DRAFT BASIC ASSESSMENT REPORT

FOR

THE PROPOSED BARRY MARAIS ROAD (K155) UPGRADE

Applicant

City of Ekurhuleni Metropolitan Municipality:
Roads and Storm Water Department

GDARD REF: 002/20-21/E0011

Prepared by

Tholoana Environmental Consulting CC

Physical Address: Unit 9, Building 1b.

Northgate Office Park

Aureole Ave, Northwold

Johannesburg

2162

Postal Address: PO Box 1549, HONEYDEW, 2040

Contact: Mr Bonginkosi Hlongwane

Tel: +27 11 704 5071; Fax: +27 11 704 5130

Email: bonginkosi@tholoanaconsulting.co.za, URL: www.tholoanaconsulting.co.za

NOVEMBER 2020

DOCUMENT CONTROL

AUTHOR

Report Title	The proposed Barry Marais Road (K155) Upgrade
Report Current Version	Draft Basic Assessment Report (November 2020)
Report Author **Environmental Assessment Practitioner (EAP)**	Bonginkosi PraiseGOD Hlongwane (Tholoana Environmental Consulting)

REVIEWERS

Report Reviewer - 1	Vusmuzi Hlatshwayo (Tholoana Environmental Consulting)
Report Reviewer - 2	Ntsebo Mkhize (External Reviewer)

APPROVER

Report Approver	Snowy Makhudu (Tholoana Environmental Consulting)

EXECUTIVE SUMMARY

Tholoana Environmental Consulting (TEC) has been appointed by Dikgato Epitome JV and Ralema Consulting to act as Independent Environmental Assessment Practitioners, on behalf of the City of Ekurhuleni Metropolitan Municipality (CoEMM): Roads and Storm Water Department, for the proposed upgrade of Barry Marais Road (K155). The site is located in Boksburg under the Southern Region of the CoEMM and across Ward 31; Ward 41; Ward 43; Ward 45 and Ward 99 Gauteng Province. The proposed Barry Marais Road upgrade activities will be 15km in length and are confined between Barry Marais/N3 interchange, starting approximately 600m before the K133 and ending at K155 around Glasglow Road. The current environmental appears to have been heavily affected by surrounding land use i.e. residential area (raw sewage from these areas), mining activities (discharging into channels and wetland systems).

The key proposed activities for the project are as follows:

- The doubling/upgrading of the Barry Marais Road (K155), which is a Provincial road. The road is currently a single carriageway and is proposed to be upgraded to a dual carriageway;
- Upgrading of the following 20 intersections with Barry Maras Road: intersection with unknown street (currently gravel road); K133 intersection; K129 intersection; intersection with Lama Street; intersection with Partridge Street; intersection with Dagbreek Street; K131 intersection; intersection No 6 leading into Windmill; intersection with Morema Street; intersection with Central Road (No 2); intersection with K165; intersection with New Road; intersection with unknown Street providing access to Prison Access (No 3); intersection with Keurboom Street; intersection with Kershout Street; intersection with Kingfisher Avenue/Besembos Street; intersection with Mimosa Street/Van Wyk Louw Dr; intersection with Airport Road; intersection with Reservoir Road; and intersect with Glasglow Road; and
- Installation of a storm water management system.

Barry Marais road is categorized as a class 2 road and it is the main access road between Vosloorus and Boksburg. The proposed activities are identified under the CoEMM Masterplan which outlines the planned activities and/or developments within the Municipality.

Due to the planned airport city (aerotropolis) around the OR Tambo International Airport, the City of Ekurhuleni Metropolitan Municipality has identified several routes which need to be upgraded in order to serve the aerotropolis. The proposed project activities form part of the planned upgrades which are in line with the approved Integrated Development Plan (IDP) Sector Plan (City of Ekurhuleni Metropolitan Municipality Road Masterplan).

The following Specialist studies were conducted for the proposed project:

- **Dolomite Stability Investigation** by Bear GeoConsultants (Pty) Ltd

  According to the investigation, the study area has characteristics of two stability zones, which are Zone A and Zone B. Zone A is underlain by shallow dolerite or thick Karoo Supergroup sediments and was determined to have a low to medium potential for small sized sinkholes to develop given the current conditions. Zone B is underlain by a mix of chert, silts, clays and some wad overlying the dolomite bedrock and has been determined to have a medium potential for large sinkholes and subsidence under the current conditions. The report is attached under ***Appendix G***.

