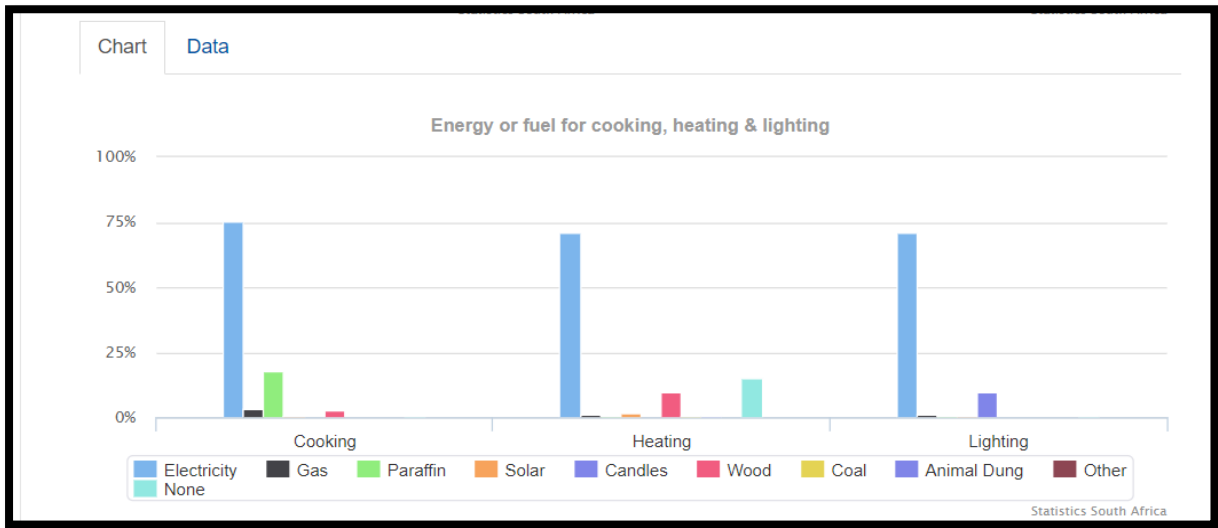


Figure 5 – Living Conditions

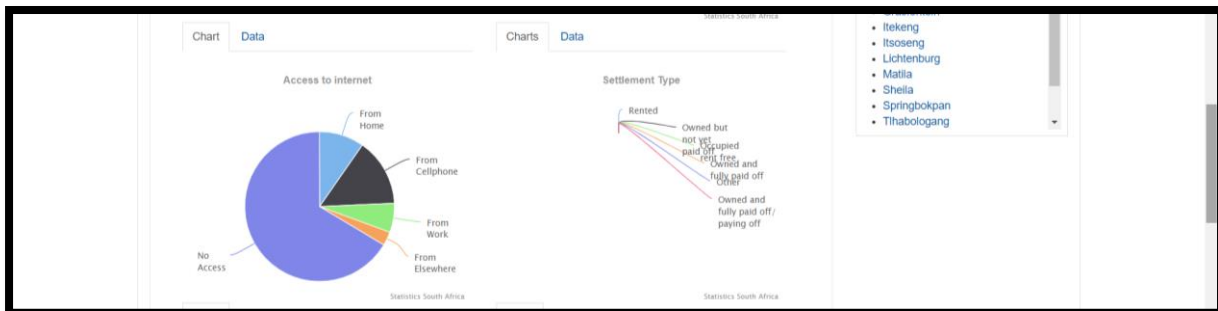
Household Goods



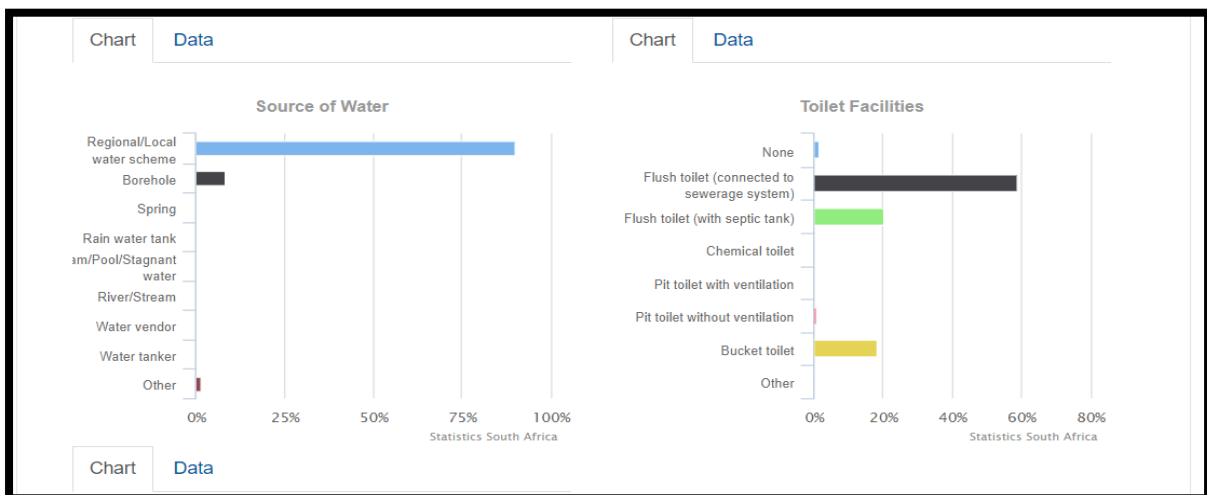
### Energy or Fuel for cooking, heating and lighting



### Access to Internet



### Source of Water and Toilet Facilities



## Refuse Disposal

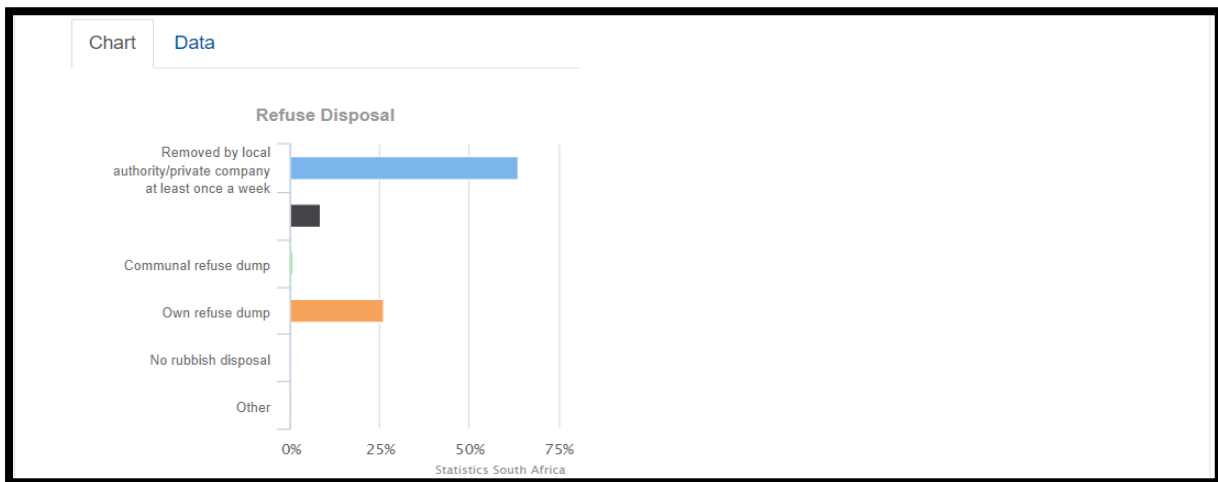
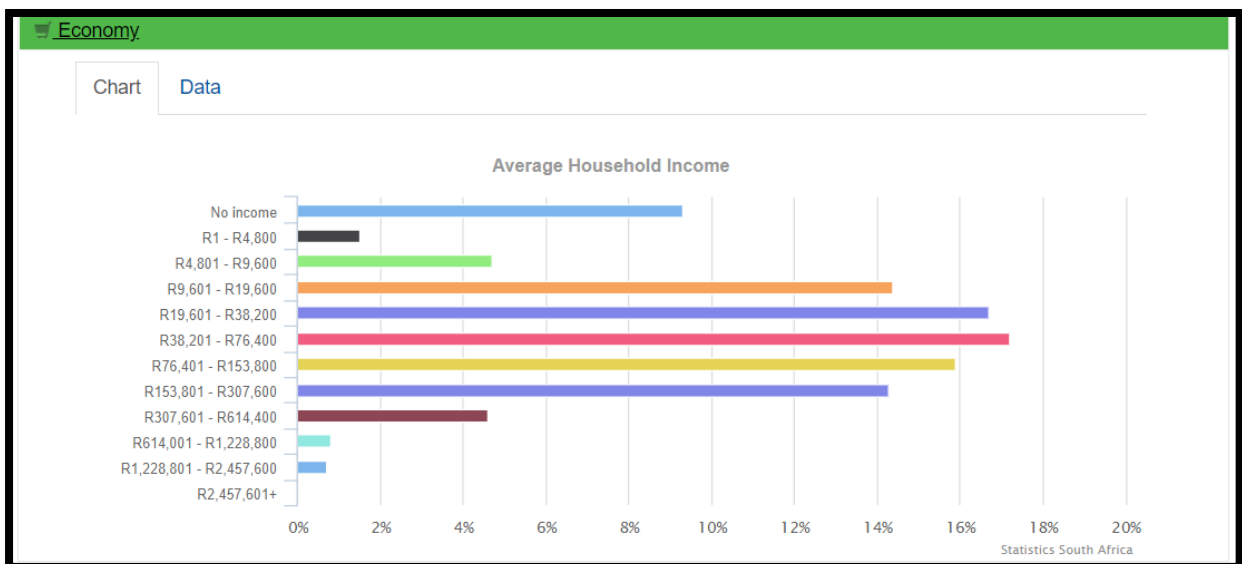


Figure 5 – Economy



### 1.3.5 Heritage features

There are no pre-colonial heritage sites evident in the study area. This can be attributed to previous agricultural and infrastructure development activities in the study and greater study area. There are no historical sites or items situated on the site earmarked for development. Very little remains of the original landscape. The intangible heritage of the greater study area can be found in the stories of past and present inhabitants.



## 2. PROJECT NEED AND DESIRABILITY

The need and desirability of the proposed provision of bulk services and eventually construction of residential units was evaluated in terms of the Integrated Environmental Management Guideline on Need and Desirability (General Notice 891 of 2014, as amended). This guideline outlines the legislative, strategic, and statutory considerations for identifying and describing the need and desirability of proposed developments, which trigger NEMA listed activities. The need and desirability of a proposed development is described in terms of its ecological sustainability, socio-economic justifiability, and overall contribution to sustainable development. The following considerations were considered in determining the need and desirability of the proposed fence.

