TGM ENVIRONMENTAL SERVICES

# FINAL BASIC ASSESSMENT REPORT

FOR

## PROPOSED MONTANA SPRUIT CHANNEL IMPROVEMENT – PHASE 1

**REF: GAUT 002/19-20/E0055**

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**October 2019**

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# DEFINITIONS

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| **Activity (Development)** | An action either planned or existing that may result in environmental impacts through pollution or resource use. For the purpose of this report, the terms 'activity' and 'development' are freely interchanged. |
| **Alternatives** | Different means of meeting the general purpose and requirements of the activity, which may include site or location alternatives; alternatives to the type of activity being undertaken; the design or layout of the activity; the technology to be used in the activity and the operational aspects of the activity. |
| **Applicant** | The project proponent or developer responsible for submitting an environmental application to the relevant environmental authority for environmental authorisation. |
| **Biodiversity** | The diversity of animals, plants and other organisms found within and between ecosystems, habitats, and the ecological complexes. |
| **Construction** | The building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity but excludes any modification, alteration or expansion of such a facility, structure or infrastructure and excluding the reconstruction of the same facility in the same location, with the same capacity and footprint. |
| **Cumulative impact** | 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. |
| **Decommissioning** | The demolition of a building, facility, structure or infrastructure. |
| **Direct Impact** | Impacts that are caused directly by the activity and generally occur at the same time and at the same place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally quantifiable. |
| **Ecosystem** | A dynamic system of plant, animal (including humans) and micro-organism communities and their non-living physical environment interacting as a functional unit. The basic structural unit of the biosphere, ecosystems are characterised by interdependent interaction between the component species and their physical surroundings. Each ecosystem occupies a space in which macro-scale conditions and interactions are relatively homogenous |
| **Environment** | In terms of the National Environmental Management Act (NEMA) (No 107 of 1998)(as amended), "Environment" means the surroundings within which humans exist and that are made up of:<br>a) the land, water and atmosphere of the earth;<br>b) micro-organisms, plants and animal life;<br>c) any part or combination of (i) of (ii) and the interrelationships among and between them; and<br>d) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing. |
| **Environmental Assessment** | The generic term for all forms of environmental assessment for projects, plans, programmes or policies and includes methodologies or tools such as environmental impact assessments, strategic environmental assessments and risk assessments. |
| **Environmental Authorisation** | An authorisation issued by the competent authority in respect of a listed activity, or an activity which takes place within a sensitive environment.] |

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| **Environmental Assessment Practitioner (EAP)** | The individual responsible for planning, management and coordination of environmental impact assessments, strategic environmental assessments, environmental management programmes or any other appropriate environmental instrument introduced through the EIA Regulations. |
| **Environmental Management** | Ensuring that environmental concerns are included in all stages of development, so that development is sustainable and does not exceed the carrying capacity of the environment. |
| **Environmental Management Programme (EMPr)** | A detailed plan of action prepared to ensure that recommendations for enhancing or ensuring positive impacts and limiting or preventing negative environmental impacts are implemented during the life cycle of a project. This EMPr focuses on the construction phase, operation (maintenance) phase and decommissioning phase of the proposed project. |
| **Environmental Impact** | Change to the environment (biophysical, social and/ or economic), whether adverse or beneficial, wholly or partially, resulting from an organisation's activities, products or services. |
| **Environmental Issue** | A concern raised by a stakeholder, interested or affected parties about an existing or perceived environmental impact of an activity. |
| **Fatal Flaw** | Issue or conflict (real or perceived) that could result in developments being rejected or stopped. In the context of an environmental impact assessment a fatal flaw can be termed as an environmental issue that cannot be mitigated by any means |
| **General Waste** | Household waste, construction rubble, garden waste and certain dry industrial and commercial waste, which does not pose an immediate threat to man or the environment. |
| **Groundwater** | Water in the ground that is in the zone of saturation from which wells, springs, and groundwater run-off are supplied. |
| **Hazardous Waste** | Waste that may cause ill health or increase mortality in humans, flora and fauna. |
| **Hydrology** | The science encompassing the behaviour of water as it occurs in the atmosphere, on the surface of the ground, and underground. |
| **Important areas** | Sites that are important for the conservation of biodiversity in Gauteng; (Gauteng C-Plan Version 3) |
| **Indirect Impacts** | Indirect or induced changes that may occur as a result of the activity. These types if impacts include all of the potential impacts that do not manifest immediately when the activity is undertaken or which occur at a different place as a result of the activity. |
| **Interested and Affected Party (I&AP)** | Any person, group of persons or organisation interested in or affected by an activity; and any organ of state that may have jurisdiction over any aspect of the activity. |
| **Irreplaceable areas** | Sites, which are essential in meeting targets set for the conservation of biodiversity in Gauteng; (Gauteng C-Plan Version 3) |
| **Mitigate** | The implementation of practical measures designed to avoid, reduce or remedy adverse impacts or enhance beneficial impacts of an action. |
| **No-Go Option** | In this instance the proposed activity would not take place, and the resulting environmental effects from taking no action are compared with the effects of permitting the proposed activity to go forward. |
| **Public Participation Process** | A process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to, specific matters. |
| **Rehabilitation** | A measure aimed at reinstating an ecosystem to its original function and state (or as close as possible to its original function and state) following activities that have disrupted those functions. |
| **Sensitive Environments** | Any environment identified as being sensitive to the impacts of the development. |

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| **Significance** | Significance can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. magnitude, intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of significance and acceptability). It is an anthropocentric concept, which makes use of value judgements and science-based criteria (i.e. biophysical, social and economic). |
| **Stakeholder Engagement** | The process of engagement between stakeholders (the proponent, authorities and I&APs) during the planning, assessment, implementation and/or management of proposals or activities. |
| **Sustainable Development** | Development which meets the needs of current generations without hindering future generations from meeting their own needs. |
| **undeveloped** | means that no facilities, structures or infrastructure have been effected upon the land or property during the preceding 10 years |
| **urban areas** | means areas situated within the urban edge (as defined or adopted by the competent authority), or in instances where no urban edge or boundary has been defined of adopted, it refers to areas situated within the edge of built-up areas |
| **vacant** | Means not occupied for the purpose of its lawful land use during the preceding ten year period |
| **watercourse** | Means<br>(a) a river or spring;<br>(b) a natural depression in which water flows regularly or intermittently;<br>(c) a wetland, lake or dam into which, or from which, water flows; and<br>(d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and bank |
| **wetland** | Means land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil |

# ABBREVIATIONS

| | |
|---|---|
| BID | Background Information Document |
| BSc | Bachelor of Science |
| CC | Close Corporation |
| C- Plan | Gauteng Conservation Plan Version 3.3 |
| DEA | Department of Environmental Affairs |
| DWS | Department of Water and Sanitation |
| GDARD | Gauteng Department of Agriculture and Rural Development |
| EAP | Environmental Assessment Practitioner |
| EIA | Environmental Impact Assessment |
| EMPr | Environmental Management Programme |
| Ha | Hectares |
| HIA | Heritage Impact Assessment |
| I&APs | Interested and Affected Parties |
| IDP's | Integrated Development Plans |
| Km | Kilometers |
| LDO | Land Development Objectives |
| m | Meters |
| NEMA | National Environmental Management Act |
| NGO's | Non-Governmental Organisations |
| OHSA | Occupational Health and Safety Act |
| PES | Present Ecological State |
| PHRA-G | Provincial Heritage Resources Authority - Gauteng |
| (Pty) Ltd | Proprietary Limited |
| SAHRA | South African Heritage Resources Agency |

GAUTENG PROVINCE
AGRICULTURE AND RURAL DEVELOPMENT
REPUBLIC OF SOUTH AFRICA

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

**Kindly note that:**

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

## DEPARTMENTAL DETAILS

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

Administrative Unit of the of the Environmental Affairs Branch
Ground floor Diamond Building
11 Diagonal Street, Johannesburg

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

(For official use only)

| | | | | | | |
|---|---|---|---|---|---|---|
| **NEAS Reference Number:** | | | | | | |
| **File Reference Number:** | | | | | | |
| **Application Number:** | | | | | | |
| **Date Received:** | | | | | | |

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

**N/A**

Is a closure plan applicable for this application and has it been included in this report? **NO**

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

**The Activity applied for does not relate to the decommissioning or closure of a facility and it is not envisaged that the development will be decommissioned.**

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.

**Please refer to Appendix I**

Have State Departments including the competent authority commented? **YES**

If no, why?

# SECTION A: ACTIVITY INFORMATION

## 1. PROPOSAL OR DEVELOPMENT DESCRIPTION

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

**Proposed Montana Spruit Channel Improvement – Phase 1**

Select the appropriate box

| The application is for an upgrade of an existing development | | The application is for a new development | X | Other, specify | |
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Does the activity also require any authorisation other than NEMA EIA authorisation?

| **YES** | NO |
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If yes, describe the legislation and the Competent Authority administering such legislation

**A Water Use Licence (included under Appendix F) dated 28 March 2015 with Licence No: 03/A23E/CI/2692 was issued for this project.**

**The client, City of Tshwane, requested input from the Department of Water and Sanitation regarding the validity of the licence. Feedback from DWS is awaited.**

**The competent authority is the Department of Water and Sanitation.**

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

| Title of legislation, policy or guideline: | Administering authority: | Promulgation Date: |
|---|---|---|
| **National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).** | **National & Provincial** | **27 November 1998** |
| **NEMA EIA Regulations, 2014 (Government Notice Nos. GN R982, R983, R984, R985) as amended 2017.**<br><br>**<u>Activities listed under GN R983:</u>**<br>**<u>Activity 19</u> – The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse.**<br><br>**<u>Activities listed under GN R985:</u>**<br>**<u>Activity 12</u> - The clearance of an area of 300 square metres or more of indigenous** | **National Department of Environmental Affairs and GDARD** | **2014** |

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| **vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. c. Gauteng: i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; ii. Within Critical Biodiversity Areas or Ecological Support Areas identified in the Gauteng Conservation Plan or bioregional plans; or iii. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.**<br><br>**<u>Activity 14</u> - The development of – (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs — (a) within a watercourse; c. Gauteng: i. A protected area identified in terms of NEMPAA, excluding conservancies; ii. National Protected Area Expansion Strategy Focus Areas; iii. Gauteng Protected Area Expansion Priority Areas; iv. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans; v. Sites identified within threatened ecosystems listed in terms of the National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004); vi. Sensitive areas identified in an environmental management framework adopted by the relevant environmental authority; vii. Sites or areas identified in terms of an international convention; viii. Sites managed as protected areas by provincial authorities, or declared as nature reserves in terms of the Nature Conservation Ordinance (Ordinance 12 of 1983) or the NEMPAA; ix. Sites designated as nature reserves in terms of municipal Spatial Development Frameworks; or x. Sites zoned for conservation use or public open space or equivalent zoning.**<br><br>**<u>Activity 23</u> – The expansion of – (ii) infrastructure or structures where the physical footprint is expanded by 10 square metres or more; (a) within a watercourse; c. Gauteng i. A protected area identified in terms of NEMPAA, excluding conservancies; ii.** | | |

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| **National Protected Area Expansion Strategy Focus Areas; iii. Gauteng Protected Area Expansion Priority Areas; iv. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans; v. Sites identified within threatened ecosystems listed in terms of the National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004); vi. Sensitive areas identified in an environmental management framework adopted by the relevant environmental authority; vii. Sites or areas identified in terms of an international convention; viii. Sites managed as protected areas by provincial authorities, or declared as nature reserves in terms of the Nature Conservation Ordinance (Ordinance 12 of 1983) or the NEMPAA; or ix. Sites designated as nature reserves in terms of municipal Spatial Development Frameworks; or x. Sites zoned for conservation use or public open space or equivalent zoning.** | | |
| **National Environmental Management: Biodiversity Act (Act No. 10 of 2004)** | **National Department of Environmental Affairs and GDARD** | **2004** |
| **National Environmental Management: Waste Act (Act No. 59 of 2008) (NEM:WA)** | **National Department of Environmental Affairs and GDARD** | **2008** |
| **National Water Act (Act No. 36 of 1998)** | **Department of Water and Sanitation** | **1998** |
| **National Heritage Resources Act (Act No. 25 of 1999)** | **SAHRA** | **1999** |
| **Occupational Health & Safety Act (Act No. 85 of 1993) (OHSA) as amended in July 2001, Including Major Hazard Installation Regulation, GNR 692, 30 July 2001.** | **National Government** | **2001** |
| **Conservation of Agricultural Resources Act (Act No. 43 of 1983)** | **Department of Agriculture Forestry and Fisheries** | **1983** |
| **Reconstruction and Development Programme** | **National & Provincial** | **1995** |
| **National Development Plan** | **National Planning Commission** | **2011** |
| **Gauteng Conservation Plan (C-Plan Version 3.3)** | **GDARD** | **2011** |
| **Gauteng Provincial Environmental** | **GDARD** | **2015** |

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| **Management Framework** | | |
| **Gauteng Spatial Development Framework** | **Provincial** | **2011** |
| **The Gauteng Department of Agriculture and Rural Development's (GDARD) Requirements for Biodiversity Assessments (Version 3)** | **Gauteng Department of Agriculture and Rural Development** | **March 2014** |
| **Gauteng Spatial Development Framework** | **Provincial** | **2011** |
| **Gauteng Planning and Development Act (Act No. 3 of 2003)** | **Gauteng Provincial Legislature** | **2003** |
| **City of Tshwane: Draft 2017/21 Integrated Development Plan (IDP)** | **City of Tshwane Metropolitan Municipality** | **2017** |
| **City of Tshwane: Metropolitan Spatial Development Framework (MSDF)** | **City of Tshwane Metropolitan Municipality** | **June 2012** |
| **City of Tshwane: Regionalized Municipal Spatial Development Framework (RSDF): Region 2** | **City of Tshwane Metropolitan Municipality** | **2018** |
| **City of Tshwane By-Laws** | **City of Tshwane Metropolitan Municipality** | **-** |

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

| Legislation, policy of guideline | Description of compliance |
|---|---|
| **National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).** | **NEMA establishes the basis for environmental governance and sets out the principles for decision-making on matters affecting the environment. The principles of the Act are provided in Section 2 and it is the responsibility of all organs of state to take these principles into account when making decisions that could affect the environment.**<br><br>**The proposed development does not occur in contrast with the principles and main objective of the Act.** |
| **NEMA EIA Regulations, 2014 (Government Notice Nos. GN R982, R983, R984, R985) as amended 2017.** | **The EIA process, applicable to this application, is determined by the Environmental Impact Regulations published in Government Notice R982 in Government Gazette No 38282 of 4 December 2014 promulgated under Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and amended in 2017.**<br><br>**The EIA regulations inter alia describe the procedure for EIA and provide a description of activities that would require authorisation through either 1) a Basic Assessment (in terms of Government Notices R983 and R985 of 2014) or 2) Scoping and Environmental Impact Assessment (in terms of Government Notice R984 of 2014).**<br><br>**An application is submitted in terms of Chapter 4 of the EIA** |

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| | **Regulations as the proposed development triggers activities that require a Basic Assessment.** |
| **National Environmental Management: Biodiversity Act (Act No. 10 of 2004)** | **The objectives of this Act are-**<br>**Within the framework of the National Environmental Management Act, to provide for –**<br><br>**(i) the management and conservation of biological diversity within the Republic and of the components of such biological diversity;**<br>**(ii) the use of indigenous biological resources in a sustainable manner and**<br>**(ii) the fair and equitable sharing among stakeholders of benefits arising from bioprospecting involving indigenous biological resources.**<br><br>**The proposed development does not occur in contrast with the objectives of the Act.** |
| **National Environmental Management: Waste Act (Act No. 59 of 2008) (NEM:WA)** | **The objective of this act is to protect health, well-being, and the environment by providing measures for-**<br>• **Minimising consumption of natural resources;**<br>• **Avoiding and minimising the generation of waste;**<br>• **Reducing, reusing, recycling and recovering waste;**<br>• **Treating and safely disposing of waste as last resort;**<br>• **Preventing pollution and ecological degradation;**<br>• **Securing ecologically sustainable development while promoting justifiable economic and social development.**<br><br>**The proposed development does not occur in contrast with the objectives of the Act.** |
| **National Water Act (Act No. 36 of 1998)** | **The purpose of this Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways that takes into account amongst other factors:**<br>• **Promoting equitable access to water**<br>• **Redressing the results of past racial and gender discrimination;**<br>• **Promoting the efficient, sustainable and beneficial use of water in the public interest;**<br>• **Facilitating social and economic development;**<br>• **Providing for growing demand for water;**<br>• **Protecting aquatic and associated ecosystems and their biological diversity;**<br>• **Reducing and preventing pollution and degradation of water resources;**<br>• **Meeting international obligations**<br>• **Promoting dam safety;**<br>• **Managing floods and drought.**<br><br>**The proposed development does not occur in contrast with the objectives of the Act.** |
| **National Heritage Resources Act (Act No. 25 of 1999)** | **Heritage resources have lasting value in their own right and provide evidence of the origins of South African society and, as they are valuable, finite, non-renewable and irreplaceable, they must be carefully managed to ensure their survival.** |

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| | **A Phase 1 Cultural Heritage Impact Assessment is included under Appendix G.** |
| **Occupational Health & Safety Act (Act No. 85 of 1993) (OHSA) as amended in July 2001, Including Major Hazard Installation Regulation, GNR 692, 30 July 2001.** | **The main objective of the Act is to provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of in connection with the activities of persons at work; to establish an advisory council for occupational health and safety; and to provide for matters connected herewith.**<br><br>**The proposed development site and crew are to be managed in strict accordance with the Occupational Health and Safety Act (Act No. 85 of 1993) [OHSA] and the National Building Regulations.** |
| **Conservation of Agricultural Resources Act (Act No. 43 of 1983)** | **The proposed development will ensure that no agricultural resources are impacted upon.** |
| **Reconstruction and Development Programme** | **One of the six principles of the Reconstruction and development programme is meeting basic needs and building the infrastructure.**<br><br>**The RDP integrates growth, development, reconstruction, redistribution and reconciliation into a unified programme. The key link is an infrastructural programme that will provide access to modern and effective services such as electricity, water, telecommunications, transport, health, education and training for all our people.**<br><br>**The proposed development does not contrast with one of the six principles of the RDP.** |
| **National Development Plan** | **The National Development Plan (NDP) offers a long-term perspective. It defines a desired destination and identifies the role different sectors of society need to play in reaching that goal.**<br><br>**As a long-term strategic plan, it serves four broad objectives:**<br>• **Providing overarching goals for what the nation want to achieve by 2030.**<br>• **Building consensus on the key obstacles to us achieving these goals and what needs to be done to overcome those obstacles.**<br>• **Providing a shared long-term strategic framework within which more detailed planning can take place in order to advance the long-term goals set out in the NDP.**<br>• **Creating a basis for making choices about how best to use limited resources.**<br><br>**The Plan aims to ensure that all South Africans attain a decent standard of living through the elimination of poverty** |

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| | **and reduction of inequality. The core elements of a decent standard of living identified in the Plan are:**<br>• **Housing, water, electricity and sanitation**<br>• **Safe and reliable public transport**<br>• **Quality education and skills development**<br>• **Safety and security**<br>• **Quality health care**<br>• **Social protection**<br>• **Employment**<br>• **Recreation and leisure**<br>• **Clean environment**<br>• **Adequate nutrition**<br><br>**The proposed development does not occur in contrast with the NDP.** |
| **Gauteng Conservation Plan (C-Plan Version 3.3)** | **GDARD's (Gauteng Department of Agriculture and Rural Development) C-Plan (Gauteng Conservation Plan Version 3.3) was used to determine the sensitivities of the site and is provided in the figure below.**<br><br>**Conservation planning was started in Gauteng in the year 2000 and the aim was to revise the C-Plan at least every 5 years. C-Plan Version 1 was produced in 2001 and was followed by version 2 in 2005. Version 2 was refined in 2007 and was named Version 2.1. The small size of the province made it feasible to conduct an extensive biodiversity survey, named BGAP, which aimed to provide the information on spatial occurrence of biodiversity necessary for rigorous conservation planning. C-Plan 3 represents priority areas for biodiversity conservation in the Gauteng province.**<br><br>**C-Plan 3 is based on the systematic conservation protocol developed by Margules & Pressey (2000) and is based on the principles of complementarity, efficiency, defensibility and flexibility, irreplaceability, retention, persistence and accountability. Systematic conservation planning is an iterative process.**<br><br>**Knowledge of the distribution of biodiversity, the status of species, approaches for dealing with aspects such as climate change, methods of data analysis, and the nature of threats to biodiversity within a planning region are constantly changing, especially in the Gauteng province which is developing at an extremely rapid rate. This requires that the conservation plan be treated as a living document with periodic review and updates.**<br><br>**An extract of the sensitivities that could affect the site in terms of the C-Plan is provided below for ease of reference.** |

