MASETJABA RESERVOIR, ELEVATED TOWER AND ASSOCIATED INFRASTRUCTURE

Gauteng Province

Basic Assessment Report

April 2019

Gaut 002/18-19/E0201

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GAUTENG PROVINCE
AGRICULTURE AND RURAL DEVELOPMENT
REPUBLIC OF SOUTH AFRICA

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

Kindly note that:

1. This **Basic Assessment Report** is the standard report required by GDARD in terms of the EIA Regulations, 2014.
2. This application form is current as of 8 December 2014. It is the responsibility of the EAP to ascertain whether subsequent versions of the form have been published or produced by the competent authority.
3. **A draft Basic Assessment Report must be submitted, for purposes of comments within a period of thirty (30) days, to all State Departments administering a law relating to a matter likely to be affected by the activity to be undertaken.**
4. **A draft Basic Assessment Report (1 hard copy and two CD's) must be submitted, for purposes of comments within a period of thirty (30) days, to a Competent Authority empowered in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended to consider and decide on the application.**
5. Five (5) copies (3 hard copies and 2 CDs-PDF) of the final report and attachments must be handed in at offices of the relevant competent authority, as detailed below.
6. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
7. Selected boxes must be indicated by a cross and, when the form is completed electronically, must also be highlighted.
8. An incomplete report may lead to an application for environmental authorisation being refused.
9. **Any report that does not contain a titled and dated full colour large scale layout plan of the proposed activities including a coherent legend, overlain with the sensitivities found on site may lead to an application for environmental authorisation being refused.**
10. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the application for environmental authorisation being refused.
11. No faxed or e-mailed reports will be accepted. Only hand delivered or posted applications will be accepted.
12. Unless protected by law, and clearly indicated as such, all information filled in on this application will become public information on receipt by the competent authority. The applicant/EAP must provide any interested and affected party with the information contained in this application on request, during any stage of the application process.
13. Although pre-application meeting with the Competent Authority is optional, applicants are advised to have these meetings prior to submission of application to seek guidance from the Competent Authority.

DEPARTMENTAL DETAILS

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

Administrative Unit of the of the Environmental Affairs Branch
Ground floor, Umnotho House,
56 Eloff Street,
Johannesburg

Administrative Unit telephone number: (011) 240 3377
Department central telephone number: (011) 240 2500

(For official use only)

NEAS Reference Number:						
File Reference Number:						
Application Number:						
Date Received:						

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

The final Basic Assessment report for the Masetjaba reservoir and elevated tower will be submitted within 90 days after the submission of the appliction form to the Gauteng Department of Agriculture and Rural Development in order to ensure compliance with the prescribed timeframes.

Is a closure plan applicable for this application and has it been included in this report? if not, state reasons for not including the closure plan. **NO**

A closure plan is not applicable for this application, or required to be included within this Basic Assessment (BA) Report. Activities relating to the decomissioning of the Masetjaba reservoir and associated infrastructure is assessed as part of this BA Report.

Has a draft report for this application been submitted to a competent authority and all State Departments administering a law relating to a matter likely to be affected as a result of this activity? **YES**

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

If no, state reasons for not attaching the list.

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

If no, why?

This BA Report is the report for review by the competent authority, stakeholders (including all relevant state departments) and the public. Following the 30-day review period, from **10 April 2019 to 15 May 2019**, all comments received from the competent authority, stakeholders and I&APs will be included and considered in the final BA Report. All comments will also be included and responded to in the Comments and Responses Report (**Appendix E6**).

PROJECT DETAILS

GDARD		GAUT002/18-19/E0201
Title	:	Environmental Impact Assessment Process: Basic Assessment Report: Masetjaba Reservoir and associated infrastructure, Gauteng Province
Authors	:	Savannah Environmental Thalita Botha Jo-Anne Thomas Nicolene Venter
Applicant	:	City of Ekurhuleni
Report Status	:	Basic Assessment Report for Public Review
Date	:	10 April 2019 to 15 May 2019

When used as a reference this report should be cited as: Savannah Environmental (2019) Basic Assessment Report: Masetjaba Reservoir and associated infrastructure, Gauteng.

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SUMMARY AND OVERVIEW OF THE PROJECT

The **City of Ekurhuleni (CoE)** is proposing the development of a 15ML reservoir, 2ML elevated tower, pump station and associated infrastructure to be located within Portion 107 of the Farm Spaarwater 171 (referred to as the project site). The project site is approximately 1.59ha in extent and falls under the jurisdiction of the CoE (refer to **Figure 1** and **Table 1** for more detail). Naidu Consulting (Pty) Ltd was appointed by the CoE to design and supervise the construction of the 15ML reinforced concrete water reservoir. The water reservoir will be known as the Masetjaba Reservoir. The existing Masetjaba View Reservoir is located on the same property as the proposed project. TLOU Consulting (Pty) Ltd has been appointed for the design of the pump station and 2ML elevated tower also proposed within the project site. Access to the project site can be obtained via the R550 regional road (also known as Springs Road) situated on the northern boundary of the project site.

The development is proposed to include the following infrastructure:
» 15ML Water Reservoir approximately 8m in height;
» 2ML concrete water tower approximately 32m in height;
» Pump Station;
» Standby Generator;
» Interconnecting pipework and chambers;
» Stormwater provisions; and
» Access road approximately 170m in length.

The purpose of the project is to supply water to a reservoir zone located on the southern boundary of Brakpan and will include most future developments of the Tsakane Township and its extensions excluding Tsakane X17. An estimated ultimate annual average daily demand (AADD) of 6.738ML/day will be required. The Masetjaba Reservoir has therefore been sized based on a 36-hour storage period. The preliminary design is for a circular reservoir. The 2ML elevated tower is proposed to improve the water supply to the Masetjaba Reservoir Zone 1 which currently experiences low pressure problems.

Table 1: Location of the Masetjaba Reservoir and associated infrastructure within the existing Masetjaba View Reservoir site.

Province	Gauteng Province
Municipality	City of Ekurhuleni
Ward number(s)	Ward 87
Nearest town(s)	The project site is adjacent to the Masetjaba View Township, ~1.74km south of the Bluegum View Township, ~3.2km south west of the Duduza Township, ~5.8km south east of the Tsakane Township, and ~6.1km north west of Nigel.
Farm name(s) and number(s)	Portion 107 of the Farm Spaarwater 171
SG 21 Digit Code	Surveyor-General Database » T0IR00000000017100107
Current Zoning	Agricultural, although the site is entirely fenced and currently only utilised for the operation of the existing water supply infrastructure.
Site Coordinates	27° 02'16.56"S 24°44'41.63"E

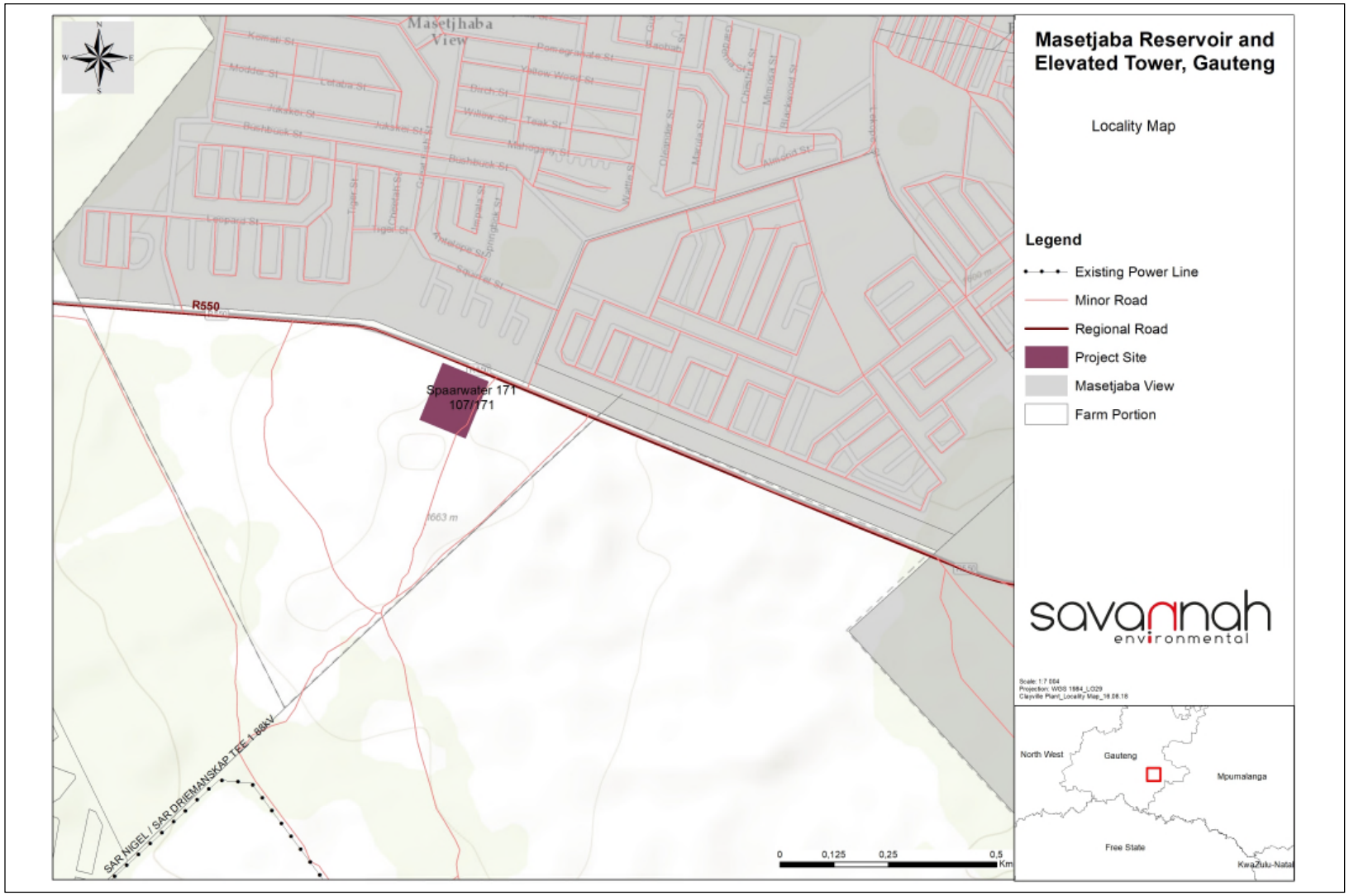

Figure 1: Locality map indicating the location of the proposed Masetjaba Reservoir and associated infrastructure within the project site (refer to **Appendix A1**).

The nature and extent of the proposed project, and the potential environmental impacts associated with the construction, operation and decommissioning phases are explored in more detail in this Basic Assessment Report. This report has been compiled in accordance with the requirements of the 2014 EIA Regulations, as amended on 07 April 2017, and includes details of the activity description; the site, area and property description; the public participation process; the impact assessment; as well as the recommendations proposed by the Environmental Assessment Practitioner.

1. Need and Desirability for the project

According to the Regional Spatial Development Framework (RSDF): Region E (2015) the CoE is faced with growing urban areas and growing peripheral residential nodes, comprising both formal and informal residential structures. As a result, existing water supply systems will become strained as the demand increases. In a water scarce country, water is major vulnerability for human settlements.

The South African Government released a media statement on 13 November 2015 (www.gov.za) on the scarcity of water in the country. The increasing severity of the drought conditions is impacting negatively on the country in both social and economic terms. South Africa is a water scarce country and ranks as one of the 30 driest countries in the world with an average rainfall of about 40% less than the annual world average rainfall. South Africa has an average annual rainfall of less than 500 mm. Apart from the need to deliver piped water to the approximately 4,5 million people who currently lack it, South Africa faces challenges of rapidly deteriorating infrastructure for those who already have water (RSDF, 2015).

The purpose of the project is to supply water to a new reservoir zone consisting of future developments and a small section of network that is currently being supplied from the existing Zulu Water Tower (refer to **Figure 2**). The new zone will be located on the southern boundary of Brakpan and will include most future developments of the Tsakane Township and its associated extensions, i.e. Tsakane X7, Tsakane X6a, Tsakane X6b and Tsakane X. These future developments will include approximately 6068 residential units which will require adequate water supply, especially during peak usage periods.

Naidu Consulting (Pty) Ltd undertook a verification of the 2018 supply demand for the new Masetjaba Reservoir 2 Zone and determined that the current demand for this zone is 2.762ML/day. An estimated future annual average daily demand (AADD) of 7.282ML/day is expected to be required. The ultimate demand for the area will therefore be 10.043Ml/day.

The Masetjaba Reservoir Zone 1 located on the south western boundary of Nigel is being supplied via the Pieter Wessels pump station. This zone currently experiences low pressure problems due to insufficient static head between the reservoir's top water level and the supply network. In order to improve the water supply in this zone, the CoE is proposing a 2ML elevated tower.

Considering the current and future demand for water supply in the area surrounding the project site and the fact that access to clean water is a fundamental human right, an adequate and reliable water supply to these areas is critical.

Therefore, the need for the project in terms of new and improved water supply for the area surrounding the project site is considered to be high and desirable. The installation of the Masetjaba Reservoir, elevated tower and associated infrastructure will provide an adequate and reliable water supply for current and future developments.

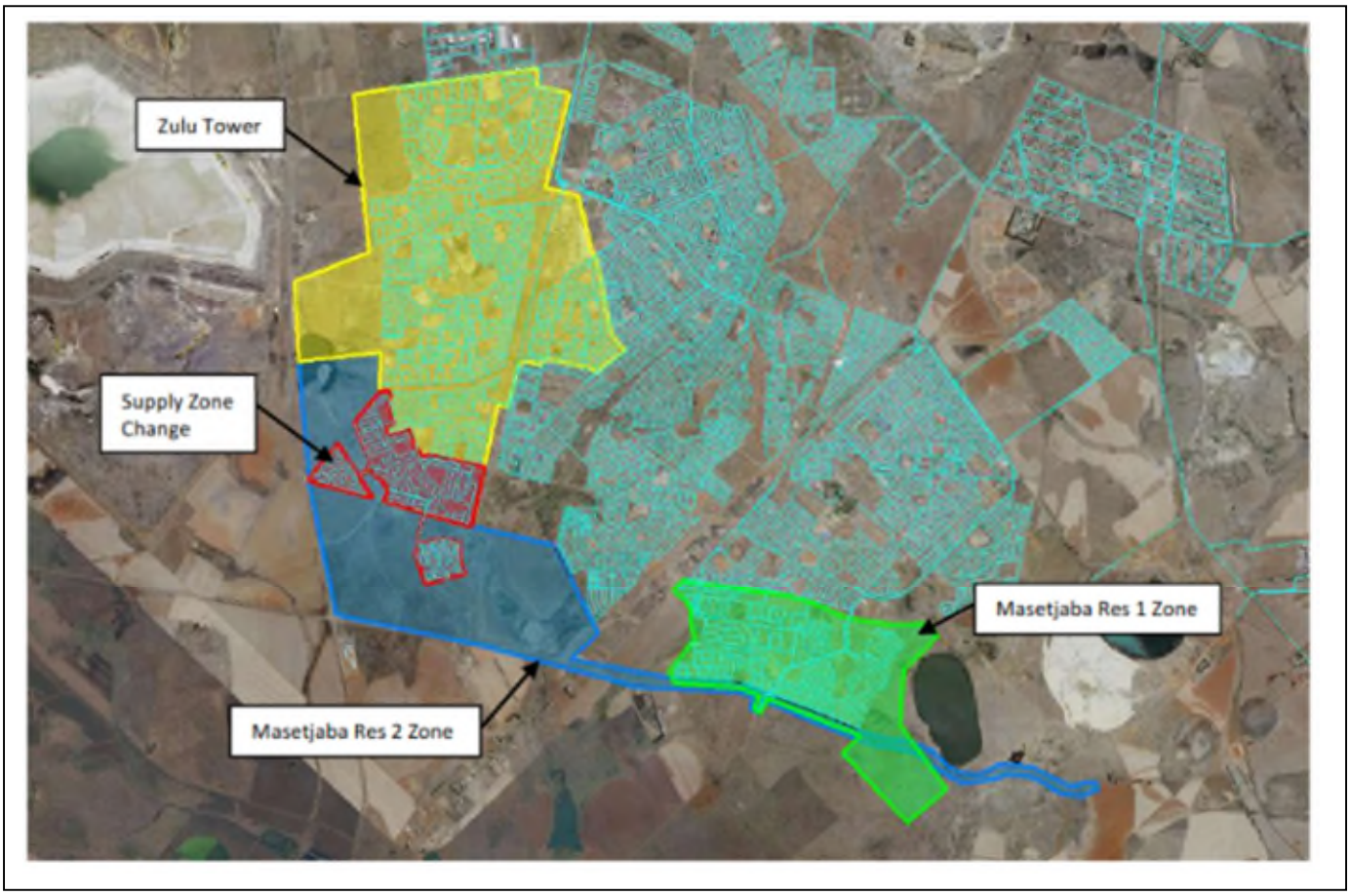

Figure 2: Illustration of the water supply areas surrounding the project site. The proposed Masetjaba Reservoir will supply water to the area demarcated as "Masetjaba Res 2 Zone" as well as the "Supply Zone Change" area currently being supplied by the Zulu Tower (Naidu Consulting, 2018). The elevated tower will supply water to the area demarcated as "Masetjaba Res 1 Zone".