Table 6: Need and Desirability

QUESTIONS AS PER GUIDELINE	EAP'S RESPONSE
Securing ecological sustainable development and use of natural resources	
1. How will this development (and its separate elements/aspects) impact on the ecological integrity of the area?	Specialist view is that the subject property is highly degraded, reference is made to Appendix G2.
1.1. How were the following ecological integrity considerations considered? <ul style="list-style-type: none"> <li>▪ Threatened ecosystems.</li> <li>▪ 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.</li> <li>▪ Critical Biodiversity Areas (“CBAs”) and Ecological Support Areas (“ESAs”)</li> <li>▪ Conservation targets</li> </ul>	<ul style="list-style-type: none"> <li>▪ According to the heritage specialist and ecological specialist, there are no threatened ecosystems in the subject property.</li> <li>▪ there are no vulnerable areas in the subject property.</li> <li>▪ The subject property does not fall within a critical biodiversity area.</li> <li>▪ The study area is situated within Coligny. There are no areas of conservation that are present in the near vicinity of the proposed site.</li> <li>▪ Subject property is does not fall within an ecological driver</li> <li>▪ One of the objectives states in the 2022 IDP is for sewer reticulation to be provided to all Coligny residents.</li> </ul>

<ul style="list-style-type: none"> <li>▪ Ecological drivers of the ecosystem</li> <li>▪ Environmental Management Framework</li> <li>▪ Spatial Development Framework</li> <li>▪ Global and international responsibilities relating to the environment</li> </ul>	<ul style="list-style-type: none"> <li>▪ There are no global or international responsibilities linked to this application.</li> </ul>
<p>1.2. How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimize and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p>	<p>The proposed development will result in the loss of vegetation. Mitigation measures are proposed in the specialist report, this report and in the EMPr.</p>
<p>1.3. How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p>	<p>Waste is a common problem during construction and at operational level. Applicant must implement a waste management system that ensures recycling and re-using of materials. Applicant must make sure that waste is also collected by the local municipality on a regular basis.</p>
<p>1.4. What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?</p>	<p>Waste generated by construction activities will be utilised around the site for levelling. Domestic waste will be collected in waste receptacles and disposed of at the nearest landfill site Induction training of contractors' employees, demarcation of the site, berming the development site and collection of hazardous waste by a certified waste contractor is some mitigation measures prescribed. A full list of mitigation measures for waste is contained under Appendix H– EMPr.</p>
<p>1.5. How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to</p>	<p>The proposed development will not affect any cultural heritage. A heritage impact assessment was undertaken for the proposed development, and it is</p>

<p>firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p>	<p>contained in Appendix G. Mitigation measures are contained in this report and under Appendix H the EMPr.</p>
<p>1.6. How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p>	<p>The subject property will use local electricity. Confirmation from the local municipality will be obtained before construction.</p>
<p>1.7. How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts?</p>	<p>The proposed development will not utilise renewable natural resources.</p>
<p>1.7.1. Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e., de-materialised growth)? (Note: sustainability requires that settlements reduce their ecological footprint by using less material</p>	<p>There will be an additional use of resources that will occur as a result of this proposed development.</p>

<p>and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life)</p>	
<p>1.7.2. Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources this the proposed development alternative?</p>	<p>Yes, if the applicant were to use renewable resources, the proposed development will become unattainable.</p>
<p>1.7.3. Do the proposed location, type and scale of development promote a reduced dependency on resources?</p>	<p>The location is perfect because it is close to existing services.</p>
<p>1.8. How was a risk-averse and cautious approach applied in terms of ecological impacts?</p>	<p>Reference is made to the specialist studies included to this application.</p>
<p>1.8.1. What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?</p>	<p>To our knowledge, there are no gaps or uncertainties for the proposed development.</p>
<p>1.8.2. What is the level of risk associated with the limits of current knowledge?</p>	<p>None.</p>
<p>1.8.3. Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?</p>	<p>Not applicable.</p>
<p>1.9. How will the ecological impacts be resulting from this development impact on people’s environmental right in terms following:  1.9.1. Negative impacts: e.g., access to resources, opportunity costs, loss of amenity (e.g., open space), air and water quality impacts, nuisance (noise, odor, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?</p>	<p>Please refer to Appendix H for the EMPr. Within this document, mitigation measures are provided and impacts remediated for the environment anticipated by the installation of the proposed development.</p>

<p>1.9.2. Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?</p>	<p>Please refer to Appendix H for the EMPr. Within this document, mitigation measures are provided and impacts remediated for the environment anticipated by the installation of the proposed development. Positive impacts associated with improved access are highlighted in this Basic Assessment Report.</p>
<p>1.10. Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socioeconomic impacts (e.g., on livelihoods, loss of heritage site, opportunity costs, etc.)?</p>	<p>There will be temporary job opportunities at construction level. There will be enhanced security both at construction and operation level. Currently the open area is open to be used as criminal hideouts.</p>
<p>1.11. Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives / targets / considerations of the area?</p>	<p>Very low impact</p>
<p>1.12. Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations?</p>	<p>The alternatives though cheap, can result in low costs at implementation but high costs at operation level because their require regular maintenance and can easily cause back flows.</p>
<p>1.13. Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?</p>	<p>Reference is made to section below on impacts and mitigation measures</p>



<p>2.1. What is the socio-economic context of the area, based on, amongst other considerations, the following considerations?</p> <p>2.1.1. The IDP (and its sector plan’s vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the area</p>	<p>Refer to Section 3.3.4</p>
<p>2.1.2. Spatial priorities and desired spatial patterns (for example need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.)</p>	<p>Not applicable</p>
<p>2.1.3. Spatial characteristics (for example existing land uses, planned land uses, cultural landscapes, etc.)</p>	<p>The subject property is currently zoned as agricultural, an application is underway to change the zoning to residential. The proposed land use will compliment the surrounding areas.</p>
<p>2.1.4. Municipal Economic Development Strategy (LED Strategy).</p>	<p>The Department of Economic Development is mandated to provide strategic economic direction to the city and help steer the City as a whole towards the goal to achieve 5% economic growth and to reduce unemployment by 2021.</p>
<p>2.2. Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?</p>	<ul style="list-style-type: none"> <li>✓ Employment opportunities during construction,</li> <li>✓ Revenue to the local municipality through payment of rates and taxes</li> <li>✓ Upgraded security</li> </ul>
<p>2.2.1. Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?</p>	<p>Yes</p>
<p>2.3. How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?</p>	<p>Enhanced sense of place, currently the area is deserted and is open to illegal dumping</p>

<p>2.4. Will the development result in equitable (intra and inter-generational) impact distribution, in the short and long-term? Will the impact be socially and economically sustainable in the short and long-term?</p>	<p>Yes</p>
<p>2.5. In terms of location, describe how the placement of the proposed development will:</p> <p>2.5.1. Result in the creation of residential and employment opportunities in close proximity to or integrated with each other</p>	<p>The subject property is close to all amenities. Those seeking employment will be sort from those within 500m buffer of the subject property.</p>
<p>2.5.2. Reduce the need for transport of people and goods</p>	<p>The subject property is close to existing roads.</p>
<p>2.5.3. Result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport)</p>	<p>N/A</p>
<p>2.5.4. Compliment other uses in the area</p>	<p>Yes</p>
<p>2.5.5. Be in line with the planning for the area</p>	<p>Yes</p>
<p>2.5.6. For urban related development, make use of under-utilized land available with the urban edge</p>	<p>Yes, subject property falls within an open land that has been vacant for years</p>
<p>2.5.7. Optimize the use of existing resources and infrastructure</p>	<p>Yes</p>
<p>2.5.8. Opportunity costs in terms of bulk infrastructure expansions in non-priority areas (for example not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement)</p>	<p>n/a</p>
<p>2.5.9. Discourage urban sprawl and contribute to compaction/densification</p>	<p>Yes, the proposed development will discourage illegal settlement</p>

2.5.10. Contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure more than current needs	Yes, the open area need to be filled in purposefully
2.5.11. Encourage environmentally sustainable land development practices and processes	Yes, the proposed development accommodates all environmental features with the least impact on the environment.
2.5.12. Take into account special locational factors that might favour the specific location (for example the location of a strategic mineral resource, access to the port, access to rail, etc.)	The subject property has good access to existing road
2.5.13. The investment in the settlement or area in question will generate the highest socio-economic returns (i.e. an area with high economic potential),	Yes, there is need for accommodation for middle income earners in the area. Further through rates and taxes the local council will benefit.
2.5.14. Impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area	No, the proposed development will not have a negative impact on the sense of history, sense of place or heritage.
2.5.15. In terms of the nature, scale and location of the development, promote or act as a catalyst to create a more integrated settlement?	Yes
2.6. How were a risk-averse and cautious approach applied in terms of socio-economic impacts?	All environmental socio-economic impacts were assessed.
2.6.1. What are the limits of current knowledge (note: the gaps, uncertainties, and assumptions must be clearly stated)?	To our knowledge, there are no gaps or uncertainties related to the socio environment.
2.6.2. What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge?	Not applicable.

<p>2.6.3. Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?</p>	<p>The proposed development will aim to improve safety, enhance economic viability, and enhance the social environmental issues.</p>
<p>2.7. How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following:</p>	
<p>2.7.1. Negative impacts: e.g., health (e.g., HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimize, manage and remedy negative impacts?</p>	<p>Refer to the EMPr contained in Appendix H.</p>
<p>2.7.2 Positive impacts. What measures were taken to enhance positive impacts?</p>	<p>Refer to the EMPr contained in Appendix H. Overall human safety will be enhanced, economic viability will be bettered, and local development, and skills transfer encouraged.</p>
<p>2.8 Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts (e.g., over utilisation of natural resources, etc.)?</p>	<p>Refer to the Environmental Impact Statement in this report and the EMPr contained in Appendix H.</p>
<p>2.9 What measures were taken to pursue the selection of the best practicable environmental option in terms of socio-economic considerations?</p>	<p>Overall safety is most probably the highest indicator and benefit of all. It has been proven that if casual access is prohibited, accidental rail killings, vandalism and stealing of merchandise minimised and lowered. Refer to mitigation measures contained in the EMPr, under Appendix H</p>
<p>2.10 What measures were taken to pursue environmental justice 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 (who are the beneficiaries and is the development located appropriately)? Considering the need for social equity and justice, do</p>	<p>Employment opportunities where possible will prioritize those previously disadvantaged and the disabled. Ward councilor will be a link between the project manager and the community</p>