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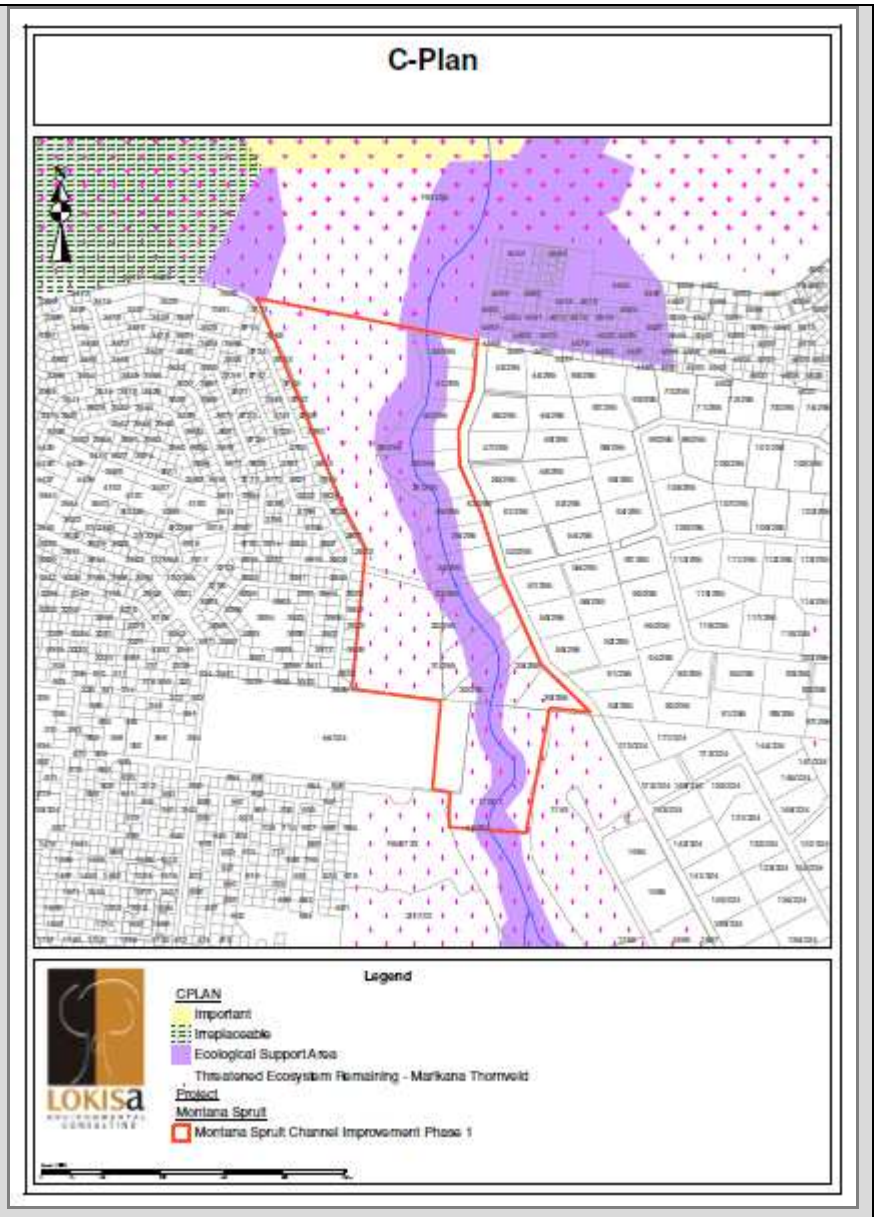
| |  <br>**Figure 1: C-Plan**<br><br>**According to GDARD's conservation plan (C-Plan version 3.3) the proposed project site falls within aa Ecological Support Area (ESA) as well as a Remaining Threatened Ecosystem – Marikana Thornveld.**<br><br>**An ESA provides connectivity and important ecological processes between Critical Biodiversity Areas (CBA) and is therefore important in terms of habitat conservation.**<br><br>**Marikana Thornveld is a threatened veld type with a threat status of vulnerable (VU).** |
| **Gauteng Provincial Environmental Management** | **The guiding objectives that emerged during the course of the developed of the GEMF are:**<br>• **To facilitate the optimal use of current industrial, mining land and other suitable derelict land for the development** |

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| **Framework** | **of non-polluting industrial and large commercial developments.**<br>• **To protect Critical Biodiversity Areas (CBAs as defined in C-Plan 3.3) within urban and rural environments.**<br>• **To ensure the proper integration of Ecological Support Areas (ESAs as defined in C-Plan 3.3) into rural land use change and development.**<br>• **To use ESAs as defined in municipal bioregional plans in spatial planning of urban open space corridors and links within urban areas.**<br>• **To focus on the sustainability of development through the implementation of initiatives such as:**<br>➢ **Energy efficiency programmes, plans and designs;**<br>➢ **Waste minimisation, reuse and recycling;**<br>➢ **Green infrastructure in urban areas; and**<br>➢ **Sustainable Drainage Systems (SuDS).**<br><br>**The Environmental Management Zones (EMZ) were derived from the desired state, the environmental sensitivity as well the unique control areas as identified in sections 1, 2 and 3. The EMZs were also presented to the Gauteng Planning Forum 6 where it was generally accepted as a suitable contribution to facilitate appropriate development in Gauteng. The EMZs also took the Gauteng Growth and Management Perspective, 2014, into account and is therefore aligned to the general development policy for Gauteng.**<br><br>**Five EMZs were identified and overlaying those a further six Special Management Areas were identified where specific planning and policy measures are necessary to achieve the development objective of those areas.**<br><br>**According to the GPEMF, the site is identified as the following Environmental Management Zones:**<br>➢ **Zone 1: Urban Development Zone**<br>➢ **Zone 2: High Urban Control Zone**<br>➢ **Zone 3: High Rural Control Zone** |

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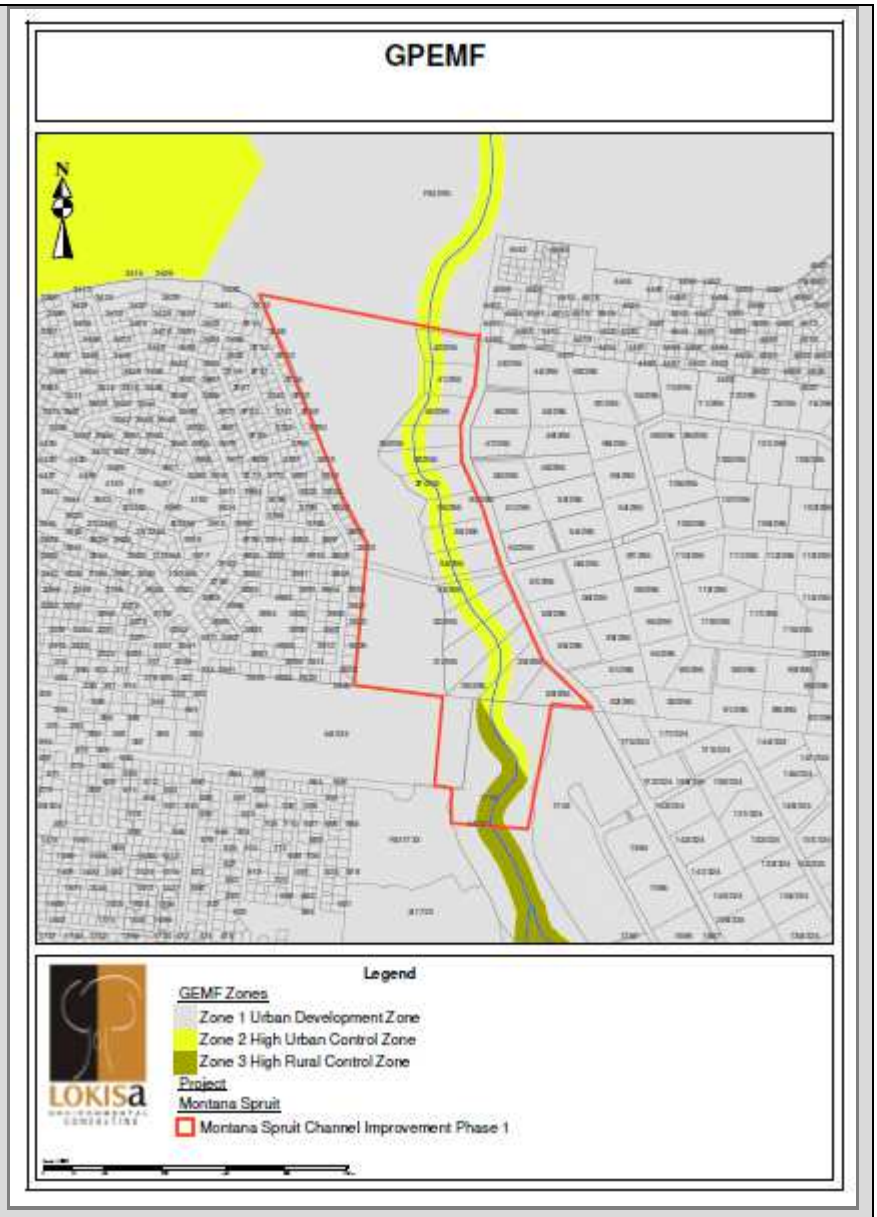
|---|---|
| |  <br>**Figure 2: GPEMF** |
| **Gauteng Spatial Development Framework** | **The GSDF are in pursuit of planning for shared, equitable, sustainable and inclusive growth and development in the country. The Gauteng Provincial Government (GPG) seeks to:**<br><br>• **provide a clear future provincial spatial structure that is robust to accommodate growth and sustainability;**<br>• **specify a clear set of spatial objectives for municipalities to achieve in order to ensure realisation of the future provincial spatial structure;**<br>• **propose a set of plans that municipalities have to prepare in their pursuit of these objectives;**<br>• **provide a common language and set of shared planning constructs for municipalities to use in their planning processes and plans; and**<br>• **enable and direct growth.** |

| | |
|---|---|
| | **The proposed development does not occur in contrast with the objectives of the GPG.** |
| **The Gauteng Department of Agriculture and Rural Development's (GDARD) Requirements for Biodiversity Assessments (Version 3)** | **The document provides guidelines for the minimum requirements for all biodiversity assessments when development is proposed.** |
| **City of Tshwane: Draft 2017/21 Integrated Development Plan (IDP)** | **According to Section 25 of the Local Government: Municipal Systems Act, 2000 (Act 32 of 2000), each municipal council must, after the start of its elected term, adopt a single, inclusive and strategic plan (Integrated Development Plan or IDP) for the development of the municipality which links, integrates and coordinates plans and takes into account proposals for the development of the municipality and which aligns the resources and capacity of the municipality with the implementation of the said plan.**<br><br>**An Integrated Development Plan is a super plan for an area that gives an overall framework for development. It aims to co-ordinate the work of local and other spheres of government in a coherent plan to improve the quality of life for all the people living in an area. It takes into account the existing conditions and problems and resources available for development. It looks at economic and social development for the area as a whole. It is used by municipalities as a tool to plan short and long term future development.**<br><br>**The 2017/21 IDP is the first IDP for the 2017–2021 term of office. It sets the agenda for the term of office, which will focus on the following three strategic framers: stabilisation, revitalisation and delivery.**<br><br>**The following are the strategic pillars that will guide the development in the term of office:**<br>• **City that facilitates economic growth and job creation**<br>• **City that cares for residents and promotes inclusivity**<br>• **City that delivers excellent services and protects the environment**<br>• **City that keeps residents safe**<br>• **City that is open, honest and responsive**<br><br>**The proposed development does not occur in contrast with the IDP.** |
| **City of Tshwane: Metropolitan Spatial Development** | **Every great city has a vision. In order to realise that vision, a strategy that responds to the various elements of that vision is required. The vision of the CoT is to become the African Capital City of Excellence.** |

| | |
|---|---|
| **Framework (MSDF)** | **The purpose of a spatial framework for the city is to provide a spatial representation of the City Vision and to be a tool to integrate all aspects of spatial (physical) planning such as land use planning; planning of a pedestrian, vehicular and other movement patters; planning regarding buildings and built-up areas; planning of open space systems; planning of roads and other service infrastructure; as well as to guide all decision-making processes regarding spatial (physical) development.**<br><br>**The MSDF aims to address the following towards the achievement of the City vision:**<br>• **Addressing social need**<br>• **Restructuring of a spatially inefficient City**<br>• **Promotion of sustainable use of land resources**<br>• **Strategic direction around infrastructure provision**<br>• **Creating opportunities for both rural and urban areas**<br>• **Guiding developers and investors as to appropriate investment localities**<br>• **Rural management programmes to improve livelihoods and stimulate employment.**<br><br>**The proposed development does not occur in contrast with the MSDF.** |
| **City of Tshwane: Regionalized Municipal Spatial Development Framework (RSDF): Region 2** | **A Spatial Development Framework guides and informs all development and forms part of the IDP in terms of Section 35 (2) of the Municipal Systems Act, 32 of 2000 (MSA).**<br><br>**The content of these plans "shall be in the form of maps or a map together with explanatory report of the desired spatial form of the municipality".**<br><br>**A Spatial Development Framework *inter alia* must:**<br>• **Indicate where public and private development infrastructure investment should take place.**<br>• **Indicate desired development and land use patterns for different areas.**<br>• **Indicate where development of particular land uses should be discouraged or restricted.**<br>• **Provide broad indication of the areas where priority spending should take place.**<br>• **Provide guidelines for development and land use decision-making by the municipality.**<br><br>**The proposed development does not occur in contrast with the RSDF.** |
| **City of Tshwane By-Laws** | **The proposed development will be constructed to comply with the City of Tshwane By-Laws** |

## 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

**Background**

**An Environmental Authorisation with reference number, GAUT 002/08/09/N0288, for the "Proposed Section 1 of the Montana Spruit Upgrade" was issued by the Gauteng Department of Agriculture and Rural Development (GDARD) on 3 December 2012. The authorisation was valid for a period of five (5) years since the date of issue and subsequently expired on 3 December 2017.**

**Following a meeting between officials from GDARD, the City of Tshwane Transport Infrastructure Design & Construction Division and the City of Tshwane Environment and Agriculture Management Department, it was decided that the application could be re-submitted to GDARD. However all the specialist studies conducted for the project had to be reviewed in order to comply with current legislation and guidelines.**

**During the last few years important environmental conservation plans, frameworks, regulations and requirements have been updated as shown below.**

- **The latest conservation plan (v3.3) for the Gauteng Province came out in 2011. The CBAs and ESAs have been updated according to this C-Plan v3.3.**
- **The latest GPEMF was adopted in 2018 (Gazette 41473: Notice 164 of 2 March 2018). Publication of the GPEMF Standard for Implementation. Adoption of the GPEMF Standard and exclusion of associated activities from the requirement to obtain environmental authorisation in terms of section 24(2)(d) and 24(10)(a), read with section 24(10)(d), of the National Environmental Management Act, 1998.**
- **New NEMA EIA Regulations were promulgated in 2014 (Government Notice Nos. GN R982, R983, R984, R985) and amended in 2017.**
- **The latest Gauteng Department of Agriculture and Rural Development's (GDARD) Requirements for Biodiversity Assessments (Version 3) came out in 2014.**

**In light of the above the following specialist studies have been reviewed and are included in the appropriate appendices of this report:**

**Table 1: Specialist studies reviewed**

| Original Reports | Reviewed Reports |
|---|---|
| • **Vegetation and floral assessment of the Montana Spruit for the Proposed confinement of the 1:100 year floodplain, Portions 28- 42, 137 and 138 of Doornpoort 295 JR, June 2007**<br>• **Vegetation and flora survey on** | **Review Ecological Assessment, July 2019** |

| | |
|---|---|
| **Portions 44, 45 and 46 of the Farm Doornpoort 295 JR, July 2008**<br>• **Red Data Scan, Specialist Report, May 2008** | |
| **Wetland Delineation and Impact Assessment, October 2007** | **Wetland Delineation and Impact Assessment for the Proposed Montanaspruit Improvement Project, October 2019**<br><br>(It was noted during a review of the previous application and supporting documents that no wetland delineation study had previously been undertaken for the affected reach of the Montanaspruit, though a detailed assessment was done for the reach immediately downstream, which will also be subjected to similar measures as proposed in the Montanaspruit Improvement Project). |
| **Aquatic Assessment, June 2007** | **Review Aquatic Assessment, July 2019** |
| **Stormwater Management Plan Report, April 2011** | **Review Stormwater Management Plan, July 2019** |
| **Rehabilitation and Floodplain Restoration Plan, April 2011** | **Review Rehabilitation Plan, July 2019** |
| **Ecological Management Plan Volumes 1 & 2, May 2011** | **Review Ecological Management Report, August 2019** |
| **Heritage Impact Assessment, June 2007** | **Phase 1 Cultural Heritage Impact Assessment, April 2019** |

**<u>Alternatives</u>**

**In terms of the NEMA Regulations, 2014 (as amended, 2017), the definition of alternatives is given as: 'Alternatives' in relation to a proposed activity, means different means of meeting the general purpose and requirement of the activity, which may include alternatives to the –**

**(a) property on which or location where the activity is proposed to be undertaken;**
**(b) type of activity to be undertaken;**
**(c) design or layout of the activity;**
**(d) technology to be used in the activity; or**
**(e) operational aspects of the activity;**

**and includes the option of not implementing the activity;**

**Alternatives can therefore be used to achieve the same result as the originally proposed project in a way that potentially offset the negative implication of the original plan. However, alternatives that are to be considered must be reasonable and feasible.**

**(a) Location Alternative**

**With the existing stream conditions there is a risk of flooding during heavy rainstorms in the Doornpoort area near the Tsamma road crossing. The project is site specific and therefore no Location Alternatives were investigated.**

**(b) Type of Activity Alternatives**

**The project intends to improve the Montana Spruit in order to reduce the impact**

**of the 1:100-year flood on adjacent properties and houses. Therefore no reasonable or feasible alternatives in terms of the type of activity were investigated.**

**(c) Design / Layout Alternatives**

**Design alternatives were investigated for the Tsamma Street Upgrade and realignment.**

**The 2007 Preliminary Design Report compiled by IR Consulting Engineers, proposes the vertical are-alignment of the crossing of Tsamma Road over the Montana Spruit. The stormwater crossing will thus be lowered. This Assessment further investigates the option of keeping the existing 9 x Ø450mm concrete pipe culverts in combination with lowering the road. This design is investigated as Alternative 1 in this report.**

**The 2018 Design Development Report compiled by Ditlou Consulting Engineers proposes the reconstruction of Tsamma Street on the same horizontal alignment as before. The vertical alignment will be changed to lower the road and accommodate the culvert crossing. In addition, the 9 x Ø450mm existing concrete pipe will be replaced by 20 1500x450mm CL100S portal culverts to accommodate the 1:2-year flow. This design is investigated as the Proposal in this report.**

**(d) Technology Alternatives**

**The project intends to improve the Montana Spruit in order to reduce the impact of the 1:100-year flood on adjacent properties and houses. Therefore no reasonable or feasible alternatives in terms of the technology aspects of the activity were investigated.**

**(e) Operational Alternatives**

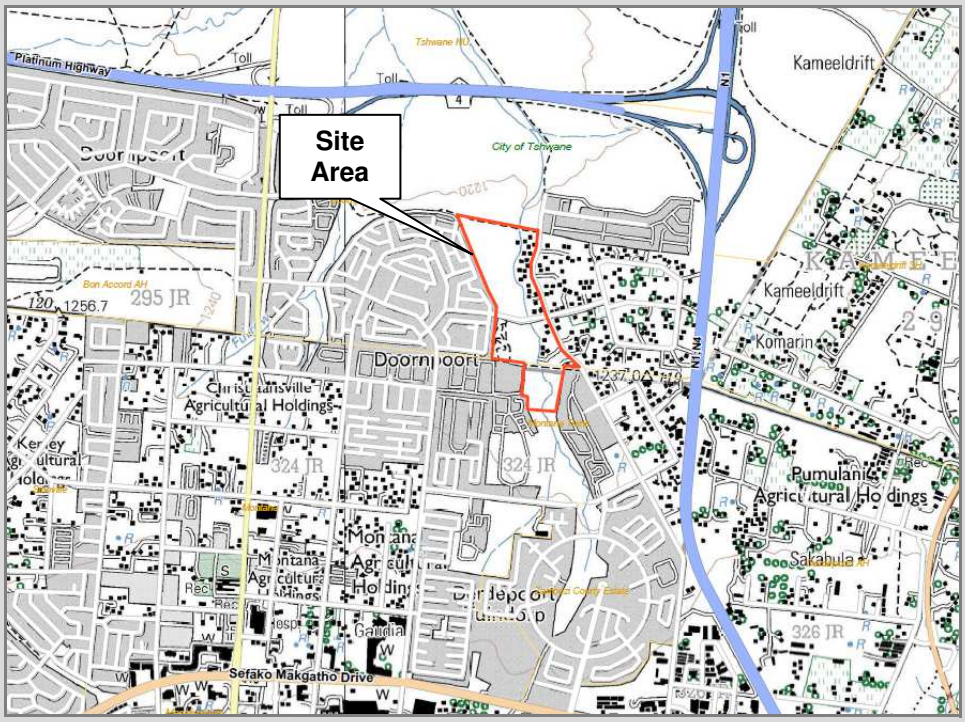
**The project intends to improve the Montana Spruit in order to reduce the impact of the 1:100-year flood on adjacent properties and houses. Therefore no reasonable or feasible alternatives in terms of the operational aspects of the activity were be investigated.**