- **Ecological Assessment** by Ecology International

  The assessment surveyed an area of approximately 60.78ha within the study area and the following findings were made:

  - 41 indigenous plant species were identified during the site survey. In addition to these, 35 exotic species were identified and include National Environmental Management: Biodiversity Act (NAMBA), 2004 (Act No. 10 of 2004) listed invasive species;
  - Four different habitats were identified during the survey. These were categorized as disturbed primary grasslands, moist grasslands, secondary grasslands and modified areas.
  - There were no threatened floral species encountered within the study area and none were recorded within the 2km radius of the route. Regardless of this and due to the location of the proposed activities in habitats with high sensitivity the implementation of the proposed project activities should ensure adherence to the mitigation measures provided.

  The Ecological Assessment Report is attached under ***Appendix G***.

- **Wetland Assessment** by Oasis Environmental specialists

  The assessment delineated four wetland areas within a 500m buffer along the Barry Marais Road. These wetlands were classified into two separate hydrogeomorphic (HGM) units, comprising of three seepage wetland (HGM1, HGM 2 and HGM 4) and one channelled valley bottom wetland (HGM 3). A wetland health assessment concluded the *seep wetlands* to be largely modified (Category D) and the Valley Bottom Wetland to be seriously modified (Category E). The Wetland Assessment Report is attached under ***Appendix G.***

- **Phase 1: Archaeological Impact Assessment** by Millenium Heritage Group (Pty)

  According to the Archaeological Impact Assessment (AIA) the proposed project is proposed within a built area comprising a tarred road, previously cultivated land and water bodies (identified wetlands). During the ground truthing of the area no archaeological materials or heritage remains were found. However, should there be any features uncovered during the implementation of the proposed activities, all activities in the vicinity of the affected area need to be suspended. A professional archaeologist or heritage authority needs to be consulted for investigations and recommendations thereof. The Archaeological Impact Assessment AIA Report is attached under ***Appendix G***.

Technology Alternative

With regard to the alternatives, only the *No-go* alternative was considered for proposed Barry Marais road upgrade. While alternatives are desirable for any project, none were identified for the project as they are not applicable due to reasons such as the upgrade to an existing road and limitations due to the completed process for the appointment of contractors at set rates and not catering for the application of other alternatives beyond the preferred.

No-go Alternative

The proposed Barry Marais upgrade is planned in line with the envisaged aerotropolis around the OR Tambo International Airport. The aerotropolis will comprise on commercial and industrial land uses. This in turn will result in increased traffic congestion thus increasing the traveling time, which will turn in affect the economic activities. The main purpose of upgrading the Barry Marais K155 is to cater the planned future developments. Should the proposed project not be implemented to cater for the aerotropolis, this may contribute to slow economic activities and increased traffic will contribute negatively towards air quality and in turn climate change. The proposed project will contribute to temporal employment.

The key positive and negative impacts associated with the proposed project activities are below. The rating of adverse impacts can be reduces the implementation of mitigation measures discussed I the Environmental Management Programme (EMPr). These impacts are as follows:

- **Positive Impacts**
  - Improved transport systems that will ease congestions in relation to the planned future OR Tambo aerotropolis.
  - Positive socio-economic contribution for adjacent local residents (temporal job opportunities and skills transfer), road users and businesses affected by the proposed activities.
  - Improve quality of storm water management systems.
  - Improve economy of the region

- **Negative impacts**
  - Increased levels of erosion
  - Increased noise during the construction phase.
  - Increased dust caused by construction activities.
  - Infestation of invasive alien plant species.
  - Generation of waste from the construction working areas
  - Increased loss or fragmentation of natural habitats and plant species of conservation concern, increasing the impact of existing surrounding anthropogenic activities.
  - Degradation of water resources (identified wetlands).
  - Increased incidents
  - Increased accidents during construction

- Possible occurrence subsidence's and formation of sinkholes during the construction phase and possibly the operational phase.

Assessment Findings

The Barry Marais road off ramp from N3 is characterized by a few farming activities on the west side of the road after the N3 off ramp towards Boksburg. Most of vegetation that is along the route is already disturbed because of developments such as households, industries and shopping complexes. On the east side of the road towards Boksburg, the proposed site is characterized by dominant grass species, whereas the other sections are already disturbed due to infrastructure developments.

On the west side of the Barry Marais Road, there is a Boksburg Sub-Regional cemetery with concrete palisade fencing. The cemetery will be regarded as the project's no-go area. Furthermore, four wetland areas were identified along the road, however the risk of proposed activities on the wetlands is low. Based on the assessments conducted the proposed activities are supported, however recommendations and mitigations measures provided need to be adhered to.

TRIGGERED LISTED ACTIVITIES

Based on the nature of the project and as pr the requirements of the Environmental Impact Assessment Regulations 2014 (as amended), an environmental authorisation is required for the Listed activities indicated in (Table 1 below) prior to the implementation of the proposed activities. The application for an Environmental Authorisation is lodged with the Gauteng Department of Agriculture and Rural Development (GDARD).