2. Requirements for a Basic Assessment Process

In terms of the Environmental Impact Assessment (EIA) Regulations published in terms of Section 24(5) of the National Environmental Management Act (NEMA, Act No. 107 of 1998), the City of Ekurhuleni requires Environmental Authorisation for the development of a 15ML water reservoir and associated infrastructure. In terms of Sections 24 and 24D of the National Environmental Management Act (No 107 of 1998), as read with the EIA Regulations of GN R324 – R327, a Basic Assessment (BA) process is required to be undertaken in support of the application for authorisation for the proposed project.

The primary Listed Activity triggered under GN R324 is Activity 12(c)(iv) is the clearance of an area of 300m^2 or more of indigenous vegetation within critically endangered or endangered ecosystems listed in terms of section 52 of the National Environmental Management: Biodiversity Act 10 of 2004 (NEMBA). The project will require the clearance of more than 300m^2 of vegetation considered to be endangered, therefore triggering the listed activity and requiring an application for Environmental Authorisation.

Listed activity as described in GN R 327, 325 and 324	Description of project activity that triggers listed activity
GN R 324 Item 2(c)(iv): The development of reservoirs, excluding dams, with a capacity of more than 250 cubic metres in (c) Gauteng (iv) Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans.	The development of the elevated tower with a capacity of 2000 cubic metres within an area considered to be a CBA and irreplaceable habitat, within the Gauteng Province.
GN R 324 Item 4(c)(iv): The development of a road wider than 4 metres with a reserve less than 13.5 metres (c) Gauteng (iv) Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans.	The development of a new access road and internal access roads will be required for the development. The access roads will be more than 4m in width and will be located in n area considered to be a CBA, within the Gauteng Province.
GN R 324 Item 12(c)(i): The clearance of an area of 300 square meters or more of indigenous vegetation in (c) Gauteng (i) within critically endangered or endangered ecosystems listed in terms of section 52 of NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004.	The clearance of more than 300m^2 of indigenous vegetation within an ecosystem considered to be endangered in terms of NEMBA.

In terms of Section 24(1) of NEMA, the potential impact on the environment associated with the activity must be considered, investigated, assessed and reported on to the competent authority that has been charged by NEMA with the responsibility of granting environmental authorisations. As the application is located within the Gauteng Province, the Gauteng Department of Agriculture and Rural Development (GDARD) is identified as the competent authority for the application for authorisation. This project will be registered with the GDARD through submission of an Application for Environmental Authorisation (EA).

The nature and extent of the project is explored in more detail in this Basic Assessment (BA) Report. This report has been compiled in accordance with the requirements of the EIA Regulations of December 2014, as amended on 07 April 2017 (as per **Table 2** below), and includes details of the activity description; the site, area and property description; the public participation process; the impact assessment; and the recommendations of the Environmental Assessment Practitioner (EAP).

Table 2: Legal Requirements of GN. R. 326, Appendix 1 included in the 2014 EIA Regulations, as amended on 07 April 2017.

NEMA REGULATION GNR 326, SECTION 19 REQUIREMENTS FOR THE CONTENT OF BASIC ASSESSMENT REPORTS AS PER APPENDIX 1	CROSS REFERENCE IN THIS REPORT (refer to the following parts in the report)
(1) A basic assessment report must contain the information that is necessary for the competent authority to consider and come to a decision on the application, and must include— (a) details of— (i) the EAP who prepared the report; and	Section 1.3
(ii) the expertise of the EAP, including a curriculum vitae;	Section 1.3

NEMA REGULATION GNR 326, SECTION 19 REQUIREMENTS FOR THE CONTENT OF BASIC ASSESSMENT REPORTS AS PER APPENDIX 1	CROSS REFERENCE IN THIS REPORT (refer to the following parts in the report)
	Appendix I
(b) the location of the activity, including: (i) the 21 digit Surveyor General code of each cadastral land parcel;	Section A (1)
(ii) where available, the physical address and farm name;	Section B(1)
(iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Section B(2)
(c) a plan which locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale;	Appendix A, Appendix A2 and Appendix C
or, if it is— (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	N/A – no linear activity falls outsite of the project site
(d) a description of the scope of the proposed activity, including— (i) all listed and specified activities triggered and being applied for; and (ii) a description of the activities to be undertaken including associated structures and infrastructure ;	Section 1.2
(e) a description of the policy and legislative context within which the development is proposed including— (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	Section A(2)
(ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments;	Section A(2)
(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;	Section 1.1 and Section E(9)
(g) a motivation for the preferred site, activity and technology alternative;	Section E(6)
(h) a full description of the process followed to reach the proposed preferred alternative within the site, including - (i) details of all the alternatives considered; (ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs; (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;	Section A (3) Section C Appendix E6
(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section B
(v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and	Section E Appendix G1 Appendix G2

NEMA REGULATION GNR 326, SECTION 19 REQUIREMENTS FOR THE CONTENT OF BASIC ASSESSMENT REPORTS AS PER APPENDIX 1	CROSS REFERENCE IN THIS REPORT (refer to the following parts in the report)
probability of the impacts, including the degree to which these impacts— (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;	
(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;	Appendix E(2)
(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section E
(viii) the possible mitigation measures that could be applied and level of residual risk;	Section E Appendix H
(ix) the outcome of the site selection matrix;	Section 1.1
(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and	Section A (3)
(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;	Section E(6)
(i) 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— (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and	Section E
(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;	Section E
(j) an assessment of each identified potentially significant impact and risk, including— (i) cumulative impacts; (ii) the nature, significance and consequences of the impact and risk; (iii) the extent and duration of the impact and risk; (iv) the probability of the impact and risk occurring; (v) the degree to which the impact and risk can be reversed; (vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and (vii) the degree to which the impact and risk can be avoided, managed or mitigated;	Section E
(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 the final report;	Section E(6) and (8) Appendix G1 Appendix G2
(l) an environmental impact statement which contains— (i) a summary of the key findings of the environmental impact assessment;	Section E(5) Section A(6) Appendix A4

NEMA REGULATION GNR 326, SECTION 19 REQUIREMENTS FOR THE CONTENT OF BASIC ASSESSMENT REPORTS AS PER APPENDIX 1	CROSS REFERENCE IN THIS REPORT (refer to the following parts in the report)
(ii) a map at an appropriate scale which 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 (iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;	Appendix A5
(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;	Section E Appendix H
(n) any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;	Section E (8)
(o) a description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed;	Section 1.4
(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;	Section E(8)
(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;	N/A
(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; and	Appendix I
(s) where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	N/A
(t) any specific information that may be required by the competent authority; and	N/A
(u) any other matters required in terms of section 24(4)(a) and (b) of the Act.	N/A

3. Details and Expertise of the Environmental Assessment Practitioner (EAP)

In accordance with Regulation 12 of the 2014 EIA Regulations (GNR 326) Naidu Consulting (Pty) Ltd (on behalf of CoE) has appointed Savannah Environmental (Pty) Ltd (Savannah Environmental) as the independent Environmental consultant to undertake the Basic Assessment and prepare the BA Report for

the project. Neither Savannah Environmental nor any of its specialists are subsidiaries of, or are affiliated to Naidu Consulting (Pty) Ltd or the City of Ekurhuleni. Furthermore, Savannah Environmental does not have any interests in secondary developments that may arise out of the authorisation of the project.

Savannah Environmental is a leading provider of integrated environmental and social consulting, advisory and management services with considerable experience in the fields of environmental assessment and management. The company is wholly woman-owned (51% black woman-owned), and is rated as a Level 2 Broad-based Black Economic Empowerment (B-BBEE) Contributor as the company is an Exempted Micro Enterprise (EME). The company was established in 2006 with a clear objective to provide services to the infrastructure development sector. Savannah Environmental benefits from the pooled resources, diverse skills and experience in the environmental field held by its team that has been actively involved in undertaking environmental studies for a wide variety of projects throughout South Africa and neighbouring countries. Strong competencies have been developed in project management of environmental processes, as well as strategic environmental assessment and compliance advice, and the assessment of environmental impacts, the identification of environmental management solutions and mitigation/risk minimising measures.

The Savannah Environmental team has considerable experience in environmental impact assessments and environmental management, and has been actively involved in undertaking environmental studies for a wide variety of projects throughout South Africa.

The Savannah Environmental team in this project includes:

» **Thalita Botha** - the principle author of this report. She holds a Bachelor degree with Honours in Environmental Management and has three years of experience in the environmental field. Her key focus is on environmental impact assessments, public participation, environmental management plans and programmes, as well as mapping using ArcGIS for a variety of environmental projects.

» **Jo-Anne Thomas** is a Director at Savannah Environmental (Pty) Ltd. Jo-Anne has a Master of Science Degree in Botany (M.Sc. Botany) from the University of the Witwatersrand and is registered as a Professional Natural Scientist (400024/2000) with the South African Council for Natural Scientific Professions (SACNASP). She has gained extensive knowledge and experience on potential environmental impacts associated with electricity generation and transmission projects through her involvement in related EIA processes over the past 20 years. She has successfully managed and undertaken EIA processes for infrastructure development projects throughout South Africa.

» **Nicolene Venter** – Board Member of IAPSA (International Association for Public Participation South Africa. She holds a Higher Secretarial Diploma and has over 21 years of experience in public participation, stakeholder engagement, awareness creation processes and facilitation of various meetings (focus group, public meetings, workshops, etc.). She is responsible for project management of public participation processes for a wide range of environmental projects across South Africa and neighbouring countries.

Curricula vitae for the Savannah Environmental project team are included in **Appendix I**.

4. Assumptions and Limitations

The following assumptions and limitations are applicable to this Basic Assessment Process:

- All information provided by the proponent to the environmental team was correct and valid at the time it was provided.
- It is assumed that the project site identified by the proponent represents a technically suitable site for the establishment of the proposed Masetjaba Reservoir, elevated tower and associated infrastructure.
- This report and its investigations are project-specific, and consequently the environmental team did not evaluate any other alternatives in terms of location and technology.

BASIC ASSESSMENT REPORT FOR PUBLIC REVIEW

This Basic Assessment Report has been prepared by Savannah Environmental in order to assess the potential environmental impacts associated with the Masetjaba Reservoir and associated infrastructure at the existing Masetjaba View Reservoir site near Nigel, Gauteng. This process is being undertaken in support of an application for environmental authorisation to the Gauteng Department of Agriculture and Rural Development (GDARD).

The 30-day review period for the Basic Assessment Report is from **10 April 2019 to 15 May 2019.** The report is available for public review at the following locations:

- **Tsakane Public Library located at the Tandi Eleanor Sibeko Secondary School**
- **www.savannahsa.com**

To obtain further information, register on the project database, or submit written comment please contact:

Nicolene Venter of **Savannah Environmental** **Tel:** 011 656 3237 **Fax:** 086 684 0547 **Email:** publicprocess@savannahsa.com **Post:** PO Box 148 Sunninghill, 2157
The due date for comments on the Basic Assessment Report is **15 May 2019**

SECTION A: ACTIVITY INFORMATION

1. Proposal or Development Description

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

Masetjaba Reservoir, elevated tower and associated infrastructure, Gauteng

The **City of Ekurhuleni (CoE)** is proposing the development of a 15ML reservoir, 2ML elevated tower, pump station and associated infrastructure to be located within Portion 107 of the Farm Spaarwater 171 (referred to as the project site). The project site is approximately 1.59ha in extent and falls under the jurisdiction of the CoE. Naidu Consulting (Pty) Ltd was appointed by the CoE to design and supervise the construction of the 15ML reinforced concrete water reservoir. The water reservoir will be known as the Masetjaba Reservoir. The existing Masetjaba View Reservoir is located on the same property as the proposed project. TLOU Consulting (Pty) Ltd has been appointed for the design of the pump station and 2ML elevated tower also proposed within the project site. Access to the project site can be obtained via the R550 regional road (also known as Springs Road) situated on the northern boundary of the project site.

The development is proposed to include the following infrastructure:

- 15ML Water Reservoir approximately 8m in height;
- 2ML concrete water tower approximately 32m in height;
- Pump Station;
- Standby Generator;
- Interconnecting pipework and chambers;
- Storm water provisions; and
- Access road approximately 170m in length.

Table 3 provides the details of the technology proposed for the Masetjaba Reservoir and elevated tower, including the main infrastructure and services.

Table 3: Details of the proposed Masetjaba Reservoir and associated infrastructure

Component	Description / Dimensions
15ML Reservoir	Capacity: 15 000m^3 Dimension: 1977m^2 Base elevation: 1 649.25msl Water depth: 8m Diameter (external): 51.4m Diameter (internal): 49m Top Water Level: 1 657.5msl Finished Floor Level: 1 649.5msl
2ML concrete water tower	Capacity: ~2 000m^3 Dimension: 260m^2 Diameter: ~18m Height: ~32m
Pump Station	~77m^2 (3m in height)

Inlet pipeline (to connect the proposed Masetjaba Reservoir to the new booster pump station to be located off-site)	» Steel » ~91m in length » Diameter: ~400mm
Outlet pipeline (to connect the Masetjaba Reservoir to the existing water reticulation system)	» Steel » ~92m in length » Diameter: ~500mm
Internal access	Internal access road of a gravel nature with a width of more than 4m will be constructed within the project site. The total length of the internal roads will be ~170m.
Site access	Direct access via the R550 regional road which is situated along the northern boundary of the project site.
Services required	» Refuse material disposal - all refuse material generated from the proposed project will be collected by a contractor and will be disposed of at a licensed waste disposal site off site. This service will be arranged with the municipality when required. » Sanitation – all sewage waste will be stored on site within a septic tank which will be emptied by the municipality for disposal.

The Masetjaba Reservoir will supply water to a new reservoir zone consisting of future developments and a small section of network that is currently being supplied from the existing Zulu Water Tower (refer to **Figure 2** above). The new zone will be located on the southern boundary of Brakpan and will include most future developments in the Tsakane Township and its associated extensions i.e. Tsakane X7, Tsakane X6a, Tsakane X6b and Tsakane X. These future developments will include approximately 6068 residential units. The ultimate demand for the area is expected to be 10.043ML/day. The 2ML elevated tower is proposed to improve the water supply to the Masetjaba Reservoir Zone 1 which currently experiences low pressure problems. Considering the current and future demand for water supply in the area surrounding the project site, an adequate and reliable water supply to these areas are critical.

Due to the ultimate demand of 10.043ML/day for the new supply zone, the size of the Masetjaba Reservoir has been based on a 36-hour storage period. The design for the proposed reservoir has been based on the CoE's Water & Sewer Modelling Guidelines (2018). The preliminary design is for a circular reservoir. The reservoir will be 8m high with a 600mm think reinforced concrete wall. The reservoir roof slab will be based on a conventional flat slab design and will be up to 300mm thick. The reservoir will be supplied via a new booster pump located approximately 3.7km east of the site and a new pipeline (to be known as DN450) which will enter the north eastern corner of the project site[1].

The Masetjaba Reservoir 1 Zone located on the south western boundary of Nigel currently experiences low pressure problems due to insufficient static head between the reservoir's top water level and the supply network. The development of a reinforced concrete elevated tower within the project site will result in a sufficient static head required for this zone. The existing Masetjaba View Reservoir will provide water via a pump station to the proposed elevated tower which will supply the Masetjaba Reservoir 1 Zone (refer to **Figure 3**). The pump station will also provide water to the high level zone reticulation network at a tie in point located within the project site.