**(f) No-Go Option**

**The No-Go option was investigated and is discussed under Section E of this report.**

Provide a description of the alternatives considered

| No. | **Alternative type**, either alternative: site on property, properties, activity, design, technology, energy, operational or other(provide details of "other") | **Description** |
|---|---|---|

| | | |
|---|---|---|
| 1 | Proposal | **The Proposal intends to improve the Montana Spruit between an area 600m upstream of the Tsamma Road stream crossing and to about 600m downstream of the Tsamma Road crossing in order to reduce the impact of the 1:100-year flood on adjacent properties and houses. The shape of the spruit will be improved to accommodate more flow and to ensure that all the buildings and houses adjacent to the spruit are located outside the 1:100-year flood line. Tsamma street will also be upgraded and realigned to improve on the flood line position, culvert capacity and road layout. The culvert crossing at Tsamma street will be upgraded to accommodate the 1:2-year flow by means of a portal culvert crossing, flows from recurrence intervals greater than 1:2 years will overtop Tsamma street and flow on surface.**<br><br>**The project area for the Montana Spruit Channel Improvement – Phase 1 is located within the Doornpoort and Montana Park residential area, south of Pretoria, and is defined to include: the Montana Spruit Flood Management area; an area 600m upstream of the Tsamma road stream crossing and to about 600m downstream of the same crossing; and Tsamma Road between Breed Street and Cassia Street.**<br><br>  <br>**Figure 3: Locality Map**<br><br>**<u>Proposed new road upgrades</u>**<br>**The existing Tsamma Street will be reconstructed on the same horizontal alignment as before. The vertical alignment will be changed to lower the road and accommodate the culvert crossing. The lowering of the road is also required to ensure that the 1:100-year flood can overtop the road without the flood lines encroaching against the buildings on adjacent land.**<br><br>**The 9 x Ø450mm existing concrete pipe has insufficient capacity to** |

| | | |
|---|---|---|
| | | **accommodate the minor flood and will be replaced by 20 1500x450mm CL100S portal culverts to accommodate the 1:2-year flow. Flow from storms greater than the 1:2-year recurrence interval will overtop Tsamma Street and run on surface.**<br><br>**The roadway will be 6.0m wide consisting of 2 x 3,0m lanes in each direction. The higher side of the road will have a 400mm sloping kerb with a 2m wide paved walkway and the lower side will have a 400mm sloping kerb. The road will have a 3% crossfall with the natural slope to improve on the channel flow and to drain surface water away.**<br><br>**The road crossfall at the culvert crossing will be 1%, this is to match the slope of the portal culverts. A 250mm concrete slab will be cast over the portal culverts as the final road surface.**<br><br>**250Ø Concrete pillars of approximately 1000mm high will be constructed on both sides of the concrete slab and road as to indicate to motorists the extend of the road width during floods. The embankments at the Tsamma crossing will be lined with reno mattresses to protect against erosion.**<br><br>**<u>Proposed new channel improvement</u>**<br>**Following the investigation of the hydrology analysis, the following solutions will be implemented:**<br>• **Channelize the Montana Spruit by changing the existing channel through excavating & shaping and widening of the spruit.**<br>• **The overall objective of any natural stream channelisation improvement design should be to provide enough space to meet flood conveyance targets, increase vegetation in the channel, improve habitat conditions, and improve water quality in the stream.**<br>• **The horizontal alignments decided for the proposed Montana Spruit Improvements will follow the existing stream bed line.**<br>• **The natural low flow area of the spruit will be kept and all improvements will be above the water level of the low flow. This option is preferred because it does not disturb flow and natural ecological activities in the main stream influence.**<br>• **A berm will be constructed at the old age home to prevent any flood water from entering the estate. The floodline will not encroach onto the berm, the berm is just a precautionary measure implemented to prevent any flood damage.**<br>• **A well-designed stream channelization will typically have three zones on either side of the watercourse: a streamside zone, a middle zone, and an outer zone as per the figure below.** |

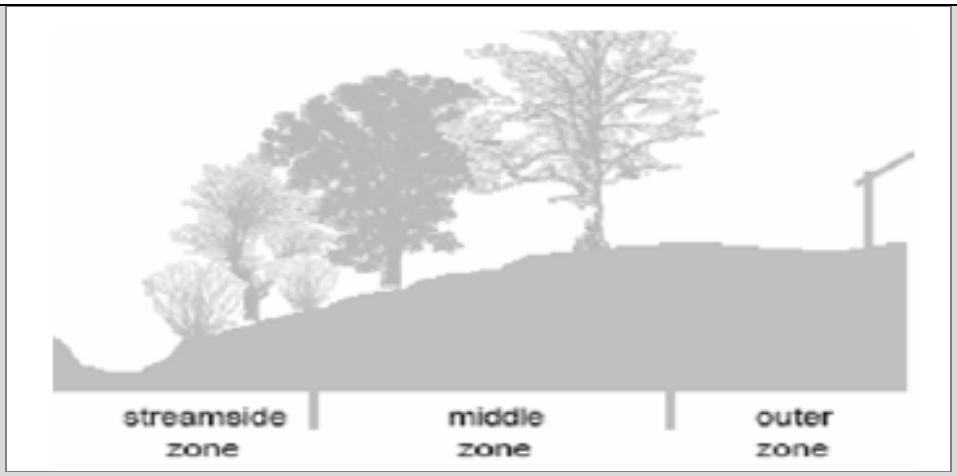



**Figure 4: Schematic Layout of river bed**

**To enhance the ecological conditions, natural bedding and excavated stream flood banks with re-vegetation will be provided for the Montana Spruit Channelisation. To make the proposed Spruit more environmentally friendly, the stream banks will be lined with natural substrates to produce a suitable environment similar to the existing main stream condition as per the figure below. The cross-sectional area of the stream channel will be widening by excavating one or both banks outwards to provide a larger cross-section for flow conveyance.**

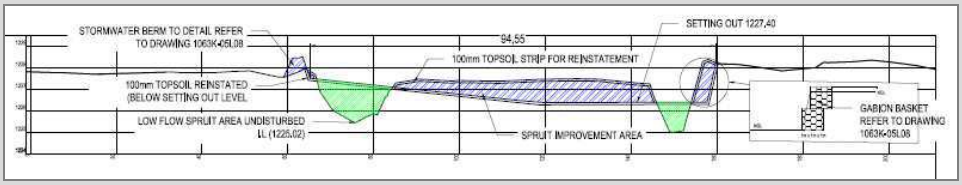



**Figure 5: Typical Cross section of spruit improvement**

**From the hydraulic analysis for a 1:50 year and 1:100 year return period it is evident that some embankment erosion might occur especially along the eastern embankment of the Montana Spruit. The general velocity of the spruit will be around 1,4-1,9m/s with isolated areas where the velocity will be around 2,4m/s. The embankment of the spruit will be 1:5 and hydro seeded for erosion protection. In some sections of the spruit where buildings and walls are close to the waterfront a gabion basket wall will be used for erosion protection.**

**The 1:50 and 1:100 year return period flood may cause extensive surface erosion and it is important that the slope and surfaces be protected by grass. The topsoil will be replaced on the entire disturbed area and will be hydroseeded with a recommended seed mixture.**

**Two types of attenuation ponds aimed at attenuating flow will be excavated. The first is a very shallow pond located within the newly widened channel and the second attenuation pond type is located outside of the widened channel.**

| | | |
|---|---|---|
| | | **The disturbed spruit area will be rehabilitated as recommended in the Rehabilitation and Floodplain Restoration Plan, dated April 2011 and the Review Rehabilitation Plan, dated July 2019 included under Appendix G.** |
| 2 | Alternative 1 | **Alternative 1 will be similar to the Proposal in that it intends to improve the Montana Spruit between an area 600m upstream of the Tsamma Road stream crossing and to about 600m downstream of the Tsamma Road crossing in order to reduce the impact of the 1:100-year flood on adjacent properties and houses. The shape of the spruit will be improved to accommodate more flow and to ensure that all the buildings and houses adjacent to the spruit are located outside the 1:100-year flood line.**<br><br>**Alternative 1 differs from the Proposal in that the upgrade and re-alignment of Tsamma Street will consider lowering the stormwater crossing, but will keep the existing 9 x Ø450mm concrete pipe culverts in its current state.** |
| 3 | Alternative 2 | **No other alternative presented.** |
| | Etc. | |

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

| |
|---|
| |

## 4. PHYSICAL SIZE OF THE ACTIVITY

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

| | **Size of the activity:** |
|---|---|
| Proposed activity ***(Total environmental (landscaping, parking, etc.) and the building footprint)*** | 20 ha (5ha) |
| **Alternatives:** | |
| Alternative 1 (if any) | |
| Alternative 2 (if any) | |
| | Ha/ $m^2$ |

or, for linear activities:

| | **Length of the activity:** |
|---|---|
| Proposed activity | **± 1 200 m** |
| **Alternatives:** | |
| Alternative 1 (if any) | **± 1 200 m** |
| 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 | **± 1 200 m** |
| **Alternatives:** | |
| Alternative 1 (if any) | **± 1 200 m** |
| Alternative 2 (if any) | |
| | Ha/$m^2$ |

## 5. SITE ACCESS

**Proposal**

| | | |
|---|---|---|
| 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 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 | **1** | Number of times

(only complete when applicable)

## 6. LAYOUT OR ROUTE PLAN

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

- the layout plan is printed in colour and is overlaid with a sensitivity map (if applicable);
- layout plan is of acceptable paper size and scale, e.g.
  - A4 size for activities with development footprint of 10sqm to 5 hectares;
  - A3 size for activities with development footprint of > 5 hectares to 20 hectares;
  - A2 size for activities with development footprint of >20 hectares to 50 hectares);
  - A1 size for activities with development footprint of >50 hectares);

- The following should serve as a guide for scale issues on the layout plan:
  - A0 = 1: 500
  - A1 = 1: 1000
  - A2 = 1: 2000
  - A3 = 1: 4000
  - A4 = 1: 8000 (±10 000)
- shapefiles of the activity must be included in the electronic submission on the CD's;
- the property boundaries and Surveyor General numbers of all the properties within 50m of the site;
- the exact position of each element of the activity as well as any other structures on the site;
- the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, sewage pipelines, septic tanks, storm water infrastructure;
- servitudes indicating the purpose of the servitude;
- sensitive environmental elements on and within 100m of the site or sites (including the relevant buffers as prescribed by the competent authority) including (but not limited thereto):
  - Rivers and wetlands;
  - the 1:100 and 1:50 year flood line;
  - ridges;
  - cultural and historical features;
  - areas with indigenous vegetation (even if it is degraded or infested with alien species);
- Where a watercourse is located on the site at least one cross section of the water course must be included (to allow the position of the relevant buffer from the bank to be clearly indicated)

**FOR LOCALITY MAP (NOTE THIS IS ALSO INCLUDED IN THE APPLICATION FORM REQUIREMENTS)**

- the scale of locality map must be at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map;
- the locality map and all other maps must be in colour;
- locality map must show property boundaries and numbers within 100m of the site, and for poultry and/or piggery, locality map must show properties within 500m and prevailing or predominant wind direction;

- for gentle slopes the 1m contour intervals must be indicated on the map and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the map;
- areas with indigenous vegetation (even if it is degraded or infested with alien species);
- locality map must show exact position of development site or sites;
- locality map showing and identifying (if possible) public and access roads; and
- the current land use as well as the land use zoning of each of the properties adjoining the site or sites.

## 7. SITE PHOTOGRAPHS

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

## 8. FACILITY ILLUSTRATION

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

# SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT

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

### Instructions for completion of Section B for linear activities

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

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

### Instructions for completion of Section B for location/route alternatives

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

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

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

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

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

Section B - Section of Route | | (complete only when appropriate for above)

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

## 1. PROPERTY DESCRIPTION

| | |
|---|---|
| **Property description:** (Including Physical Address and Farm name, portion etc.) | • **Portion 28 to 42, 134, 135, 137 and the Remainder of the farm Doornpoort 295 JR**<br>• **Erf 1700 Montana Tuine Ext 53** |

## 2. ACTIVITY POSITION

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

**Alternative:**

| **Latitude (S):** | **Longitude (E):** |
|---|---|
| ° | ° |

**In the case of linear activities:**

**Alternative: Proposal & Alternative 1**

| **Latitude (S):** | **Longitude (E):** |
|---|---|
| • Starting point of the activity | **-25.651424°** | **28.260348°** |
| • Middle point of the activity | **-25.653685°** | **28.260988°** |

| | | |
|---|---|---|
| • Middle point of the activity | **-25.655861°** | **28.261600°** |
| • Middle point of the activity | **-25.658146°** | **28.262193°** |
| • Middle point of the activity | **-25.660248°** | **28.263016°** |
| • End point of the activity | **-25.662789°** | **28.263143°** |

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 **NO**

The 21 digit Surveyor General code of each cadastral land parcel

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PROPOSAL & ALTERNATIVE 1** | **T** | **0** | **J** | **R** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **9** | **5** | **0** | **0** | **0** | **2** | **8** |
| | **T** | **0** | **J** | **R** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **9** | **5** | **0** | **0** | **0** | **2** | **9** |
| | **T** | **0** | **J** | **R** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **9** | **5** | **0** | **0** | **0** | **3** | **0** |
| | **T** | **0** | **J** | **R** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **9** | **5** | **0** | **0** | **0** | **3** | **1** |
| | **T** | **0** | **J** | **R** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **9** | **5** | **0** | **0** | **0** | **3** | **2** |
| | **T** | **0** | **J** | **R** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **9** | **5** | **0** | **0** | **0** | **3** | **3** |
| | **T** | **0** | **J** | **R** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **9** | **5** | **0** | **0** | **0** | **3** | **4** |
| | **T** | **0** | **J** | **R** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **9** | **5** | **0** | **0** | **0** | **3** | **5** |
| | **T** | **0** | **J** | **R** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **9** | **5** | **0** | **0** | **0** | **3** | **6** |
| | **T** | **0** | **J** | **R** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **9** | **5** | **0** | **0** | **0** | **3** | **7** |
| | **T** | **0** | **J** | **R** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **9** | **5** | **0** | **0** | **0** | **3** | **8** |
| | **T** | **0** | **J** | **R** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **9** | **5** | **0** | **0** | **0** | **3** | **9** |
| | **T** | **0** | **J** | **R** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **9** | **5** | **0** | **0** | **0** | **4** | **0** |
| | **T** | **0** | **J** | **R** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **9** | **5** | **0** | **0** | **0** | **4** | **1** |
| | **T** | **0** | **J** | **R** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **9** | **5** | **0** | **0** | **0** | **4** | **2** |
| | **T** | **0** | **J** | **R** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **9** | **5** | **0** | **0** | **1** | **3** | **4** |
| | **T** | **0** | **J** | **R** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **9** | **5** | **0** | **0** | **1** | **3** | **5** |
| | **T** | **0** | **J** | **R** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **9** | **5** | **0** | **0** | **1** | **3** | **7** |
| | **T** | **0** | **J** | **R** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **9** | **5** | **0** | **0** | **0** | **0** | **0** |
| | **T** | **0** | **J** | **R** | **0** | **3** | **6** | **5** | **0** | **0** | **0** | **0** | **1** | **7** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

## 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) | **YES** | NO |
| Dolomite, sinkhole or doline areas | YES | **NO** |
| Seasonally wet soils (often close to water bodies) | **YES** | NO |
| Unstable rocky slopes or steep slopes with loose soil | YES | **NO** |

| | | |
|---|---|---|
| Dispersive soils (soils that dissolve in water) | YES | **NO** |
| Soils with high clay content (clay fraction more than 40%) | **YES** | NO |
| Any other unstable soil or geological feature | YES | **NO** |
| An area sensitive to erosion | **YES** | 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) YES **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) YES **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) YES **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)? **YES** 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).

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

| | | | | |
|---|---|---|---|---|
| Natural veld - good condition % = | Natural veld with scattered aliens % = | **Natural veld with heavy alien infestation % = 55** | Veld dominated by alien species % = | Landscaped (vegetation) % = |
| Sport field % = | Cultivated land % = | **Paved surface (hard landscaping) % = 25** | **Building or other structure % = 20** | Bare soil % = |

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

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

If YES, specify and explain:

**Two Gauteng orange listed species (ODL) have been observed on site, namely *Crinum bulbispernum* and *Hypoxis hemerocallidea.* Both are nationally listed as least concern (LT), but are declining. Crinum is typically found in the wetter, clay soils and floodplains, while Hypoxis prefers drier soils.**

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

If YES, specify and explain:

| Are there any special or sensitive habitats or other natural features present on the site? | **YES** | NO |
|---|---|---|

If YES, specify and explain:

**The study site is situated within the original extent of Marikana Thornveld, which is a threatened veld type with a threat status of vulnerable (VU).**

**Please see below sensitivity map according to the Review Ecological Assessment.**

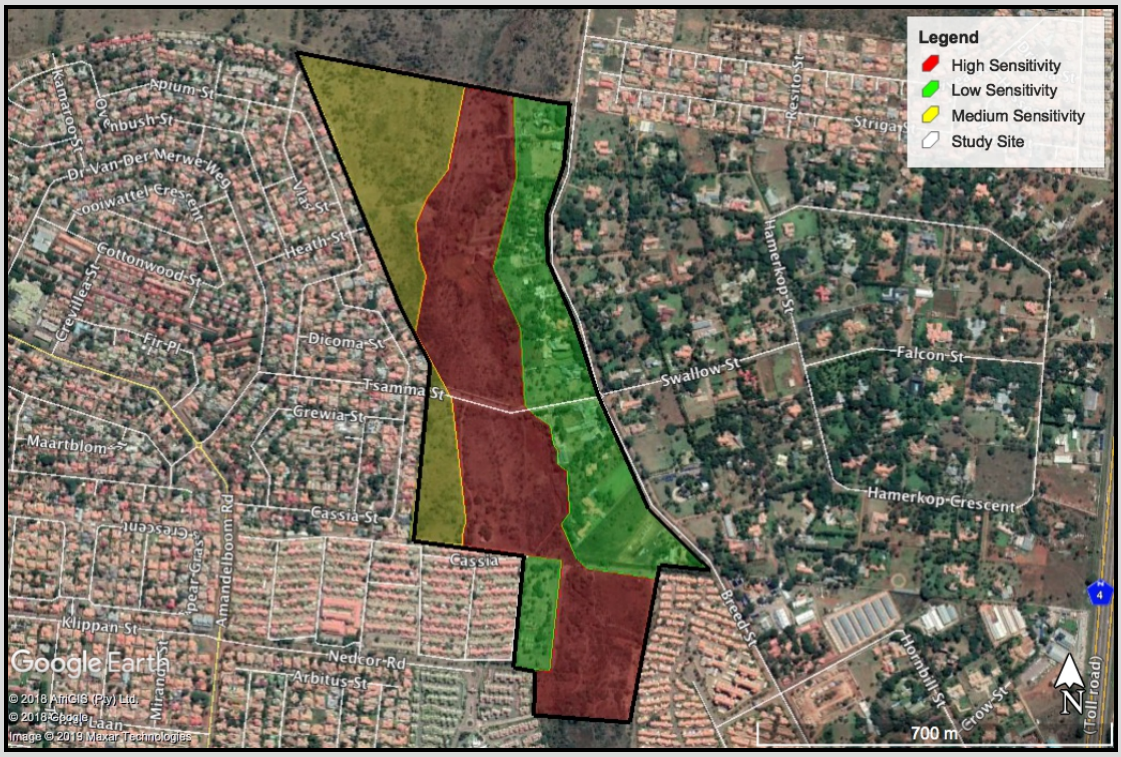



**Figure 6: Sensitivity Map - Ecological Assessment**

**A critical priority species mentioned in the Ecological management Plan is the African grass owl (*Tyto capensis*). It is important that a specialist scout the site immediately prior to the commencement of the construction phase to search for nest or presence of grass owls.**

**Based on The Atlas of Freshwater Ecosystem Priority Areas in South Africa, no wetland Freshwater Ecosystem Priority Areas (FEPA's) occur on site or in close proximity to the site. In fact, the National Freshwater Ecosystem Priority Areas (NFEPA) database indicates no wetlands occurring on site, though the database is known to be incomplete as it was compiled at a high level, incorporating mostly desktop and remote sensing data. The study area is also not located within the catchment of a river FEPA.**