<p>the alternatives identified, allow the best practicable environmental option to be selected, or is there a need for other alternatives to be considered?</p>	
<p>2.11 What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?</p>	<p>Economic viability will increase, as economic growth of industry and commerce is stimulated. Please refer to the EMPr contained in Appendix H.</p>
<p>2.12 What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?</p>	<p>Please refer to Appendix H for the EMPr for mitigation measures.</p>
<p>2.13 What measures were taken to:</p> <p>2.13.1 Ensure the participation of all interested and affected parties</p> <p>2.13.2 Provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation</p> <p>2.13.3 Ensure participation by vulnerable and disadvantaged persons</p> <p>2.13.4 Promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means</p> <p>2.13.5 Ensure openness and transparency, and access to information in terms of the process</p> <p>2.13.6 Ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge</p>	<p>All public participation is contained in Appendix E.</p>



<p>2.13.7 Ensure that the vital role of women and youth in environmental management and development were recognized and their full participation therein was promoted?</p>	
<p>2.14 Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?</p>	<p>The proposed project will result in better management, safety, security, and accesses, and it will lead to the economic growth of the industry and commerce.</p>
<p>2.15 What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?</p>	<p>Please refer to Appendix H for the EMPr containing mitigation measures for potential work seekers and employees.</p>
<p>2.16 Describe how the development will impact on job creation in terms of, amongst other aspects:  2.16.1 The number of temporary versus permanent jobs that will be created</p>	<p>A contractor will be appointed by the applicant who will be responsible for appointment of temporary and permanent staff. The appointments will be applicable to the construction phase. GKM has indicated in the EMPr, contained under Appendix H, that local employees should be encouraged to be utilised to encourage skills transfer and development.</p>
<p>2.16.2 Whether the labour available in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area)</p>	<p>GKM indicated in the EMPr, contained under Appendix H, that local employees should be encouraged to be utilised to encourage skills transfer and development. This will enhance the general area skills, provide job opportunities to potential job seekers and manage it in the best suitable way.</p>

<p>2.16.3 The distance from where labourers will have to travel</p>	<p>GKM has indicated in the EMPr, contained under Appendix H, that local employees should be encouraged to be utilised to encourage skills transfer and development. This will enhance the general travel time.</p>
<p>2.16.4 The location of job opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits)</p>	<p>GKM has indicated in the EMPr, contained under Appendix H, that local employees should be encouraged to be utilised to encourage skills transfer and development. This will enhance the general travel time.</p>
<p>2.16.5 The opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but impact on 1000 agricultural jobs, etc.)?</p>	<p>The EMPr encourages utilising local job seekers for the proposed development as they are literally situated adjacent to the proposed development. However, it is still the contractors' own discretion that they would like to utilise during the construction period. GKM can only mention and suggest the utilisation of residents to encourage skills transfer; however, ultimately it is up to the contractor who will make appointments and grant jobs.</p>
<p>2.17 What measures were taken to ensure: 2.17.1. That there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment</p>	<p>National Legislation, i.e. NEMA, NWA, NHRA, NEM:BA were consulted in the preparation of this Basic Assessment Report. Provincial guidelines also formed part of the literature review. Spatial development tools also aided the EAP to assess and provide information pertaining to the proposed development.</p>
<p>2.17.2. That actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?</p>	<p>Refer to the public participation section in this report. All detailed public participation details are contained in Appendix E.</p>
<p>2.18. What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage?</p>	<p>Firstly, the proposed development was by 0 Freight Rail. A heritage impact assessment was undertaken (refer to Appendix G). Secondly, heritage impacts, and cultural impacts were assessed and with mitigation measures</p>

	provided, it can be mitigated to a satisfactory level. Refer to Appendix H for the EMPr.
2.19. Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?	Yes.
2.20. What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects would be paid for by those responsible for harming the environment?	Refer to Appendix H for the EMPr.
2.21. Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?	Refer to the Impact Assessment section above.
2.22. Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?	Refer to the Needs section above under point. 1.13.

### 3. APPLICABLE LEGISLATION, POLICIES AND GUIDELINES

The following covers all the legislation, policies and guidelines applicable to this proposed development.

- |   |
|---|
| (d) A description of the scope of the proposed activity, including: <ol style="list-style-type: none"> <li>i. All listed and specified activities triggered and being applied for; and</li> <li>ii. A description of the activities to be undertaken including associated structures and infrastructure.</li> </ol> |
|---|

**Table 8 - Legislation, policies, and guidelines**

<b>TITLE OF LEGISLATION, POLICY, OR GUIDELINE</b>	<b>ADMINISTERING AUTHORITY</b>	<b>PROMULGATION DATE</b>
Constitution of the Republic of South Africa, 1996	National	18 December 1996
National Environmental Management Act, 1998 (Act 107 of 1998) as amended	National & Provincial	27 November 1998
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	National & Provincial	07 June 2004
National Heritage Resources Act, 1999 (Act No. 25 of 1999)	National & Provincial	April 1999
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	National & Provincial	10 March 2009
National Water Act, 1998 (Act No. 36 of 1998)	National & Provincial	06 December 1999
Environmental Impact Assessment Regulations (GNR. 982, 983, 984 & 985) of December 2014	National & Provincial	04 December 2014
National Road Traffic Act, 1996 (Act No. 93 of 1996)	National & Provincial	November 1996
Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)	National & Provincial	June 1993

Table 9: Description of compliance with legislation, policies, and guidelines

The following table provides a description of compliance with the relevant legislation, policy, or guideline.

<b>LEGISLATION, POLICY OR GUIDELINE</b>	<b>DESCRIPTION OF COMPLIANCE</b>
The Constitution of the Republic of South Africa, 1996	The right to an environment that is not harmful to the health and well-being of people will be protected.
National Environmental Management Act [NEMA], 1998 (Act 107 of 1998) as amended	The proposed development triggers activities listed in listing notices GN R.983 and GN R.985 of the NEMA EIA Regulations 2014 (as amended). A basic assessment has been undertaken for Environmental Authorisation as per GNR. 982.
NEMA Environmental Impact Assessment Regulations (GNR. 982, 983, 984 & 985) of December 2014 as amended	The proposed development triggers activities listed in listing notices GN R.983 and GN R.985 of the NEMA EIA Regulations 2014 (as amended). A basic assessment has been undertaken for Environmental Authorisation as per GNR. 982.
National Environmental Management: Biodiversity Act [NEM:BA], 2004 (Act No. 10 of 2004)	<p>The proposed development falls within a Critically Endangered Ecosystem and an Ecological Support Area. An indication of ecological sensitivity assessment and a follow up biodiversity assessment were undertaken to determine the presence of threatened species, likely impacts and mitigation required.</p> <p>The NEMBA invasive species list, 2016 has been taken into account as part of this basic assessment.</p>

National Heritage Resources Act [NHRA], 1999 (Act No. 25 of 1999)	A notification of intent to development was sent to the South African Heritage Resources Agency (SAHRA) in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999).
National Environmental Management: Waste Act [NEM: WA], 2008 (Act No. 59 of 2008)	Reasonable measures have been provided for the prevention of pollution and ecological degradation to ensure that the development is ecologically sustainable.
National Water Act [NWA], 1998 (Act No. 36 of 1998)	A General Authorisation was applied for in terms of Section 21(c) and (i) water uses in terms of the National Water Act, 1998 (Act 36 of 1998) and DWS granted this. Please refer to Appendix F.
National Road Traffic Act [NRTA], 1996 (Act No. 93 of 1996)	All vehicles and relevant operators will adhere to the National Road Traffic Act, 1996 (Act 93 of 1996) and all regulations under this Act.
Occupational Health and Safety Act [OHSA], 1993 (Act No. 85 of 1993)	The Contractor will ensure the health and safety of all workers and that of others that may be at risk as per the Occupational Health and Safety Act, 1993 (Act 85 of 1993).

## **4. PARTICIPATION PROCESS**

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Public participation was undertaken in accordance with the requirements of the EIA Regulations of 2014 (as amended on 07 April 2017) in terms of Sections 39 to 44.

Public participation is one of the most important aspects of the environmental authorisation process. People have the right to be informed about potential decisions that may affect them and they must be afforded an opportunity to influence those decisions. Effective public participation also improves the ability of the competent authority to make informed decisions and results in improved decision-making as the views of all parties are considered.

The public participation process provides the following:

- An opportunity for interested and affected parties (I&APs) to obtain clear accurate and comprehensible information about the proposed activity, its alternatives or the decision and the environmental impacts thereof,
- The opportunity for I&APs to indicate their viewpoints, issues and concerns regarding the activity, alternatives and/or decision,
- The opportunity for I&APs to suggest ways of avoiding, reducing or mitigating negative impacts of an activity and for enhancing positive impacts,
- Enabling an applicant to incorporate the needs, preferences and values of affected parties into the activity,
- Opportunities to avoid and resolve disputes and reconcile conflicting interests; and
- Enhancing transparency and accountability in decision-making.

In terms of the Environmental Impact Assessment (EIA) Regulations 2014, as amended on 07 April 2017 and promulgated in terms of the National Environmental Management Act, 1998 (Act 107 of 1998, as amended) stakeholders (I&APs) were notified of the Environmental Impact Assessment process.

## The following process was followed

### 4.1 Site Notice

*Fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of—*

*(i) the site where the activity to which the application or proposed application relates is or is to be undertaken; and (ii) any alternative site.*

Size notices were placed on and around the site. Proof of such notice is included in this report as Appendix E1 – Site Notices.

### 4.2 Newspaper Advertisement

*c) placing an advertisement in:*

*(i) one local newspaper; or*

*(ii) any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these regulations.*

*(d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken:*

*Provided that this paragraph need not be complied with if an advertisement has been placed in an official Gazette referred to in paragraph (c)(ii);*

Public notice for the proposed development appeared in the Noordwester on the 8<sup>th</sup> of April 2022. Proof of publication is included to this application as Appendix E3

### 4.3 I&AP and Stakeholder Notifications

*(b) giving written notice, in any of the manners provided for in section 47 D of the Act, to—*

*(i) the occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site on which the activity is to be undertaken, and to any alternative site where the activity is to be undertaken;*

*(ii) owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken;*

*(iii) the municipal councillor of the ward in which the site and alternative site is situated and any organisation of ratepayers that represent the community in the area;*

*(iv) the municipality which has jurisdiction in the area;*

*(v) any organ of state having jurisdiction in respect of any aspect of the activity; and*

*(vi) any other party as required by the competent authority;*

- i. The applicant is the same as the owner of the land.
- ii. A total of eight owners were identified who are adjacent to the subject property. Written notifications were sent out and proof of receipt is included to this application as Appendix E9.
- iii. The municipal ward councillor is Mr. Cobus van Tonder, he was notified on the 30<sup>th</sup> of March 2022. Proof of correspondence is included to this application as Appendix E4.



- iv. Municipality representative for Ditsobotla Local Municipality received the notification on the 4<sup>th</sup> of April 2022. Reference is made to Appendix E4.
- v. Municipality representative for Ngaka Modiri Molema District.
- vi. SAHRIS will receive a copy of the report for commenting.
- vii. Should there be other party's as requested by the competent authority, notification will be send out.