[1] This booster pump station and associated pipeline does not form part of this application.

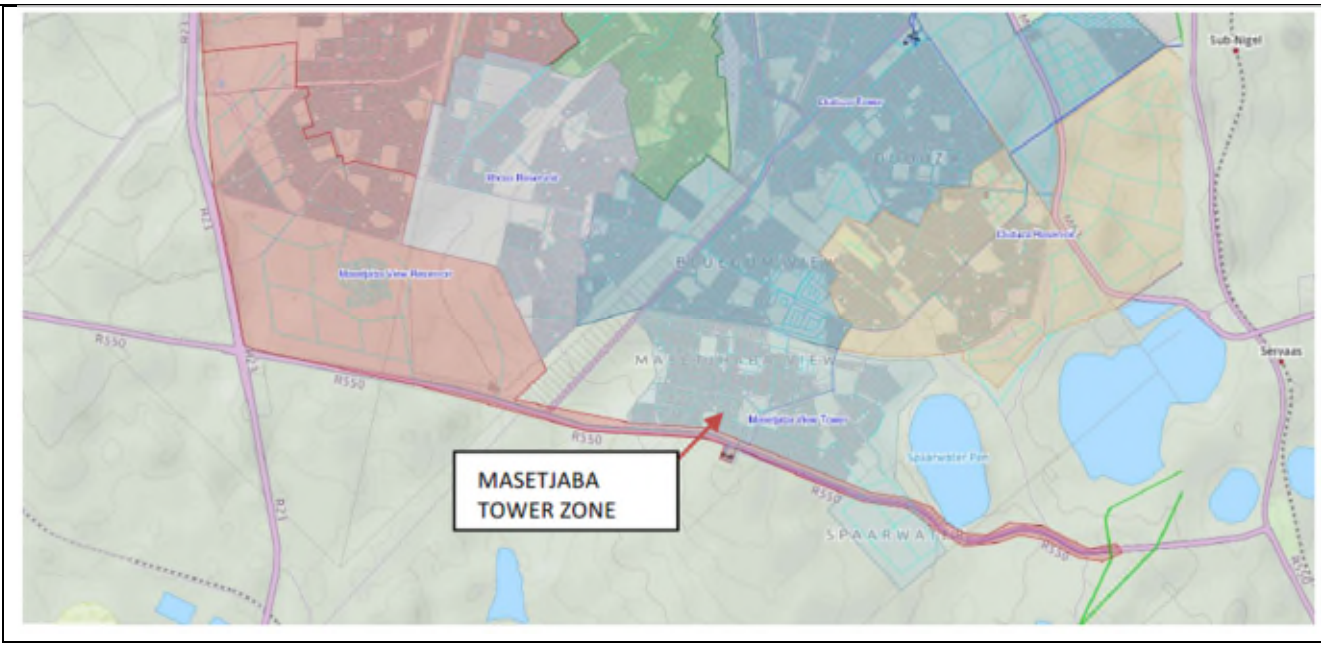

Figure 3: Location of the Masetjaba Reservoir 1 Zone located on the south western boundary of Nigel (Naidu Consulting (2018)).

An inlet pipeline approximately 92m in length will connect the DN450 inlet pipeline to the proposed Masetjaba Reservoir. At peak flow, the maximum fluid velocity will be 1.096m/s. An outlet pipeline, controlled by an isolating valve, will exit the Masetjaba Reservoir and tie into an existing pipeline known as the DN500 outlet pipeline located in the north eastern corner of the project site. The outlet pipeline will be approximately 91m in length. The maximum fluid velocity at peak flow rate will be 2.101m/s. A second outlet pipeline will exist the Masetjaba Reservoir and tie into the existing pipeline known as the DN450 outlet pipeline located along the eastern boundary of the project site.

Storm water provisions will include storm water run-off from the roof, overflow from the reservoir weir and the scour wedge gate valve draining the reservoir will discharge into a closed vertical chamber, from where it will be conveyed to the existing storm water system.

The project site can be accessed via the R550 regional road located on the northern boundary of the project site. The area north of the project site is considered to be residential while the remaining surrounding area consists of cultivation and open space. The project site itself is currently used for the existing Masetjaba View Reservoir.

The following pre-construction, construction, operation and decommissioning activities will be associated with the project:

Pre-Construction Surveys:

Prior to initiating construction, a number of detailed surveys will be required including, but not limited to:

» Geotechnical survey – The geotechnical study will look at the availability of natural construction materials. This study will serve to inform the extent of earthworks and compaction required as well as the final micro-sitting of the infrastructure.

» Site survey - in order to finalise the design layout of the reservoir, elevated tower, pump station, access roads and pipelines. The finalisation will need to be confirmed in line with the Environmental Authorisation issued for the project.

Construction Phase:

The construction phase will be up to 15 months. The following activities will be undertaken during the construction phase:

» The construction phase will include the transportation of the required equipment and building material to the project site. Typical civil engineering construction equipment will need to be brought to the site (e.g. excavators, trucks, graders, compaction equipment, cement trucks, etc.).
» Site preparation activities will be undertaken and will include the clearance of vegetation. These activities will require the stripping of topsoil which will need to be stockpiled, backfilled and/or spread on site.
» Laydown and storage areas will be required for the typical construction equipment. Once the required equipment has been transported to site, a dedicated equipment construction camp and laydown area will be established.
» Construction of 170m long and 4m wide gravel road.
» Construction of the reservoir, elevated tower and associated infrastructure.
» Once construction is completed and all construction equipment is removed, the site must be rehabilitated where practical and reasonable.

Up to 25 employment opportunities will be created during the construction phase of the Masetjaba Reservoir and associated infrastructure. Of this approximately 5 of the opportunities will be available to unskilled workers, 18 will be available to semi-skilled workers and 2 will be available to skilled personnel. Up to 50 employment opportunities will be created during the construction phase of elevated tower and associated infrastructure. Of this approximately 20 of the opportunities will be available to unskilled workers and 30 will be available to semi-skilled/skilled personnel.

Operation Phase

The Masetjaba Reservoir and associated infrastructure will be designed for a 30 year operation period. The reservoir is expected to supply up to 10.04ML of water per day and the elevated tower is expected to supply 6.6ML of water per day. The Masetjaba Reservoir and associated infrastructure will require maintenance as and when required.

Decommissioning

Depending on the continued economic viability of the project following the initial 30-year operation period, the project will either be decommissioned or the operation phase will be extended. However, if the decision is made to decommission the project, the following activities will form part of the project scope:

» Site preparation activities will include confirming the integrity of the access to the site to accommodate the required decommissioning infrastructure.
» Removal of infrastructure and appropriate disposal of waste materials.

Select the appropriate box

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

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

YES	

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

Section 21 (c) and (i) water uses as per the National Water Act (Act No 36 of 1998) will be applicable for the development for being located within the regulatory zone of a wetland (500m). A Water Use Licence Application (WULA) or General Authorisation (GA) registration application must be submitted to the Department of Water and Sanitation (DWS) in terms of the National Water Act and GN267.

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

2. Applicable Legislation, Policies and/or Guidelines

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations (refer to **Table 4** and **Table 5** below):

Table 4: All applicable legislation, policies and/or guidelines to the development of the Masetjaba Reservoir and associated infrastructure

Legislation and date promulgated	Applicable Requirements	Relevant Authority
National Environmental Management Act (Act No. 107 of 1998) Date Promulgated - 27 November 1998	The EIA Regulations have been promulgated in terms of Chapter 5 of the Act. Listed activities which may not commence without an environmental authorisation are identified within these Regulations. In terms of S24(1) of NEMA, the potential impact on the environment associated with these listed activities must be assessed and reported on to the competent authority charged by NEMA with granting of the relevant environmental authorisation. In terms of GNR 327 of April 2017 a Basic Assessment Process is required to be undertaken for the proposed project.	» Gauteng Department of Agriculture and Rural Development (GDARD) – competent authority
National Environmental Management Act (Act No. 107 of 1998) Date Promulgated - 27 November 1998	In terms of the Duty of Care provision in S28(1) the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to ensure that any pollution or degradation of the environment associated with a project is avoided, stopped or minimised.	» Gauteng Department of Agriculture and Rural Development (GDARD) – competent authority
National Environmental Management: Biodiversity Act (Act No. 10 of 2004) Date Promulgated - 07 June 1998	Section 53 of NEM:BA provides for the MEC / Minister to identify any process or activity in such a listed ecosystem as a threatening process. Three government notices have been published in terms of Section 56(1) of NEM:BA as follows: » Commencement of TOPS Regulations, 2007 (GNR 150). » Lists of critically endangered, vulnerable and protected species (GNR 151). » TOPS Regulations (GNR 152).	» Gauteng Department of Agriculture and Rural Development (GDARD) – competent authority

Legislation and date promulgated	Applicable Requirements	Relevant Authority
	It provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), and vulnerable (VU) or protected. The first national list of threatened terrestrial ecosystems has been gazetted, together with supporting information on the listing process including the purpose and rationale for listing ecosystems, the criteria used to identify listed ecosystems, the implications of listing ecosystems, and summary statistics and national maps of listed ecosystems (NEM:BA: National list of ecosystems that are threatened and in need of protection, (Government Gazette 37596, GNR 324), 29 April 2014).	
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) Date Promulgated - 10 March 2009	The Minister may by notice in the *Gazette* publish a list of waste management activities that have, or are likely to have, a detrimental effect on the environment. The Minister may amend the list by – » Adding other waste management activities to the list. » Removing waste management activities from the list. » Making other changes to the particulars on the list. In terms of the Regulations published in terms of this Act (GN 921), A Basic Assessment or Environmental Impact Assessment is required to be undertaken for identified listed activities (Category A and B) while Category C Activities (such as storage of waste) must be undertaken in accordance with the necessary norms and standards. Any person who stores waste must at least take steps, unless otherwise provided by this Act, to ensure that: » The containers in which any waste is stored, are intact and not corroded or in any other way rendered unlit for the safe storage of waste. » Adequate measures are taken to prevent accidental spillage or leaking. » The waste cannot be blown away. » Nuisances such as odour, visual impacts and breeding of vermin do not arise; and » Pollution of the environment and harm to health are prevented.	» Gauteng Department of Agriculture and Rural Development (GDARD)

Legislation and date promulgated	Applicable Requirements	Relevant Authority
National Environmental Management: Air Quality Act (Act No. 39 of 2004) Date Promulgated - 25 February 2005	S18, S19, and S20 of the Act allow certain areas to be declared and managed as "priority areas." GN R 827 – National Dust Control Regulations prescribes general measures for the control of dust in all areas.	» City of Ekurhuleni
National Water Act (Act No. 36 of 1998) Date Promulgated - 26 August 1998	Water uses under S21 of the Act must be licensed unless such water use falls into one of the categories listed in S22 of the Act or falls under the general authorisation. In terms of S19, the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to prevent and remedy the effects of pollution to water resources from occurring, continuing, or recurring.	» Department of Water and Sanitation (DWS).
Environment Conservation Act (Act No. 73 of 1989) Date Promulgated - 09 June 1989	In terms of section 25 of the ECA, the national noise-control regulations (GN R154 in Government Gazette No. 13717 dated 10 January 1992) were promulgated. The NCRs were revised under Government Notice Number R55 of 14 January 1994 to make it obligatory for all authorities to apply the regulations. Subsequently, in terms of Schedule 5 of the Constitution of South Africa of 1996, legislative responsibility for administering the noise control regulations was devolved to provincial and local authorities. Provincial Noise Control Regulations exist in the Free State, Western Cape and Gauteng provinces. Allows the Minister of Environmental Affairs to make regulations regarding noise, among other concerns.	» Gauteng Department of Agriculture and Rural Development (GDARD) » City of Ekurhuleni
National Forests Act (Act No. 84 of 1998) Date Promulgated - 30 October 1998	According to this Act, the Minister may declare a tree, group of trees, woodland or a species of trees as protected. Notice of the List of Protected Tree Species under the National Forests Act (No. 84 of 1998) was published in GNR 536. The prohibitions provide that "no person may cut, damage, disturb, destroy or remove any protected tree, or collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a licence granted by the Minister".	» Department of Agriculture, Forestry and Fisheries (DAFF). » Gauteng Department of Agriculture and Rural Development (GDARD)
National Veld and Forest Fire Act (Act 101 of 1998)	Chapter 4 of the NVFFA places a duty on owners to prepare and maintain firebreaks, the procedure in this regard, and the role of adjoining owners and the fire protection association. Provision is also made for the making of firebreaks on the international boundary of the Republic of South Africa. The applicant must ensure	» Department of Agriculture, Forestry and Fisheries (DAFF).

Legislation and date promulgated	Applicable Requirements	Relevant Authority
Date Promulgated - 27 November 1998	that firebreaks are wide and long enough to have a reasonable chance of preventing a veldfire from spreading to or from neighbouring land, it does not cause soil erosion, and it is reasonably free of inflammable material capable of carrying a veldfire across it. Chapter 5 of the Act places a duty on all owners to acquire equipment and have available personnel to fight fires. Every owner on whose land a veldfire may start or burn or from whose land it may spread must have such equipment, protective clothing and trained personnel for extinguishing fires; and ensure that in his or her absence responsible persons are present on or near his or her land who, in the event of fire, will extinguish the fire or assist in doing so, and take all reasonable steps to alert the owners of adjoining land and the relevant fire protection association, if any.	
Conservation of Agricultural Resources Act (CARA) (Act No 43 of 1983)	Regulation 15 of GN R1048 provides for the declaration of weeds and invader plants, and these are set out in Table 3 of GN R1048. Declared Weeds and Invaders in South Africa are categorised ac-cording to one of the following categories: » Category 1 plants: are prohibited and must be controlled. » Category 2 plants: (commercially used plants) may be grown in demarcated areas providing that there is a permit and that steps are taken to prevent their spread. » Category 3 plants: (ornamentally used plants) may no longer be planted; existing plants may re-main, as long as all reasonable steps are taken to prevent the spreading thereof, except within the floodline of watercourses and wetlands. These regulations provide that Category 1, 2 and 3 plants must not occur on land and that such plants must be controlled by the methods set out in Regulation 15E.	» Department of Agriculture, Forestry and Fisheries (DAFF).
Hazardous Substances Act (Act No. 15 of 1973) Date Promulgated - 04 April 1973	This Act regulates the control of substances that may cause injury, or ill health, or death due to their toxic, corrosive, irritant, strongly sensitising, or inflammable nature or the generation of pressure thereby in certain instances and for the control of certain electronic products. To provide for the rating of such substances or products in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, modification, disposal or dumping of such substances and products. » Group I and II: Any substance or mixture of a substance that might by reason of its toxic, corrosive etc., nature or because it generates pressure through decomposition, heat or other means, cause extreme risk of injury etc., can be declared to be Group I or Group II hazardous substance; » Group IV: any electronic product;	» Department of Health

Legislation and date promulgated	Applicable Requirements	Relevant Authority
	» Group V: any radioactive material. The use, conveyance, or storage of any hazardous substance (such as distillate fuel) is prohibited without an appropriate license being in force.	
Gauteng Provincial Environmental Management Framework Date Promulgated - November 2014	The Gauteng Provincial Environmental Management Framework is a legal instrument in terms of the Environmental Management Framework Regulations, 2010. The purpose of the regulations is to assist environmental impact management including EIA processes, spatial planning and sustainable development. The objective of the framework is to promote efficient urban development (including associated service infrastructure) in defined selected areas with lower environmental concerns and high development demand.	» Gauteng Department of Agriculture and Rural Development (GDARD)
Gauteng Noise Control Regulations (1999) Date Promulgated - 20 August 1999	Acknowledges the role of the Gauteng Province to take effective measures to support local government. The document aims to: » Provide a uniform minimum standard for noise regulation in the Province; » Accommodate the specific circumstances of different neighbourhoods and areas; and » Create new mechanisms for effective enforcement in neighbourhoods. In the Gauteng Noise Control Regulations of 1999, a disturbing noise refer to a noise level that causes the ambient noise level to rise above the designated zone level, or if no zone level has been designated, the typical rating levels for ambient noise in districts, indicated in table 2 of SABS 0103.	» City of Ekurhuleni
Service Delivery Charter and Standards for the Gauteng Department of Agriculture, Conservation and Environment Date Promulgated - 2014	The following strategic objectives must be implemented: » The facilitation of sustainable development in Gauteng by ensuring sustainable land uses (including infrastructure development) and land use patterns. » To contribute to sustainable development and quality of life by promoting a safe and healthy living environment.	» Gauteng Department of Agriculture and Rural Development (GDARD)