**A single wetland system was identified on site – a channelled valley bottom**

**wetland associated with the Montanaspruit – which traverses the study area from south to north.**

**The wetland on site is considered MODERATELY MODIFIED (PES category C).**

**The channelled valley bottom wetland within the study area is considered of HIGH (B) importance and sensitivity. The high rating is due to the location of the wetland within the Marikana Thornveld vegetation type which is classed as vulnerable with high conservation value, as well as the classification of the habitat associated with the watercourse as an Ecological Support Area. The high importance is further underlined by the degree of transformation that has already occurred in the upstream catchment and the continuing development pressures on the surrounding areas. The wetland also plays an important role in sustaining biodiversity, while also contributing functions such as sediment trapping, flood attenuation and some degree of water quality improvement.**

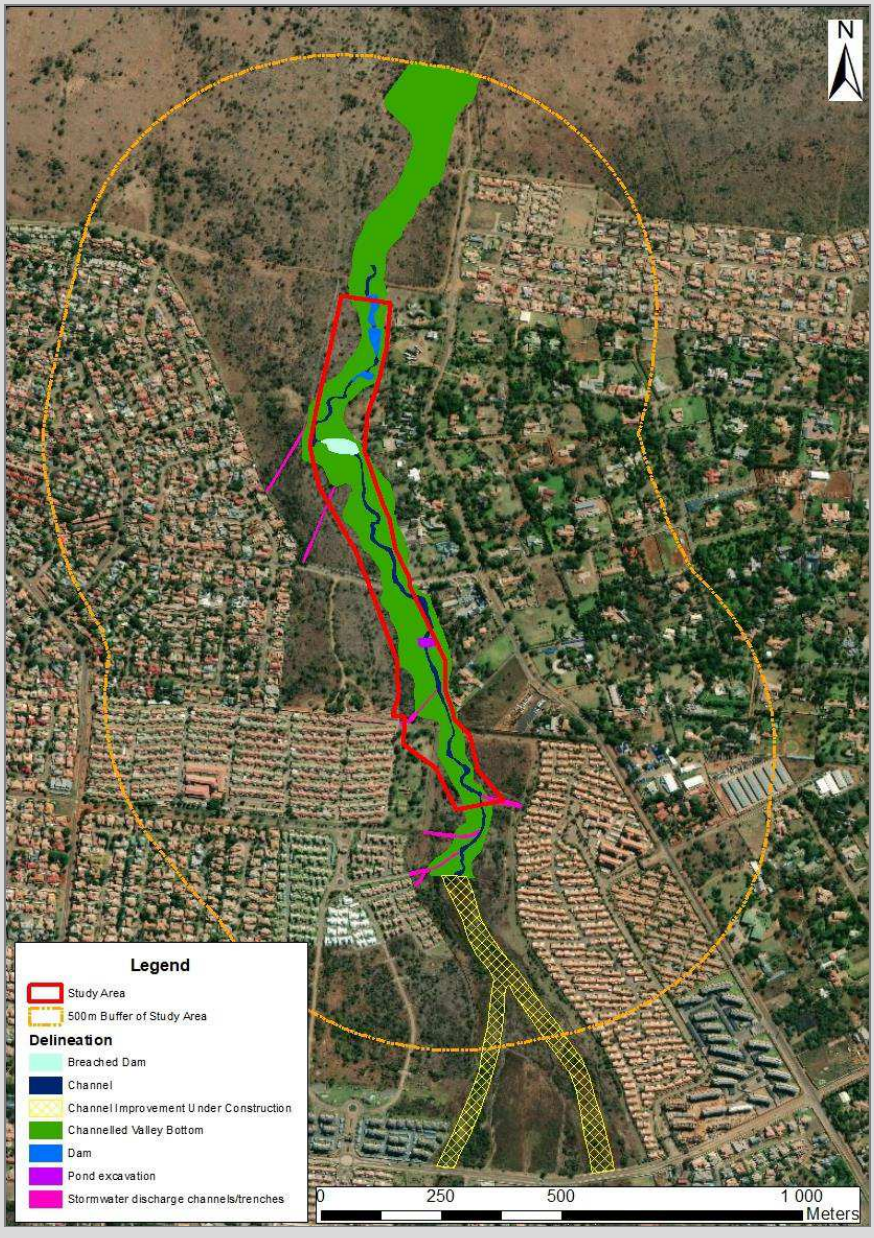



**Figure 7: Map showing the extent of the delineated and classified wetlands on site**

| | | | |
|---|---|---|---|
| Was a specialist consulted to assist with completing this section | | **YES** | NO |

If yes complete specialist details

| | | | |
|---|---|---|---|
| Name of the specialist: | **Johannes Oren Maree (Flori Scientific Services)** | | |
| Qualification(s) of the specialist: | **Pr.Sci.Nat<br>Reg. no. 400077/91** | | |
| Postal address: | **Private Bag X5401<br>Silverton** | | |
| Postal code: | **0127** | | |
| Telephone: | **-** | Cell: | **082 564 1211** |
| E-mail: | **johannes@flori.co.za** | Fax: | **-** |

| | | |
|---|---|---|
| Are any further specialist studies recommended by the specialist? | **YES** | NO |
| If YES, specify: | **An independent aquatic monitoring programme is required for this project.** | |
| If YES, is such a report(s) attached? | YES | **NO** |

If YES list the specialist reports attached below

| | | | |
|---|---|---|---|
| Signature of specialist: | **See attached reports** | Date: | **July & August 2019** |

| | | | |
|---|---|---|---|
| Name of the specialist: | **Dieter Kassier (Wetland Consulting Services (Pty) Ltd** | | |
| Qualification(s) of the specialist: | **Pr.Sci.Nat<br>Reg. no. 400254/14** | | |
| Postal address: | **PO Box 72295<br>Lynnwood Ridge** | | |
| Postal code: | **0040** | | |
| Telephone: | **012 349 2699** | Cell: | **-** |
| E-mail: | **info@wetcs.co.za** | Fax: | **012 349 2993** |

| | | |
|---|---|---|
| Are any further specialist studies recommended by the specialist? | **YES** | NO |
| If YES, specify: | • **A monitoring plan must be established and implemented (for a minimum of 5 years after construction) to ensure successful re-establishment of vegetation and to ensure that any erosion damage is quickly identified and repaired (refer to the Ecological Management Plan Volumes 1 and 2).**<br>• **An alien vegetation management plan must be developed and implemented. For a minimum period of 5 years following completion of construction all invasive alien vegetation observed on site should be controlled and removed (An Alien Plant Monitoring and Eradication Plan is included as Chapter 5 in the Ecological Management Plan Volume 1; Alien Invasive Management – Methodologies and Guidelines is included as Chapter 5 in the Ecological Management Plan Volume 2).** | |
| If YES, is such a report(s) attached? | **YES** | NO |

If YES list the specialist reports attached below

- **Review Ecological Management Plan**
- **Ecological Management Plan_Vol 1**
- **Ecological Management Plan_Vol 2**

| | | | |
|---|---|---|---|
| Signature of specialist: | **See attached report** | Date: | **October 2019** |

## 8. LAND USE CHARACTER OF SURROUNDING AREA

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

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

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

NORTH

| | | | | |
|---|---|---|---|---|
| **9** | **9** | **2** | **8** | **8,9** |
| **9** | **9** | **2** | **8** | **8** |
| **9** | **9** | | **8** | **8** |
| **9** | **9** | **2** | **8,9** | **8,9** |
| **8,9,11** | **8,9,11** | **2** | **8,9** | **8,9,11** |

WEST EAST

SOUTH

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

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

Have specialist reports been attached

| **YES** | NO |
|---|---|

If yes indicate the type of reports below

- **Design Development Report**
- **Review Ecological Assessment**
- **Vegetation and Floral Assessment**
- **Vegetation and Flora Survey**
- **Red Data Scan**
- **Wetland Delineation and Impact Assessment**
- **Review Aquatic Assessment,**
- **Aquatic Assessment**

- **Review Stormwater Management Plan**
- **Stormwater Management Plan Report**
- **Review Rehabilitation Plan**
- **Rehabilitation and Floodplain Restoration Plan**
- **Review Ecological Management Plan**
- **Ecological Management Plan_Vol 1**
- **Ecological Management Plan_Vol 2**
- **Phase 1 Cultural Heritage Impact Assessment**
- **Heritage Impact Assessment**

## 9. SOCIO-ECONOMIC CONTEXT

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

**The project site is situated in Doornpoort and Montana Park and falls within wards 5 and 96 in Region 2 of the City of Tshwane Metropolitan Municipality.**

**Region 2 is 1 062 km² in extent, and 12 wards fall within this region. This region has the third-largest geographical area in Tshwane due to the inclusion of a large rural area.**

**An estimated population figure for this area suggests 369 623 people and 117 882 households; therefore a household size is approximately 3,5 persons (source: Stats SA: Census 2011 and IHS Global Insight).**

**Approximately 33% of the economically active population of Region 2 is unemployed, which is higher than the national average of 25%.**

**The percentage of people older than 20 years in Region 2 with no schooling has declined from 5,3% in 2011 to 4,4%, while the percentage of people with at least matric have marginally decreased from 37,1% in 2011 to 36,7% in 2015. The percentage of people older than 20 years in Region 2 with a certificate or diploma without matric has declined from 0,7% in 2011 to 0,6% in 2015.**

**Most of the submissions received in terms of ward priorities for 2017/2018 from Region 2 relate to the following:**
- **Water, sanitation and electricity are still challenges.**
- **Road upgrades and storm water management are needed.**
- **There is a need to address housing.**

**The southern part of Region 2 is a low-density formally developed suburban area, with developed nodes of economic activities. The bulk of economic activity in Region 2 is located here. The area around the Kolonnade Shopping Centre, specifically, has emerged as an area of economic opportunity, together with the strong linear development along Sefako Makgatho Drive. Wonderboom Airport is also situated in this area.**

**(Source: Regionalized Municipal Spatial Development Framework, 2018 – Region 2, 2017)**
http://www.tshwane.gov.za/sites/Departments/Economic%20Development%20and%20Spatial%20Planning/RSDF%202018/Region%202%20RSDF%20Doc%202018.pdf

## 10. CULTURAL/HISTORICAL FEATURES

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

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

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

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

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

*(i) exceeding 5 000 m2 in extent; or*

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

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

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

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

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

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

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:

**An archaeological survey was undertaken by Dr. Johnny van Schalkwyk from the National Cultural History Museum on 19 June 2007. The report was reviewed and an updated Phase 1 Cultural Heritage Impact Assessment, dated April 2019 was provided.**

**During the physical survey (11 April 2019), no sites, features or objects of cultural significance were identified.**

**As no sites, features or objects of cultural historic significance have been identified in either of the two study areas, no mitigation measures are proposed.**

**However, heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the proposed development can be excavated/recorded and a management plan can be developed for future action. Those sites that are not impacted on can be written into the management plan, whence they can be avoided or cared for in the future.**

**Sources of risk were considered with regards to development activities defined in Section 2(viii) of the NHRA that may be triggered. These issues formed the basis of the heritage impact assessment.**

**<u>Objectives</u>**

- **Protection of archaeological, historical and any other site or land**

**considered being of cultural value within the project boundary against vandalism, destruction and theft.**

- **The preservation and appropriate management of new discoveries in accordance with the NHRA, should these be discovered during construction activities.**

**The following shall apply:**

- **Known sites should be clearly marked in order that they can be avoided during construction activities.**
- **The contractors and workers should be notified that archaeological sites might be exposed during the construction activities.**
- **Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible;**
- **All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;**
- **Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and**
- **Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1).**

**<u>Control</u>**

**In order to achieve this, the following should be in place:**

- **A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage.**
- **Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above.**
- **In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures.**

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

# SECTION C: PUBLIC PARTICIPATION (SECTION 41)

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

**2. LOCAL AUTHORITY PARTICIPATION**

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

| | |
|---|---|
| Was the draft report submitted to the local authority for comment? | **YES** |
| If yes, has any comments been received from the local authority? | **YES** / NO |

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

**The City of Tshwane: Environment and Agriculture Management Department supports the proposed channelization of the Montanaspruit on the properties indicated in the Draft BAR and recommends the following to be addressed:**

**a) Recommendations from the attached specialist studies should be adhered to.**
**b) The Tshwane by-laws should be adhered throughout the lifespan of the project**
**c) The proposed activity must be constructed according to the finalised and approved EMP.**
**d) The final approved EMP should be made available at the construction site and project should follow the recommendations from the EMP. An independent ECO should be appointed to ensure compliance to the approved EMP recommendations.**

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

**3. CONSULTATION WITH OTHER STAKEHOLDERS**

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

| | |
|---|---|
| Has any comment been received from stakeholders? | **YES** / NO |

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

**SASOL**
**Not Affected**

**Transnet Pipelines**
**Not Affected**

**Transnet Freight Rail/Property**
**Not Affected**

**SAHRA**
**The notice of availability of the Draft BAR was forwarded to Mr. Salomon.**

**DAFF**

**DAFF requested a copy of the Draft BAR and the Deed of Transfer for the property.**

**DAFF confirmed that the application has been captured in their electronic AgriLand tracking and management system.**
**AgriLand reference number: 2019_09_0129**
**AgriLand reference number: 2019_10_0095**

**DWS**

**The Department of Water and Sanitation has evaluated the Draft Basic Assessment report and would like the following issues to be addressed:**

1. **Page 17, 18, 20 and 26 indicates that the proposal entails the channelization of the Montana Spruit by changing the existing channel through excavating, shaping and widening of the Spruit to improve the shape of the Montana Spruit to accommodate more flow and to ensure that all the buildings and houses adjacent to the spruit are located outside the 1:100 year flood line. Please note that these activities triggers Section 21 (c) and (i) water uses of the National Water Act, 1998 (Act no. 36 of 1998) which requires an authorization by the Department.**
2. **The agreement between City of Tshwane Metropolitan Municipality and Contractor regarding waste management during construction phase must be submitted to the Department of Water and Sanitation.**
3. **Stormwater Management Plan should be prepared and approved by the City of Tshwane Metropolitan Municipality.**
4. **No construction or development should take place within the scale of 1:100 year flood line or within a horizontal distance of 500m from the boundary of a wetland without an authorisation from this Department.**
5. **Please note that this office will inspect this project at any time to ensure compliance.**
6. **No activity should proceed prior to the necessary authorisation.**

**Dark Fibre Africa**

**The approval is in effect from 2019/03/18 and expires on 2019/09/20 (6 months only).**

**Services Affected letter**

**The proposed work affects the Dark Fibre Africa Optical Fibre Infrastructure and because of that, listed below are the terms and conditions to consider and adhere to:**

1. **The DFA Fibre Optical route is indicated on the attached drawing provided by the wayleave administrator. The "exact-position" of the route cannot be guaranteed.**
2. **DFA has approved the planned work from the documents received.**
3. **If the planned work exceeds the boundaries of the demarcated portion of the map / drawing provided; it will be required to submit a supplementary application to DFA in order to identify existing DFA infrastructure outside this area.**
4. **Should DFA suffer damage and/or loss as a result of the works, DFA shall hold the you liable for such damage and/or loss.**
5. **Please note that the DFA network is live and caries traffic for a number of subscribers. If you damage the network, the subscribers will have a claim against DFA for which you will also be held liable.**
6. **The applicant or employed contractor must contact the relevant DFA Preventative Maintenance at least 5 working days prior to commencement of work to arrange a site/kick of meeting.**

**Contact details are as follows:**
**Name: Daniel Makhale**
**Cell Number: 0826052996**
**Email Address: daniel.makhale@dfafrica.co.za**

7. **Damaged Infrastructure must immediately be reported in writing to Judy Phalane, judy.phalane@dfafrica.co.za. For immediate assistance call +27 11 202 4700 for all damages caused to DFA infrastructure.**
8. **Cable Protection Slabs, which are precast concrete slabs used for the protection of DFA's underground cables and other services, must be used when installing services near DFA.**
9. **The standard cable protection slab is 900mm x 200mm x 75 thick. The slab will be reinforced with 3.55mm high tensile wires at 100mm center in both directions.**
10. **Minimum depth of DFA cable cannot be guaranteed and may differ from descriptions on municipality wayleave conditions. The position can vary from a minimum of 300mm to 1200mm in depth in municipal road reserves. This depth may be less in the road carriage way. The DFA Preventative Maintenance department must be contacted 48 hours prior to excavation in these locations.**
11. **In some locations, a warning plastic marker tape has been placed as an indication that DFA network is in the vicinity. Should this marker be removed for construction purposes, DFA preventative maintenance must be contacted in order to arrange new warning tape to be installed by your contractor in accordance with DFA specifications.**
12. **Any excavations by means of self-propelled mechanical machinery, including equipment used for drilling/boring, demolishing and or compaction of soil be executed closer than 500mm from buried DFA optical cables, must be authorized by a DFA official during an on-site meeting before such excavation is to take place. Such excavations may not be executed directly above the DFA infrastructure at any time unless prior written approval is obtained.**
13. **No blasting may be executed near the proximity of DFA optical fibre infrastructure without supervision of a DFA preventative Maintenance Officer.**
14. **This approval letter is valid for 6 months from date of issue. The applicant must re-apply to DFA wayleave administration at services@dfafrica.co.za in Gauteng/ Pretoria, serviceskzn@dfafrica.co.za in Kwa Zulu Natal, serviceswr@dfafrica.co.za in Western Region, after the expiration thereof. If a contactor works under an expired DFA wayleave, DFA officials shall serve a stop work order to the contractor until the conditions are rectified.**
15. **The applicant, or employed contractor responsible for the projector maintenance work as stated in the applicant's letter must at all times have on their person or on site:**
    a. **The Services Affected letter**
    b. **Call Before you Dig Letter; and**
    c. **Drawing / Map supplied by DFA**

    **Should the documentation not be available on request DFA officials may order the contractor to cease all works liaise with the local authorities / municipality for penalties until such approvals are made available and presented to the officer.**
16. **This approval shall be withdrawn and of no effect should: --The applicant does not comply with any of the conditions set out above paragraphs 1 to 15.**
17. **If you require Dark Fibre Africa Services to be relocated to a new position to accommodate your project please be advised that Relocation of Dark Fibre Africa's established infrastructure may take up to a minimum of 12 weeks for completion (commencing after settlement of the relocation costs have been received in full) unless prior arrangements and/or written agreements are conveyed and authorized by DFA officials for specialized projects and/or**

**emergency relocations. Please note: Costs for re-positioning of DFA infrastructure may be for your firm's account. Please call 012 443 1000 to arrange a site meeting. DFA will not be held liable for any delays to your project caused by DFA relocation projects whatsoever.**

**18. DFA Important Contact Information:**
**Network Operating Centre: 0800 628 662**
**Wayleave Administrator: Mpho Kekana**
**Email: mpho.kekana@dfafrica.co.za**

**Call before you dig letter**
**For site meeting requests refer to the comments received from DFA included under Appendix E, Appendix 4.**

**Reporting damages to infrastructure only (no site meetings)**
**Judy Phalane 011 202 4700 email: Judy.phalane@dfafrica.co.z**

**1 1 The DFA Fibre Optical route is indicated on the attached drawings provided by their wayleave administrator. The exact-position of the route cannot be guaranteed.**
**2 DFA has approved the planned work from the documents received and reference above.**
**3 If the planned work exceeds the boundaries of the demarcated portion of the map / drawing provided; you will be required to submit a supplementary application to DFA in order to identify existing DFA infrastructure outside this area. DFA SERVICES MAY BE AFFECTED OUTSIDE THE DEMARCATED AREA SHOWN ON THE DIAGRAM!**
**2 Should DFA suffer damage and/or loss as a result of your works, DFA shall hold you liable for such damage and/or loss.**

***You are requested to contact Dark Fibre Africa in the event of:***

**I. Damages to DFA telecoms Infrastructure, immediately contact Judy Phalane 011 202 4700 or alternatively by email: judy.phalane@dfafrica.co.za**
**II. Upon receiving this form to set up a site meeting with a Preventative Maintenance Officer.**
**III. Should the project involve excavation near DFA services, DFA Preventative Maintenance must be contacted, to dispatch a kick off site meeting prior to commencement of such work, via electronic mail**

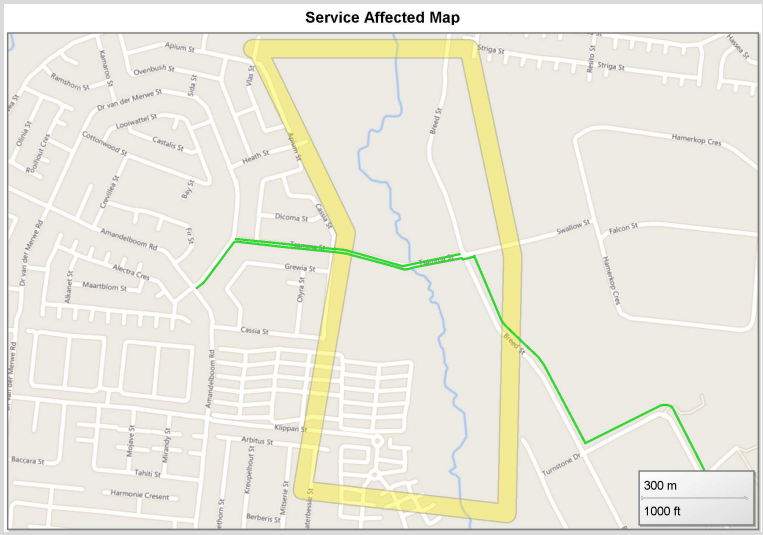



**Figure 8: DFA Service Affected Map**

**GDARD**

***A. Alignment of the activity with applicable legislation and policies***

**The activities applied for must comply with the relevant legislations as outlined in Section A, Subsection 2 of the Draft BAR. Furthermore, the Gauteng Provincial Environmental Management Framework (GPEMF) must be considered. These must be addressed in the final BAR and the EMPr where possible .**