#### 4.4 Registration of Stakeholders

- a) *all persons who, as a consequence of the public participation process conducted in respect of that application, have submitted written comments or attended meetings with the proponent, applicant or EAP;*
- b) *all persons who have requested the proponent or applicant, in writing, for their names to be placed on the register; and*
- c) *all organs of state which have jurisdiction in respect of the activity to which the application relates.*

All members of the community that have expressed interest in participating in the project are included in the register, reference is made to Appendix E9.

#### 4.5 Review of Basic Assessment Report

A copy of the draft basic assessment report will be made available to all registered interested and affected members. Proof of submission will be included in the Final Basic Assessment Report.

#### 4.6 A summary of the issues raised by interested and affected members

*44(1) The applicant must ensure that the comments of interested and affected parties are recorded in reports and plans, and such written comments, including responses are attached to the reports and plans that are submitted to the competent authority in terms of these regulations.*

All issues raised during the notification period and review of the draft basic assessment will be captured on a comment and response sheet, reference is made to appendix E6.

## 5. DETAILS OF THE ALTERNATIVES CONSIDERED

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### 5.1 Alternatives considered







Alternatives should include consideration of all possible means by which the purpose and need of the proposed activity could be accomplished. In all cases, the no-go alternative must be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether 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.

“**Alternatives**”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to:

- (a) The property on which or location where it is proposed to undertake the activity.
- (b) The type of activity to be undertaken.
- (c) The design or layout of the activity.
- (d) The technology to be used in the activity.
- (e) The operational aspects of the activity.
- (f) The option of not implementing the activity.

### 5.2 Evaluation of alternatives

Table 12: Alternatives considered

Type of Alternative	Options	Comment					
Site - the property on which the location or where it is proposed to undertake activity	N/A	The applicant only has one piece of land					
Activity – the type of activity to be undertaken	N/A	The proposed land use is in harmony with the surrounding area, for that reason, having residential units will complement existing services.					
Design – the type of design or layout to be undertaken	N/A – Layout	Layout was not considered because there are no sensitive areas on site to be avoided					
	Yes – Design	<p>Two types of pipelines were considered that is HDPE and Upvc. The reason for selecting HDPE as the preferred over the uPVC is provided under section 8.6</p> <table border="1"> <thead> <tr> <th>Preferred – HDPE</th> <th>Alternative – uPVC</th> </tr> </thead> <tbody> <tr> <td>  </td> <td>  </td> </tr> <tr> <td> <ul style="list-style-type: none"> <li>• Safety of potable water and long-term reliability.</li> <li>• Low scrap value, avoiding jobsite theft.</li> <li>• Recyclable, eco-friendly material.</li> <li>• Heat fusible for virtually leak-free performance</li> </ul> </td> <td> <ul style="list-style-type: none"> <li>• Due to their non-decomposing property, plastic pipes are not installed in high temperature.</li> <li>• They are easily cracked.</li> <li>• At higher temperatures, the strength of plastic pipes reduces.</li> </ul> </td> </tr> </tbody> </table>	Preferred – HDPE	Alternative – uPVC			<ul style="list-style-type: none"> <li>• Safety of potable water and long-term reliability.</li> <li>• Low scrap value, avoiding jobsite theft.</li> <li>• Recyclable, eco-friendly material.</li> <li>• Heat fusible for virtually leak-free performance</li> </ul>
Preferred – HDPE	Alternative – uPVC						
							
<ul style="list-style-type: none"> <li>• Safety of potable water and long-term reliability.</li> <li>• Low scrap value, avoiding jobsite theft.</li> <li>• Recyclable, eco-friendly material.</li> <li>• Heat fusible for virtually leak-free performance</li> </ul>	<ul style="list-style-type: none"> <li>• Due to their non-decomposing property, plastic pipes are not installed in high temperature.</li> <li>• They are easily cracked.</li> <li>• At higher temperatures, the strength of plastic pipes reduces.</li> </ul>						
Technology – type of technology for the proposed activity	N/A	The nature of the project i.e. provision of bulk services has very little option in terms of use of technology.					
Operational Aspect	N/A	There is a need for middle income earners type of accommodation In Coligny. Using the facility for a different option will still leave the municipality short of accommodation.					
Option for No-Go	N/A	This option will result in the environment not being disturbed. However, the option will leave the applicant with a need for alternative space to construct the proposed houses. Further, the potential revenue through rates and taxes will not be realised and temporary employment during construction will not be realised.					

## 6. IMPACT ASSESSMENT AND METHODOLOGY

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### 8.1 Methodology

The following methodology was utilised in the rating of the significance impacts. The first stage of the risk / impact assessment is the identification of environmental activities, aspects, and impacts. This is supported by the identification of receptors and resources, which allows for an understanding of the impact pathway and an assessment of the sensitivity to change. The definitions used in the impact assessment are presented below.

- An activity is a distinct process or task undertaken by an organisation for which a responsibility can be assigned. Activities also include infrastructure or facilities that are possessed by an organisation.
- An environmental aspect is an element of an organisation's activities, products and services which can interact with the environment. The interaction of an aspect with the environment may result in an impact.
- Environmental risks/impacts are the consequences of these aspects on environmental resources or receptors of particular value or sensitivity, for example, disturbance due to noise and health effects due to poorer air quality. In the case where the impact is on human health or wellbeing, this should be stated. Similarly, where the receptor is not anthropogenic, then it should, where possible, be stipulated what the receptor is.
- Receptors can comprise people or human-made systems, such as local residents, communities and social infrastructure, as well as components of the biophysical environment such as wetlands, flora and riverine systems.
- Resources include components of the biophysical environment.
- Frequency of activity refers to how often the proposed activity will take place.
- Frequency of impact refers to the frequency with which a stressor (aspect) will affect the receptor.
- Severity refers to the degree of change to the receptor status in terms of the reversibility of the impact; sensitivity of receptor to stressor; duration of impact (increasing or decreasing with time); controversy potential and precedent setting; threat to environmental and health standards.
- Spatial extent refers to the geographical scale of the impact.

- Duration refers to the length of time over which the stressor will cause a change in the resource or receptor.

The significance of the impact is then assessed by rating each variable numerically according to the defined criteria. The purpose of the rating is to develop a clear understanding of influences and processes associated with each impact. The severity, extent and duration of the impact together comprise the consequence of the impact and when summed can obtain a maximum value of 15. The frequency of the activity and the frequency of the impact together comprise the likelihood of the impact occurring and can obtain a maximum value of 10. The values for likelihood and consequence of the impact are then read off a significance-rating matrix and are used to determine the extent of mitigation necessary.

The assessment of significance is undertaken twice. Initially, significance is based on only natural and existing mitigation measures (including built-in engineering designs). The subsequent assessment takes into account the recommended management measures required to mitigate the impacts. Measures such as demolishing infrastructure, and reinstatement and rehabilitation of land, are considered post-mitigation.

The model outcome of the impacts was then assessed in terms of impact certainty and consideration of available information. The Precautionary Principle is applied in line with South Africa's National Environmental Management Act, 1998 (Act 107 of 1998) in instances of uncertainty or lack of information, by increasing assigned ratings or adjusting final model outcomes. In certain instances, where a variable or outcome requires rational adjustment due to model limitations, the model outcomes have been adjusted.

Table 13: Geographical extent of impact

RATING	EXTENT	DESCRIPTION
1	Site	The actual extent
2	Local	The site and immediate surrounding will be impacted on.
3	Regional	The surrounding area and adjacent neighboring properties will be impacted on.
4	Provincial	Impact will extend to provincial boundary.
5	National	Impact will extend beyond provincial boundaries.

Table 14: Duration of impact

RATING	DURATION	DESCRIPTION
1	Temporary	the impact will disappear with mitigation or will be mitigated through a natural process in a period shorter than that of the construction phase, rating of 1
2	Short term	the impact will be relevant to the end of a construction phase
3	Medium term	the impact will last up to the end of the development phases, where after it will be entirely negated
4	Long term	the impact will continue or last for the entire operational lifetime of the development, but will be mitigated by direct human action or by natural processes thereafter
5	Permanent	this impact is not reversible and human intervention e.g., rehabilitation, is unlikely to negate the impact sufficiently (e.g. acid mine drainage)

Table 15: Severity of impact

RATING	INTENSITY	DESCRIPTION
2	Negligible	Change will be noticeable; the natural functioning of the environment will not be affected.
4	Low	Change will be noticeable; the natural functioning of the environment can, however, be re-established.
6	Medium	Natural functioning of the environment will be evidently altered; the environment will function in a modified way.
8	High	The environment will be severely strained; functions will be limited.
10	Very High	Environment functions have permanently stopped.

Table 16: Probability of impact

RATING	PROBABILITY	DESCRIPTION
1	Unlikely	Under normal conditions, no impacts are expected.
2	Possible	Impacts are possible, however, low.
3	Likely	Impacts have a distinct probability of occurring.
4	Highly Likely	Highly likely that impact will occur.
5	Definite	Impact will occur regardless of preventative measures.

Table 17 : Significance Rating

RATING	VALUE	DESCRIPTION
High	67 - 100	Impacts are environmentally unacceptable.
Medium	34 - 66	Mitigation is required to reduce impacts to acceptable levels.
Low	0-33	No action required.