Table 5: Description of compliance with the relevant legislation, policy or guideline

Legislation	Compliance requirements
National Environmental Management Act (Act No. 107 of 1998)	The listed activities triggered by the proposed project have been identified and assessed in the BA process being undertaken. This BA Report will be submitted to the competent and commenting authority in support of the application for authorisation.
National Environmental Management Act (Act No. 107 of 1998)	While no permitting or licensing requirements arise directly by virtue of the proposed project, this section is applicable during the BA process and will continue to apply throughout the life cycle of the project.
National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Under this Act, a permit would be required for any activity which is of a nature that may negatively impact on the survival of a listed protected species. An ecological impact assessment has been undertaken as part of the BA Report (refer to **Appendix G1**). As such the potential occurrence of critically endangered, endangered, vulnerable, and protected species and the potential for them to be affected has been considered. A permit may be required should any listed plant species be disturbed or destroyed as a result of the proposed project. No species of conservation concern under this Act have been identified on site.
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	As no waste disposal site is to be associated with the proposed project, no permit is required in this regard. Waste handling, storage and disposal during construction and operation is required to be undertaken in accordance with the requirements of the Act, as detailed in the EMPr (refer to **Appendix H**).
National Environmental Management: Air Quality Act (Act No. 39 of 2004)	No permitting or licensing requirements arise from this legislation. The EMPr however makes provision for managing and mitigating potential dust impacts (refer to **Appendix H**).
National Water Act (Act No. 36 of 1998)	A water use license (WUL) is required in terms of Section 21(c) and (i) of the National Water Act for the development being located within the regulatory zone of a wetland (500m).
Environment Conservation Act (Act No. 73 of 1989)	Noise impacts are expected to be associated with the construction phase of the project and are not likely to present a significant intrusion to the local community. There is no requirement for a noise permit in terms of the legislation.
National Forests Act (Act No. 84 of 1998)	A permit or license is required for the destruction of protected tree species and/or indigenous tree species within a natural forest. No protected tree species have been identified within the project site.
National Veld and Forest Fire Act (Act 101 of 1998)	While no permitting or licensing requirements arise from this legislation, this Act will find application during the construction and operation phase of the project. The relevant management and mitigation measures have been included in the EMPr (refer to **Appendix H**).
Conservation of Agricultural Resources Act (CARA) (Act No 43 of 1983)	While no permitting or licensing requirements arise from this legislation, this Act is applicable during the BA process and will continue to apply throughout the life cycle of the project. In this regard, soil erosion prevention and soil conservation strategies must be developed and implemented. The EMPr provides measures for soil erosion and weed control and management (refer to **Appendix H**).

Legislation	Compliance requirements
Hazardous Substances Act (Act No. 15 of 1973)	It is necessary to identify and list all the Group I, II, III, and IV hazardous substances that may be on the site and in what operational context they are used, stored or handled. If applicable, a license could be required to be obtained from the Department of Health.
Gauteng Provincial Environmental Management Framework	The development of the project will aid in reducing the demand from water sources by providing a reliable water supply to Masetjaba and future extensions of the Tsakane Township. The development is therefore compliant with the relevant planning for the area. No further compliance requirements are applicable.
Gauteng Noise Control Regulations (1999)	Noise impacts are expected to be associated with the construction and operation phases of the project and are not likely to present a significant intrusion to the local community. There is therefore no requirement for a noise permit in terms of the legislation.
Service Delivery Charter and Standards for the Gauteng Department of Agriculture, Conservation and Environment	The project will reduce the demand for adequate and reliable water supply to future development of the Tsakane Township and to a small section of the Masetjaba View Township.

3. Alternatives

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

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

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

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

No alternatives have been considered for the development of the Masetjaba Reservoir, elevated tower and associated infrastructure other than the preferred alternatives (proposal) identified. The process followed to reach the preferred alternatives (proposal) mainly relate to the specific requirements at Masetjaba View Township (i.e. increased water pressure), water supply for future extensions of the Tsakane Township planned by the CoE and space availability close to these areas which are also in line with the proposed land use. The preferred alternatives are therefore project specific. A preferred location (i.e. the identified project site) of the project within an area where the existing landuse is the similar to that proposed for the project and the specific technology required have been identified as the only feasible alternatives for the development. No alternatives other than the preferred location (i.e. project site) and preferred technology alternative are being considered for the project.

Provide a description of the alternatives[2] considered

No.	**Alternative type**, either alternative: site on property, properties, activity, design, technology, energy, operational or other(provide details of "other")	**Description**
1	Proposal – Location (preferred alternative)	The development of a 15ML water reservoir 2ML elevated tower and associated infrastructure within the project site with an extent of ~1.59ha.
2	Proposal-Technology (preferred alternative)	The project will make use of technology that includes storing of water within a reservoir and the storing of water within an elevated tower before distribution.
2	Alternative 1	
3	Alternative 2	
	Etc.	

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

No alternatives are being considered for the project, other than the preferred alternatives as specified above. The preferred alternatives (proposal), including location (i.e. project site) and technology, are considered to be project-specific taking into consideration the specific requirements at the Masetjaba View Township and the supply demand for future extensions of the Tsakane Township planned by the CoE.

- The location of the project site has been based on where the project is required from a technical perspective and where similar infrastructure already exists (i.e. the existing Masetjaba View Reservoir). The location of the project also considered a viable point of connection to the existing water supply pipeline reticulation. The proposed location of the project site is therefore considered as the preferred alternative and no other location alternatives are being considered.
- The technology of the water storage facilities is based on the specific requirements for each storage facility and is considered to be the most sustainable solution. A water reservoir is required to supply the demand of future developments of the Tsakane Township while the elevated tower is required to supply water to the Masetjaba Reservoir 1 Zone at a higher pressure that what is currently being supplied to this zone. These techologies are specifically chosen to ensure adequate and reliable water supply. Therefore the technology required is linked to the requirements at the Masetjaba Reservoir Zone 1 and future developments, and as such no technology alternatives are being considered.

4. Physical Size of the Activity

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

Size of the activity:

[2] Only the preferred location (i.e. project site) and the preferred technology for the development of the project have been considered. No alternatives have been assessed other than the preferred alternatives identified.

Proposed activity ***(Total environmental landscaping, parking, etc.) and the building footprint)***	15Ml Reservoir 2 = 2075m² Elevated tower = 261m² Pumpstation = 88m²
Alternatives:	
Alternative 1 (if any)	
Alternative 2 (if any)	
	Ha/ m²

or, for linear activities:

	Length of the activity:
Proposed activity	
Alternatives:	
Alternative 1 (if any)	
Alternative 2 (if any)	
	m/km

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

	Size of the site/servitude:
Proposed activity	15Ml Reservoir 2 = 2075m² Elevated tower = 261m² Pumpstation = 88m²
Alternatives:	
Alternative 1 (if any)	
Alternative 2 (if any)	
	Ha/m²

5. Site Access

Proposal

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

Describe the type of access road planned:

The project site is currently accessed via a gravel road off the R550 regional road, also referred to as the Springs Road. The existing access road located within the north-eastern corner of the project site connects to the existing Masetjaba View Reservoir. The proposed Masetjaba Reservoir and associated infrastructure (i.e. reservoir outlets, pump station and elevated tank) will require access roads within the project site. The existing access road is deterioted and a new access road, which will be a single carriageway gravel road of more than 4m in width, will provide access to the project infrastructure.

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

The position of the access road in relation to the project site has been illustrated in the Layout and Environmental Sensitivity Map included in **Appendix A3.**

Alternative 1

Does ready access to the site exist, or is access directly from an existing road?	YES	NO

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

Describe the type of access road planned:

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

Alternative 2

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

Describe the type of access road planned:

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

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

Section A 6-8 has been duplicated	**0**	Number of times	(only complete when applicable)

6. Layout or Route Plan

Layout and sensitivity mapping

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

- the layout plan is printed in colour and is overlaid with a sensitivity map (if applicable);
- layout plan is of acceptable paper size and scale, e.g.
  - A4 size for activities with development footprint of 10sqm to 5 hectares;
  - A3 size for activities with development footprint of > 5 hectares to 20 hectares;
  - A2 size for activities with development footprint of >20 hectares to 50 hectares);
  - A1 size for activities with development footprint of >50 hectares);
- The following should serve as a guide for scale issues on the layout plan:
  - A0 = 1: 500
  - A1 = 1: 1000
  - A2 = 1: 2000
  - A3 = 1: 4000
  - A4 = 1: 8000 (±10 000)
- shapefiles of the activity must be included in the electronic submission on the CD's;
- the property boundaries and Surveyor General numbers of all the properties within 50m of the site;
- the exact position of each element of the activity as well as any other structures on the site;
- the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, sewage pipelines, septic tanks, storm water infrastructure;
- servitudes indicating the purpose of the servitude;
- sensitive environmental elements on and within 100m of the site or sites (including the relevant buffers as prescribed by the competent authority) including (but not limited thereto):
  - Rivers and wetlands;

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

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

A layout map has been included as **Appendix A2** and is included as **Figure 4** below. A layout map overlain with the environmental sensitivities of the broader area and in close vicinity of the site has been included as **Appendix A3** and **Appendix A4**. Refer to **Figure 5** and **Figure 6** below for the sensitivity maps.

Locality Mapping (note this is also included in the application form requirements)

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

A locality map has been as **Appendix A1** and **Figure 1**.

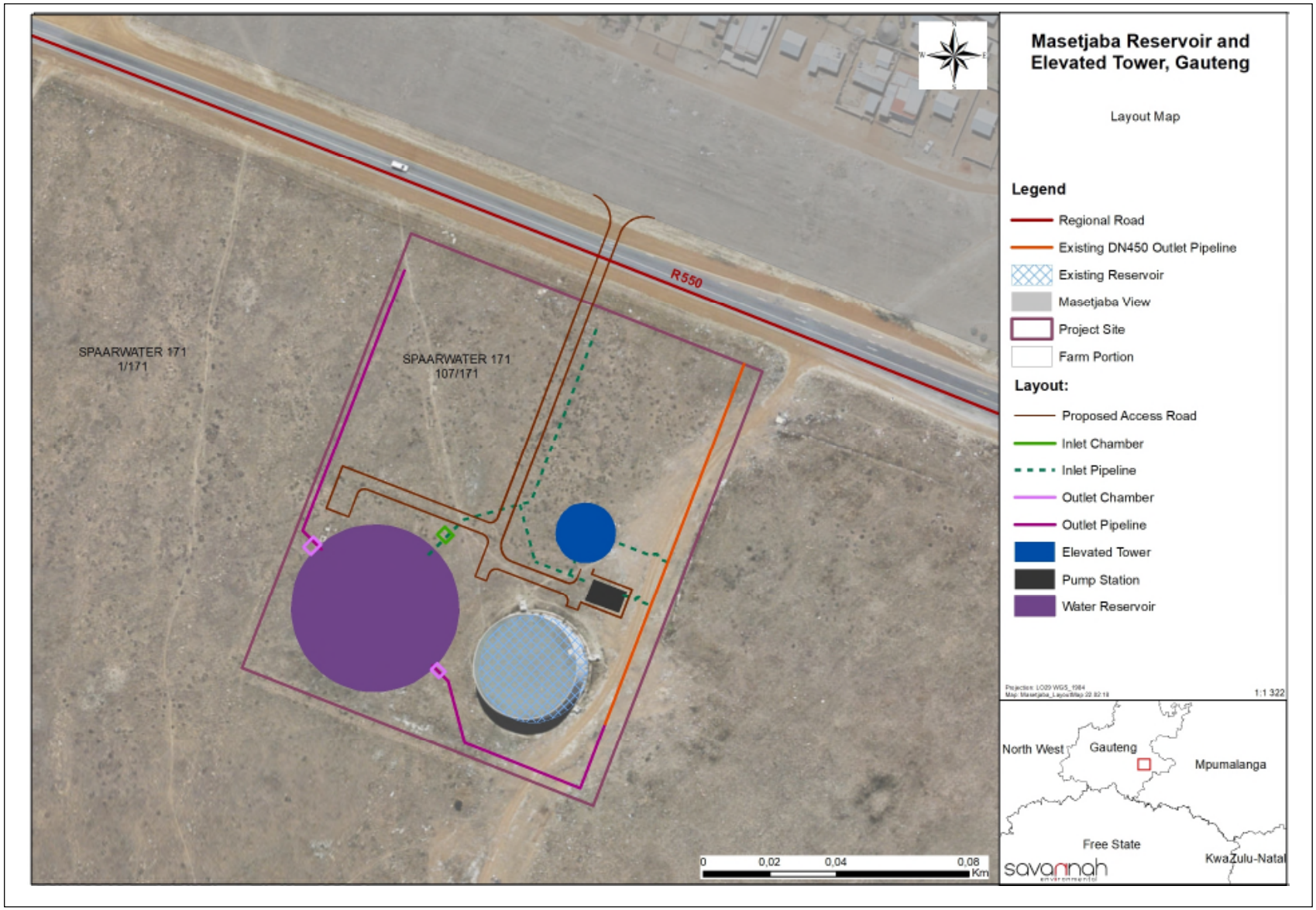

Figure 4: Map illustrating the proposed layout located within the project site (refer to **Appendix A2**).

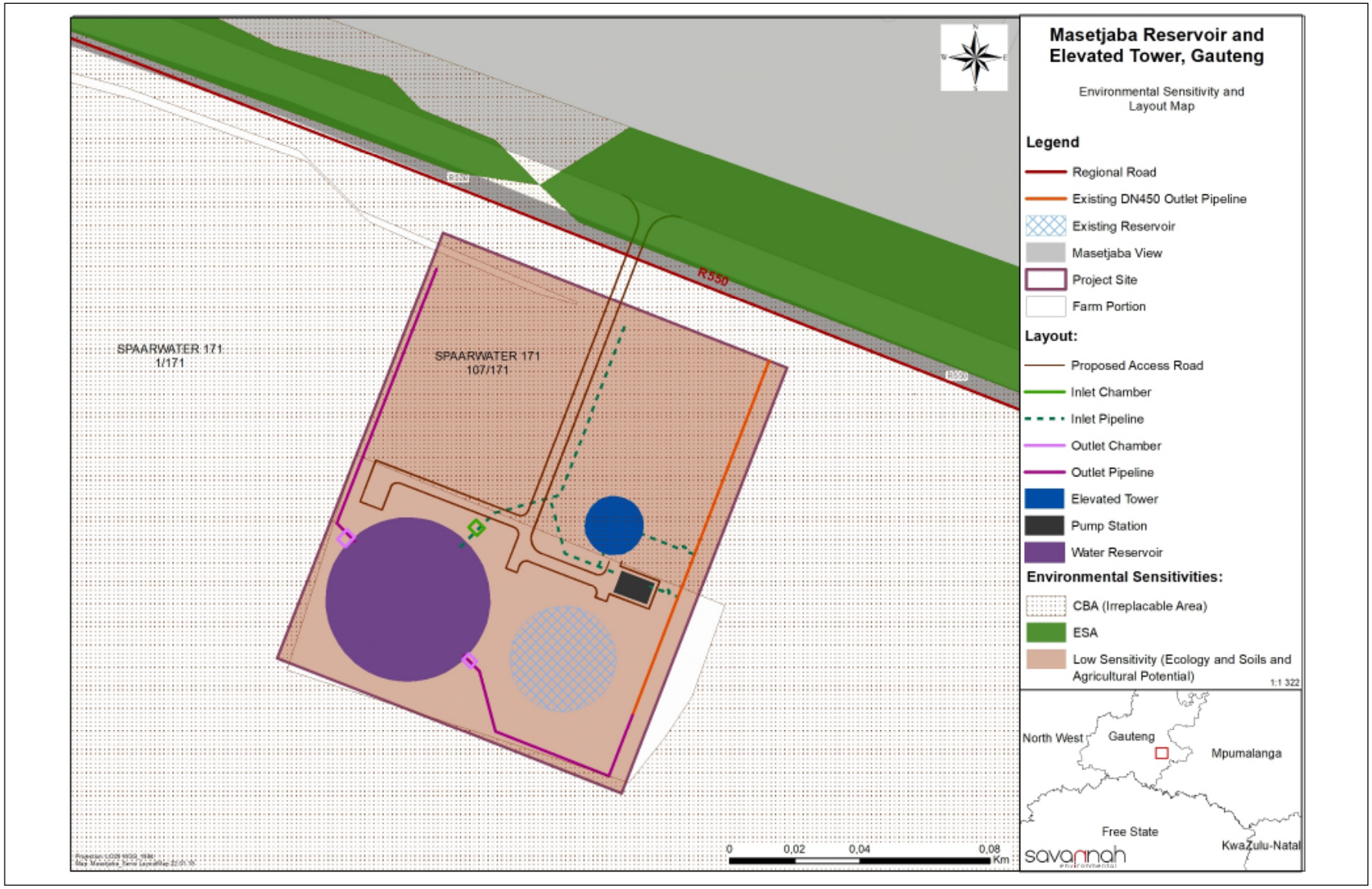

Figure 5: Environmental sensitivity map of the project site (refer to **Appendix A3**). This map does not include the extent of the endangered vegetation unit as this is included within **Figure 6**.