***B. Environmental Sensitivities on the proposed site***

**The proposed site falls within an Ecological Support Areas as per C-Plan Version 3.3 because of Montana Spruit/River. Furthermore, the GIS reveals the presence Mammal Red Listed Habitat (Spotted-necked otter), Orange Listed Plants (Argyrolobium megarrhizum Bolus) and Primary Vegetation (Marikana Thornveld) on the proposed site. The Montana Spruit falls within Zone 2 – High Control Zone (Inside Zone 1) and the other area falls within Zone 1 – Urban Development Zone.**

***C. Alternatives***

**Alternative 1 differs from the Proposal in that the upgrade and re-alignment of Tsamma Street will consider lowering the stormwater crossing but will keep the existing 9 x Ø450mm concrete pipe culverts in its current state.**

***D. Significant rating of impacts***

**The Department acknowledges that sufficient mitigation measures (related to the activities applied for) have been identified in terms of construction and operational impacts which propose that the suggested mitigation measures can reduce the impacts of the development to an appropriate level.**

***E. Locality map and layout plans or facility illustrations***

**The Department is satisfied with the locality and layout maps provided in the DBAR.**

***F. Environmental Management Programme (EMPr)***

**It is important to note that the EMPr included must be practical, site specific and easily enforceable. The Department acknowledges that impacts to the surrounding environment can be mitigated to acceptable levels by strict and proactive implementation of the mitigatory measures contained in the EMPr. The EMPr must be drafted in accordance to Appendix 4 of the 2014 EIA Regulations.**

***G Public Participation Process***

**A comprehensive I&AP's register with all parties who may be potentially affected by the development must be included. Proof of notification to all the potentially affected parties must be presented in the Final BAR. This must include a copy of the documents provided to the interests and affected parties upon notification on the BA process.**

**Please note that necessary documentation, including comments from stakeholders, must be included in all applicable appendices. All public participation documents should contain information as required in terms of the EIA Regulations, 2014 (as amended). You are hereby reminded that the Final Basic Assessment report must be a consolidated report, especially in terms of Public participation, capturing all the information and comments that were submitted and received since the inception of the proposed development.**

***H. Any other issues noted***

**You are hereby reminded that construction may not commence until the EIA process is finalised i.e. Environmental Authorisation is granted or refused.**

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

## 4. GENERAL PUBLIC PARTICIPATION REQUIREMENTS

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

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

## 5. APPENDICES FOR PUBLIC PARTICIPATION

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

Appendix 1 – Proof of site notice

Appendix 2 – Written notices issued as required in terms of the regulations

Appendix 3 – Proof of newspaper advertisements

Appendix 4 –Communications to and from interested and affected parties

Appendix 5 – Minutes of any public and/or stakeholder meetings

Appendix 6 - Comments and Responses Report

Appendix 7 –Comments from I&APs on Basic Assessment (BA) Report

Appendix 8 –Comments from I&APs on amendments to the BA Report

Appendix 9 – Copy of the register of I&APs

# SECTION D: RESOURCE USE AND PROCESS DETAILS

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

**Instructions for completion of Section D for alternatives**

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

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

Section D Alternative No. "insert alternative number" (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** / NO

If yes, what estimated quantity will be produced per month? **± 5 000 m$^3$**

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

**The contractor will be responsible for removing all solid construction waste, and disposing of it at an appropriately licensed dumping site/landfill. The solid waste produced will be collected on site by the contractor on a regular basis and will be disposed of at a registered landfill site. No waste or construction rubble should be allowed to remain on site for any extended period of time. Empty 22 gallon steel drums should be placed at convenient locations on site for workers to dispose of domestic waste produced during construction. These drums should be emptied when full for disposal at a registered landfill site.**

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

**At a Registered Landfill Site**

Will the activity produce solid waste during its operational phase? YES / **NO**

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

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

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

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

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

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

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

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:

**Liquid effluent (other than domestic sewage)**

| | | |
|---|---|---|
| Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system? | YES | **NO** |
| 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 liquid effluent to be generated by this activity(ies)? | YES | NO |

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

**Liquid effluent (domestic sewage)**

| | | |
|---|---|---|
| Will the activity produce domestic effluent that will be disposed of in a municipal sewage system? | YES | **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? | YES | **NO** |

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

**Emissions into the atmosphere**

| | | |
|---|---|---|
| Will the activity release emissions into the atmosphere? | YES | **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:

**Dust could potentially be generated by the proposed activity during the construction phase. The quantity of dust generated should however be minimal and will not be a significant source of air pollution, neither is it expected that this temporary impact will be of a high significance rating. However, the wetting of bare soil surfaces should be carried out if complaints are received from adjacent landowners and if excessive dust is generated on site.**

## 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** |
|---|---|---|---|---|---|
| | | | | | |

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** | NO |

If yes, list the permits required

| |
|---|
| **Water Use Licence for Section 21 (c) and (i) water uses.** |

| | | |
|---|---|---|
| If yes, have you applied for the water use permit(s)? | **YES** | NO |
| If yes, have you received approval(s)? (attached in appropriate appendix) | **YES** | NO |

## 3. POWER SUPPLY

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

| |
|---|
| **The area is currently supplied with power by Eskom. Should power be needed during the construction phase of the activity this will be sourced from the existing power supplier (ESKOM). It is not envisaged that the proposed development will need power during the operational phase.** |

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:

| |
|---|
| **No greenhouse gasses will be generated and no energy efficiency is required as all elements are natural as the upgrade is inside a natural stream.** |

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

| |
|---|
| **No greenhouse gasses will be generated and no energy efficiency is required as all elements are natural as the upgrade is inside a natural stream.** |

# 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.

| Issue | Name | Date |
|---|---|---|
| **No objection. Would like to be updated on the progress as they intend to develop a school on their applicable site in the near future.** | **D. Le Roux Curro** | **4 April 2019** |
| **Requested to be registered as an I&AP and would like to be informed of all discussions and decisions, as the Montana Spruit runs through her property.**<br><br>**At this stage they welcome the project.**<br><br>**Requested the impact on her property alone? It is Portion 36 of the farm Doornpoort.**<br><br>**Information was forwarded to Ms. Le Hanie**<br><br>**Ms. Le Hanie responded that she approves the pink flood lines and wishes for the project to be done ASAP.** | **S. Le Hanie** | **3 April 2019**<br>**1 August 2019**<br>**28 August 2019** |
| **Requested to be registered as an I&AP and would like know when the project will commence as well as the duration of the construction period.**<br><br>**In favour of the project.** | **T. Erasmus** | **19 March 2019** |
| **The proposed Montana Spruit Channel improvement is highly recommended and he hopes all residents will be interested in this proactive move by Authorities.** | **M. Mmushi** | **19 March 2019** |
| **Requested that the Bougainvilla Retirement Village be registered as an I&AP.**<br><br>**The spruit has an impact on the Retirement Village in terms of the flood lines and dangers that threaten the Retirement Village.**<br><br>**Requested a copy of the Draft BAR.** | **R. Groenewald Bougainvilla Retirement Village** | **18 March 2019**<br>**30 July 2019** |
| **Home owner adjacent to the proposed Montana Spruit channel improvement. Concerned about the impact on the nature habitat that the spruit provides on his property and his neighbour's property. The spruit in his property provides a home for over 89 bird species and he doesn't want to take that environment away. What will be done to assure the spruit still provides a home for these bird species. There are also several** | **R. Kuhn** | **19 March 2019** |

| Issue | Name | Date |
|---|---|---|
| **frog species, 3 fish species and water turtles in the spruit on his property.** | | |
| **1. Impact of said improvement on his property usage**<br>**2. Wildlife conservation impact in area, Bullfrogs etc.** | **D. Leeuw** | **12 April 2019** |
| **Planned for 20 years already and still nothing. Just the one report after the next and by the time some approval was obtained, then the old report has expired and the process had to start all over again. Quite some severe erosion on Eastern Bank of spruit at Tsamma street bridge North. Spruit has moved around 15m East over the past 20 years due to consisted erosion removing the eastern bank soil, taking place from floodwater. Western bank has moved same distance east and accordingly the entire spruit has changed location in the past 20 years. The original problem was in fact caused by City of Tshwane who used TLB's in 1996/1997 to open spruit in an attempt to prevent stormwater blockage. This would have been a temporary solution at the time. However, the permanent solution of channelling the spruit has still not happened regardless of the number of Council meetings, Public meeting and litigation that took place over the years. This problem is due to extensive city developments upstream in the spruit catchment area between Zambezi Street (south) and Tsamma Street and N4 and Dr van der Merwe Street, but with no provision for the accelerated stormwater downstream. When he lodged the first query regarding flood water, to City of Tshwane in 1996, there was not even a Tsamma Street at the time. However, the street and bridge in Tsamma Street were nevertheless built without approval, and still nothing was done around the flood water problem. This Tsamma Street bridge is flooded just about every time there is rain of more than 10mm at a time and accordingly this flooding is regular and cars are washed from the bridge into the flooded spruit. Tshwane Metro Police use to block the road in the past when flooded, but in recent years they always had some sort of excuse for not being available to close the road when flooded. It is alarming the amount of resources spent over the past 20 years because of the problem, not even to mention all the reports. This flooding is a severe safety risk to the public. Keep security fence in mind at planning.** | **L. Leeuw** | **28 March 2019** |

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):

**SASOL**
**No response required**

**Transnet Pipelines**
**No response required**

**Transnet Freight Rail / Property**
**No response required**

**Dark Fibre Africa**
**Dark Fibre Africa's terms and conditions will be considered and adhered to.**

**SAHRA**
**No feedback received from SAHRA.**

**DAFF**
**A copy of the Draft BAR was submitted to DAFF on 29 August 2019.**

**The property Windeeds were submitted to DAFF on 16 September 2019.**

**D. Le Roux – Curro / S. Le Hanie / T. Erasmus / M. Mmushi**
**Registered as I&APs. The availability of the Draft and Final Basic Assessment Reports was communicated to all I&APs and they were afforded the opportunity to comment on the reports.**

**S. Le Hanie**
**Registered as I&APs. The availability of the Draft and Final Basic Assessment Reports was communicated to all I&APs and they were afforded the opportunity to comment on the reports.**

**The following information was forwarded on 28 August 2019:**
- **General layout plan for the project**
- **Kmz indicating the Project Footprint**
- **Kmz indicating the properties affected by the project (including Ms. Le Hanie's property)**
- **Kmz indicating the current floodlines**
- **Kmz indicating the anticipated floodlines on completion of the project.**

**The pink flood line is the 1:50 year flood line anticipated on completion of the project.**

**The 1:50 year and 1:100 year flood lines anticipated on completion of the project is included in the General Layout Plan under Appendix A.**

**R. Groenewald - Bougainvilla Retirement Village**
**The Bougainvilla Retirement Village was registered as an I&AP. The availability of the Draft and Final Basic Assessment Reports was communicated to all I&APs and they were afforded the opportunity to comment on the reports. The project intends to improve the Montana Spruit between an area 600m upstream of the Tsamma Road stream crossing and to about 600m downstream of the Tsamma Road crossing in order to reduce the impact of the 1:100-year flood on adjacent properties and houses. The shape of the spruit will be improved to accommodate more flow and to ensure that all the buildings and houses adjacent to the spruit are located outside the 1:100-year flood line.**

**Mr. Groenewald collected a copy of the report on 28 August 2019.**

**R. Kuhn / D. Leeuw**
**Please refer to Appendix G for Environmental Specialist Studies conducted for the proposed project.**

**An Impact Assessment, incorporating all Environmental Aspects and providing mitigation measures for anticipated impacts, is also included under Section E of the Basic Assessment Report.**

**A Rehabilitation and Floodplain Restoration Plan as well as an Ecological Management Plan was compiled and reviewed during July 2019 and will be implemented.**

**Please take note of the following summary addressing environmental concerns:**
- **It is unlikely that any priority aquatic species are present in the study site.**
- **Only three main macro-invertebrate species were observed during the SASS assessment, namely, aquatic earthworms, crabs and midges.**
- **The aquatic macro-invertebrate was determined to be poor. In other words, the stream and immediate aquatic ecosystem are not sensitive in terms of aquatic biota.**
- **No fish were observed in the study area. No priority fish occur in the study site.**
- **Marikana Thornveld, is a threatened ecosystem with a status of vulnerable (VU).**
- **It is unlikely that any priority faunal species are resident, with the possible exception of bullfrogs, but these more in the open thornveld area north of the study site. Although no known colonies are present in the area.**
- **No RDL fauna or flora species were observed in the study site, or within a 200m radius of the study site.**

**L. Leeuw**
**The embankment of the spruit will be 1:5 and hydro seeded for erosion protection. Some section of the spruit buildings and walls are close to the waterfront and a gabion basket wall will be used for erosion protection. The embankments at the Tsamma crossing will be lined with reno mattresses to protect against erosion.**

**The 1:50 and 1:100 year return period flood may cause extensive surface erosion and it is important that the slope and surfaces be protected by grass. The topsoil will be replaced on the entire disturbed area and will be hydroseeded with a recommended seed mixture. The disturbed spruit area will be rehabilitated as recommended in the Rehabilitation and Floodplain Restoration Plan and the Review Rehabilitation Plan.**

**Proposed improvements for the upstream and downstream areas of the project site are being undertaken by Private Developers. Improvement works are currently underway on the upstream area.**

**The existing Tsamma Street will be reconstructed on the same horizontal alignment as before. The vertical alignment will be changed to lower the road and accommodate the culvert crossing. The lowering of the road is also**

**required to ensure that the 1:100-year flood can overtop the road without the flood lines encroaching against the buildings on adjacent land.**

**The 9 x Ø450mm existing concrete pipe has insufficient capacity to accommodate the minor flood and will be replaced by 20 1500x450mm CL100S portal culverts to accommodate the 1:2-year flow. Flow from storms greater than the 1:2-year recurrence interval will overtop Tsamma Street and run on surface.**

**The roadway will be 6.0m wide consisting of 2 x 3,0m lanes in each direction. The higher side of the road will have a 400mm sloping kerb with a 2m wide paved walkway and the lower side will have a 400mm sloping kerb. The road will have a 3% crossfall with the natural slope to improve on the channel flow and to drain surface water away.**

**Please refer to Drawing 03U05 under Annexure C of the Design Development Report under Appendix G for the fence layout.**

**<u>DWS</u>**

1. **A Water Use Licence (included under Appendix F) dated 28 March 2015 with Licence No: 03/A23E/CI/2692 was issued for this project.**

   **Condition 12 under Appendix I of the licence, reads as follows:**
   ***"If the water use described in this licence is not exercised within 3 years of the date of the licence, the authorisation will be withdrawn. Upon commencement of the water use, the Licensee must inform the Provincial Head in writing"***

   **The client, City of Tshwane, requested input from the Department of Water and Sanitation regarding the validity of the licence. Feedback from DWS is awaited.**

2. **The agreement between City of Tshwane Metropolitan Municipality and Contractor regarding waste management during construction phase will be submitted to the Department of Water and Sanitation.**

3. **A Stormwater Management Plan is included under Appendix G. The Final BAR (including the Stormwater Management Plan) will be submitted to the City of Tshwane Metropolitan Municipality.**

4. **A Water Use Licence (included under Appendix F) dated 28 March 2015 with Licence No: 03/A23E/CI/2692 was issued for this project.**

   **The client, City of Tshwane, requested input from the Department of Water and Sanitation regarding the validity of the licence. Feedback from DWS is awaited.**

5. **It is noted that DWS will inspect this project at any time to ensure compliance.**

6. **A Water Use Licence (included under Appendix F) dated 28 March 2015 with Licence No: 03/A23E/CI/2692 was issued for this project.**

   **The client, City of Tshwane, requested input from the Department of Water and Sanitation regarding the validity of the licence. Feedback from DWS is**

**awaited.**

**City of Tshwane: Environment and Agriculture Management Department**

**a) Recommendations from the attached specialist studies will be adhered to.**
**b) The Tshwane by-laws will be adhered throughout the lifespan of the project**
**c) The proposed activity will be constructed according to the finalised and approved EMPr.**
**d) The final approved EMPr will be made available at the construction site and the project will follow the recommendations from the EMPr. An independent ECO will be appointed to ensure compliance to the approved EMPr recommendations.**

**GDARD**

***A. Alignment of the activity with applicable legislation and policies***

**The activities applied for comply with the relevant legislations as outlined in Section A, Subsection 2 of the Final BAR. The GPEMF is considered under Section A, Subsection 2 of the Final BAR.**

***B. Environmental Sensitivities on the proposed site***

**The Ecological Support Areas as per C-Plan Version 3.3 is discussed under Section A, Subsection 2 of the Final BAR.**

**No RDL fauna or flora species were observed in the study site, or within a 200m radius of the study site during field investigations. According to the Review Ecological Assessment (included under Appendix G) the Spotted-neck Otter has a 50% probability of occurring in the study area.**

***Argyrolobium megarrhizum* (Liquorice Bean) is a near threatened (NT) legume herbaceous plant that is found on the Orange Data Listed (ODL) plant species list of Gauteng Province. The plant was not observed during field investigations at Montanaspruit and is highly unlikely to occur in the study area itself due to the lack of ideal habitat. A. *megarrhizum* grows in rocky grassland / grassland and requires veld fires to initiate germination of seeds. The study site is a stream with riparian area and heavy soils, which is not typical habitat. The plant has limited and isolated distribution and is more likely to occur further north of the site as well as further east towards Bronkhorstspruit.**

**Marikana Thornveld is discussed under Section 8.1 of the Review Ecological Report (included under Appendix G).**

**The GPEMF is discussed under Section A, Subsection 2 of the Final BAR.**

***C. Alternatives***

**Alternative 1 differs from the Proposal in that the upgrade and re-alignment of Tsamma Street will consider lowering the stormwater crossing but will keep the existing 9 x Ø450mm concrete pipe culverts in its current state.**

***D. Significant rating of impacts***

**Noted.**

***E. Locality map and layout plans or facility illustrations***

**Noted.**

***F. Environmental Management Programme (EMPr)***

**The Final EMPr, included under Appendix H is in accordance to Appendix 4 of the 2014 EIA Regulations.**

***G Public Participation Process***
**A comprehensive I&AP's register with all parties who may be potentially affected by the development is included under Appendix E. Proof of notification to all the potentially affected parties is presented in the Final BAR and included under Appendix E.**

**All public participation documents are included under Appendix E.**

***H. Any other issues noted***
**Noted.**

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

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

**Criteria used to determine the Consequence of an Impact**

### Table 2: Methodology

| Rating | Definition of Rating | Score |
|---|---|---|
| **A. Extent – *the area in which the impact will be expected*** | | |
| None | | 0 |
| Local | Confined to project or study area or part thereof (eg. site) | 1 |
| Regional | The region, which may be defined in various ways, eg. Cadastral, catchment, topographic | 2 |
| (Inter) national | Nationally or beyond | 3 |
| **B. Intensity – *the magnitude or size of the impact*** | | |
| None | | 0 |
| Low | Natural and/or social functions and processes are negligibly altered | 1 |
| Medium | Natural and/or social functions and processes continue albeit in a modified way | 2 |
| High | Natural and/or social functions or processes are severely altered | 3 |
| **C. Duration – *the time frame for which the impact will be experienced*** | | |
| None | | 0 |
| Short term | Up to 2 years | 1 |
| Medium term | 2 – 15 years | 2 |
| Long Term | More than 15 years | 3 |

**The combined score of these three criteria corresponds to a Consequence Rating, as set out in Table below:**

### Table 3: Methods used to determine the Consequence Score

| Combined score (A+B+C) | 0 - 2 | 3 - 4 | 5 | 6 | 7 | 8-9 |
|---|---|---|---|---|---|---|

| | | | | | | |
|---|---|---|---|---|---|---|
| Consequence Rating | Not significant | Very low | Low | Medium | High | Very high |

**Once the consequence is derived, the probability of the impact occurring is considered, using the probability classifications indicated in table below:**

### Table 4: Probability Classification

| Probability of impact – the likelihood of the impact occurring | |
|---|---|
| Improbable | < 40% chance of occurring |
| Possible | 40% - 70% chance of occurring |
| Probable | > 70% - 90% chance of occurring |
| Definite | > 90% chance of occurring |

**The overall significance of impacts is determined by considering consequence and probability using the rating system indicated in table below:**

### Table 5: Impact Significance Rating

| Significance Rating | Consequence | | Probability |
|---|---|---|---|
| Insignificant | Very low | & | Improbable |
| | Very low | & | Possible |
| Very Low | Very low | & | Probable |
| | Very low | & | Definite |
| | Low | & | Improbable |
| | Low | & | Possible |
| Low | Low | & | Probable |
| | Low | & | Definite |
| | Medium | & | Improbable |
| | Medium | & | Possible |
| Medium | Medium | & | Probable |
| | Medium | & | Definite |
| | High | & | Improbable |
| | High | & | Possible |
| High | High | & | Probable |
| | High | & | Definite |
| | Very high | & | Improbable |
| | Very high | & | Possible |
| Very High | Very high | & | Probable |
| | Very high | & | Definite |

**In conclusion the impacts are also considered in terms of their status (positive or negative impact) and the confidence in the ascribed impact significance rating. The prescribed system for considering impacts status and confidence (in assessment) is indicated in table below.**

### Table 6: Impact status and confidence classification

| Status of Impact | |
|---|---|
| Indication of where the impact is adverse (negative) or beneficial (positive) | + ve (positive – a 'benefit') |
| | - ve (negative – a 'cost') |
| | Neutral |
| **Confidence of assessment** | |
| The degree of confidence in predictions based on available information, EAP's judgement and/or specialist knowledge | Low |
| | Medium |
| | High |

**The impact significance rating should be considered by GDARD in their decision-**

**making process based on the implications of ratings ascribed below:**

- **Insignificant: the potential impact is negligible and will not have an influence on the decision regarding the proposed activity / development;**
- **Very low: the potential impact should not have any meaningful influence on the decision regarding the proposed activity / development;**
- **Low: the potential impact may not have any meaningful influence on the decision regarding the proposed activity / development;**
- **Medium: the potential impact should influence the decision regarding the proposed activity / development;**
- **High: the potential impact will affect the decision regarding the proposed activity / development;**
- **Very high: The proposed activity should only be approved under special circumstances.**

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.