8.2. Potential Impact and Proposed Mitigation Measures

6.1.1 PREFERRED

6.1.1.1 *Impacts*

Table 18 – summary of preferred impacts

Potential impacts:	Nature of Impact	Extent	Duration	Severity / Intensity	Probability	Significance before Mitigation	Significance after Mitigation	Can impact be reversed?	Irreplaceable loss of resources	Can be avoided, managed or mitigated
<b>Site Establishment</b>	Layout of the site camps	2	3	6	5	Medium	Low	Yes	No	Yes
	Construction staff management	2	2	4	2	Low	Low	Yes	No	Yes
	Storage of vehicles, equipment, and material	2	3	6	4	Medium	Low	Yes	No	Yes
	Servicing, repair and refueling of vehicles and equipment	2	3	6	4	Medium	Low	Yes	No	Yes
	Solid waste management	2	3	4	4	Medium	Low	Yes	No	Yes
	Management of hazardous material	3	4	8	4	Medium	Low	Yes	No	Yes
	Traffic, roads Access and transport	2	4	6	4	Medium	Low	Yes	No	Yes
	Mechanical equipment	2	3	6	4	Medium	Low	Yes	No	Yes
	Temporary fuel tanks	3	4	8	3	Medium	Low	Yes	No	Yes
	Landscaping	2	3	4	3	Low	Low	Yes	No	Yes
<b>Use of raw materials</b>	Use of renewable materials	2	3	6	3	Low	Low	No	No	Yes
<b>Topography</b>	Topography is mostly visually impacted upon by development	2	4	6	4	Medium	Low	No	No	Yes
<b>Geology</b>	Potential formation of sinkholes	5	5	2	0	None	None	N/A	N/A	N/A
<b>Soil</b>	Loss of fertility and Erosion	3	4	2	2	Low	Low	No	No	Yes
<b>Impact on Plant Life</b>	Loss of plant species	2	3	8	5	Medium	Low	Yes	No	Yes
<b>Air Quality</b>	Dust pollution	3	4	6	4	Medium	Low	Yes	No	Yes
<b>Ambient Noises</b>	Construction activities	2	3	6	5	Medium	Low	No	No	Yes
<b>Visual Aspects</b>	Loss of sense of place	3	5	8	5	High	Medium	No	No	Yes
<b>Site of archaeological and cultural interest</b>	Loss and disturbance of items of cultural value	5	5	10	1	Low	Low	No	Yes	Yes
<b>Bulk services</b>	Backflows, possible leaks creating sinkholes	2	5	2	2	Low	Low	No	Yes	Yes

### 6.1.1.2 Mitigation Measures

#### Site Establishment

- Already disturbed areas on the site must be used for construction activities.
- Portable fencing must be used.
- Declare construction activity areas and cordon of all construction areas.
- Use only designated areas for specified construction activities.
- Declare and fence off sensitive areas i.e., wetlands and streams that are of bounds to all staff and activities.
- No camp or office site must be located closer than 100 metres from a stream, spring, dam or pan.
- The area required for the camp and office site must be kept to a minimum.
- Any impact such as noise, dust, bright lights, etc. which may cause a disturbance or nuisance to the surface owner/tenant or any person lawfully living in the vicinity, must be limited.
- Accommodation for personnel must include both kitchen and sanitary facilities. Fires will only be allowed in facilities specially constructed for this purpose.
- Chemical toilet facilities (preferred) or other approved toilet facilities such as a septic drain, shall be used and sited on the camp site in such a way that they do not cause water or other pollution.
- There must be 1 toilet for every 8 workers. These chemical toilets must not be placed next to or near watercourses.
- In cases where facilities are linked to existing sewerage structures, all necessary regulatory requirements concerning construction and maintenance must be adhered to.
- All effluent water from the camp washing facility shall be disposed of in a properly constructed French drain, situated as far as possible, but not less than 100 metres, from a stream, river pan, dam or borehole.
- Only domestic type water shall be allowed to enter this drain and any effluents containing oil, grease or other industrial substances shall be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognised facility.



- Spills should be cleaned up immediately by removing the spills together with the polluted soil and disposing thereof at a recognised facility.
- **Non-biodegradable refuse** (such as glass bottles, plastic bags metal, scrap, etc.) must be stored in a container at a collecting point and collected on a regular basis and disposed of at a recognised disposal facility (GDACE, 2003).
- Avoid the cleaning of surfaces with soap and other detergents.
- Burning and burying of refuse must not be allowed.

#### Construction staff management

- Cordon off all staff housing and recreation areas.
- Define staff cooking, eating and cleaning areas.
- The construction staff should only use designated areas for their domestic needs.
- Always use toilet facilities and provide sufficient ablution and washing facilities.
- Provide potable water and monitor consumption and safety.
- Arrange to remove problem animals in an appropriate manner and do not kill or injure animals. Do not leave food or rubbish for scavengers and do not litter, which will endanger animals.
- Only use the provided water for consumption and use.
- Steer clear of natural water courses.
- Contractors must ensure that no job seekers gather on the site.
- No shebeen operators are allowed on or near the site.
- Locals must be given first priority for job opportunities.

#### Storage of vehicles, equipment, and material

- Demarcate sites for the storage of machines and equipment.
- Ensure that all deliveries of material are taken directly to the designated area.
- Store vehicles, equipment and materials in designated areas and do not let it stand around if not in use.
- Park vehicles in designated areas preferably on concrete slabs that are equipped with oil traps.
- Provide enough shaded parking on the site and do not park under or near trees.

#### Solid Waste Management

- Construction workers must not litter on the site.
- Adequate refuse bins and skips must be provided and emptied regularly.
- Have clean up sessions once a week.
- Demarcate areas for different kinds of waste.
- Refuse must be removed regularly to licensed landfill sites.
- Do not hose spills into the natural environment.
- Do not bury, hide or burn waste.
- Any illegal littering must be cleaned immediately.

#### Management of Hazardous Waste

- All construction workers must know how to deal with hazardous waste material.
- Construction workers must wear protective gear when handling hazardous materials.
- Construction workers must not access stores for hazardous materials without permission.
- Clean and report any accidental spills and do not hose into the natural environment.
- Regularly remove hazardous waste to licensed facilities that deals with these types of materials.

#### Traffic and Road access

- Only authorised vehicles may enter the construction site.
- Arrangements must be made to prevent the disruption of normal traffic flow patterns on the road system adjacent to the construction site.
- Construction vehicles must avoid peak hour traffic times.
- Construction roads may only be built in approved locations.
- An access map must be provided to all construction workers so that the designated points and routes can be used.
- Construction roads must comply with drainage and surface specifications.
- These roads must be wetted regularly and monitored and maintained.
- Illegal routes and shortcuts must be closed off immediately.
- Construction workers may only drive on the designated roads or tracks and must keep to specified speed limits.
- The construction workers may only cross rivers, drainage lines, etc., at designated points.

- Erect warning signs which indicate that heavy vehicles are operating in close proximity.

#### Mechanical equipment

- All mechanical equipment must be in good working order.
- Vehicles must adhere to the relevant noise requirements of the Road Traffic Act.
- All construction machinery must be equipped with appropriate muffling devices.
- All vehicles in operation will be equipped with a silencer on their exhaust system.
- Where necessary appropriate lubricants will be applied to ensure that surfaces which interact during mechanical movement do not generate undesirable noise levels.
- Safety measures which generate noise such as reverse gear alarms on large vehicles will be appropriately calibrated/adjusted.
- Enforce an onsite idling policy of 5 minutes or less including all construction, contract, vendor, and delivery vehicles.

#### Temporary Fuel Storage

- Fuel tanks must be located away from sensitive water courses and drainage or storm water systems.
- The tanks must be regularly maintained, securely bunded to reduce any pollution risk and contingency plans must be in place if such an event does occur.
- A fire extinguisher must be available at all times.

#### Landscaping

- There must be a clear picture of what the closure or end product of the development is.
- All large and indigenous trees should be kept.
- Gardens, pathways and landscaped open space areas must be planted with indigenous vegetation.
- The planting of exotic grass species such as Kikuyu must be prevented especially next to water courses as this invades natural grass and leads to the increase of soil erosion. These grass species does not have long roots and can therefore not hold soil effectively. This means that valuable topsoil under the Kikuyu grass is lost.

### Use of raw materials

- Implement environmentally friendly features as follows
- Use of solar geysers, gas stoves, harvesting grey water and solar streetlights.
- Buildings to allow natural ventilation and lighting.

### Topography

The effects that visual intrusions may have can be mitigated by the following suggested measure:

- Security and internal lighting must be designed in such a way so to avoid the unnecessary spill of light into roads an oncoming traffic or neighbouring properties.
- Shades must be placed over lights to direct light down and not up.
- Flood lights must be avoided as far as possible.
- Soft lighting must be used in walkways and roads.
- Yellow sodium lights that do not attract or disturb animals must be used.
- Elements such as colours, architecture, roof and fencing type, paving, and parking design must blend in with adjacent land uses.
- Dust suppression must be undertaken on all roads and exposed surfaces.
- Vegetation screening can be used to minimise negative visual aspects and structures

### **Sense of place**

- Ensure that the type of development is not significantly different from surrounding developments.
- Architecture can be used to blend in with surrounding developments.
- Ensure that all design and rehabilitation specifications blend in with the surrounding environment.
- Attention to colour or textural contrast can enhance the adaptability of the development with the adjacent areas.

### Geology and Soils

- Surface water (gutters, gardening) must flow away from buildings and not pool.
- Properly backfill and compact all trenches and excavation according to the specifications given in Sub-clause 5.7.1of SABS 1200DB standards. Backfill material used must be less permeable than surrounding soil to prevent erosion of trenches.

- All storm water drainage measures must be correctly installed and maintained,
- All cut and fill slopes must be safe and in line with slope requirements (usually 1:3 gradient).
- If erosion becomes eminent it should be rehabilitated immediately.
- Keep drainage ways open and clear.
- Re-vegetate all open and unprotected soil immediately.
- Soil conservation works must be implemented.
- Contractors must use existing tracks and roads to minimise the creation of more tracks.
- All disposal areas must lined disposal.
- Reduce the effects of raindrop splash erosion on exposed soil.
- Keep rainwater on the soil surface as long as possible to increase water infiltration.
- Reduce the speed of run-off water.
- Provide protected and stable sites for pioneer vegetation establishment.
- Change the mineral and organic imbalances in soil to improve the establishment of pioneer vegetation (Coetzee, 2005).

If soil needs to be removed and stored the following recommendations may be followed:

- Establish stockpile and sand processing areas.
- Stockpile soil only in designated areas.
- Stockpiles must be utilised within 1 year to prevent the leaching of nutrients.
- Stockpile and sand processing areas must not be established within 20 metres of the edge of the river channel.
- Topsoil and subsoil must be stored separately.
- The top 20-50cm of soil must be stripped as fertile topsoil and stored in a bund wall on the high ground side of the site or area.
- Formulate a construction plan to indicate when specific areas may be cleared.
- Strip topsoil from work areas only when it becomes necessary and not before.
- Stockpile soil only as instructed at the time when it is instructed.
- Only excavate soil and gravel from designated areas.
- Only import backfill from approved stockpiles and borrow pits.
- Only use topsoil from approved stockpiles.

- Construction workers must not make new stockpiles without permission.
- Stockpiles must not exceed specified heights and slopes.
- Stockpiles must be protected from wind, rain and traffic.
- Construction workers must not walk, drive or store any equipment or material on the stockpile or compact it.
- The height of this stockpile wall shall not exceed 1, 5 metres.

### Plant Life

The following must be considered when vegetation is cleared:

- Mark all trees and clumps that must be protected and fence them off.
- Do not damage, destroy or remove these marked trees.
- Do not excavate beneath the crown of any tree that has been marked.
- No firewood may be harvested.
- Remove all invasive and exotic vegetation.
- Limit and minimise the removal of unnecessary vegetation.
- All Red Data plants or communities must be identified and protected. A conservation line must be used to prohibit access to them.
- Ensure that newly planted trees are not disturbed.
- Only vegetation indigenous to the area may be used for rehabilitation and re-vegetation.
- Traditional healers should be allowed to remove medicinal plants from the site prior to vegetation clearance. This should be done under supervision of conservation staff to ensure that possible red data species are not removed or damaged during the process.