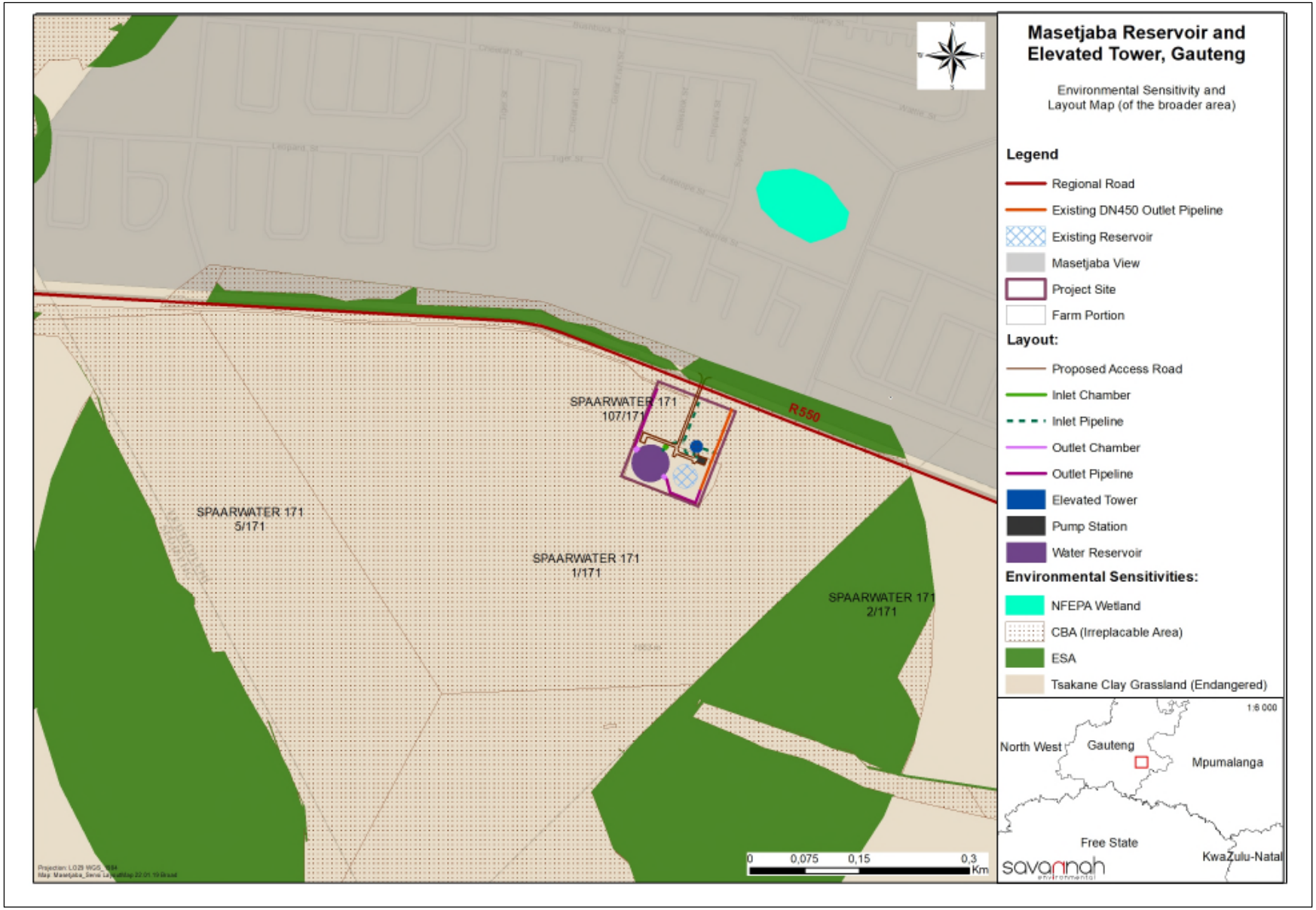

Figure 6: Map illustrating the sensitivity of the broader area surrounding the site (refer to **Appendix A4**).

7. Site Photographs

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

Site photographs taken from the centre of the site have been included as **Appendix B**. Additional photographs have also been included to provide additional visual aid of the area.

8. Facility Illustration

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

An illustration of the Masetjaba Reservoir, elevated tower and associated infrastructure to be developed for project has been included as **Appendix C**.

SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT

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

Instructions for completion of Section B for linear activities

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

Section B has been duplicated for sections of the route **0** times.

All linear activities are located within the same enivronment is therefore this section has not been completed more than once.

Instructions for completion of Section B for location/route alternatives

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

Section B has been duplicated for location/route alternatives (complete only when appropriate) **0** times.

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

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

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

Section B - Section of Route **N/A** (complete only when appropriate for above)

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

No linear infrastructure alternatives or location alternatives are being considered for the project as motivated in Section A (3).

1. Property Description

The project is located within Portion 107 of the Farm Spaarwater 171 (referred to as the project site) located approximately 6.1km north west of the town of Nigel and directly south of the Masetjaba View Township. The existing Masetjaba View Reservoir is located on the same property as the proposed project. **Table 6** provides more detail of the affected property.

Table 6: Details of the affected property within the existing Masetjaba View Reservoir site.

Province	Gauteng Province
Municipality	City of Ekurhuleni
Ward number(s)	Ward 87
Nearest town(s)	The project site is adjacent to the Masetjaba View Township, ~1.74km south of the Bluegum View Township, ~3.2km south west of the Duduza Township, ~5.8km south east of the Tsakane Township, and ~6.1km north west of Nigel.
Farm name(s) and number(s)	Portion 107 of the Farm Spaarwater 171
SG 21 Digit Code	Surveyor-General Database » T0IR00000000017100107

2. Activity Position

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

Alternative (centre point of the development footprint):	**Latitude (S):**	**Longitude (E):**
	-26.397438°	28.390696°

In the case of linear activities:

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

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

Addendum of route alternatives attached ☐

The 21 digit Surveyor General code of each cadastral land parcel

Proposal	T	0	I	R	0	0	0	0	0	0	0	0	0	1	7	1	0	0	1	0	7
ALT. 1																					
ALT. 2																					
etc.																					

3. Gradient of the Site

Indicate the general gradient of the site.

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

4. Location in Landscape

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

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

5. Groundwater, Soil and Geological Stability of the Site

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

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

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

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

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

Latitude (S):	**Longitude (E):**
°	°

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

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

Latitude (S):	**Longitude (E):**
°	°

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

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

Latitude (S):	**Longitude (E):**
°	°

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

6. Agriculture

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)? **NO**

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

7. Groundcover

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

The affected properties falls within the Grassland biome. The vegetation in and around the affected property is Tsakane Clay Grassland. According to Mucina and Rutherford (2012), the conservation status of Tsakane Clay Grassland is considered to be Endangered. This vegetation unit is also classified as Endangered according to Section 52 of the National Environmental Management: Biodiversity Act 10 of 2004 (NEMBA). Only 1.5% of the 24% conservation target were conserved in 2012, mainly in the Suikerbosrand, Olifantsvlei, Klipriviersberg and Marievale Nature Reserves, with some minor patches in private reserves. The main threats to this vegetation type are transformation by cultivation, which has transformed approximately 60% of the distribution already, along with mining, dam-building and road development and operation. Large portions of Alberton, Springs, Tsakane and part of Soweto (all south and east of Johannesburg) were built in the area of this vegetation unit. Increasing urbanisation, especially in the south of Johannesburg and near the East Rand (Brakpan district) will increase pressure on the remaining vegetation. Erosion across this vegetation unit is generally very low or low.

Although the vegetation unit has a high conservation value, the highly degraded real-world condition of the vegetation unit observed on site confirmed a minimal overall conservation contribution. The vegetation unit within the project site resembles Tsakane Clay Grassland through the species composition, but is highly degraded, with poor ecological functioning and a low conservation contribution, and as such does not represent a good conservation opportunity and does not currently contribute to the overall health and conservation status of the Tsakane Clay Grassland vegetation type.

This highly degraded vegetation unit covers the entire site uniformly. The unit consists predominantly of grass species, with no tree or shrub forms present. The relatively high abundance of *Hyparrhenia hirta* (thatching grass) and low species richness indicate the high levels of disturbance historically experienced on site.

A total of 17 species were identified within the proposed project site, consisting mainly of mixed grass species commonly occurring in the Highveld region. All of the species observed were classified as Least Concern (and were not considered to be sensitive species). No plant species of conservation concern or important plant populations have been observed within the affected area.

There are a number of alien and invasive plant species present onsite, particularly near the existing Masetjaba View Reservoir where vehicle ingress and egress, parking and previous construction activities have degraded the immediate environment. Alien and invasive plant species found on-site, mainly adjacent the existing reservoir where evidence of historical construction was present and include :

» *Sonchus oleraceus;*
» *Pennisetum clandestinum;*
» *Alternanthera pungens;* and
» *Acacia mearnsii.*

According to the Gauteng C-Plan, the northern section of the project site (approximately 50% of the project site) falls within a Critical Biodiversity Area (CBA) and is considered to be an irreplaceable habitat. The majority of the access roads and the elevated tower are situated within this area. Despite the classification of CBA, the historical disturbance has severely degraded this area, making it highly degraded and no longer functionally contributing to the critical biodiversity. As such, this area is not deemed as a functioning CBA.

Indicate the types of groundcover present on the site and include the estimated percentage found on site[3].

Natural veld - good condition % = 0	**Natural veld with scattered aliens** **% = 10**	**Natural veld with heavy alien infestation** **% = 20**	Veld dominated by alien species % = 0	**Landscaped (vegetation)** **% = 45**
Sport field % = 0	Cultivated land % = 0	Paved surface (hard landscaping) % = 0	**Building or other structure** **% = 20**	**Bare soil** **% = 5**

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

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

If YES, specify and explain:

[3] This includes the entire project site.

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

If YES, specify and explain:

Are there any special or sensitive habitats or other natural features present on the site?	**YES**	

If YES, specify and explain:

The entire project site is situated within the Tsakane Clay Grassland vegetation type which is listed to be endangered in terms of Section 52 of the National Environmental Management: Biodiversity Act 10 of 2004 (NEMBA). Although the vegetation type is in a highly degraded condition, it still represents Tsakane Clay Grassland. Furthermore, the northern portion of the project site falls within an area identified as a CBA in the Gauteng Conservation Plan (Version 3.3), which is considered to be an irreplaceable habitat. During the site visit undertaken on 22 November 2018 by the Ecologist, is was confirmed that the CBA classification for the project site does not correspond to the real-world condition of the plant and animal species observed on-site, and therefore contributes poorly to the ecological function of the broader area. As such, development will not significantly impact the overall quantity and quality of the remaining CBA areas in the broader study area, should it be implemented. Overall, the site falls within an area considered to be of low ecological sensitivity due to the poor ecological condition of the site, and the absence of highly sensitive features such as drainage lines or other surface water features.

Was a specialist consulted to assist with completing this section	**YES**	

If yes complete specialist details

Name of the specialist:	Gideon Raath		
Qualification(s) of the specialist:	MSc (Geography and Environmental Management);, a BSc Honours (Ecology and Environmental Studies) and a BSc (Geography and Environmental Management)		
Postal address:	PO Box 148 Sunninghill		
Postal code:	2157		
Telephone:	011-656-3237	Cell:	n/a
E-mail:	gideon@savannahsa.com	Fax:	086-684-0547

Are any further specialist studies recommended by the specialist?		**NO**
If YES, specify:		
If YES, is such a report(s) attached?	YES	NO
If YES list the specialist reports attached below		

Signature of specialist:		Date:	

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

8. Land Use Character of Surrounding Area

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

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

NORTH

9	9	9	9, 20	9
9	9	9	9	9
1	1		1	9
1	1	1, 6	1	1
1	1	1	1	1

WEST EAST

SOUTH

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

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

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

Have specialist reports been attached	**YES**
If yes indicate the type of reports below	
Ecological Impact Assessment Report (refer to **Appendix G1**)	
Soil and Agricultural Potential Impact Assessment Report (refer to **Appendix G2**)	

9. Socio Economic Context

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

According to the 2011 Census data, 455 608 people are unemployed within the City of Ekurhuleni and 1 126 844 people are employed. The unemployment rate was identified to be 28.8%. The City of Ekuhuleni (CoE) economy is highly service-based with community services and government, financial services and manufacturing as the most significant sectors.

The CoE is classified as a Category A municipality, which means that the municipality governs major city regions. Approximately 23% of the economy consists of manufacturing, 22% of finance and business services, 19% of community services and 11% of transport. The diverse economy in the region accounts for almost a quarter of the province's economy and is often referred to as "Africa's Workshop". Key projects in the municipality include:

- Ekurhuleni Aerotropolis Development;
- Revitalisation of the manufacturing sector;
- Integrated Rapid Public Transport System (IRPTN);
- Digital City; and
- Revitalisation of township economies.

Regarding the education levels present within the area approximately 3.6% of people aged 20 years or more have received no education. Approximately 35.4% of people aged 20 years of older have a matric certificate. Approximately 14.6% of people age 20 years or older have a higher education.

The project site falls within Region E of the CoE which includes Brakpan, Tsakane and Duduza, mining land (active and closed), conservation areas, industrial development concentrated around Nigel and vacant/undeveloped and agricultural land. The area within which the project is proposed is surrounded by residential areas (i.e. Masetjaba View Township, Tsakane Township).

10. Cultural/Historical Features

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

All comments received from SAHRA will be included as **Appendix E7**.

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

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

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

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

(i) exceeding 5 000 m² in extent; or

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

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

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

(d) the re-zoning of a site exceeding 10 000 m² in extent; or

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

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

If YES, explain:

The PalaeoSensitivity Map available on SAHRIS indicates that the project site falls within a low palaeontological sensitivity area. No declared heritage sites have been identified within 20m or within the project site as per the SAHRA database. The chance of sites of palaeontological or archaeological significance being present within the affected property is considered to be low. In addition, the development will not change the charcter of the site, as it is located adajcent to similar infrastructure. Furthermore the development area is less that those areas triggering the requirement for a Heritage Impact Assessment (as detailed in Section 38(1) of the NHRA). Therefore, no palaeontological or heritage impact assessments were considered to be required. A protocol for finds is however required and has been included in **Appendix H**.

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

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

Will any building or structure older than 60 years be affected in any way?	**NO**
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	**NO**

If yes, please attached the comments from SAHRA in the appropriate Appendix

SECTION C: PUBLIC PARTICIPATION (SECTION 41)

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

The public participation process undertaken for the Masetjaba Reservoir, elevated tower and associated infrastructure at the existing Masetjaba View Reservoir has been undertaken in accordance with Chapter 6 of the EIA Regulations, 2014, as amended on 07 April 2017.

1. Local Authority Participation

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

The CoE Municipality is the applicant of this application and is therefore aware of the submission of the application to the Gauteng Department of Agriculture and Rural Development (GDARD).

Was the draft report submitted to the local authority for comment? **YES** [redacted]

This Basic Assessment Report has been submitted to all interested and affected parties including Organs of State and Key Stakeholders to ensure that all the relevant local authorities are provided with the opportunity to submit any comments or raise any concerns. Proof of distribution of the report to all interested and affected parties, including Organs of State and Key Stakeholders is included as **Appendix E4**.