## Potential Impacts for the construction and operational phase

## Proposal

### Table 7: Potential Impacts for the construction and operational phase – Proposal

| Potential Impact | Extent A | Intensity B | Duration C | Consequence A+B+C | Probability | Impact Significance | Status | Confidence |
|---|---|---|---|---|---|---|---|---|
| **CONSTRUCTION PHASE** | | | | | | | | |
| **1. ISSUE: AIR QUALITY** | | | | | | | | |
| 1.1 Dust/Air pollution - The generation of fugitive dust associated with construction activities & earthworks. | **Local (1)** | **Medium (2)** | **Short term (1)** | **Very Low (4)** | **Definite** | **Very Low & Definite = Very Low** | **-ve** | **high** |
| **2. ISSUE: VISUAL IMPACTS** | | | | | | | | |
| 2.1 Visual Intrusion and Light Pollution – . Lights from the contractor's camp and construction site could be visually intrusive. | **Regional (2)** | **Medium (2)** | **Short term (1)** | **Low (5)** | **Definite** | **Low & Definite = Low** | **-ve** | **high** |
| 2.2 Impact on the visual character of the area | **Local (1)** | **High (3)** | **Short term (1)** | **Low (5)** | **Definite** | **Low & Definite = Low** | **-ve** | **High** |
| **3. ISSUE: GEOLOGY AND SOILS** | | | | | | | | |
| 3.1 Soil erosion, loss of topsoil, deterioration of soil quality | **Regional (2)** | **High (3)** | **Short term (1)** | **Medium (6)** | **Probable** | **Medium & Probable = Medium** | **-ve** | **High** |
| 3.2 Soil pollution | **Regional (2)** | **High (3)** | **Short term (1)** | **Medium (6)** | **Probable** | **Medium & Probable = Medium** | **-ve** | **High** |
| **4. ISSUE: FAUNA AND FLORA** | | | | | | | | |
| 4.1 Site clearing and the removal | **Regional (2)** | **High (3)** | **Short term (1)** | **Medium (6)** | **Definite** | **Medium & Definite =** | **-ve** | **high** |

| Potential Impact | Extent A | Intensity B | Duration C | Consequence A+B+C | Probability | Impact Significance | Status | Confidence |
|---|---|---|---|---|---|---|---|---|
| of vegetation | | | | | | **Medium** | | |
| 4.2 Degradation, destruction of habitats/ ecosystems and loss of natural vegetation | **Regional (2)** | **High (3)** | **Short term (1)** | **Medium (6)** | **Definite** | **Medium & Definite = Medium** | **-ve** | **high** |
| 4.3 Impacts on fauna and flora and loss of RDL faunal and floral species | **Local (1)** | **Medium (2)** | **Medium term (2)** | **Low (5)** | **Probable** | **Low & Probable = Low** | **-ve** | **high** |
| 4.4 Invasive Species | **Local (1)** | **High (3)** | **Medium term (2)** | **Medium (6)** | **Probable** | **Medium & Probable = Medium** | **-ve** | **high** |
| **5. ISSUE: HYDROLOGY** | | | | | | | | |
| 5.1 Stormwater flow and drainage | **Regional (2)** | **High (3)** | **Short term (1)** | **Medium (6)** | **Probable** | **Medium & Probable = Medium** | **-ve** | **High** |
| 5.2 Impact on water quality | **Regional (2)** | **High (3)** | **Short term (1)** | **Medium (6)** | **Probable** | **Medium & Probable = Medium** | **-ve** | **High** |
| 5.3 Sedimentation of the channel and the downstream spruit | **Regional (2)** | **High (3)** | **Short term (1)** | **Medium (6)** | **Probable** | **Medium & Probable = Medium** | **-ve** | **medium** |
| **SOCIO-ECONOMIC AND CULTURAL HISTORICAL ENVIRONMENT** | | | | | | | | |
| **6. ISSUE: AESTHETICS, LANDSCAPE CHARACTER AND SENSE OF PLACE** | | | | | | | | |
| 6.1 Noise/ vibration | **Regional (2)** | **Medium (2)** | **Short term (1)** | **Low (5)** | **Definite** | **Low & Definite = Low** | **-ve** | **High** |
| 6.2 Impact on the privacy of adjacent land owners. | **Regional (2)** | **High (3)** | **Short term (1)** | **Medium (6)** | **Probable** | **Medium & Probable = Medium** | **-ve** | **High** |
| **7. ISSUE: SOCIAL WELL-BEING AND QUALITY OF THE ENVIRONMENT** | | | | | | | | |
| 7.1 Safety and Security | **Regional (2)** | **High (3)** | **Short term (1)** | **Medium (6)** | **Probable** | **Medium & Probable = Medium** | **-ve** | **High** |
| 7.2 Employment opportunities | **Regional (2)** | **High (3)** | **Short term (1)** | **Medium (6)** | **Definite** | **Medium & Definite = Medium** | **+ ve** | **Medium** |
| **8. ISSUE: HISTORICAL ENVIRONMENT** | | | | | | | | |
| 8.1 Destruction of cultural / heritage sites | **None** | **None** | **None** | **Not significant (0)** | **Improbable** | **Not Significant & Improbable = Insignificant** | **-ve** | **low** |
| **9. ISSUE: TRAFFIC** | | | | | | | | |
| 9.2 Traffic- Construction Vehicles | **Regional (2)** | **High (3)** | **Short term (1)** | **Medium (6)** | **Probable** | **Medium & Definite = Medium** | **-ve** | **High** |
| **INFRASTRUCTURE, SERVICES AND WASTE** | | | | | | | | |
| **10. ISSUE: SERVICES AND WASTE** | | | | | | | | |
| 10.1 Waste | **Local (1)** | **High (3)** | **Short term (1)** | **Low (5)** | **Probable** | **Low & Definite = Low** | **-ve** | **High** |
| 10.2 Pressure on existing infrastructure and services | **Regional (2)** | **High (3)** | **Short term (1)** | **Medium (6)** | **Probable** | **Medium & Definite = Medium** | **-ve** | **High** |
| 10.3 Construction activities at | **Regional (2)** | **High (3)** | **Short term (1)** | **Medium (6)** | **Definite** | **Medium & Definite = Medium** | **-ve** | **High** |

| Potential Impact | Extent A | Intensity B | Duration C | Consequence A+B+C | Probability | Impact Significance | Status | Confidence |
|---|---|---|---|---|---|---|---|---|
| Tsamma Street | | | | | | | | |
| **11. ISSUE: REHABILITATION** | | | | | | | | |
| 11.1 Rehabilitation during construction | **Regional (2)** | **High (3)** | **Medium term (2)** | **High (7)** | **Definite** | **High & Definite = High** | **-ve** | **High** |
| **OPERATIONAL PHASE** | | | | | | | | |
| **1. ISSUE: FAUNA AND FLORA** | | | | | | | | |
| 1.1 Species of Conservation Concern: Rescue, Persistence and Monitoring | **Local (1)** | **Medium (2)** | **Long term (3)** | **Medium (6)** | **Probable** | **Medium & Definite = Medium** | **-ve** | **High** |
| 1.2 Alien Invasion | **Local (1)** | **Medium (2)** | **Long term (3)** | **Medium (6)** | **Probable** | **Medium & Definite = Medium** | **-ve** | **High** |
| **2. ISSUE: HYDROLOGY** | | | | | | | | |
| 2.1 Stormwater flow and drainage | **Local (1)** | **High (3)** | **Long term (3)** | **High (7)** | **Probable** | **High & Probable = High** | **-ve** | **High** |
| 2.2 Erosion of drainage lines, riparian zone and floodplain | **Local (1)** | **Medium (2)** | **Long term (3)** | **Medium (6)** | **Definite** | **Medium & Definite = Medium** | **-ve** | **high** |
| **SOCIO-ECONOMIC** | | | | | | | | |
| **3. ISSUE: SOCIAL WELL-BEING AND QUALITY OF THE ENVIRONMENT** | | | | | | | | |
| 3.1 Safety and Security | **Local (1)** | **Low (1)** | **Long term (3)** | **Low (5)** | **Probable** | **Low & Probable = Low** | **-ve** | **High** |
| **INFRASTRUCTURE, SERVICES** | | | | | | | | |
| **4. ISSUE: INFRASTRUCTURE ANDSERVICES** | | | | | | | | |
| 4.1 Contribute to the provision of quality basic services and infrastructure in the area | **Regional (2)** | **Medium (2)** | **Long term (3)** | **High (7)** | **Probable** | **High & Probable = High** | **+ve** | **High** |
| 4.2 Infrastructure at Tsamma Street - 20 (1500 x 450mm) portal culverts | **Local (1)** | **Medium (2)** | **Long term (3)** | **Medium (6)** | **Definite** | **Medium & Definite = Medium** | **+ve** | **high** |

## Potential Impacts for the construction and operational phase

## Alternative 1

**The potential impacts for the construction phase and operational phase for Alternative 1 is similar to that of the proposal with the only exception being the Infrastructure at Tsamma Street, which will consist of 9 x Ø450mm existing concrete pipe culverts.**

**Table 8: Potential Impacts for the construction and operational phase – Alternative 1**

| Potential Impact | Extent A | Intensity B | Duration C | Consequence A+B+C | Probability | Impact Significance | Status | Confidence |
|---|---|---|---|---|---|---|---|---|
| **OPERATIONAL PHASE** | | | | | | | | |
| **INFRASTRUCTURE, SERVICES** | | | | | | | | |
| **4. ISSUE: INFRASTRUCTURE ANDSERVICES** | | | | | | | | |

| Potential Impact | Extent A | Intensity B | Duration C | Consequence A+B+C | Probability | Impact Significance | Status | Confidence |
|---|---|---|---|---|---|---|---|---|
| 4.2 Infrastructure at Tsamma Street - 9 x Ø450mm existing concrete pipe culverts | **Local (1)** | **Medium (2)** | **Long term (3)** | **Medium (6)** | **Definite** | **Medium & Definite = Medium** | **-ve** | **high** |

## Potential Impacts for the construction and operational phase

## NO-GO

### Table 9: Potential Impacts for the construction and operational phase – No-go Alternative

| Potential Impact | Extent A | Intensity B | Duration C | Consequence A+B+C | Probability | Impact Significance | Status | Confidence |
|---|---|---|---|---|---|---|---|---|
| **1. ISSUE: IMPLEMENTATION OF THE NO-GO ALTERNATIVE** | | | | | | | | |
| 1.1 Flooding will persist during big storm events. | **Region (2)** | **High (3)** | **Long term (3)** | **Very High (8)** | **Probable** | **Very High & Probable = Very High** | -ve | **High** |
| 1.2 The existing drainage system will not provide the flood protection standard required for future development and further development will increase the frequency, severity and extent of flooding. | **Region (2)** | **Medium (2)** | **Long term (3)** | **High (7)** | **Probable** | **High & Probable = High** | -ve | **High** |
| 1.3 Damage to properties, blockage of roads and accesses, nuisance to the public and risk to lives will remain. | **Region (2)** | **High (3)** | **Long term (3)** | **Very High (8)** | **Probable** | **Very High & Probable = Very High** | -ve | **High** |
| 1.4 No employment opportunities will be created during the construction phase | **Region (2)** | **Medium (2)** | **Short term (1)** | **Low (5)** | **Definite** | **Low & Definite = Low** | -ve | **High** |
| 1.5 The natural environment of the surrounding area will not be improved as degradation caused by erosion, sedimentation, illegal dumping and construction within the floodlines will not be minimised. | **Region (2)** | **Medium (2)** | **Long term (3)** | **High (7)** | **Probable** | **High & Probable = High** | -ve | **High** |

## Significance Rating for the construction and operational phase

## Proposal

### Table 10: Significance Rating for the construction and operational phase - Proposal

| **Potential Impacts:** | **Significance rating of impacts** | **Proposed mitigation:** | **Significance rating of impacts after** | **Risk of the impact** and **mitigation not** |
|---|---|---|---|---|

| | (positive or negative): | | mitigation: | being implemented: |
|---|---|---|---|---|
| **CONSTRUCTION PHASE** | | | | |
| **1. ISSUE: AIR QUALITY** | | | | |
| **1.1 Dust /Air pollution - The generation of dust associated with construction activities & earthworks** | **Very Low** | • Dust generation should be kept to a minimum.<br>• Dust must be suppressed at construction areas during dry periods by the regular application of water or a biodegradable soil stabilisation agent.<br>• Speed limits must be implemented in all areas, including public roads and private property to limit the levels of dust pollution.<br>• It is recommended that the clearing of vegetation from the site should be selective and done just before construction so as to minimise erosion and dust.<br>• Excavating, handling or transporting erodible materials in high wind or when dust plumes are visible shall be avoided.<br>• All materials transported to site must be transported in such a manner that they do not fly or fall off the vehicle. This may necessitate covering or wetting friable materials.<br>• No burning of refuse or vegetation is permitted.<br>• Material stockpiles must be covered with tarpaulins when the use of water or chemicals is not sufficient to prevent particulate matter from becoming airborne.<br>• Dirt or other materials that could become airborne from paved roads/areas must be<br>• promptly removed. | **Very Low** | Negative impact to the ambient air quality of the area. |
| **2. ISSUE: VISUAL IMPACT** | | | | |
| **2.1 Visual Intrusion and Light Pollution** | **Low** | • Site development to be limited to footprint area.<br>• The construction camp must be located as far from other properties as possible.<br>• Low flux and frequency lighting should be utilised.<br>• Light pollution should be minimised.<br>• Lighting on site is to be sufficient for safety and security purposes, but shall not be intrusive to neighbouring residents, disturb wildlife, or interfere with road traffic.<br>• The site must be managed appropriately and all rubbish and rubble removed to a registered landfill site.<br>• No waste may be placed in any excavations on site. | **Low** | Negative impact to the visual quality of the area including light pollution. |
| **2.2 Impact on the visual character of the area** | **Low** | • The channel should be finished with natural earth tones.<br>• The palisade fencing on either side of the roads should be constructed in such a way as to avoid visual intrusion.<br>• Trees/bushes along side the channel may be removed after consultation with adjacent landowners to avoid possible hiding places for criminals.<br>• Provide the necessary erosion control measures.<br>• Ensure that all erosion control measures are in good repair and working condition.<br>• Avoid development on excessively steep slopes.<br>• Avoid cutting steep embankments.<br>• No waste may be placed in excavations on site.<br>• Excess soil and bedrock should be disposed off at an appropriate waste | **Low** | Negative impact to the visual quality of the area. |

| | | | | |
|---|---|---|---|---|
| | | disposal facility. | | |
| **3. ISSUE: GEOLOGY AND SOILS** | | | | |
| **3.1 Soil erosion, loss of topsoil, deterioration of soil quality** | **Medium** | • Implementation of the Rehabilitation and Floodplain Restoration Plan as well as the Review Rehabilitation Plan.<br>• All construction activities should take place during winter when no rainfall is expected to occur.<br>• Attenuate flows within the drainage system, to reduce runoff velocity.<br>• Minimise the duration of land clearing.<br>• Install erosion control measures around the works and construction yard areas prior to the onset of construction.<br>• Install temporary diversion channels and silt traps within the stream channel for each section prior to undertaking earthworks adjacent to the existing channel.<br>• Identify all stormwater outlets and drainage lines entering the works area and install temporary attenuation ponds of suitable volume to detain and gradually release stormwater thereby avoiding erosion and increased sediment load within the stream in the event of out of season rainfall<br>• Stockpiles must be located outside of the proposed channel and the 1:50 year flood line;<br>• Locate stockpiles away from concentrated flows and divert stormwater around them using sandbags or low earth walls;<br>• Stockpiles must not be higher than 2m to avoid compaction,<br>• Instead of stockpiles single handling is recommended, strip topsoil and vegetation from a new work section to rehabilitate the previous work section.<br>• Reduce run-off over exposed areas by using diversion earth banks, catch drains and silt fences.<br>• Use soil saver blankets to protect exposed soil or disturbed vegetation with gradients of 1:5 or greater.<br>• Appropriate flow diversion and erosion control structures i.e. earth embankments must be put in place where soil may be exposed to high levels of erosion due to steep slopes, soil structure etc.<br>• Should a freak storm displace the temporary earth embankments or other erosion control structures, a visual inspection of the site must be made and any damage be recorded. Any damage and loss of soil resulting from a storm is to be remedied immediately. Should the temporary walls collapse due to construction error, the contractor is to fund the remediation process.<br>• Storm water at the construction crew camps must be managed so as to reduce the silt loads in the stream channel. Measures must be implemented to distribute storm water as evenly as possible to avoid point sources of erosion.<br>• Construction on steep slopes and in soft or erodable material will require erosion control measures and correct grassing methods<br>• All construction areas should be suitably top soiled and vegetated as soon as is possible after construction. Vegetation should be indicative of pre-development | **Low** | Degradation or impairment of soil quality<br><br>Soil Erosion |

| | | | | |
|---|---|---|---|---|
| | | status.<br>• Disturbed surfaces to be rehabilitated must be ripped, and the area must be backfilled with topsoil or overburden.<br>• No storage or stockpiling of any soils or construction materials should take place in areas where it may be washed into water courses.<br>• Implementation of anti-erosion measures such as the construction of berms to reduce the water velocity is essential.<br>• Only clear vegetated areas on which the proposed activity is to occur and rehabilitate these areas as soon as possible, once construction is complete.<br>• Stormwater runoff must be taken into account during design of construction camps and its flow controlled on the construction site.<br>• By maintaining the maximum amount of vegetated area on site, the extent of erosion and ecosystem loss can be contained.<br>• It is also imperative that the topsoil layer be retained and used in facilitating the reinstatement of indigenous vegetation;<br>• Backfill of trench areas must be raised to accommodate the bulking factor and subsidence.<br>• When soil is replaced, excavation and installations should be carried out when the soil is at its driest, where possible;<br>• All access roads must be demarcated, and existing roads must be used as far as possible<br>• Disturbed surfaces to be rehabilitated must be ripped, and the area must be backfilled with topsoil.<br>• All bulk fuel tanks kept on site should be appropriately and effectively bunded to a capacity of 110% of that of the tanks themselves.<br>• All hazardous materials stored on site should also be stored in an appropriately bunded and well ventilated area;<br>• All contaminated soils should be immediately removed and placed within a hazardous waste skip located on site, for end disposal at an appropriately licensed hazardous waste disposal site by a reputable waste disposal contractor;<br>• All construction vehicles and plant operating on site should be regularly serviced in order to prevent the potential for oil and fuel leaks to occur;<br>• Drip trays should be placed under vehicles that stand within the contractors yard for extended periods of time.<br>• Vehicles should not be serviced out on terrain, but only in designated workshops established for that purpose that are equipped with oil water separators and sumps for the collection of contaminated materials.<br>• Allowance will also need to be made for the environmentally friendly introduction of stormwater into the improved channel to ensure that no erosion occurs at discharge points.<br>• For the Tsamma Street Bridge it is it is recommended that rock-packed mattresses be installed immediately upslope and downslope of the bridge to ensure that no erosion occurs. | | |