### Animal Life

To mitigate the detrimental impacts on animals the following mitigation measures can be considered:

- The construction footprint must be kept to a minimum.
- Work should be restricted to one area at a time as this will provide the wildlife a change to endure the impact in undisturbed areas.
- Boundary walls must allow for migration of small animals for example use palisade fencing or leave gaps or holes at the bottom in solid fences.

- If any animals are encountered on site, they should be relocated to undisturbed conservation areas.
- If there is adequate landscaping on the site bird species will return to the site. Therefore, the planting of indigenous trees and shrubs must be encouraged.
- Construction workers must stay out of demarcated sensitive areas and no trespassing via foot or vehicle may be allowed.
- No animals may be caught, trapped, killed, injured or hunted.
- Natural corridors must be provided for species movement and access to water must be ensured especially through compiling of a site development plan. This will ensure the flow of genes between species and the natural dispersion of the species.
- Adequate buffer zones must be provided around sensitive habitat to prevent deleterious effects on the animals and weaken the long-term effects of human activity. To conserve pollinators, the habitat must be managed to provide appropriate nest sites for pollinators and a seasonal succession of suitable forage and host plants.
- The excessive lighting of urban areas also negatively affects animals. Lights, such as security spotlights used in urban developments, that emits light in the white spectrum attracts and disorientate nocturnal animals and insects, prevents mating and leads to their death as they circle around these lights.

### Air Quality

To prevent fires and reduce the risk of fire:

- Adequate gas cooking and heating facilities must be provided.
- Basic firefighting equipment must be readily available in the construction camp and where flammable substances are used.
- No open fires on sites must be allowed.
- No domestic waste or vegetation refuse may be burnt on site.
- Staff may only smoke in designated areas and cigarette butts must be smothered before discarding it in bins.

To minimise dust control, which forms part of construction the following mitigation measures are suggested:

- Vehicle tyres should be watered down to prevent sand and dust littering on public roads.
- Vehicles should be washed regularly to reduce the amount of fines dispersed onto roads.
- Fine products must be covered by tarpaulin during transport and, where possible, the bulk product stored in a shelter that will reduce exposure to the elements.
- Reduce vehicle speed on gravel roads.
- All roads must be sprayed with water or an environmentally friendly dust allaying agent at regular intervals to ensure that dust is adequately suppressed (GDACE, 2003).

All concrete on site must be sealed in bags and only opened when needed.

### Noise Pollution

Construction site yards and camps, concrete and asphalt plants, construction must be located far noise sensitive areas.

- If unavoidable noisy construction activities do occur close to sensitive areas, local residents and Interested and affected parties must be contacted to arrive at the best measures of mitigation.
- Speed limits must be instated on the operational phase as the breaking and speeding of vehicles generates noise.
- Construction activities must only take place during normal working times between 07:30 to 17:00 on weekdays, between 08:00 and 13:00 during weekends and no work on Sundays or public holidays.
- Fit silencer equipment on machinery.
- Acoustic barriers, or screens, can be utilised to mitigate noise.

### **Blasting:**

- Blasting should not be carried out under very overcast conditions or low-level cloud cover as this increases the noise and vibration transmission.
- This impact can be reduced through selection of explosives, sequencing of the blasts, deflection by structures and timing of the blast to coincide with periods of high activity or increased ambient noise levels.
- Blasting mats must be used.
- All neighbours and interested and affected parties must be notified before blasting occurs.



- These operations must be effectively screened to reduce or deflect noise and cladding on structures be adequately fastened and separated with soft spacers/washers.

Blasting operations will be so designed and executed to ensure that minimum shock and noise are generated. This may be done by employing appropriate drilling patterns, explosives, shot blasting and delay techniques (GDACE, 2003).

### Sense of Place

The effects that visual intrusions may have can be mitigated by the following suggested measure:

- Security and internal lighting must be designed in such a way so to avoid the unnecessary spill of light into roads and oncoming traffic or neighbouring properties.
- Shades must be placed over lights to direct light down and not up.
- Flood lights must be avoided as far as possible.
- Soft lighting must be used in walkways and roads.
- Yellow sodium lights that do not attract or disturb animals must be used.
- Elements such as colours, architecture, roof and fencing type, paving, and parking design must blend in with adjacent land uses.
- Dust suppression must be undertaken on all roads and exposed surfaces.
- Vegetation screening can be used to minimise negative visual aspects and structures

### **Sense of place**

- Ensure that the type of development is not significantly different from surrounding developments.
- Architecture can be used to blend in with surrounding developments.
- Ensure that all design and rehabilitation specifications blend in with the surrounding environment.
- Attention to colour or textural contrast can enhance the adaptability of the development with the adjacent areas.

### Impact on archaeological artefacts

The following should be conserved: if any paleontological material is exposed during clearing, digging, excavating, drilling or blasting, SAHRA must be notified. All

development activities must be stopped, and a palaeontologist should be called in to determine proper mitigation measures.

Condition in which development may proceed: It is further suggested that a Section 37(2) agreement of the Occupational, Health and Safety Act 85 of 1993 is signed with the relevant contractors to protect the environment (fossils) and adjacent areas as well as for safety and security reasons.

#### Bulk Service Impact

- Confirmation of services must be obtained before contraction

6.1.2 ALTERNATIVE

6.1.2.1 *Impacts*

Table 19 – Summary of alternative impacts

Potential impacts:	Nature of Impact	Extent	Duration	Severity / Intensity	Probability	Significance before Mitigation	Significance after Mitigation	Can impact be reversed?	Irreplaceable loss of resources	Can be avoided, managed or mitigated
<b>Site Establishment</b>	Layout of the site camps	2	3	6	5	Medium	Low	Yes	No	Yes
	Construction staff management	2	2	4	2	Low	Low	Yes	No	Yes
	Storage of vehicles, equipment, and material	2	3	6	4	Medium	Low	Yes	No	Yes
	Servicing, repair and refueling of vehicles and equipment	2	3	6	4	Medium	Low	Yes	No	Yes
	Solid waste management	2	3	4	4	Medium	Low	Yes	No	Yes
	Management of hazardous material	3	4	8	4	Medium	Low	Yes	No	Yes
	Traffic, roads Access and transport	2	4	6	4	Medium	Low	Yes	No	Yes
	Mechanical equipment	2	3	6	4	Medium	Low	Yes	No	Yes
	Temporary fuel tanks	3	4	8	3	Medium	Low	Yes	No	Yes
	Landscaping	2	3	4	3	Low	Low	Yes	No	Yes
<b>Use of raw materials</b>	Use of renewable materials	2	3	6	3	Low	Low	No	No	Yes
<b>Topography</b>	Topography is mostly visually impacted upon by development	2	4	6	4	Medium	Low	No	No	Yes
<b>Geology</b>	Potential formation of sinkholes	5	5	2	0	None	None	N/A	N/A	N/A
<b>Soil</b>	Loss of fertility and Erosion	3	4	2	2	Low	Low	No	No	Yes
<b>Impact on Plant Life</b>	Loss of plant species	2	3	8	5	Medium	Low	Yes	No	Yes
<b>Air Quality</b>	Dust pollution	3	4	6	4	Medium	Low	Yes	No	Yes
<b>Ambient Noises</b>	Construction activities	2	3	6	5	Medium	Low	No	No	Yes
<b>Visual Aspects</b>	Loss of sense of place	3	5	8	5	High	Medium	No	No	Yes
<b>Site of archaeological and cultural interest</b>	Loss and disturbance of items of cultural value	5	5	10	1	Low	Low	No	Yes	Yes
<b>Bulk services</b>	Installation of additional services without confirmation from the municipality	5	5	10	5	High	Medium	No	Yes	Yes

## Mitigation Measures

### Site Establishment

- Already disturbed areas on the site must be used for construction activities.
- Portable fencing must be used.
- Declare construction activity areas and cordon of all construction areas.
- Use only designated areas for specified construction activities.
- Declare and fence off sensitive areas i.e., wetlands and streams that are of bounds to all staff and activities.
- No camp or office site must be located closer than 100 metres from a stream, spring, dam or pan.
- The area required for the camp and office site must be kept to a minimum.
- Any impact such as noise, dust, bright lights, etc. which may cause a disturbance or nuisance to the surface owner/tenant or any person lawfully living in the vicinity, must be limited.
- Accommodation for personnel must include both kitchen and sanitary facilities. Fires will only be allowed in facilities specially constructed for this purpose.
- Chemical toilet facilities (preferred) or other approved toilet facilities such as a septic drain, shall be used and sited on the camp site in such a way that they do not cause water or other pollution.
- There must be 1 toilet for every 8 workers. These chemical toilets must not be placed next to or near watercourses.
- In cases where facilities are linked to existing sewerage structures, all necessary regulatory requirements concerning construction and maintenance must be adhered to.
- All effluent water from the camp washing facility shall be disposed of in a properly constructed French drain, situated as far as possible, but not less than 100 metres, from a stream, river pan, dam or borehole.
- Only domestic type water shall be allowed to enter this drain and any effluents containing oil, grease or other industrial substances shall be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognised facility.

- Spills should be cleaned up immediately by removing the spills together with the polluted soil and disposing thereof at a recognised facility.
- **Non-biodegradable refuse** (such as glass bottles, plastic bags metal, scrap, etc.) must be stored in a container at a collecting point and collected on a regular basis and disposed of at a recognised disposal facility (GDACE, 2003).
- Avoid the cleaning of surfaces with soap and other detergents.
- Burning and burying of refuse must not be allowed.

#### Construction staff management

- Cordon off all staff housing and recreation areas.
- Define staff cooking, eating and cleaning areas.
- The construction staff should only use designated areas for their domestic needs.
- Always use toilet facilities and provide sufficient ablution and washing facilities.
- Provide potable water and monitor consumption and safety.
- Arrange to remove problem animals in an appropriate manner and do not kill or injure animals. Do not leave food or rubbish for scavengers and do not litter, which will endanger animals.
- Only use the provided water for consumption and use.
- Steer clear of natural water courses.
- Contractors must ensure that no job seekers gather on the site.
- No shebeen operators are allowed on or near the site.
- Locals must be given first priority for job opportunities.

#### Storage of vehicles, equipment, and material

- Demarcate sites for the storage of machines and equipment.
- Ensure that all deliveries of material are taken directly to the designated area.
- Store vehicles, equipment and materials in designated areas and do not let it stand around if not in use.
- Park vehicles in designated areas preferably on concrete slabs that are equipped with oil traps.
- Provide enough shaded parking on the site and do not park under or near trees.

#### Solid Waste Management

- Construction workers must not litter on the site.
- Adequate refuse bins and skips must be provided and emptied regularly.
- Have clean up sessions once a week.
- Demarcate areas for different kinds of waste.
- Refuse must be removed regularly to licensed landfill sites.
- Do not hose spills into the natural environment.
- Do not bury, hide or burn waste.
- Any illegal littering must be cleaned immediately.