If yes, have any comments been received from the local authority? [redacted] **NO**

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

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

Notification letters informing identified interested and affected parties (I&APs) of the project and inviting I&APs to register on the project database were distributed via email on 22 January 2019 (refer to **Appendix E2**). In addition, site notices were also placed on the project site boundary near the main gate and along the R550 on 22 November 2018 (refer to **Appendix E1**).

No comments have been received to date, however it is expected that comments from local authorities will be submitted during the 30-day review period. It should be noted that the CoE, the relevant local authority, is the applicant for this project.

2. Consultation with Other Stakeholders

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

Site notices were placed on the project site boundary near the main gate and along the R550 on 22 November 2018 to notify stakeholders of the project (refer to **Appendix E1**).

A notification letter has also been sent to all registered interested and affected parties to inform them of the application and the 30-day review period of the Basic Assessment Report. Details on the accessibility of the Basic Assessment Report were also included with instruction on how and where comments can be submitted. Refer to **Appendix E4** for proof.

Have any comments been received from stakeholders? **NO**

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

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

No comments have been received on this proposed project to date. All comments received during the review period of the Basic Assessment report, as well as responses provided will be captured and recorded within the Comments and Response Report attached as **Appendix E6** in the submission of the Basic Assessment Report.

3. General Public Participation Requirements

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

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

The public participation process has been undertaken in accordance with Chapter 6 of the EIA Regulations, 2014, as amended on 07 April 2017. Telephonic interviews in order to encourage comment regarding the project, and the undertaking of a focus group meeting with the adjacent landowners are considered be sufficient due to the location of the project within the existing Masetjaba View Reservoir site. The relevant ward councillor of Ward 87 has been notified of the project, but has not submitted any comment to date. The Comments and Responses Report (**Appendix E6**) will be updated to include any comments received during the 30-day review period and be submitted as part of the final Basic Assessment Report to GDARD.

4. Appendices for Public Participation

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

Appendices E1 to E9 include the specified public pariticipation appendices as listed below.

Appendix E1: Proof of site notice
Appendix E2: Written notices issued as required in terms of the regulations
Appendix E3: Proof of newspaper advertisements - *to be included in the final BAR*
Appendix E4: Communications to and from interested and affected parties
Appendix E5: Minutes of any public and/or stakeholder meetings
Appendix E6: Comments and Responses Report
Appendix E7: Comments from I&APs on Basic Assessment (BA) Report – *not applicable*
Appendix E8: Comments from I&APs on amendments to the BA Report – *not applicable*
Appendix E9: Copy of the register of I&APs

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SECTION D: RESOURCE USE AND PROCESS DETAILS

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

Instructions for completion of Section D for alternatives

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

Section D has been duplicated for alternatives **0** times (complete only when appropriate)

Section D Alternative No. **N/A** (complete only when appropriate for above)

1. Waste, Effluent and Emission Management

Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase? **YES**

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

Minimal – can be managed effectively through the management measures included in the EMPr (refer to **Appendix H**)

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

It is anticipated that construction waste will be comprised mainly of soil material from excavation activities. The construction waste generated by the construction of the Masetjaba Reservoir and associated infrastructure will be disposed of at an apporpriately licensed facilities.

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

In order to comply with legal requirements, the waste will be transported to the nearest registered waste disposal facility for appropriate disposal.

Will the activity produce solid waste during its operation phase? **NO**

If yes, what estimated quantity will be produced per month? m^3

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

N/A

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

This confirmation is not applicable as the Masetjaba Reservoir and associated infrastructure will not be generating any solid waste during the operation phase and therefore confirmation of capacity from the service provider is not required.

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

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

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

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

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

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

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

N/A

Liquid effluent (other than domestic sewage)

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

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

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

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

Will the activity produce effluent that will be treated and/or disposed of at another facility?		**NO**
If yes, provide the particulars of the facility:		

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

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

N/A

Liquid effluent (domestic sewage)

Will the activity produce domestic effluent that will be disposed of in a municipal sewage system?		**NO**
If yes, what estimated quantity will be produced per month?	m^3	
If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the domestic effluent to be generated by this activity(ies)?	YES	NO

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

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

Emissions into the atmosphere

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

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

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

During the construction phase, limited gaseous or particulate emissions are anticipated from exhaust emissions from construction vehicles and equipment on-site, as well as vehicle entrained dust from the movement of vehicles on the main and internal access roads.

2. Water Use

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

~~Municipal~~	~~Directly from water board~~	~~Groundwater~~	~~River, stream, dam or lake~~	**Other**	~~The activity will not use water~~

During the operation phase, water to the Masetjaba Reservoir will be supplied via a new booster pump located approximately 3.7km east of the project site and a new pipeline (to be known as DN450) which will enter the north eastern corner of the project site[4].

[4] This booster pump station and associated pipeline do not form part of this application.

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate
the volume that will be extracted per month: liters

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

Does the activity require a water use permit from the Department of Water Affairs?	**YES** [redacted]

If yes, list the permits required

Section 21 (c) and (i) water uses as per the National Water Act (Act No 36 of 1998) will be applicable for the development due to its location within the regulated area of a wetland (500m). A Water Use Licence Application (WULA) or General Authorisation (GA) registration application must be submitted to the Department of Water and Sanitation (DWS) in terms of the National Water Act and GN267.

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

3. Power Supply

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

The existing Masetjaba View Reservoir is currently being served by the municipality for its power supply. The proposed Masetjaba Reservoir and associated infrastructure will use the current supply available at the exising reservoir site. A standby generator will be utilised as and when required.

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

4. Energy Efficiency

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

N/A

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

No specific alternative energy resources have been taken into account for the development of the Masetjaba Reservoir, elevated tower and associated infrastructure.

SECTION E: IMPACT ASSESSMENT

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

1. Issues Raised By Interested and Affected Parties

Summarise the issues raised by interested and affected parties.

No issues have been raised by interested and affected parties to date. Focus group meetings will be held during the 30-day public review period. All comments raised during the 30-day review period of the Basic Assessment Report will be included and adressed in the final Basic Assessment Report and the comments and response report (**Appendix E6**) to be submitted to the competent authority.

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

No issues have been raised by interested and affected parties to date. All comments raised during the 30-day review period of the Basic Assessment Report will be included and adressed in the final Basic Assessment Report and the Comments and response report to be submitted to the competent authority.

2. Impacts That May Result From the Construction and Operation Phase

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

The following methodology was used in assessing impacts related to the proposed project. All impacts are assessed according to the following criteria:

- The **nature**, a description of what causes the effect, what will be affected, and how it will be affected.

- The **extent**, wherein it is indicated whether the impact will be local (limited to the immediate area or site of development), regional, national or international. A score of between 1 and 5 is assigned as appropriate (with a score of 1 being low and a score of 5 being high).

- The **duration**, wherein it is indicated whether:
  - The lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1;
  - The lifetime of the impact will be of a short duration (2-5 years) - assigned a score of 2;
  - Medium-term (5–15 years) – assigned a score of 3;
  - Long term (> 15 years) - assigned a score of 4; or;
  - Permanent - assigned a score of 5.

- The **magnitude**, quantified on a scale from 0-10, where a score is assigned:
  - 0 is small and will have no effect on the environment;
  - 2 is minor and will not result in an impact on processes;
  - 4 is low and will cause a slight impact on processes;

- 6 is moderate and will result in processes continuing but in a modified way;
- 8 is high (processes are altered to the extent that they temporarily cease); and
- 10 is very high and results in complete destruction of patterns and permanent cessation of processes.

» The **probability** of occurrence, which describes the likelihood of the impact actually occurring. Probability is estimated on a scale, and a score assigned:
- Assigned a score of 1–5, where 1 is very improbable (probably will not happen);
- Assigned a score of 2 is improbable (some possibility, but low likelihood);
- Assigned a score of 3 is probable (distinct possibility);
- Assigned a score of 4 is highly probable (most likely); and
- Assigned a score of 5 is definite (impact will occur regardless of any prevention measures).

- The **significance**, which is determined through a synthesis of the characteristics described above (refer formula below) and can be assessed as low, medium or high.
- The **status**, which is described as positive, negative or neutral.
- The degree to which the impact can be reversed.
- The degree to which the impact may cause irreplaceable loss of resources.
- The degree to which the impact can be mitigated.

The **significance** is determined by combining the criteria in the following formula:

S= (E+D+M) P; where

S = Significance weighting
E = Extent
D = Duration
M = Magnitude
P = Probability

The **significance** weightings for each potential impact are as follows:

- < **30 points**: Low (i.e. where this impact would not have a direct influence on the decision to develop in the area),
- **30-60 points**: Medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated),
- > **60 points: High** (i.e. where the impact must have an influence on the decision process to develop in the area)

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

Considering all the impacts identified and assessed, it is concluded that the construction activities of the Masetjaba Reservoir, elevated tower and associated infrastructure will result in negative and positive impacts. The construction phase impacts associated with the ecology are considered to be **negative**, and range from **Medium to Low**. The duration of the **negative** impacts are from medium-term to short-

term and local in extent. The impact on ecology identified to be associated with the operation of the infrastructure are considered to be **negative** and of **Medium to Low Significance**. The duration of the impact medium-term and are of local extent.

The impacts associated with the soil and agricultural potential which are considered to be **negative**, range from **Medium to Low**. The duration of the impacts are from long-term to short-term and are mostly local in extent.

The overall significance rating of the impacts associated with the development of the Masetjaba Reservoir, elevated tower and associated infrastructure is of a **low significance** with the implementation of mitigation measures.

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation / enhancement:	Significance rating of impacts after mitigation / enhnacement :	Risk of the impact and mitigation / enhancement not being implemented
Construction phase				
Loss of highly degraded Tsakane Clay Grassland	Medium Negative	» Since this vegetation type is listed as endangered, impacts must be kept to a minimum through the development and implementation of an EMPr, and the employment of an Environmental Control Officer (ECO) for the duration of construction. » Laydown areas and turning areas must be located in areas that have already been impacted or show evidence of degradation, such as the far left corner of the property (facing the existing storage unit). The ECO must identify such areas. » Vegetation clearing for the establishment of infrastructure must be kept to a minimum, by only clearing what is absolutely needed in order to further construction. » Vegetation impacted during the construction phase must be restored. » Topsoil must be stockpiled separately to subsoil. This is done to conserve the existing seedbank and aid in the restoration of natural grasslands during rehabilitation.	Low Negative	Medium risk as the entire project site consists of highly degraded Tsakane Clay Grassland.
Loss of Species of Conservation Concern	Low Negative	» Should any species of conservation concern be identified during excavation, these must be relocated or removed from the construction footprint by a qualified specialist prior to commencement of further activities. » In the event that species of conservation concern are identified during construction works, the relevant permits must be obtained from the relevant departments in order to remove such species prior to commencement of further activities.	Low Negative	Low risk as no species of conservation concern were identified within the project site.

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation / enhancement:	Significance rating of impacts after mitigation / enhnacement :	Risk of the impact and mitigation / enhancement not being implemented
Loss of floral and faunal biodiversity leading to a disruption of ecosystem function and processes	Low Negative	» Prohibit all employees from harvesting wild plants or hunting any animals on site; » Prohibit open fires; » Rehabilitate laydown areas immediately after they are no longer required; » Develop a short invasive management plan and implement during construction to ensure alien species do not invade disturbed or cleared areas; » An ECO must be employed during construction; » Laydown areas and turning areas must be located in areas that have already been impacted or show evidence of degradation, such as the far left corner of the property (facing the existing storage unit). The ECO or EO must identify such areas. » Vegetation clearing for the establishment of infrastructure must be kept to a minimum, by only clearing what is absolutely needed in order to further construction. » Vegetation impacted must be restored and the area rehabilitated. It is likely that this will occur naturally but given the presence of alien species active rehabilitation and the removal of alien species will be required to ensure that only indigenous species remain. » Topsoil must be stockpiled separately to subsoil.	Low Negative	Low risk due to the historical disturbance within the project site resulting in a low species diversity.
Poor control of alien plant species during construction leading to	Medium Negative	» An Alien Plant Monitoring and Management Plan must be developed and implemented during the construction phase to reduce the establishment and spread of undesirable alien plant species. » Alien plants must be removed from the site through appropriate methods for the specific species of concern, such as hand pulling, application of	Low Negative	Medium risk due to the existing presence of Alien Invasive species within the proejct site.

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation / enhancement:	Significance rating of impacts after mitigation / enhnacement :	Risk of the impact and mitigation / enhancement not being implemented
increasing invasive species presence		chemicals, cutting etc., on a regular basis during construction. Removal must occur prior to plants developing seeds.		
Increase in erosion due to vegetation clearance	Low Negative	» Any erosion observed as a result of the construction works should be rectified immediately and monitored thereafter to ensure interventions are successful. » All bare areas affected by the development should be re-vegetated with locally occurring species, to bind the soil and limit erosion potential. » Reinstate as much of the eroded area to its pre-disturbed, "natural" levels. » The gravel access road and other disturbed areas (laydown areas) should be regularly monitored for erosion occurrences and must receive follow-up monitoring by the EO to assess the success of erosion management. » Topsoil should be removed and stored separately from subsoil, and should be reapplied where appropriate as soon as possible in order to encourage and facilitate rapid regeneration of the natural vegetation on cleared areas. » Where feasible, phased development and vegetation clearing should be practiced so that cleared areas are not left denuded and vulnerable to erosion for extended periods of time.	Low Negative	Medium risk as the vegetation clearance will be required for the project.
Loss of Critical Biodiversity Areas due to vegetation clearance	Low Negative	» Prohibit all employees from harvesting wild plants or hunting any animals on site or in the surrounding areas. » Prohibit open fires. » Rehabilitate laydown areas immediately after they are no longer required. » Develop a short invasive management plan and implement during construction to ensure alien species do not invade disturbed or cleared areas.	Low Negative	Low risk due to the current status of the CBA within the project site.

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation / enhancement:	Significance rating of impacts after mitigation / enhnacement :	Risk of the impact and mitigation / enhancement not being implemented
		» An ECO must be employed during construction. » Laydown areas and turning areas must be located in areas that have already been impacted or show evidence of degradation, such as the far-left corner of the property (facing the existing storage unit). The ECO or EO must identify such areas. » Vegetation clearing for the establishment of infrastructure must be kept to a minimum, by only clearing what is absolutely needed in order to further construction. » Vegetation impacted must be restored and the area rehabilitated. It is likely that this will occur naturally but given the presence of alien species active rehabilitation and the removal of alien species will be required to ensure that only indigenous species remain. » Topsoil must be stockpiled separately to subsoil.		
Susceptibility to soil erosion	Medium Negative	» Land clearance must only be undertaken immediately prior to construction activities; » Unnecessary land clearance must be avoided; » Soil stockpiles must be dampened with dust suppressant or equivalent; » Geo-textiles must be used to stabilise soil stockpiles and uncovered soil surfaces during the construction phase and to serve as a sediment trap to contain as much soil as possible that might erode away; » Storm water must be managed according to the Storm Water Management Plan for the site to prevent erosion; and » Revegetate cleared areas as soon as possible after construction activities have been completed in an area.	Low Negative	Medium risk as the soil forms identified within the project site are prone to erosion.