| | | | | |
|---|---|---|---|---|
| **3.2 Soil Pollution** | **Medium** | • Ensure correct position of construction caps, equipment yards, refueling depots, concrete batching plant etc. to avoid areas susceptible to soil and water pollution.<br>• Ensure appropriate handling of hazardous substances.<br>• Remediate polluted soil.<br>• All construction vehicles, plant, machinery and equipment must be properly maintained to prevent leaks.<br>• Plant and vehicles are to be repaired immediately upon developing leaks. Drip trays shall be supplied for all repair work undertaken on machinery on site or campsite area.<br>• Drip trays are to be utilised during daily greasing and re-fueling of machinery and to catch incidental spills and pollutants.<br>• Drip trays are to be inspected daily for leaks and effectiveness, and emptied when necessary. This is to be closely monitored during rain events to prevent overflow.<br>• Vehicles to be used during the construction phase are to be kept in good working condition and should not be the source of excessive fumes.<br>• Fuels and chemicals must be stored in adequate storage facilities that are secure, enclosed and bunded. | **Low** | Spilled oil prevents water absorption by soil |
| **4. ISSUE: FAUNA AND FLORA** | | | | |
| **4.1 Site clearing and the removal of vegetation** | **Medium** | • Implementation of the Rehabilitation and Floodplain Restoration Plan as well as the Review Rehabilitation Plan.<br>• Implementation of the Ecological Management Plan.<br>• Only one works section may be cleared of vegetation at a time to reduce the area of exposed soil at any given time. | **Low** | Loss of and altered floral and faunal species diversity |
| **4.2 Degradation, destruction of habitats/ ecosystems and loss of natural vegetation** | **Medium** | • Implementation of the Rehabilitation and Floodplain Restoration Plan as well as the Review Rehabilitation Plan.<br>• Implementation of the Ecological Management Plan.<br>• Limit vegetation clearance to only those areas affected by the construction activities. This will also prevent the activity footprint from expanding outside the sites boundaries.<br>• Ensure re-vegetation of the cleared areas occurs as soon as possible after construction.<br>• Nutrient rich top soils must be utilized during the re-vegetation process wherever possible.<br>• Large trees on site must be retained as far as possible.<br>• No indigenous trees or woody plant species may be collected for use as firewood.<br>• No fires are permitted beyond the campsite boundaries, and no fires may be ignited with the intention to destroy the natural vegetation on site.<br>• Access to the site must be limited to the workforce only, to prevent further disturbance of the vegetation.<br>• Only indigenous species may be used during the rehabilitation process.<br>• Workers must be made aware of the Animal Protection Act (Act 71 of 1962), as well as the penalties that will incur should an animal be intentionally harmed, or harmed as a result of negligence. | **Low** | Loss of floral and faunal habitat<br><br>Loss of and altered floral and faunal species diversity |

| | | | | |
|---|---|---|---|---|
| | | • No animals may be brought into the construction site, or camp.<br>• The construction site must be kept clean and litter free to prevent attracting vermin or pest species.<br>• Flow connectivity has to be maintained across the width of the wetland habitat and care must be taken to avoid impoundment of flows upslope and concentration of flows downslope of the crossing so as to avoid erosion.<br>• The crossing structure must be suitably designed to allow for the movement of both land-based and aquatic fauna. This will require the crossing structure to be of sufficient height to allow small mammals to cross underneath the bridge and ideally to have a natural soil or rock base. Where a cement base is needed to the structure, such a cement base should utilise a rough finish (e.g. wire brush finish) to ensure aquatic macroinvertebrates will be able to cross over the cement. | | |
| **4.3 Impacts on fauna and flora and loss of RDL faunal and floral species** | **Low** | • Implementation of the Ecological Management Plan.<br>• Although there were only two Gauteng orange listed species (ODL) observed on site (*Crinum bulbispernum* and *Hypoxis hemerocallidea),* the possibility of encountering other species of conservation concern during the construction phase do exist.<br>• The areas earmarked for exclusion from activity must be fenced off (using permeable fencing) prior to construction phase to ensure that the developer and his contractors do not disturb the natural vegetation in these areas. Dumping of building rubble and other waste, storage of equipment or crew camps in these areas must be prevented.<br>• Education of new construction staff about the value of wildlife and environmental sensitivity should occur as the need arises.<br>• Poaching is illegal and it must be a condition of employment that any employee caught poaching will be dismissed.<br>• If any fauna species are encountered / observed on site, they should not be disturbed in any way until the relevant specialist has been consulted. If a Red Data species is encountered the Environmental Control Officer should be informed immediately. Should the wildlife, Red Data or other, need to be caught and removed, the animals should be relocated to a conservation area in the vicinity.<br>• A list of fauna specialists should be available should any wildlife be encountered on site and their possible removal implemented during construction and/or operation. Capture and removal of all fauna species must be done under the supervision of a relevant specialist.<br>• The remaining wildlife on site should not be trapped or hunted by construction crew or inhabitants of the activity.<br>• Solid barriers such as walls should not be built on the periphery (or inside) of the study area. Barriers should incorporate into their design, fauna movement structures such as culverts or openings to encourage movement between the activity | **Low** | Loss of biodiversity |

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| | | and adjacent areas.<br>• During the construction phase noise should be kept to a minimum to reduce the impact of the activity on the site and the activity should be done in phases to allow faunal species to temporarily migrate into the conservation areas in the vicinity.<br>• Lighting must be positioned in such a way so as not to disturb species of nocturnal herpetofauna currently dependant on the wetland habitat.<br>• Plants of conservation concern must be removed prior to construction within an area.<br>• Removed plants should be held in the on-site nursery for safe keeping until such time as it can be replanted in the natural landscaping.<br>• When conservation important species are relocated to the dedicated open spaces, only replant in areas where disturbance took place.<br>• A list of plant species should be kept on site as a checklist for plants to be dug out during construction.<br>• Education of new construction staff about the value of the natural environment.<br>• Landscaping associated with the activity should include forage and host plants required by pollinators and other fauna. These would include various grasses and forbs and *Acacia* trees which occur naturally in the area. | | |
| **4.4 Invasive species** | **Medium** | • Implementation of the Rehabilitation and Floodplain Restoration Plan as well as the Review Rehabilitation Plan.<br>• Implementation of the Ecological Management Plan.<br>• Only trained staff should apply herbicides to alien invasive plants only. Take care not to apply foliar spray to any other vegetation than the targeted invasive plant specie.<br>• No earth moving or soil disturbances are allowed in areas which does not form part of the construction footprint . Any disturbances could lead to the area being colonised by alien invasive plants which will lead to the degradation of ecological processes.<br>• Disturbed areas should be re-vegetated as soon as possible following completion of construction activities.<br>• Only locally occurring indigenous species should be used for revegetation.<br>• A monitoring plan must be established and implemented (for a minimum of 5 years after construction) to ensure successful re-establishment of vegetation and to ensure that any erosion damage is quickly identified and repaired (refer to the Ecological Management Plan Volumes 1 and 2).<br>• An alien vegetation management plan must be developed and implemented. For a minimum period of 5 years following completion of construction all invasive alien vegetation observed on site should be controlled and removed (An Alien Plant Monitoring and Eradication Plan is included as Chapter 5 in the Ecological Management Plan Volume 1; Alien Invasive Management – Methodologies and Guidelines is included as Chapter 5 | **Low** | Decline in biological diversity |

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| | | in the Ecological Management Plan Volume 2). | | |
| **5. ISSUE: HYDROLOGY** | | | | |
| **5.1 Stormwater flow and drainage** | **Medium** | • Recommendations as per the Stormwater Plan and Review Stormwater Management Plan to be implemented.<br>• Recommendations as per the Rehabilitation and Floodplain Restoration Plan as well as the Review Rehabilitation Plan to be implemented.<br>• All construction activities should take place during winter when no rainfall is expected to occur; and<br>• A seasonal incidences of water runoff from the surrounding premises should be identified and contained or diverted prior to entering the floodplain during the period of alteration. | **Low** | Soil erosion, flooding and loss of habitat. |
| **5.2 Impacts on water quality** | **Medium** | • Construction vehicles are to be maintained in good working order, to reduce the probability of leakage of fuels and lubricants.<br>• A walled concrete platform, dedicated store with adequate flooring or bermed area should be used to accommodate chemicals such as fuel, oil, paint, herbicide and insecticides, as appropriate, in well-ventilated areas.<br>• Storage of potentially hazardous materials should be above the 100-year flood line, or as agreed with the ECO. These materials include fuel, oil, cement, bitumen etc.<br>• Sufficient care must be taken when handling these materials to prevent pollution.<br>• Surface water draining off contaminated areas containing oil and petrol would need to be channelled towards a sump which will separate these chemicals and oils.<br>• Oil residue must be treated with oil absorbent such as Drizit or similar and this material removed to a licensed waste disposal site.<br>• Concrete is to be mixed on mixing trays only, not on exposed soil.<br>• Concrete and tar shall be mixed only in areas, which have been specially demarcated for this purpose.<br>• All concrete and tar that is spilled outside these areas shall be promptly removed by the contractor and taken to an approved dumpsite.<br>• After all the concrete / tar mixing is complete all waste concrete / tar shall be removed from the batching area and disposed of at an approved dumpsite.<br>• Stormwater shall not be allowed to flow through the batching area.<br>• Cement sediment shall be removed from time to time and disposed of in a manner as instructed by the Consulting Engineer.<br>• All construction materials liable to spillage are to be stored in appropriate structures with impermeable flooring.<br>• Contractor/s must provide regularly serviced portable chemical toilets outside of the 1:100 flood line where practical for construction workers at a distance no more than 200m from the place of construction.<br>• No materials may be discharged from the working area.<br>• Underground services running within the | **Low** | Water pollution |

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| | | Spruit's servitude should be treated with care in order to avoid possible damage. This will ensure minimum maintenance that would disturb the subsurface environment. Should damage occur to any pipes, they should be fixed immediately. | | |
| **5.3 Sedimentation of the channel and the downstream spruit** | **Medium** | • To prevent erosion of material that is stockpiled for long periods, the material must be retained in a bermed area.<br>• The temporary storage of topsoil, inert spoil, fill etc. should be above the 20 year floodline or at least 20 m from the top of the bank of any drainage lines, whichever is the maximum or as agreed with the ECO;<br>• Mulch, roughen or sterile grass seeding can be used on any batter or soil stockpile that is to be maintained for longer than 28 days.<br>• Construct an earth bank around the upslope portion of any stockpiles in order to redirect runoff and prevent scouring of stockpiles.<br>• Erect a silt fence around any stockpiles in order to trap sediment and prevent stockpile sediment loss.<br>• Dust suppression is necessary for stockpiles older than a month – with either water or a biodegradable chemical binding agent.<br>• The propose Montanaspruit Improvement Project should tie into the upstream channel improvement project currently under construction. Currently it appears from the layout plans that a short reach of the stream will not be addressed by either project. It must be ensured that this will not compromise either of the channel improvement project. The same applies to the proposed downstream channel improvement project<br>• Construction should ideally commence at the upstream end and progress downstream. This will ensure that ongoing construction activities will not continuously disturb and impact on sections of the stream already completed.<br>• Construction should ideally take place during low-flow periods. Unprotected bare soils during flood events could lead to severe erosion and soil loss. Construction should therefore ideally take place in winter.<br>• Construction activity must be carefully planned and supervised to allow the project schedule to be implemented without undue delays. A scenario of incomplete or partially completed work left standing for extended periods must be avoided.<br>• The existing channel of the stream should be retained intact as far as possible. This will limit direct disturbance of sediments within the flow path, resulting in reduced turbidity issues. | **Low** | Sedimentation of the channel and the downstream spruit may occur |
| **SOCIO-ECONOMIC AND CULTURAL HISTORICAL ENVIRONMENT** | | | | |
| **6. ISSUE: AESTHETICS, LANDSCAPE CHARACTER AND SENSE OF PLACE** | | | | |
| **6.1 Noise/ vibration** | **Low** | • Noise levels shall be kept within acceptable limits, and construction crew must abide by National Noise Laws and local by-laws regarding noise.<br>• No sound amplification equipment such as sirens, loud hailers or hooters are to be used on site except in emergencies and no amplified music is permitted on site. | **Low** | An increase in the ambient noise levels of the area. |

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| | | • All construction vehicles are to be kept in good repair<br>• Construction / management activities involving use of the service vehicle, machinery, hammering etc., must be limited to the hours between 7:00am and 5:30pm weekdays; 7:00am and 1:30pm on Saturdays; no noisy activities may take place on Sundays or Public Holidays.<br>• Activities that may disrupt neighbours (e.g. delivery trucks, excessively noisy activities etc.) must be preceded by notice being given to the affected neighbours at least 24 hours in advance.<br>• Equipment that is fitted with noise reduction facilities (e.g. side flaps, silencers etc.) must be used as per operating instructions and maintained properly during site operations. | | |
| **6.2 Impact on the privacy of adjacent land owners**. | **Medium** | • The construction camp must be located as far from residential properties as possible.<br>• No access to neighbouring holdings should be allowed.<br>• Construction crew to respect adjacent landowners. | **Low** | Nuisance to adjacent land owners |
| **7. ISSUE: SOCIAL WELL-BEING AND QUALITY OF THE ENVIRONMENT** | | | | |
| **7.1 Safety and Security** | **Medium** | • The developer must ensure that an effective security system is installed on the site.<br>• The handling of equipment and materials must be adequately supervised and instructed.<br>• Access to the construction crew camp should be limited to the workforce.<br>• Do not allow the movement of public within the development area.<br>• Except for 24hour security guards and permanent staff, no workforce may stay on site during the night.<br>• Signs should be erected on all entrance gates to the site camp indicating that no temporary jobs are available, thereby limiting opportunistic labourers and crime.<br>• The site and crew are to be managed in strict accordance with the Occupational Health and Safety Act (Act No. 85 of 1993) and the National Building Regulations.<br>• All structures that are vulnerable to high winds must be secured (including toilets).<br>• Potentially hazardous areas such as trenches are to be cordoned off and clearly marked at all times.<br>• The Contractor is to ensure traffic safety at all times, and shall implement road safety precautions for this purpose when works are undertaken on or near public roads.<br>• Necessary Personal Protective Equipment (PPE) and safety gear appropriate to the task being undertaken is to be provided to all site personnel (e.g. hard hats, safety boots, masks etc.).<br>• All vehicles and equipment used on site must be operated by appropriately trained and / or licensed individuals in compliance with all safety measures as laid out in the Occupational Health and Safety Act (Act No. 85 of 1993) (OHSA).<br>• An environmental awareness training programme for all staff members shall be put in place by the Contractor. Before commencing with any work, all staff members shall be appropriately briefed | **Low** | Potential criminal activities such as theft might occur. |

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| | | about the EMP and relevant occupational health and safety issues.<br>• All construction workers shall be issued with ID badges and clearly identifiable uniforms.<br>• Access to fuel and other equipment stores is to be strictly controlled.<br>• Emergency procedures must be produced and communicated to all the employees on site. This will ensure that accidents are responded to appropriately and the impacts thereof are minimised. This will also ensure that potential liabilities and damage to life and the environment are avoided.<br>• Adequate emergency facilities must be provided for the treatment of any emergency on the site.<br>• The nearest emergency service provider must be identified during all phases of the project as well as its capacity and the magnitude of accidents it will be able to handle. Emergency contact numbers are to be displayed conspicuously at prominent locations around the construction site and the construction crew camps at all times.<br>• The Contractor must have a basic spill control kit available at each construction crew camp and around the construction site. The spill control kits must include absorptive material that can handle all forms of hydrocarbon as well as floating blankets / pillows that can be placed on water courses.<br>• The Contractor shall make available safe drinking water fit for human consumption at the site offices and all other working areas.<br>• Washing and toilet facilities shall be provided on site and in the Contractors camp.<br>• Adequate numbers of chemical toilets must be maintained in the Contractors camp to service the staff using this area. At least 1 toilet must be available per 20 workers using the camp. Toilet paper must be provided.<br>• The chemical toilets servicing the camp must be maintained in a good state, and any spills or overflows must be attended to immediately.<br>• The chemical toilets must be emptied on a regular basis. | | |
| **7.2 Employment opportunities** | **Positive - Medium** | • Make use of local labour.<br>• Provide clear and realistic information regarding employment opportunities and other benefits for local communities in order to prevent unrealistic expectations.<br>• Provide skills training for construction workers. | **Positive – Medium** | A large influx of uncontrolled numbers of people coming to the site seeking employment opportunities. This might also pose a security risk. |
| **8. ISSUE: HISTORICAL ENVIRONMENT** | | | | |
| **8.1 Destruction of cultural / heritage sites** | **Insignificant** | • Known sites should be clearly marked in order that they can be avoided during construction activities.<br>• The contractors and workers should be notified that archaeological sites might be exposed during the construction activities.<br>• Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental | **Insignificant** | Impairment of heritage resources<br><br>Depletion of archaeological record of the area. |

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| | | Control Officer shall be notified as soon as possible;<br>• All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;<br>• Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and<br>• Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1).<br>• In order to achieve this, the following should be in place:<br>• A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage.<br>• Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above.<br>• In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures. | | |
| **9. ISSUE: TRAFFIC** | | | | |
| 9.2 Traffic- Construction Vehicles | **Medium** | • A traffic management strategy must be put in place.<br>• The contractor is to ensure traffic safety at all times and shall implement road safety precautions.<br>• Signs should be erected on all entrance gates<br>• Speed limits should be implemented and adhered to.<br>• It must be ensured that a backlog of traffic does not develop at the access points during peak hours, through the implementation of an efficient and effective access control system.<br>• Only roads with low volume traffic should be closed off when altering the Tsamma Road crossing. | **Low** | Uncontrolled traffic issues. |
| **10. ISSUE: INFRASTRUCTURE AND SERVICES/WASTE** | | | | |
| **10.1 Waste** | **Low** | • Adequate number of waste disposal receptacles is to be positioned at strategic locations within the development.<br>• No burning of waste.<br>• Waste will be collected and removed off-site to a registered waste site. | **Low** | Waste that is not disposed of correctly mainly leads to the following:<br>• Environmental degradation<br>• Water pollution<br>• Infestation by rodents and potential disease causing vectors |
| **10.2 Pressure on existing** | **Medium** | • Integrity of existing services to be | **Low** | Damage to |

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| **infrastructure and services** | | ensured.<br>• Dark Fibre Africa's terms and conditions will be considered and adhered to. | | infrastructure resulting in liability costs |
| **10.3 Construction activities at Tsamma Street** | **Medium** | • Notify surrounding property owners before construction commences.<br>• Sign should be erected indicating construction activities.<br>• Signs should be erected indicating alternative routes. | **Low** | Traffic and access may be affected |
| **11. ISSUE: REHABILITATION** | | | | |
| **11.1 Rehabilitation during construction** | **High** | • Implementation of the Rehabilitation and Floodplain Restoration Plan as well as the Review Rehabilitation Plan.<br>• Rehabilitation actions must be implemented as an integrated part of the overall construction programme. | **Medium** | Failure to implement a rehabilitation can result in potential negative impacts to the project area |
| **OPERATIONAL PHASE** | | | | |
| **1. ISSUE: FAUNA & FLORA** | | | | |
| **1.1 Species of Conservation Concern: Rescue, Persistence and Monitoring** | **Medium** | • Depending on the protection status of the open spaces (e.g. conservancy / protected environment) a management entity must be appointed to manage, safeguard and monitor the conservation open space.<br>• The open space should be clearly demarcated and prevent any edge effect.<br>• If grazing is allowed, ensure that overgrazing does not take place through applying appropriate stocking rates according to the areas carrying capacity.<br>• Access must be controlled and detrimental activities such as quad bikes prohibited.<br>• During the operational phase, the use of natural open spaces should be regulated to prevent degradation to the system. This may involve fencing off the area and using it as a nature conservation area. No pollution or dumping should be allowed.<br>• An environmental notice board or centre could be incorporated into the design of the open space system. It should ideally be located before people gain entrance into the open space system and should inform them of the value of wildlife and environmental sensitivity.<br>• Domestic animals (cats and dogs) must be kept on leashes when walked within open spaces. They may not harass faunal species or destroy vegetation.<br>• A suitably qualified floral specialist should assess the success of species relocated annually for the first three years | **Low** | Decline in biological diversity |
| **1.2 Alien Invasion** | **Medium** | • Continuous monitoring of open spaces for re-emergence or new infestations<br>• New infestations or re-emergence must be controlled immediately. | **Low** | Decline in biological diversity |
| **2. ISSUE: HYDROLOGY** | | | | |
| **2.1 Stormwater flow and drainage** | **High** | • Implementation of the Stormwater Management Plan and Review Stormwater Management Plan.<br>• The modified channel and stormwater inlets must be inspected on a monthly basis or after a heavy storm during the first 12 months after construction for signs of erosion which must be repaired as soon as practically possible before the next heavy rainfall event by means of a permanent and ecologically sympathetic solution.<br>• The silt traps and widened channel must be inspected monthly during the first 12 months after construction for signs of excessive sediment and debris build up | **Medium** | Flooding and sedimentation of water bodies |