Table 1: EIA regulations 2014 listed activities

Indicate the number of the relevant Government Notice:	Activity No (s) (relevant notice): e.g. Listing notices 1, 2 or 3	Describe each listed activity as per the wording in the listing notices:
GNR 327, 7 April 2017	Listing Notice 1. Activity 19	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. but excluding where such infilling, depositing, dredging, excavation, removal or moving— (a) will occur behind a development setback. (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; [or] (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies;

Indicate the number of the relevant Government Notice:	Activity No (s) (relevant notice): e.g. Listing notices 1, 2 or 3	Describe each listed activity as per the wording in the listing notices:
		(d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or (e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.
GN. R 324,7 April 2017	Listing Notice 3. Activity 4.c (iv)	The development of a road wider than 4 metres with a reserve less than 13,5 metres. **c. Gauteng** iv. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans.
GN. R324, 7 April 2017	Listing Notice 3. Activity 14. (ii)(iii)(vi) & (xii) – (a) c.(iv)	The Development of – (ii) channels exceeding 10 square metres in size; (iii) bridges exceeding 10 square metres in size; (vi) bulk storm water outlet structures exceeding 10 square metres in size; (xii) infrastructure or structures with a physical footprint of 10 square metres or more; **c.Gauteng** iv. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans.
GN. R324, 7 April 2017	Listing Notice 3. Activity 18 c.(iv)	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. **c.Gauteng** iv. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans.
GN. R324, 7 April 2017	Listing Notice 3. Activity 26	Phased activities for all activities— i. Listed in this Notice and as it applies to a specific geographical area, which commenced on or after the effective date of this Notice; or where any phase of the activity [may be] was below a threshold but where a combination of the phases, including expansions or extensions, will exceed a specified threshold.

TABLE OF CONTENTS

DOCUMENT CONTROL i
EXECUTIVE SUMMARY .....
TRIGGERED LISTED ACTIVITIES iii
ABBREVIATIONS .....
GLOSSARY i
PROJECT TEAM CONTACT DETAILS 4
SECTION A: ACTIVITY INFORMATION 8
1. PROPOSAL OR DEVELOPMENT DESCRIPTION 8
2. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES 8
3. ALTERNATIVES 12
4. PHYSICAL SIZE OF THE ACTIVITY 18
5. SITE ACCESS 19
6. LAYOUT OR ROUTE PLAN 20
7. SITE PHOTOGRAPHS 20
8. FACILITY ILLUSTRATION 21
SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT 21
1. PROPERTY DESCRIPTION 22
2. ACTIVITY POSITION 22
3. GRADIENT OF THE SITE 22
4. LOCATION IN LANDSCAPE 23
5. GROUND, SOIL AND GEOLOGICAL STABILITY OF THE SITE 23
6. AGRICULTURE 23
7. GROUNDCOVER 24
8. LAND USE CHARACTER OF SURROUNDING AREA 25
9. SOCIO-ECONOMIC CONTEXT 26
10. CULTURAL/HISTORICAL FEATURES 32
SECTION C: PUBLIC PARTICIPATION (SECTION 41) 33
2. LOCAL AUTHORITY PARTICIPATION 33
3. CONSULTATION WITH OTHER STAKEHOLDERS 33
4. GENERAL PUBLIC PARTICIPATION REQUIREMENTS 33
5. APPENDICES FOR PUBLIC PARTICIPATION 35
SECTION D: RESOURCE USE AND PROCESS DETAILS 36
1. WASTE, EFFLUENT, AND EMISSION MANAGEMENT 36
2. WATER USE 38
3. POWER SUPPLY 38
4. ENERGY EFFICIENCY 38
SECTION 2: IMPACT ASSESSMENT 39
1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES 39
2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION AND OPERATIONAL PHASE 39
3. IMPACTS THAT MAY RESULT FROM THE DECOMMISIONING AND CLOSURE PHASE 59
4. CUMULATIVE IMPACTS 60
5. ENVIRONMENTAL IMPACT STATEMENT 61
6. IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE 62
7. SPATIAL DEVELOPMENT TOOLS 63
8. RECOMMENDATION OF THE PRACTITIONER 66
9. THE NEEDS AND DESIRIBILITY 66

10. THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED 69
11. ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) 69