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation / enhancement:	Significance rating of impacts after mitigation / enhnacement :	Risk of the impact and mitigation / enhancement not being implemented
Soil compaction	Medium Negative	» Areas of deliberate soil compaction for construction purposes must be kept as as small as possible; » Restrict movement and parking of vehicles and construction plant to a designated area.	Low Negative	Medium risk as the development require compaction of the soil surface.
Chemical pollution	Medium Negative	» High level maintenance must be undertaken on all vehicles and construction machinery at a designated place off site to prevent hydrocarbon spills; » The washing of vehicles or construction machinery on site must be prohibited in order to avoid any possible soil chemical pollution; » Should water be used on site for concrete mixing, any run-off water from this process or any spill of ready-mixed concrete should be contained and stored and removed from site to a municipal waste treatment facility; » Spills of fuel and lubricants from parked vehicles and equipment must be contained using a drip tray with plastic sheeting filled with adsorbent material; » Waste disposal at the construction site must be avoided by separating, trucking out and recycling of waste; » Potentially contaminating fluids and other wastes must be contained in containers stored on hard surface levels in bunded locations; and » Accidental spillage of potentially contaminating liquids and solids must be cleaned up immediately by trained staff with the correct equipment and protocols as outlined in the EMPr.	Low Negative	Medium risk due to the requirement of concrete mixing within the project site.
Loss of land capability	Low Negative	» Keep the project footprint as small as possible.	Low Negative	Low risk as the project site has a low to moderate land

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation / enhancement:	Significance rating of impacts after mitigation / enhnacement :	Risk of the impact and mitigation / enhancement not being implemented
				capacility which is suitable for grazing. However, the project site will not even be suitable to sustain the grazing of one head of cattle due to the extent of the project site.
Nuisance impacts including dust and noise during the construction phase	Low Negative	» Dust impacts must be mitigated through the implementation of appropriate dust suppression, as required.	Low Negative	Medium risk due to the amount of excavation required for the reservoir and associated infrastructure.
Limited employment opportunities during the construction phase	Low Positive	» A local employment policy should be adopted to maximise opportunities made available to the local labour force.	Low Positive	No risk due to positive impact.
Operation Phase				
Poor control of alien plant species leading to	Medium Negative	» An Alien Plant Monitoring and Management Plan must be developed and implemented during the operational phase to reduce the establishment and spread of undesirable alien plant species.	Low Negative	Medium risk due to the the existing presence of alien plant species within the project site.

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation / enhancement:	Significance rating of impacts after mitigation / enhnacement :	Risk of the impact and mitigation / enhancement not being implemented
increasing invasive species presence.		» Ongoing monitoring should be conducted by the site manager to ensure problem-areas are identified where alien species are proliferating, and to inform the control efforts throughout the operational phase. » Alien plants must be removed from the site through appropriate methods for the species of concern (such as hand pulling, application of chemicals, cutting etc.) on a regular basis during operation. Removal must occur prior to plants developing seeds.		
Susceptibility to soil erosion and increase in run-off	Medium Negative	» Storm water must be managed according to the Storm Water Management Plan for the site to prevent erosion. This includes provisions for storm water run-off from the roof and overflow from the reservoir weir and the scour wedge gate valve draining the reservoir.	Low Negative	Medium risk as the soil forms identified within the project site are prone to erosion.
Soil compaction as a result of maintenance vehicles	Medium Negative	» Restrict vehicle movement associated with maintenance during the operational phase to the access road.	Low Negative	Low risk as compaction may only occur during maintenance activities.
Chemical pollution	Medium Negative	» Spills of fuel and lubricants from parked maintenance vehicles and equipment must be contained using a drip tray with plastic sheeting filled with adsorbent material; » Waste disposal at the project site must be avoided by separating, trucking out and recycling of waste; » Potentially contaminating fluids and other wastes must be contained in containers stored on hard surface levels in bunded locations; and	Low Negative	Low risk as chemical pollution may only occur during maintenance activities.

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation / enhancement:	Significance rating of impacts after mitigation / enhnacement :	Risk of the impact and mitigation / enhancement not being implemented
		» Accidental spillage of potentially contaminating liquids and solids must be cleaned up immediately by trained staff with the correct equipment and protocols as outlined in the EMPr.		
Improved water supply to the Masetjaba Reservoir 1 Zone	Medium Positive	» Implementation of the project has been determined as the best solution to address this.	Medium Positive	No risk due to positive impact.

xx

Alternative 1 *(REPEAT THIS TABLE FOR EACH ALTERNATIVE)*

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

No Go Alternative

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Poor control of alien plant species during operation of	Medium Negative	» An Alien Monitoring and Management Plan must be developed and implemented during the operational phase to reduce the establishment and spread of undesirable alien plant species.	Low Negative	Medium risk due to the the presence of alien invasive plant species

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation / enhancement:	Significance rating of impacts after mitigation / enhnacement :	Risk of the impact and mitigation / enhancement not being implemented
the existing reservoir will lead to an increasing invasive species presence on site, as well as regulatory liability for their control		» Ongoing monitoring should be conducted by the site manager to ensure problem-areas are identified where alien species are proliferating, and to inform the control efforts throughout the operational phase. » Alien plants must be removed from the site through appropriate methods such as hand pulling, application of chemicals, cutting etc., on a regular basis during operation. Removal must occur prior to plants developing seeds.		present within the project site.
Poor control of fires on site, initiated by the ongoing burning of waste adjacent to the site, will alter the species composition and richness of the existing vegetation and continue to degrade the ecological function and processes on site.	Medium Negative	» Prepare seasonal firebreaks around the facility to reduce incidences of fire spreading onto the property.	Low Negative	Medium risk due to burning activities adjacent to the project site.
Lost opportunity for adequate and reliable water	High Negative	The current water supply at the existing Masetjaba Reservoir will have to be appropriatley managed and maintained to ensure water supply.	Low Negative	Low risk due to the location of the development in close

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation / enhancement:	Significance rating of impacts after mitigation / enhnacement :	Risk of the impact and mitigation / enhancement not being implemented
supply to the Masetjaba Reservoir Zone 1 and water supply to future developments of the Tsakane Township		Implementation of the project has been determined as the best solution to address this.		proximity to the Masetjaba Reservoir 1 Zone and the area where future extensions of Tsakane Township are planned.

The no-go (or do nothing) alternative will result in future development of the Tsakane Township not having water supply. The no-go alternative will also lead to the continuation of a low pressure water supply at the Masetjaba Reservoir 1 Zone, which impacts on the water supply to the local area. This would result in negative impacts at a local and regional scale from a socio-economic perspective and is not considered desirable.

The no-go option allows for two ongoing impacts of medium severity, which may be reduced to low via management intervention should this project proceed. This includes the poor control of alien plant species currently on the project site and the poor control of fire initiated by the ongoing burning of waste adjacent to the site. The development of the project represents a means to reduce invasive species presence and improve fire management of the project site (provided mitigation measures are strictly and effectively implemented) and may therefore serve to preserve the current poor ecological functioning of the site in the long term.

The opportunities presented by the development will be lost if the no-go alternative is applied, and is therefore not considered desirable for the project. The negative impacts of the no-go alternative are considered to outweigh the positive impacts of this alternative.

The no-go alterative is an undesirable option for the project as it will result in a lost opportunity for sufficient water supply at existing and future residential developments. **The 'No-Go' alternative is, therefore, not a preferred alternative.**

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

» Ecological Impact Assessment Report (refer to **Appendix G1**); and
» Soil and Agricultural Potential Impact Assessment Report (refer to **Appendix G2**)

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

The following assumptions and limitations are applicable to this Basic Assessment Process:
» All information provided by the proponent to the environmental team was correct and valid at the time it was provided.
» It is assumed that the project site identified by the proponent represents a technically suitable site for the establishment of the proposed Masetjaba Reservoir, elevated tower and associated infrastructure.
» This report and its investigations are project-specific, and consequently the environmental team did not evaluate any other alternatives in terms of location and technology.

3. Impacts That May Result From the Decommissioning and Closure Phase

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

Impacts associated with the decommissioning of the infrastructure on site are expected to be similar to impacts associated with the construction phase. During decommissioning the relevant legislation at the time would need to be complied with. All areas disturbed during decommissioning activities will be required to be rehabilitated as appropriate.

Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact and mitigation not being implemented**
Loss of floral and faunal biodiversity from poor rehabilitation efforts during closure, leading to a disruption of ecosystem function and processes.	Low Negative	» Design and implement a rehabilitation plan for the decommissioning phase; » Implement an alien invasive monitoring and management plan for the decommissioning phase. » If laydown areas and turning areas are required, these must be	Low Negative	Low risk due to the historical disturbance within the project site resulting in a low species diversity.

		sited in areas that have already been impacted or show evidence of degradation.		
Increased erosion due to the removal of infrastructure.	Low Negative	» Any erosion observed as a result of the project should be rectified immediately and monitored thereafter to ensure interventions are successful. » All bare areas, affected by the development, should be re-vegetated with locally occurring species, to bind the soil and limit erosion potential. » Reinstate as much of the eroded area to its pre-disturbed, "natural" levels as possible. » The gravel access road and other disturbed areas (laydown areas) should be regularly monitored for erosion occurrences and must receive follow-up monitoring by the EO to assess the success of the erosion control meausres. » Topsoil should be removed and stored separately and should be reapplied where appropriate as soon as possible in order to encourage and facilitate rapid regeneration of the natural vegetation on cleared areas. » Where feasible, phased development and vegetation clearing	Low Negative	Medium risk as the vegetation clearance will be required for the project.

		should be practiced so that cleared areas are not left denuded and vulnerable to erosion for extended periods of time.		
Nuisance impacts including dust and noise during the decomissioning phase	Low Negative	Dust impacts must be mitigated through the implementation of appropriate dust suppression, as required.	Low Negative	Medium risk due to the amount of excavation required for the reservoir and associated infrastructure.
The generation of waste assciated with decommissioning	Low Negative	All decomissioning waste is to be disposed of at a licensed facility and the disposal is to be supported with a waste manifest.	Low Negative	Low risk due to the location of the project within the boundaries of the existing Masetjaba View Reservoir site.

Alternative 1

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

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

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

4. Cumulative Impacts

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

This Basic Assessment includes an assessment of the cumulative impacts associated with the 15ML Masetjaba Reservoir, 2ML elevated tower and associated infrastructure, Gauteng.

Cumulative impacts, in relation to an activity, refer to the impact of an activity that in-itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area. For cumulative effects analysis to help the decision-maker and inform interested parties, it must be limited to effects that can be evaluated meaningfully (DEAT, 2004). Boundaries must be set so analysts are not attempted to measure effects on everything. Therefore, the cumulative impacts associated with the Masetjaba Reservoir and associated infrastructure have been viewed from two perspectives within this report:

- Cumulative impacts associated with the location and nature of the project i.e. a water reservoir located within the existing Masetjaba View Reservoir 1 site, Gauteng;
- Cumulative impacts associated with other existing developments and disturbances within the surrounding area.

The larger area to the north, north west and north east of the project site consists of large residential and human settlements. In addition to this, the town of Nigel located approximately 6.1km south east has several businesses, industries and mining areas within the municipal boundaries. Other infrastructure in close proximity to the project site includes the Masetjaba View Township, the R550 regional road, main roads, power line infrastructure and the existing Masetjaba View Reservoir (located within the project site).

Ecology:

Cumulative ecological impacts will relate to the loss of biodiversity and conservation potential, loss of CBAs and broad-scale ecological processes and large scale disturbance of indigenous vegetation. Considering the existing water infrastructure (i.e., the existing Masetjaba View Reservoir within the project site), other development infrastructure (i.e. Masetjaba View Township, Tsakane Township, roads, power lines), the development will not set a further development precedent in the broader Tsakane area. Some loss of biodiversity is inevitable, and cannot be avoided, however the vegetation on site has a low sensitivity and conservation value, and contributes very little to the ecological function (and CBA) of the broader study area. Cumulative loss of conservation potential as a result of the project is therefore regarded as medium taking into account other likely developments/disturbances within the broader study area. The cumulative impact on ecology is considered to be of **medium significance**. The cumulative impacts are deemed acceptable considering the existing poor ecological condition of the site, and the broader character of the area (i.e. already developed and highly degraded).

Soil and Agricultural Potential:

The proposed Masetjaba Reservoir, elevated tower and associated infrastructure will be located within the confines of the fenced-off area of the existing Masetjaba View Reservoir. The development is not considered to add any significant cumulative impacts to the area from a soil and agricultural potential perspective. There will be a reduction in grazing land capability (although the project site is currently not used for grazing purposes) in the area. The cumulative impact on land capability is considered to be of **low significance**. In addition to this, there will be an increased risk for soil erosion when vegetation is removed and possible pollution of soil resources within the surrounding area. The cumulative impact associated with the increase of compacted soil, the increase in the susceptibility to soil erosion and an increased risk to soil pollution is considered to be of **medium significance**.

These impacts can be reduced by keeping the footprints minimised where possible and strictly following soil management measures pertaining to erosion control and management and monitoring of any possible soil pollution sources such as vehicles.

Conclusion:
Overall, the development of the Masetjaba Reservoir, elevated tower and associated infrastructure will not lead to a whole-scale change of the area due to the current state of the surrounding area. The development will also not significantly add to the current impacts of the existing Masetjaba View Reservoir and other developments in the area. Therefore, the development of the Masetjaba Reservoir, elevated tower and associated infrastructure is considered appropriate within the proposed location without any significant cumulative impacts. The cumulative impacts both within and outside of the boundaries of the existing Masetjaba View Reservoir site are considered to be of **moderate to low significance**, depending on the impact being considered. Therefore, the development is considered appropriate and acceptable within the proposed location.

5. Environmental Impact Statement

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

This section provides a summary of the environmental assessment and conclusions drawn for the development of the project at the existing Masetjaba View Reservoir site, and which will be developed in response to the supply demand for water at a higher pressure and for future developments planned for the Tsakane Township. In doing so, it draws on the information gathered as part of the Basic Assessment process and the knowledge gained by the environmental consultant during the course of the process, and presents an informed opinion of the environmental impacts associated with the proposed project. The following conclusions can be drawn from the Basic Assessment:

Ecology:
At present, the site is deemed highly disturbed due to current vegetation and faunal habitat quality, as well as the ongoing disturbance through fires, invasive species, adjacent grazing and illegal dumping near or on the project site. The site has also only recently been fenced, and has historically been subject to grazing and frequent fires, as well as footpaths and other impacts due to the close proximity of the site to nearby human settlements. No sensitive species of conservation concern were observed on site, with the remainder of the species observed are regarded as least concern in terms of their conservation status. Overall the ecological contribution of the site was deemed to be low, with no sensitive species observed and few ecological process areas and habitat due to the small size and highly disturbed character of the proposed site.

The entire project site is located within an area considered to be of low ecological sensitivity. This is primarily due to the very low ecological function of the project site, the highly degraded nature of the project site, low species richness, low conservation classification of plant and animal species, small extent of the project site and the absence of highly sensitive features such as drainage lines or other surface water features. The CBA classification for the project site does not correspond to the real-world condition

of the plant and animal species observed on site, and therefore contributes poorly to the ecological function of the broader area. As such, the site is not deemed a functional CBA, as confirmed by the site assessment results included in the Ecological Impact Assessment (refer to **Appendix G1**).

During the construction phase, the impacts expected to occur include impacts on vegetation communities and listed protected plant species, loss of biodiversity and ecosystem function, faunal impacts, an increased erosion risk, loss of CBAs and increased alien plant invasion. The significance of the construction phase impacts will be low, following the implementation of the recommended mitigation measures by the specialist. No impacts of a high significance were identified prior to the implementation of mitigation.

During the operation phase, the anticipated impact relates to the potential increase of alien plant invasion. The significance of the impacts for the operation phase will be low, following the implementation of the recommended mitigation measures by the specialist. No impacts of a high significance were identified for the project.

The ecological impacts of all aspects for the proposed project were assessed and considered to be ecologically acceptable (i.e. no fatal flaws were determined), provided that the mitigation measures provided are implemented. Implementation of recommended mitigation measures is an important element of the mitigation strategy and will reduce all identified impacts to low negative.

Soil and Agricultural Potential:

The proposed Masetjaba Reservoir, elevated tower and associated infrastructure is located on small portion of shallow, rocky soils with low-moderate land capability. The site has grazing land capability that is too small to be a viable unit for livestock farming. The soil of the project site is not suitable for rain-fed agriculture and even though it may have some suitability for irrigated crop production, there is no irrigation water or infrastructure available The soil chemistry indicates low pH and low inherent fertility that will require amendment should crop production ever be considered in this soil. The project site is considered to be of low sensitivity from a soil, land capability and agricultural potential perspective. There are no prominent hydromorphic soil units that expresses pronounced hydromorphic properties.

Impacts have been identified for both the construction and operation phases for the Masetjaba Reservoir, elevated tower and associated infrastructure (**Appendix G2**). The impacts associated with land use, soil and agricultural potential include an increased risk of soil erosion, potential chemical pollution and loss of land capability. The significance of the impacts will be low with the implementation of the mitigation measures recommended by the specialist. The specialist has therefore indicated that the development may be authorised, constructed and operated, subject to the implementation of the recommended mitigation measures. The construction and operation of the project on the project site is considered acceptable from a soils perspective and will have no impact on food production in the area.