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| | | which must be removed as soon as practically possible without damaging vegetation cover and to restore their capacity before the next heavy rainfall event.<br>• Monitoring of the channel and silt traps and remedial action must be undertaken at least twice a year for another five years: once before the commencement of the rainy season; and the second time at the end of the rainy season. | | |
| **2.2 Erosion of drainage lines, riparian zone and floodplain** | **Medium** | • Ensure continuous monitoring of rehabilitated vegetation cover and address all problems as they arise. | **Low** | Erosion may occur |
| **SOCIO-ECONOMIC** | | | | |
| **3. ISSUE: SOCIAL WELL-BEING AND QUALITY OF THE ENVIRONMENT** | | | | |
| **3.1 Safety and Security** | **Low** | • Security measures to be in place. | **Low** | Potential criminal activities such as theft. |
| **INFRASTRUCTURE, SERVICES** | | | | |
| **4. ISSUE: INFRASTRUCTURE ANDSERVICES** | | | | |
| **4.1 Contribute to the provision of quality basic services and infrastructure in the area** | **Positive - High** | • None | **Positive - High** | No contribution of improved infrastructure and services to the area |
| **4.2 Infrastructure at Tsamma Street - 20 (1500 x 450mm) portal culverts** | **Positive - Medium** | • Upgraded Portal Culvert crossing will accommodate the 1:2-year flow.<br>• Recurrence intervals greater than 1:2 years will overtop Tsamma street and flow on surface.<br>• Regular maintenance of the culvert crossing. | **Positive - Medium** | Flooding conditions will persist |

**Significance Rating for the construction and operational phase**

**Alternative 1 - Bulk water pipeline and Alternative 1 sewer pipeline**

**The Significance Rating for the construction phase and operational phase for Alternative 1 is similar to that of the proposal with the only exception being the infrastructure at Tsamma Street, which will consist of 9 x Ø450mm existing concrete pipe culverts.**

**Table 11: Significance Rating for the construction and operational phase - Alternative 1**

| Potential Impacts | Significance rating of impacts | Proposed mitigation | Significance rating of impacts after mitigation | **Risk of the impact** and **mitigation not being implemented:** |
|---|---|---|---|---|
| **OPERATIONAL PHASE** | | | | |
| **INFRASTRUCTURE, SERVICES** | | | | |
| **4. ISSUE: INFRASTRUCTURE ANDSERVICES** | | | | |
| 4.2 Infrastructure at Tsamma Street - 9 x Ø450mm existing concrete pipe culverts | **Medium** | • No mitigation<br>• The 9 x Ø450mm existing concrete pipe has insufficient capacity to accommodate the minor flood.<br>• Flooding of Tsamma Street will persist during big storm events. | **Medium** | **None** |

**Significance Rating for the construction and operational phase**

## NO-GO

### Table 12: Significance Rating for the construction and operational phase - 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: |
|---|---|---|---|---|
| **1. ISSUE: IMPLEMENTATION OF THE NO-GO ALTERNATIVE** | | | | |
| **1.1 Flooding will persist during big storm events.** | **Very High** | • No mitigation for No-go Alternative | **Very High** | Flooding in the area will persist. |
| **1.2 The existing drainage system will not provide the flood protection standard required for future development and further development will increase the frequency, severity and extent of flooding.** | **High** | • No mitigation for No-go Alternative | **High** | Future development will increase the frequency, severity and extent of flooding |
| **1.3 Damage to properties, blockage of roads and accesses, nuisance to the public and risk to lives will remain.** | **Very High** | • No mitigation for No-go Alternative | **Very High** | Damage to properties, blockage of roads and accesses, nuisance to the public and risk to lives will remain. |
| **1.4 No employment opportunities will be created during the construction phase** | **Low** | • No mitigation for No-go Alternative | **Low** | No employment opportunities will be created during the construction phase |
| **1.5 The natural environment of the surrounding area will not be improved as degradation caused by erosion, sedimentation, illegal dumping and construction within the floodlines will not be minimised.** | **High** | • No mitigation for No-go Alternative | **High** | The natural environment of the surrounding area will not be improved as degradation caused by erosion, sedimentation, illegal dumping and construction within the floodlines will not be minimised. |

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

- **Design Development Report**
- **Review Ecological Assessment**
- **Vegetation and Floral Assessment**
- **Vegetation and Flora Survey**
- **Red Data Scan**
- **Wetland Delineation and Impact Assessment**
- **Review Aquatic Assessment,**
- **Aquatic Assessment**
- **Review Stormwater Management Plan**
- **Stormwater Management Plan Report**
- **Review Rehabilitation Plan**
- **Rehabilitation and Floodplain Restoration Plan**

- **Review Ecological Management Plan**
- **Ecological Management Plan_Vol 1**
- **Ecological Management Plan_Vol 2**
- **Phase 1 Cultural Heritage Impact Assessment**
- **Heritage Impact Assessment**

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

**No impact assessment can be completely certain of the exact nature and extent of the various impacts that would result from a given development activity. However, this assessment strives to limit any uncertainties by optimising the collection of base data, and by following a rigorous impact assessment methodology.**

**The assumptions and limitations for the Review Ecological Assessment, Review Aquatic Assessment, Review Rehabilitation Plan, Review Stormwater Management Plan and Review Ecological management Plan are as follows:**

- **All information regarding the proposed project and related activities as provided by the Client are taken to be accurate;**
- **Additional field investigations were conducted on 28 March 2019.**
- **Precise buffer zones, regulated zones, etc. or exact GPS positions cannot be made using generalised corridors or kml files on Google Earth. However, the buffer zones drawn are accurate to within 2-3m;**
- **Standard and acceptable methodologies as required and used in South Africa were used.**
- **The latest data sets were used in terms of obtaining and establishing background information and desktop reviews for the project. The data sets were taken to be accurate, but were verified and refined during field investigations.**

**The assumptions and limitations for the Phase 1 Cultural Heritage Impact Assessment are as follows:**

- **It is assumed that the description of the proposed project, provided by the client, is accurate.**
- **The unpredictability of buried archaeological remains.**
- **No subsurface investigations (i.e. excavations or sampling) were undertaken, since a permit from SAHRA is required for such activities.**
- **It is assumed that the public consultation process undertaken as part of the Environmental Impact Assessment (EIA) is sufficient and that it does not have to be repeated as part of the heritage impact assessment.**

**The limitations and assumptions for the Wetland Delineation and Impact Assessment as follows:**
**Wetland boundaries reflect the ecological boundary where the interaction between water and plants influences the soils, but more importantly the plant communities. The depth to the water table where this begins to influence plant communities is approximately 50 centimetres. This boundary, based on plant species composition, can vary depending on antecedent rainfall conditions, and can introduce a degree of variability in the wetland boundary between years and/or sampling period.**

**The study area is characterised by black vertic clay soils. Such soils show typical soil wetness indicators (e.g. mottling) only poorly, if at all. The soils on site could thus not be reliably used to delineate wetland boundaries. Extensive use was thus made of the landform setting and vegetation of the wetlands to determine boundaries. Where disturbed, the vegetation zonation was sometimes indistinct, reducing the confidence in the delineation. However, in such a scenario, the**

**precautionary approach was adopted. The accuracy of the delineated wetland boundaries is however considered suitable for the purpose of this report.**

**Due to the scale of the remote imagery used (1:10 000 orthophotos and Google Earth Imagery), as well as the accuracy of the handheld GPS unit used to delineate wetlands in the field, the delineated wetland boundaries cannot be guaranteed beyond an accuracy of about 20m on the ground. Should greater mapping accuracy be required, the wetlands would need to be pegged in the field and surveyed using conventional survey techniques.**

**In addition, it is recognised that the passage of time may affect the information and assessment provided in this report. WCS's opinions are therefore based upon the information that was made available to WCS and which existed at the time of compiling this report.**

## 3. IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING AND CLOSURE PHASE

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

**Proposal**

| **Potential impacts:** | **Significance rating of impacts(positive or negative):** | **Proposed mitigation:** | **Significance rating of impacts after mitigation:** | **Risk of the impact** and **mitigation not being implemented** |
|---|---|---|---|---|
| **No decommissioning is envisaged.** | | | | |

**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** |
|---|---|---|---|---|
| **No decommissioning is envisaged.** | | | | |

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

**None**

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

**No decommissioning is envisaged.**

**Rehabilitation according to the Rehabilitation and Floodplain Restoration Plan and Review Rehabilitation Plan should be implemented during and after construction.**

## 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:

**Cumulative impacts result from actions which may not be significant on their own**

**but which are significant when added to the impact of other similar actions. The anticipated impacts resulting from the construction and implementation of these developments could potentially result in cumulative negative effects when taking the following into consideration:**

- **Disruption of services;**
- **Damage to private property during the construction phase; and**
- **Possibility of an increase in crime rate during the construction phase.**

**Management measures are in place to keep service disruption to a minimum; electrical service lines will be relocated. In addition adequate receptacles will be made available for waste disposal.**

**A positive cumulative impact of the development will be:**

- **Skills transfer to the community surrounding the development during the construction phase as local labour will be used during the construction;**
- **Job creation and economic improvement of individuals during the construction phase; and**
- **Improvement of the Breed Street stormwater management.**

**However if the abovementioned measures are adhered to, the negative cumulative impacts listed will not have a significant impact on the environment and the significance of these impacts will thus be low.**

## 5. ENVIRONMENTAL IMPACT STATEMENT

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

**Proposal**

**The Proposed Montana spruit channel improvement – Phase 1 will have a short term impact ranging from very low to high during the construction phase, and a long term impact ranging from low to high during the operational phase, but will result in a long term improvement with regards to flooding experienced in the area if the correct mitigation measures are implemented during the construction phase.**

**Positive impacts include the Employment Opportunities (Positive – Medium) during the construction phase and the Contribution to the provision of quality basic services and infrastructure in the area (Positive – High) as well as the infrastructure which will consist of 20 (1500 x 450mm) portal culverts (Positive – Medium) during the operational phase.**

**Please see below a summary of the identified impacts and their pre-mitigation and post-mitigation impact significance rating scores.**

| Potential Impacts: | Significance rating of impacts (positive or negative): | Significance rating of impacts after mitigation: |
|---|---|---|
| **CONSTRUCTION PHASE** | | |
| 1.1 Dust /Air pollution - The generation of dust associated with construction activities & earthworks | Very Low | Very Low |
| 2.1 Visual Intrusion and Light Pollution | Low | Low |

| | | |
|---|---|---|
| 2.2 Impact on the visual character of the area | Low | Low |
| 3.1 Soil erosion, loss of topsoil, deterioration of soil quality | Medium | Low |
| 3.2 Soil Pollution | Medium | Low |
| 4.1 Site clearing and the removal of vegetation | Medium | Low |
| 4.2 Degradation, destruction of habitats/ ecosystems and loss of natural vegetation | Medium | Low |
| 4.3 Impacts on fauna and flora and loss of RDL faunal and floral species | Low | Low |
| 4.4 Invasive species | Medium | Low |
| 5.1 Stormwater flow and drainage | Medium | Low |
| 5.2 Impacts on water quality | Medium | Low |
| 5.3 Sedimentation of the channel and the downstream spruit | Medium | Low |
| 6.1 Noise/ vibration | Low | Low |
| 6.2 Impact on the privacy of adjacent land owners. | Medium | Low |
| 7.1 Safety and Security | Medium | Low |
| 7.2 Employment opportunities | Positive - Medium | Positive – Medium |
| 8.1 Destruction of cultural / heritage sites | Insignificant | Insignificant |
| 9.2 Traffic- Construction Vehicles | Medium | Low |
| 10.1 Waste | Low | Low |
| 10.2 Pressure on existing infrastructure and services | Medium | Low |
| 10.3 Construction activities at Tsamma Street | Medium | Low |
| 11.1 Rehabilitation during construction | High | Medium |
| **OPERATIONAL PHASE** | | |
| 1.1 Species of Conservation Concern: Rescue, Persistence and Monitoring | Medium | Low |
| 1.2 Alien Invasion | Medium | Low |
| 2.1 Stormwater flow and drainage | High | Medium |
| 2.2 Erosion of drainage lines, riparian zone and floodplain | Medium | Low |
| 3.1 Safety and Security | Low | Low |
| 4.1 Contribute to the provision of quality basic services and infrastructure in the area | Positive - High | Positive - High |
| 4.2 Infrastructure at Tsamma Street - 20 (1500 x 450mm) portal culverts | Positive - Medium | Positive - Medium |

**Alternative 1**

**The environmental impact statement for Alternative 1 is similar to that of the proposal except for the infrastructure at Tsamma Street, which will consist of 9 x Ø450mm existing concrete pipe culverts.**

**Please see below a summary of the identified impacts and their pre-mitigation and post-mitigation impact significance rating scores.**

| Potential Impacts | Significance rating of impacts | Significance rating of impacts after mitigation |
|---|---|---|
| **OPERATIONAL PHASE** | | |
| 4.2 Infrastructure at Tsamma Street - 9 x Ø450mm existing concrete pipe culverts | Medium | Medium |

~~**Alternative 2**~~

**No-go (compulsory)**

**The "No-go" alternative refers to the alternative of not embarking on the proposed project at all.**

**Please see below a summary of the identified impacts and their impact significance rating scores.**

| Potential Impacts: | Significance rating of impacts | Significance rating of impacts after mitigation: |
|---|---|---|
| 1.1 Flooding will persist during big storm events. | Very High | Very High |
| 1.2 The existing drainage system will not provide the flood protection standard required for future development and further development will increase the frequency, severity and extent of flooding. | High | High |
| 1.3 Damage to properties, blockage of roads and accesses, nuisance to the public and risk to lives will remain. | Very High | Very High |
| 1.4 No employment opportunities will be created during the construction phase | Low | Low |
| 1.5 The natural environment of the surrounding area will not be improved as degradation caused by erosion, sedimentation, illegal dumping and construction within the floodlines will not be minimised. | High | High |

## 6. IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE

For proposal:

**The impacts of the proposed activities have been summarised under Paragraph 5 above.**

For alternative 1:

**The impacts of the proposed activities have been summarised under Paragraph 5 above.**

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

**The project intends to improve the Montana Spruit between an area 600m upstream of the Tsamma Road stream crossing and to about 600m downstream of the Tsamma Road crossing in order to reduce the impact of the 1:100-year flood on adjacent properties and houses. The shape of the spruit will be improved to accommodate more flow and to ensure that all the buildings and houses adjacent to the spruit are located outside the 1:100-year flood line. Tsamma street will also be upgraded and realigned to improve on the flood line position, culvert capacity and road layout.**

**The existing 9 x Ø450mm concrete pipe culvert at the Tsamma Street Crossing has insufficient capacity to accommodate the minor flood and flooding conditions are experienced in the area after major rain events.**

**The Proposal therefore proposes that the existing culverts be replaced by 20 1500x450mm CL100S portal culverts to accommodate the 1:2-year flow. Flow from**

**storms greater than the 1:2-year recurrence interval will overtop Tsamma Street and run on surface.**

**The Proposal will provide the following benefits:**

- **Employment opportunities will be created during the construction phase.**
- **Damage to properties and residential houses will be minimised due to lower flood levels;**
- **Access limitations caused by flooding will be eradicated;**
- **The natural environment of the surrounding area will be improved as degradation caused by erosion, sedimentation, illegal dumping and construction within the floodlines will be minimised.**

**Construction of a road across a wetland typically leads to fragmentation of habitat. However, in the case of the new proposed Tsamma Street Bridge, the increased size and width of the bridge will likely slightly reduce the habitat fragmentation already in place.**

**The wetland specialist is of the opinion that the proposed road crossing structure suitably provides for flow and habitat connectivity and is a significant improvement over the existing Tsamma Street bridge which only utilises 6 x 450 pipe culverts. The bridge will not exacerbate existing habitat fragmentation concerns brought about by the existing road crossing and surrounding developments, but will likely reduce fragmentation somewhat. A 36 m bridge will allow for flow connectivity across most of the wetland habitat, while the 450 mm height of the bridge will be the same as the existing pipe culvert diameter and should allow sufficient space for small mammals such as cane rat and mongoose to cross underneath the road. Given existing fragmentation of the habitat by for example the N4 (which crosses the wetland via a series of low box culverts) and the close proximity to urban areas, there is unlikely to be a need to make allowance for large mammals to cross underneath the bridge.**

## 7. SPATIAL DEVELOPMENT TOOLS

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

**<u>Gauteng Spatial Development Framework, 2011</u>**

**Gauteng Province adopted the Gauteng Spatial Development Framework (GSDF, 2011) as the core policy framework intended to guide decisions relating to the location and nature of physical development in the Province. The GSDF seeks to achieve the following:**

- **Creation of a functionally integrated natural open space system and protection of the rural parts of the province for agricultural, recreational (walking and cycling), biodiversity and aquifer management purposes;**
- **The containment of urban sprawl by way of growth management that seeks to advance compaction, residential densification, and in-fill development, and mixed land uses within the existing urban fabric which will promote walking and cycling;**
- **The social and economic integration of disadvantaged communities into the urban system, particularly those on the urban periphery;**
- **The establishment of a hierarchy of nodes coupled with the improvement of linkages and connectivity between these nodes and areas of economic opportunity;**

- **Land use-public transport integration through nodal and corridor development;**
- **The promotion of viable public transport systems and reduction of reliance on private mobility with strong emphasis on densification along the priority public transport routes, especially rail and BRT routes which form the basis of the IRPTN movement system;**
- **Public transport routes become the priority areas for densification and infill development; and**
- **The urban system's existing and proposed road network is used to reinforce and shape the urban form as a growth management tool.**

**<u>City of Tshwane: Regionalized Municipal Spatial Development Framework (RSDF)</u>**
**A Spatial Development Framework guides and informs all development and forms part of the IDP in terms of Section 35 (2) of the MSA.**

**The content of these plans "shall be in the form of maps or a map together with explanatory report of the desired spatial form of the municipality".**

**A Spatial Development Framework *inter alia* must:**

- **Indicate where public and private development infrastructure investment should take place.**
- **Indicate desired development and land use patterns for different areas.**
- **Indicate where development of particular land uses should be discouraged or restricted.**
- **Provide broad indication of the areas where priority spending should take place.**
- **Provide guidelines for development and land use decision-making by the municipality.**

## 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** | NO |
|---|---|---|

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:

- **If feasible, construction must be scheduled for the drier winter period in order to minimise the risk of sediment-laden runoff reaching the freshwater resources as a result of the construction activities;**
- **It is recommended that construction of the channel take place and be completed in sections to avoid the entire stretch being exposed to erosion**
- **Contractor laydown areas and all non-essential activities are to remain outside of the delineated freshwater resources, and as much as feasible no natural/indigenous riparian vegetation is to be cleared;**
- **It is recommended that the rehabilitation of the riparian zone be undertaken to restore the ecosystems functionality.**
- **The Environmental Management Plan (EMP) will be binding on all managers and contractors operating/utilizing the site.**

- **It is recommended that vegetation be established to prevent erosion of the channel and banks**
- **All other mitigation measures and recommendations from the specialist studies must be implemented and adhered to.**

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

**With the existing stream conditions there is a risk of flooding during heavy rainstorms in the Doornpoort area near the Tsamma road crossing. The potential consequences of such flooding include:**

- **Flooding will persist during big storm events.**
- **Development in the area will be hindered.**
- **The existing drainage system will not provide the flood protection standard required for future development.**
- **Further development will increase the frequency, severity and extent of flooding.**
- **Damage to properties, blockage of roads and accesses, nuisance to the public and risk to lives will remain.**

**Therefore it is the intention of the City of Tshwane to provide drainage improvement works in order to reduce these risks to the community in the Doornpoort area.**

**The project will provide the following benefits:**

- **Employment opportunities will be created during the construction phase.**
- **Damage to properties and residential houses will be minimised due to lower flood levels;**
- **Access limitations caused by flooding will be eradicated;**
- **The natural environment of the surrounding area will be improved as degradation caused by erosion, sedimentation, illegal dumping and construction within the floodlines will be minimised.**

**10. THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED** ***(consider when the acitivty is expected to be concluded)***

**Short term (Up to 2 years)**

**11. ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) (must include post construction monitoring requirements and when these will be concluded.)**

If the EAP answers "Yes" to Point 7 above then an EMP is to be attached to this report as an Appendix

| | |
|---|---|
| EMPr attached | **YES** |

# SECTION F: APPENDIXES

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

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

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

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Route position information

Appendix E: Public participation information

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

Appendix G: Specialist reports

Appendix H: EMPr

Appendix I: Other information

## CHECKLIST

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

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