#### Management of Hazardous Waste

- All construction workers must know how to deal with hazardous waste material.
- Construction workers must wear protective gear when handling hazardous materials.
- Construction workers must not access stores for hazardous materials without permission.
- Clean and report any accidental spills and do not hose into the natural environment.
- Regularly remove hazardous waste to licensed facilities that deals with these types of materials.

#### Traffic and Road access

- Only authorised vehicles may enter the construction site.
- Arrangements must be made to prevent the disruption of normal traffic flow patterns on the road system adjacent to the construction site.
- Construction vehicles must avoid peak hour traffic times.
- Construction roads may only be built in approved locations.
- An access map must be provided to all construction workers so that the designated points and routes can be used.
- Construction roads must comply with drainage and surface specifications.
- These roads must be wetted regularly and monitored and maintained.
- Illegal routes and shortcuts must be closed off immediately.
- Construction workers may only drive on the designated roads or tracks and must keep to specified speed limits.

- The construction workers may only cross rivers, drainage lines, etc., at designated points.
- Erect warning signs which indicate that heavy vehicles are operating in close proximity.

#### Mechanical equipment

- All mechanical equipment must be in good working order.
- Vehicles must adhere to the relevant noise requirements of the Road Traffic Act.
- All construction machinery must be equipped with appropriate muffling devices.
- All vehicles in operation will be equipped with a silencer on their exhaust system.
- Where necessary appropriate lubricants will be applied to ensure that surfaces which interact during mechanical movement do not generate undesirable noise levels.
- Safety measures which generate noise such as reverse gear alarms on large vehicles will be appropriately calibrated/adjusted.
- Enforce an onsite idling policy of 5 minutes or less including all construction, contract, vendor, and delivery vehicles.

#### Temporary Fuel Storage

- Fuel tanks must be located away from sensitive water courses and drainage or storm water systems.
- The tanks must be regularly maintained, securely banded to reduce any pollution risk and contingency plans must be in place if such an event does occur.
- A fire extinguisher must be available at all times.

#### Landscaping

- There must be a clear picture of what the closure or end product of the development is.
- All large and indigenous trees should be kept.
- Gardens, pathways and landscaped open space areas must be planted with indigenous vegetation.
- The planting of exotic grass species such as Kikuyu must be prevented especially next to water courses as this invades natural grass and leads to the increase of soil erosion. These grass species does not have long roots and can therefore not

hold soil effectively. This means that valuable topsoil under the Kikuyu grass is lost.

### Use of raw materials

- Implement environmentally friendly features as follows
- Use of solar geysers, gas stoves, harvesting grey water and solar streetlights.
- Buildings to allow natural ventilation and lighting.

### Topography

The effects that visual intrusions may have can be mitigated by the following suggested measure:

- Security and internal lighting must be designed in such a way so to avoid the unnecessary spill of light into roads an oncoming traffic or neighbouring properties.
- Shades must be placed over lights to direct light down and not up.
- Flood lights must be avoided as far as possible.
- Soft lighting must be used in walkways and roads.
- Yellow sodium lights that do not attract or disturb animals must be used.
- Elements such as colours, architecture, roof and fencing type, paving, and parking design must blend in with adjacent land uses.
- Dust suppression must be undertaken on all roads and exposed surfaces.
- Vegetation screening can be used to minimise negative visual aspects and structures

### **Sense of place**

- Ensure that the type of development is not significantly different from surrounding developments.
- Architecture can be used to blend in with surrounding developments.
- Ensure that all design and rehabilitation specifications blend in with the surrounding environment.
- Attention to colour or textural contrast can enhance the adaptability of the development with the adjacent areas.

### Geology and Soils

- Surface water (gutters, gardening) must flow away from buildings and not pool.



- Properly backfill and compact all trenches and excavation according to the specifications given in Sub-clause 5.7.1 of SABS 1200DB standards. Backfill material used must be less permeable than surrounding soil to prevent erosion of trenches.
- All storm water drainage measures must be correctly installed and maintained,
- All cut and fill slopes must be safe and in line with slope requirements (usually 1:3 gradient).
- If erosion becomes eminent it should be rehabilitated immediately.
- Keep drainage ways open and clear.
- Re-vegetate all open and unprotected soil immediately.
- Soil conservation works must be implemented.
- Contractors must use existing tracks and roads to minimise the creation of more tracks.
- All disposal areas must be lined.
- Reduce the effects of raindrop splash erosion on exposed soil.
- Keep rainwater on the soil surface as long as possible to increase water infiltration.
- Reduce the speed of run-off water.
- Provide protected and stable sites for pioneer vegetation establishment.
- Change the mineral and organic imbalances in soil to improve the establishment of pioneer vegetation (Coetzee, 2005).

If soil needs to be removed and stored the following recommendations may be followed:

- Establish stockpile and sand processing areas.
- Stockpile soil only in designated areas.
- Stockpiles must be utilised within 1 year to prevent the leaching of nutrients.
- Stockpile and sand processing areas must not be established within 20 metres of the edge of the river channel.
- Topsoil and subsoil must be stored separately.
- The top 20-50cm of soil must be stripped as fertile topsoil and stored in a bund wall on the high ground side of the site or area.
- Formulate a construction plan to indicate when specific areas may be cleared.
- Strip topsoil from work areas only when it becomes necessary and not before.

- Stockpile soil only as instructed at the time when it is instructed.
- Only excavate soil and gravel from designated areas.
- Only import backfill from approved stockpiles and borrow pits.
- Only use topsoil from approved stockpiles.
- Construction workers must not make new stockpiles without permission.
- Stockpiles must not exceed specified heights and slopes.
- Stockpiles must be protected from wind, rain and traffic.
- Construction workers must not walk, drive or store any equipment or material on the stockpile or compact it.
- The height of this stockpile wall shall not exceed 1, 5 metres.

### Plant Life

The following must be considered when vegetation is cleared:

- Mark all trees and clumps that must be protected and fence them off.
- Do not damage, destroy or remove these marked trees.
- Do not excavate beneath the crown of any tree that has been marked.
- No firewood may be harvested.
- Remove all invasive and exotic vegetation.
- Limit and minimise the removal of unnecessary vegetation.
- All Red Data plants or communities must be identified and protected. A conservation line must be used to prohibit access to them.
- Ensure that newly planted trees are not disturbed.
- Only vegetation indigenous to the area may be used for rehabilitation and re-vegetation.
- Traditional healers should be allowed to remove medicinal plants from the site prior to vegetation clearance. This should be done under supervision of conservation staff to ensure that possible red data species are not removed or damaged during the process.

### Animal Life

To mitigate the detrimental impacts on animals the following mitigation measures can be considered:

- The construction footprint must be kept to a minimum.

- Work should be restricted to one area at a time as this will provide the wildlife a change to endure the impact in undisturbed areas.
- Boundary walls must allow for migration of small animals for example use palisade fencing or leave gaps or holes at the bottom in solid fences.
- If any animals are encountered on site, they should be relocated to undisturbed conservation areas.
- If there is adequate landscaping on the site bird species will return to the site. Therefore, the planting of indigenous trees and shrubs must be encouraged.
- Construction workers must stay out of demarcated sensitive areas and no trespassing via foot or vehicle may be allowed.
- No animals may be caught, trapped, killed, injured or hunted.
- Natural corridors must be provided for species movement and access to water must be ensured especially through compiling of a site development plan. This will ensure the flow of genes between species and the natural dispersion of the species.
- Adequate buffer zones must be provided around sensitive habitat to prevent deleterious effects on the animals and weaken the long-term effects of human activity. To conserve pollinators, the habitat must be managed to provide appropriate nest sites for pollinators and a seasonal succession of suitable forage and host plants.
- The excessive lighting of urban areas also negatively affects animals. Lights, such as security spotlights used in urban developments, that emits light in the white spectrum attracts and disorientate nocturnal animals and insects, prevents mating and leads to their death as they circle around these lights.

### Air Quality

To prevent fires and reduce the risk of fire:

- Adequate gas cooking and heating facilities must be provided.
- Basic firefighting equipment must be readily available in the construction camp and where flammable substances are used.
- No open fires on sites must be allowed.
- No domestic waste or vegetation refuse may be burnt on site.
- Staff may only smoke in designated areas and cigarette butts must be smothered before discarding it in bins.

To minimise dust control, which forms part of construction the following mitigation measures are suggested:

- Vehicle tyres should be watered down to prevent sand and dust littering on public roads.
- Vehicles should be washed regularly to reduce the amount of fines dispersed onto roads.
- Fine products must be covered by tarpaulin during transport and, where possible, the bulk product stored in a shelter that will reduce exposure to the elements.
- Reduce vehicle speed on gravel roads.
- All roads must be sprayed with water or an environmentally friendly dust allaying agent at regular intervals to ensure that dust is adequately suppressed (GDACE, 2003).

All concrete on site must be sealed in bags and only opened when needed.

#### Noise Pollution

Construction site yards and camps, concrete and asphalt plants, construction must be located far noise sensitive areas.

- If unavoidable noisy construction activities do occur close to sensitive areas, local residents and Interested and affected parties must be contacted to arrive at the best measures of mitigation.
- Speed limits must be instated on the operational phase as the breaking and speeding of vehicles generates noise.
- Construction activities must only take place during normal working times between 07:30 to 17:00 on weekdays, between 08:00 and 13:00 during weekends and no work on Sundays or public holidays.
- Fit silencer equipment on machinery.
- Acoustic barriers, or screens, can be utilised to mitigate noise.

#### **Blasting:**

- Blasting should not be carried out under very overcast conditions or low-level cloud cover as this increases the noise and vibration transmission.
- This impact can be reduced through selection of explosives, sequencing of the blasts, deflection by structures and timing of the blast to coincide with periods of high activity or increased ambient noise levels.

- Blasting mats must be used.
- All neighbours and interested and affected parties must be notified before blasting occurs.
- These operations must be effectively screened to reduce or deflect noise and cladding on structures be adequately fastened and separated with soft spacers/washers.

Blasting operations will be so designed and executed to ensure that minimum shock and noise are generated. This may be done by employing appropriate drilling patterns, explosives, shot blasting and delay techniques (GDACE, 2003).

### Sense of Place

The effects that visual intrusions may have can be mitigated by the following suggested measure:

- Security and internal lighting must be designed in such a way so to avoid the unnecessary spill of light into roads an oncoming traffic or neighbouring properties.
- Shades must be placed over lights to direct light down and not up.
- Flood lights must be avoided as far as possible.
- Soft lighting must be used in walkways and roads.
- Yellow sodium lights that do not attract or disturb animals must be used.
- Elements such as colours, architecture, roof and fencing type, paving, and parking design must blend in with adjacent land uses.
- Dust suppression must be undertaken on all roads and exposed surfaces.
- Vegetation screening can be used to minimise negative visual aspects and structures

### **Sense of place**

- Ensure that the type of development is not significantly different from surrounding developments.
- Architecture can be used to blend in with surrounding developments.
- Ensure that all design and rehabilitation specifications blend in with the surrounding environment.