The positive impacts relate to the limited creation of direct and indirect employment opportunities and skills transfer during the construction phase of the project. The fact that the development will take place within an area which has been already been subjected to disturbance is also considered to be a positive impact.

Cumulative Impacts:

Overall, the development of the Masetjaba Reservoir, elevated tower and associated infrastructure will not lead to a whole-scale change of the area due to the current state of the surrounding area. The development will also not significantly add to the current impacts of the existing Masetjaba View Reservoir and other developments in the area. Therefore, the development of the Masetjaba Reservoir, elevated tower and associated infrastructure is considered appropriate within the proposed location without any significant cumulative impacts. The cumulative impacts both within and outside of the boundaries of the existing Masetjaba View Reservoir site are considered to be of **moderate to low significance**, depending on the impact being considered. Therefore, the development is considered appropriate and acceptable within the proposed location.

Conclusion:

Based on the findings of the studies undertaken, in terms of environmental constraints and opportunities identified through the Basic Assessment process, no environmental fatal flaws were identified to be associated with the development of the Masetjaba Reservoir, elevated tower and associated infrastructure. The development of the project will result in positive impacts and negative impacts. Impacts are expected to be **low** after the implementation of appropriate mitigation measures (as recommended in this report and the EMPr attached within **Appendix H**). It is recommended that the proposed project be implemented to provide adequate and reliable water supply to the local area. Considering the information available at this planning stage in the project cycle, the confidence in the environmental assessment undertaken is regarded as acceptable.

As South Africa faces challenges of rapidly deteriorating infrastructure for those who already have water and those who currently lack water supply, the need for the project in terms of new and improved water supply for the area surrounding the project site is considered to be high and desirable. The installation of the Masetjaba Reservoir, elevated tower and associated infrastructure will provide an adequate and reliable water supply for current and future developments within the surrounding area, while also creating employment opportunities during construction.

The project is considered the best practicable environmental solution as the development will provide reliable water supply at a high pressure to the Masetjaba Reservoir 1 Zone and an adequate supply to future extensions of the Tsakane Township planned by the CoE.

Alternative 1

No-go (compulsory)

The no-go (or do nothing) alternative will result in future development of the Tsakane Township not having water supply. The no-go alternative will also lead to the continuation of a low pressure water supply at the Masetjaba Reservoir 1 Zone, which impacts on the water supply to the local area. This would result in negative impacts at a local and regional scale from a socio-economic perspective and is not considered desirable.

The no-go option allows for two ongoing impacts of medium severity, which may be reduced to low via management intervention should this project proceed. This includes the poor control of alien plant species currently on the project site and the poor control of fire initiated by the ongoing burning of waste adjacent

to the site. The development of the project represents a means to reduce invasive species presence and improve fire management of the project site (provided mitigation measures are strictly and effectively implemented) and may therefore serve to preserve the current poor ecological functioning of the site in the long term.

The opportunities presented by the development will be lost if the no-go alternative is applied, and is therefore not considered desirable for the project. The negative impacts of the no-go alternative are considered to outweigh the positive impacts of this alternative.

The no-go alterative is an undesirable option for the project as it will result in a lost opportunity for sufficient water supply at existing and future residential developments. **The 'No-Go' alternative is, therefore, not a preferred alternative.**

6. Impact Summary of the Proposal or Preferred Alternative

The overall significance rating of the impacts of the proposed development during the construction and operation phases is of a **low significance** with the implementation of mitigation. The **positive impacts** associated with the operation will be of a **moderate to low significance**. The significance of the impact is primarily due to the control of existing alien plant species located within the project site, the implementation of effective fire control mechanisms as well as temporary employment opportunities.

Cumulative impacts associated with the development of the Masetjaba Reservoir, elevated tower and associated infrastructure are considered to be of a **moderate to low significance**. The site is located within an area already disturbed by existing infrastructure. The development of the Masetjaba Reservoir, elevated tower and associated infrastructure will not lead to a whole-scale change of the area due to the current state of the surrounding area and the existing developments present in the area. The development will also not significantly add to the current impacts of the existing Masetjaba View Reservoir. Therefore, the development of the Masetjaba Reservoir, elevated tower and associated infrastructure is considered appropriate within the proposed location without any significant cumulative impacts.

The impacts expected during the construction phase range from medium-term to short-term and of a local extent. The magnitude of the impacts will range from moderate to small. The impacts expected during the operation phase will be of a medium-term duration and of a local extent. The magnitude of the impacts will range from moderate to small.

For alternative:

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

For the development of the project only preferred alternatives have been assessed due to the project-specific nature of the Masetjaba Reservoir, elevated tower and associated infrastructure. The location of the project mainly relates to the specific requirements at Masetjaba View Township (i.e. increased water pressure), water supply for future extensions of Tsakane planned by the CoE and space availability close to these areas which are also in line with the propose land use. The specific technology required (i.e. storing of water within a reservoir and the storing of water within an elevated tower) have been identified

as the only feasible alternatives for the development. No sensitive environmental features were identified within the project site.

7. Spatial Development Tools

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

- According to the **Gauteng Spatial Development Framework (GSDF) (2030)** the CoE has the second highest demand for housing in the Gauteng Province. The demand for housing will also result in the need for reliable water supply. Furthermore, to realise the GSDF's vision, all developments in the province need to adhere to six spatial development principles of which liveability is one. Liveability lead to the creation of settlements in which people live their lives in a way that is worthy of 'being human' in the fullest sense of the phrase, and enables contentment, personal growth and healthy social interaction. A reliable supply of water will contribute to this principle.

- The **Gauteng Regional Spatial Development Framework (RSDF) (2015)** locates the project site in Region E of the CoE. The RSDF presents a clear strategic vision for the future spatial growth within Region E. The project site is located within the urban boundary proposed for 2030. It is the aim of CoE that no further development will be allowed outside of the urban boundary in order to achieve a sustainable compact city in the interest of all its citizens. While the Masetjaba View Reservoir has spare capacity, it is expected that areas within the urban boundary will be subject to future developments which will require a reliable water supply.

- Approximately 50% of the project site occurs within a CBA considered to be an irreplacable habitat as per the **Gauteng Conservation Plan** (C-Plan) (Version 3). During the site survey undertaken by the Ecologist on 22 November 2018, it was confirmed that the animal and plant species identified within the site do not reflect a CBA and contributed little to the ecogical function of the area. Therefore, the development is expected to have little to no lasting negative impact on the current CBA classification of the project site and surrounding area.

8. Recommendation of the Practitioner

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the Environmental Assessment Practitioner as bound by professional ethical standards and the code of conduct of EAPASA).	**YES**

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

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

It is the recommendation of the environmental consultant that the development of the Masetjaba Reservoir, elevated tower and associated infrastructure be authorised, constructed and operated due to

the positive impacts associated with the development, as well as the low negative impacts arising for the implementation of the project.

The construction and operation of the project should be implemented according to the specifications of the EMPr to ensure mitigation and management of potential impacts associated with construction and operation activities. The activities should be monitored against the approved EMPr, the Environmental Authorisation (once issued) and all other relevant environmental legislation. Relevant conditions to be adhered to include:

- All mitigation measures recommended within this report ansd associated appendices should be implemented and adhered to.
- An ECO must be employed during construction.
- The relevant permits must be obtained from the relevant departments in order to remove animal species of conservation concern prior to commencement of activities, should any be found on site.
- An Alien Plant Monitoring and Management Plan must be developed and implemented during the construction phase and operation phase to reduce the establishment and spread of undesirable alien plant species.
- An appropriate Storm Water Management and Erosion Plan should be compiled and implemented during the construction phase and operation phase of the development.

9. The Need and Desirability of the Proposed Development

The need and desirability of the proposed Masetjaba Reservoir, elevated tower and associated infrastructure must be undertaken as per notice 792 of 2012.

According to the Regional Spatial Development Framework (RSDF): Region E (2015) the CoE is faced with growing urban areas and growing peripheral residential nodes, comprising both formal and informal residential structures. As a result, existing water supply systems will become strained as the demand increases. In a water scarce country, water is major vulnerability for human settlements.

The South African Government released a media statement on 13 November 2015 (www.gov.za) on the scarcity of water in the country. The increasing severity of the drought conditions is impacting negatively on the country in both social and economic terms. South Africa is a water scarce country and ranks as one of the 30 driest countries in the world with an average rainfall of about 40% less than the annual world average rainfall. South Africa has an average annual rainfall of less than 500 mm. Apart from the need to deliver piped water to the approximately 4,5 million people who currently lack it, South Africa faces challenges of rapidly deteriorating infrastructure for those who already have water (RSDF, 2015).

The purpose of the project is to supply water to a new reservoir zone consisting of future developments and a small section of network that is currently being supplied from the existing Zulu Water Tower (refer to **Figure 7**). The new zone will be located on the southern boundary of Brakpan and will include most future developments of the Tsakane Township and its associated extensions, i.e. Tsakane X7, Tsakane X6a, Tsakane X6b and Tsakane X. These future developments will include approximately 6068 residential units which will require adequate water supply, especially during peak usage periods.

Naidu Consulting (Pty) Ltd undertook a verification of the 2018 supply demand for the new Masetjaba Reservoir 2 Zone and determined that the current demand for this zone is 2.762ML/day. An estimated future

annual average daily demand (AADD) of 7.282ML/day is expected to be required. The ultimate demand for the area will therefore be 10.043Ml/day.

The Masetjaba Reservoir Zone 1 located on the south western boundary of Nigel is being supplied via the Pieter Wessels pump station. This zone currently experiences low pressure problems due to insufficient static head between the reservoir's top water level and the supply network. In order to improve the water supply in this zone, the CoE is proposing a 2ML elevated tower.

Considering the current and future demand for water supply in the area surrounding the project site and the fact that access to clean water is a fundamental human right, an adequate and reliable water supply to these areas is critical.

Therefore, the need for the project in terms of new and improved water supply for the area surrounding the project site is considered to be high and desirable. The installation of the Masetjaba Reservoir, elevated tower and associated infrastructure will provide an adequate and reliable water supply for current and future developments.

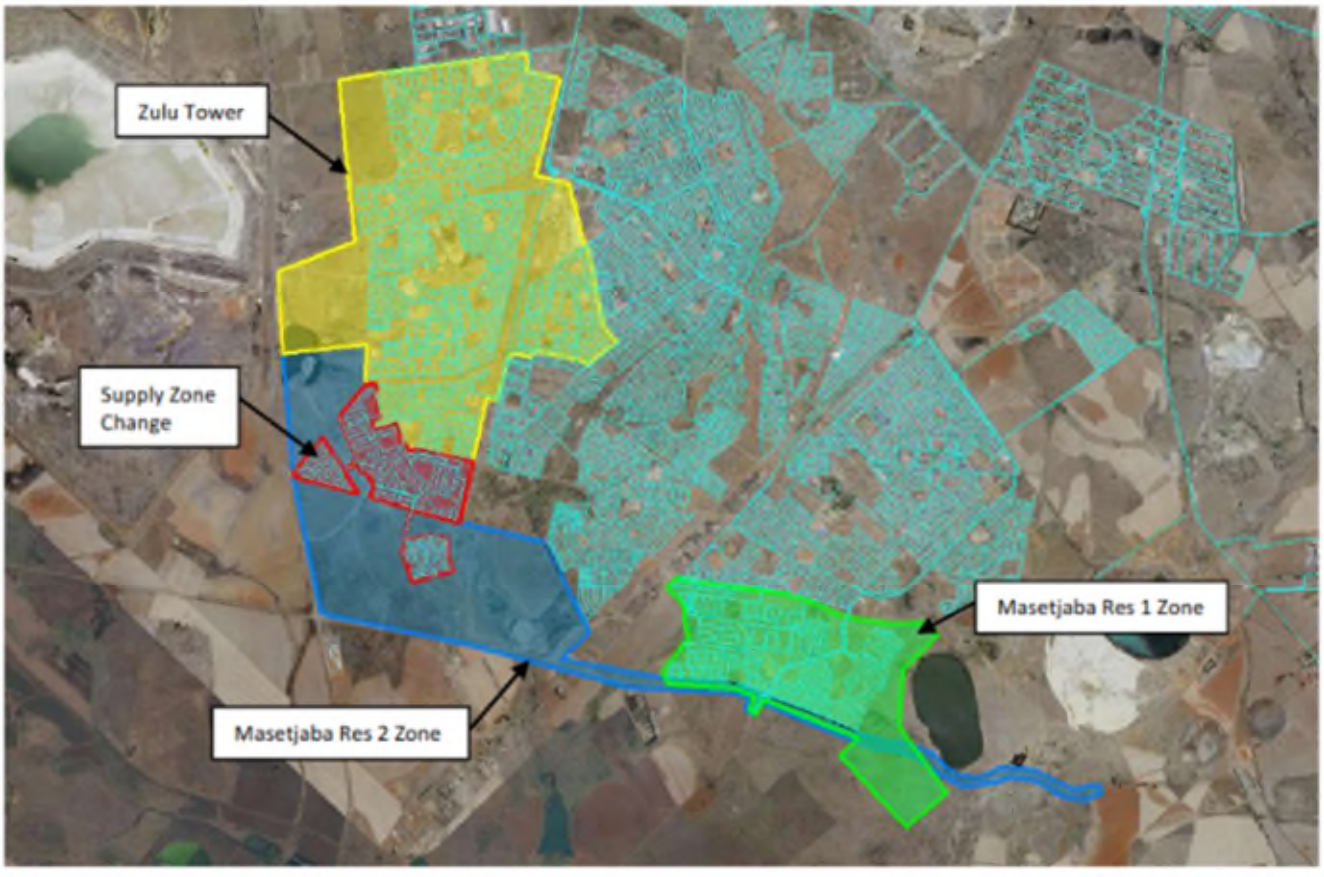

Figure 7: Illustration of the water supply areas surrounding the project site. The proposed Masetjaba Reservoir will supply water to the area demarcated as "Masetjaba Res 2 Zone" as well as the "Supply Zone Change" area currently being supplied by the Zulu Tower (Naidu Consulting, 2018). The elevated tower will supply water to the area demarcated as "Masetjaba Res 1 Zone".

10. The Period for Which the Environmental Authorisation Is Required

Consider when the activity is expected to be concluded.

Construction is envisaged to commence shortly after receipt of the Environmental Authorisation. Construction will take ~15 months and then operation will commence directly after the completion of the construction phase. Construction activities are expected to be concluded in the first quarter of 2020.

11. Environmental Management Programme (EMPr)

Must include post construction monitoring requirements and when these will be concluded.
If the EAP answers "Yes" to Point 8 above then an EMP is to be attached to this report as an Appendix

EMPr attached	**YES**

SECTION F: APPENDICES

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

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

Appendix A: Site plan(s)
Appendix A1: Locality Map
Appendix A2: Layout Map
Appendix A3: Sensitivity Map
Appendix A4: Sensitivity Map of the broader area Sensitivities
Appendix A5: Project Coordinates
Appendix A6: SG numbers for properties within 50m
Appendix B: Photographs
Appendix C: Facility Illustration
Appendix D: Route Position Information - *not applicable*
Appendix E: Public Participation Information
Appendix E1: Proof of site notice
Appendix E2: Written notices issued as required in terms of the regulations
Appendix E3: Proof of newspaper advertisements - *to be included in the final BAR*
Appendix E4: Communications to and from interested and affected parties
Appendix E5: Minutes of any public and/or stakeholder meetings
Appendix E6: Comments and Responses Report
Appendix E7: Comments from I&APs on Basic Assessment (BA) Report - *not applicable*
Appendix E8: Comments from I&APs on amendments to the BA Report - *not applicable*
Appendix E9: Copy of the register of I&APs
Appendix F: Water use license(s) authorisation, SAHRA information, service letters from municipalities, water supply information - *not applicable*
Appendix G: Specialist Reports - *not applicable*
Appendix H: Environmental Management Programme (EMPr)
Appendix A: Maps
Appendix B: Grievance Mechanism for Public Complaints and Issues
Appendix C: Alien Plant and Open Space Management Plan
Appendix D: Storm Water and Erosion Management Plan
Appendix E: Fire Management Plan
Appendix F: Project team CVs
Appendix I: Other information (EAP Declaration, Affirmation and CVs)

CHECKLIST

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

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