Attention to colour or textural contrast can enhance the adaptability of the development with the adjacent areas.

### Impact on archaeological artefacts

The following should be conserved: if any paleontological material is exposed during clearing, digging, excavating, drilling or blasting, SAHRA must be notified. All development activities must be stopped, and a palaeontologist should be called in to determine proper mitigation measures.

Condition in which development may proceed: It is further suggested that a Section 37(2) agreement of the Occupational, Health and Safety Act 85 of 1993 is signed with the relevant contractors to protect the environment (fossils) and adjacent areas as well as for safety and security reasons.

### Bulk Service Impact

Install Upvc. The advantages of HDPE as preferred choice are:

- Safety of potable water and long-term reliability.
- Low scrap value, avoiding jobsite theft.
- Recyclable, eco-friendly material.
- Heat fusible for virtually leak-free performance.

### 8.3 Cumulative impacts

Cumulative impacts are those impacts that are created, because of the combination of these impacts of the proposed project, with impacts of other projects or operations, to result in related impacts. These impacts occur when the incremental impact of the project, combined with the effects of other past, present and reasonably foreseeable future projects, are cumulatively considered. Cumulative impacts relating to the proposed development include:

*Table 20 – summary of cumulative impacts*

Nature	Positive / Negative	Description
Employment	Positive	There will be opportunities during construction and at operational level in the form of garden services, maintenance projects security services
Bulk services	Negative	There will be an increased demand for services to support the new development. Applicant must obtain confirmation from the local municipality before construction.

Sense of place	Positive	Currently the area is vacant, and some parts are being used for illegal dumping.
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6.2 Outcome of the site selection matrix

Reference is made to table 12 above. Site alternatives was not considered because the applicant only has one site earmarked for the proposed infrastructure provision and residential units' construction.

6.3 Motivation for No-Alternatives

This report does not include a motivation for no alternatives. This is because this assessment includes an alternative design.

6.4 Concluding statement indicating preferred alternatives including preferred location of the activity

Preferred Alternatives – alternative entails the use of HDPE over Upvc. HDPE pipes last longer and can not easily crack thus resulting in leaks.

Preferred location – there is only one site under consideration, no alternatives were considered. See section 8.3 above.

## 7. FINDINGS BY SPECIALIST AND IMPACT MANAGEMENT MEASURES

The following sections outlines the impacts and mitigations as per the specialist study reports accompanying this application. These are:

Table 21 – summary of specialist findings

Specialist	Finding	Mitigation Measure
Heritage Impact Assessment	<ul style="list-style-type: none"> <li>• There are no visible restrictions or negative impacts in terms of heritage associated with the site earmarked for development.</li> <li>• In terms of heritage the proposed project may continue; and</li> <li>• The discovery of subsurface archaeological and/or historical material as well as graves must be considered in the Environmental Management Program (EMPr). See 3.2.6 and 3.2.7.</li> </ul>	<p>The proposed site does not contain any surface archaeological deposits, a possible reason is previous agricultural and infrastructure development in the study and greater study area.</p> <p>The possibility of sub-surface findings always exists and should be taken into consideration in the Environmental Management Program (EMPr).</p> <p>If sub-surface archaeological material is discovered work must stop and a heritage practitioner preferably an archaeologist contacted to assess the find and make recommendations.</p>
Vegetation Assessment Report	The area has some parts that are degraded, and some parts have grassland and shrubs	Clear only where its necessary to clear and make sure the development footprint is restricted to where necessary only.



## 10. ENVIRONMENTAL IMPACT STATEMENT

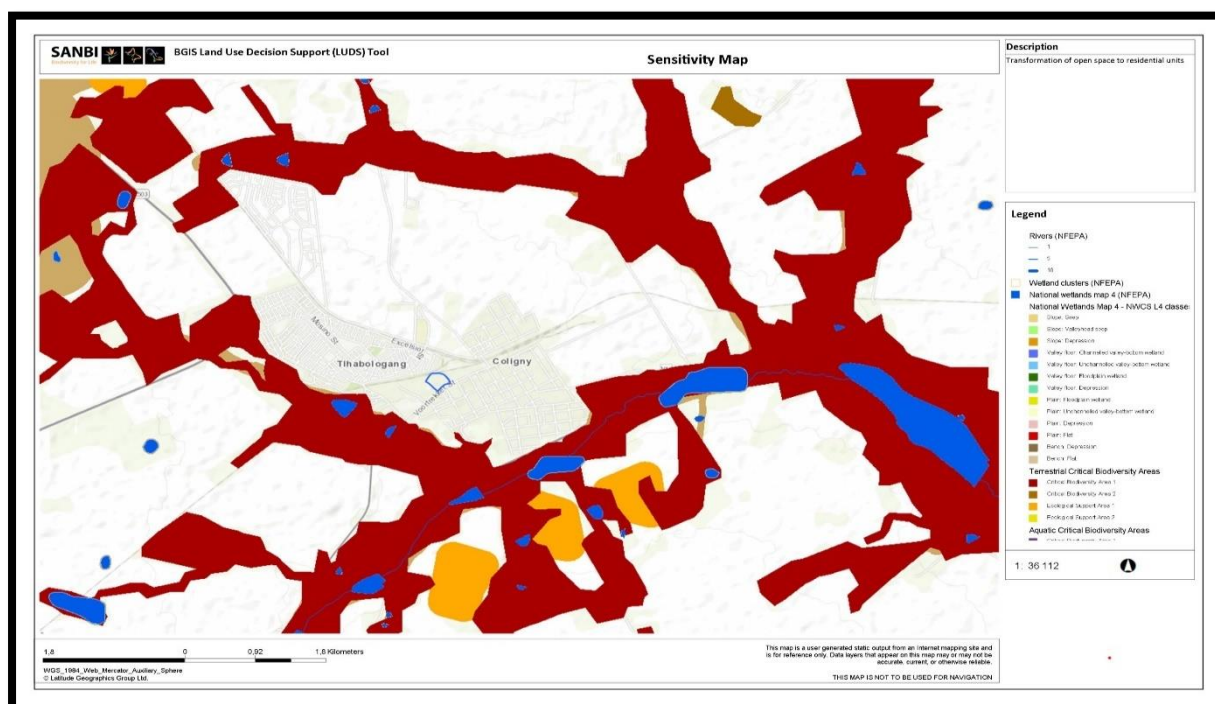
Taking the assessment of potential impacts into account, provided below is an environmental impact statement that sums up the impact that the proposal and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account with specific reference to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

The following is a list of impacts that must be monitored strictly at construction level and rehabilitation phase:

- Impact on bulk services
- Dust pollution
- Noise pollution
- Unnecessary loss of vegetation

The site contains indigenous vegetation that includes plants with medicinal value. The following is the sensitivity map.

Figure 22 – Sensitivity Map



A summary of the findings are outlines below and none of the findings include fatal flows:

Table 22 – Summary of positive and negative impacts

<b>Nature of Impact</b>	<b>preferred</b>	<b>Alternative</b>
Layout of the site camps	Medium	Medium
Construction staff management	Low	Low
Storage of vehicles, equipment, and material	Medium	Medium
Servicing, repair and refueling of vehicles and equipment	Medium	Medium
Solid waste management	Medium	Medium
Management of hazardous material	Medium	Medium
Traffic, roads Access and transport	Medium	Medium
Mechanical equipment	Medium	Medium
Temporary fuel tanks	Medium	Medium
Landscaping	Low	Low
Use of renewable materials	Low	Low
Topography is mostly visually impacted upon by development	Medium	Medium
Loss of fertility and Erosion	Low	Low
Loss of plant species	Medium	Medium
Dust pollution	Medium	Medium
Construction activities	Medium	Medium
Loss of sense of place	High	High
Loss and disturbance of items of cultural value	Low	Low
Backflows, possible leaks creating sinkholes	High	Low

## **11. EAP AND SPECIALIST CONDITIONS FOR INCLUSION IN THE EA**

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- The Developer is not excluded from complying with any other statutory requirements that are applicable to the undertaking of the activity. Relevant key legislation that must be complied with by the proponent includes, inter alia:
  - The Developer must appoint a suitably experienced Environmental Control Officer (ECO) for the construction phase of the development, who will have the responsibility of ensuring that the mitigation/ rehabilitation measures and recommendations are implemented and ensure compliance with the provisions of the EMPr.
  - All other necessary permits, licences and approvals must be obtained prior to the commencement of construction.
  - The possibility of sub-surface findings always exists and should be taken into consideration in the Environmental Management Program (EMPr). If sub-surface archaeological material is discovered work must stop and a heritage practitioner preferably an archaeologist contacted to assess the find and make recommendations.
  - Clearance of vegetation must be restricted to the proposed development footprint and boundaries must be set at the beginning of the project.

## **12. GAPS IN KNOWLEDGE, ASSUMPTIONS**

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- Full method statement was not available at the time of conducting an impact assessment.
- It is assumed that the scope of work will be limited to what was provided by the engineers during the time of assessment and nothing more.

## **13. A REASONED OPINION ON WHETHER DEVELOPMENT SHOULD OR SHOULD NOT BE AUTHORISED**

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As the appointed environmental assessment practitioners, we recommend that the proposed project be authorised provided that the proposed mitigation measures are implemented and that the EMPr is implemented, maintained and adapted to incorporate relevant legislation, standard requirements and audit reporting, throughout

the life of the development. The mitigation measures for all impacts identified in the BAR must be incorporated into the EMPr and must be used by the engineers during the detailed Planning & Design Phase, by the contractors during the Construction Phase and by TFR during the Operation Phase.

The following recommendations were provided by the specialists:

- Heritage Specialist - There are no visible restrictions or negative impacts in terms of heritage associated with the site therefore in terms of heritage the proposed project may proceed.
- Ecologist – development footprint must be limited to what is necessary that is as provided in the site layout only. Replanting of indigenous trees must follow the construction period.

#### **14. THE PERIOD FOR WHICH THE AUTHORISATION SHOULD BE VALID**

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We recommend a 10-year license to allow the applicant to plan and construct the proposed development without there being a need for authorisation renewal.

#### **15. DETAILS OF FINANCIAL PROVISIONS FOR THE REHABILITATION, CLOSURE AND ONGOING POST-DECOMMISSIONING**

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This is not applicable

#### **16. OTHER INFORMATION AS REQUIRED BY AUTHORITY**

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None

#### **17. OTHER INFORMATION AS REQUIRED IN TERMS OF SECTION 24(4)(A) AND (B) OF THE ACT**

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None