LIST OF FIGURES

Figure 1: Waste Management Hierarchy: (Department of Environmental Affairs, 2011) 10
Figure 2: Site Locality Map 13
Figure 3: Location of Bridges 15
Figure 4: Population group 27
Figure 5: Gender and age distribution for Boksburg 28
Figure 6: Languages spoken at home 28
Figure 7: Educational levels attained 29
Figure 8: Average Household Income 29
Figure 9: Waste removal 30
Figure 10: Sources of water 31
Figure 11: Economic activities 31
Figure 12: Gauteng C-Plan Map (Gauteng Conservation Plan version 3.3) 65

LIST OF TABLES

Table 1: EIA regulations 2014 listed activities iii
Table 2: Applicable legislation 8
Table 3: Project Phasing 17

ABBREVIATIONS

AIA	Archaeological Impact Assessment
BAR	Basic Assessment Report
CoEMM	City of Ekurhuleni Metropolitan Municipality
C-Plan	Conservation Plan
CBA	Critical Biodiversity Area
DBAR	Draft Basic Assessment Report
DWS	Department of Water Sanitation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
ESA	Ecological Support Area
EMF	Environmental Management Framework
EMPr	Environmental Management Programme
FBAR	Final Basic Assessment Report
IDP	Integrated Development Planning
I&AP	Interested and Affected Party
GDARD	Gauteng Department of Agriculture and Rural Development
GHG	Greenhouse Gas
GSDF	Gauteng Spatial Development Framework
NWA	National Water Act
PHRAG	Provincial Heritage Resources Authority Gauteng
Rd	Road
SAHRA	South African Heritage Agency
TEC	Tholoana Environmental Consulting

GLOSSARY

Term	Definition
Contractor	the principal person or company undertaking the construction of the development appointed by the developer, including subcontractors appointed by the contractor.
Disposal	the burial, deposit, discharge, abandoning, dumping, placing or release of any waste into, or onto land.
Engineer	a person representing the Developer on site and who is responsible for the technical and contractual implementation of the works to be undertaken. This is usually the engineer, but may be any other person, such as an architect or project manager, authorized by the Developer to fulfil this role.
Environment	the surroundings within which humans exist and that are made up of the land, water and atmosphere of the earth: micro-organisms, plant and animal life; any part or combination of the above and the inter- relationships among and between them; and the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.
Environmental Systems	an area that have significant ecological and/or hydrological value, it is an integrated system of parkways natural land and connecting spaces that form the basis of broader open space system.
General Waste	waste that does not pose an immediate hazard or threat to health or to the environment and includes - domestic waste; building and demolition waste; business waste; and inert waste.
Ground Water	subsurface water that fills voids between highly permeable ground strata comprised of sand, gravel, broken rocks, porous rocks, etc. and move under the influence of gravitation.
Hazardous Waste	any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical,

Term	Definition
	chemical, or toxicological characteristics of that waste, have a detrimental impact on health and the environment.
Heritage Resources	any place or object of cultural significance, including all human-made phenomena and intangible products that are the result of the human mind. Natural, technological, or industrial features may also be part of heritage resources, as places that have made an outstanding contribution to the cultures, traditions and lifestyles of the people or groups of people of South Africa.
Impact	refers to a description of the potential effect or consequence of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space.
Incident	an undesired event which may result in a significant environmental impact but can be managed through an internal response.
Integrated Development Plan	a plan that integrates development and management of Municipal areas as stipulated in the Municipal Systems Act, 2000.
Pollution	change in the environment caused by – substances; radioactive or other waves; or noise, odours, dust or heat emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future.
Public open space	land owned by an organ of state, or over which an organ of state has certain real rights arising from the filling in the Deeds office or other registration office of a general plan of a township, agricultural holding or other division of land, or any alteration, addition to or amendment of such land approved by the Surveyor-General, on which is marked the

Term	Definition
	land to which the public has common right of use; and is controlled and managed by the municipal council.
Mitigation	measures designed to avoid, reduce, or remedy adverse impacts.
Safety, Health and Environmental Officer	the SHE officer is a Contractor representative, responsible for the safety, health, and environmental aspects on the construction site. The SHE officer will be responsible for the day-to-day monitoring of the EMPr and Health and Safety Plan as per the OSHA
Socio-economic opportunities	activities that improve the social and economic well- being of the urban poor, e.g. improved health care, education, recreation, job opportunities, earning power and housing.
Spatial Development Framework	a frame work that seeks to guide overall spatial distribution of current and desirable land uses within a municipality in order to give effect to vision, goals and objection of the municipal IDP, as contemplated in spatial planning and land use management Act 16 of 2003.
Sustainable Development	a development that meets the needs of the present without compromising the ability of future generation to meet their own needs.
Waste	any substance, whether or not that substance can be reduced, re-used, recycled and recovered – that is surplus, unwanted, rejected, discarded, abandoned or disposed off; which the generator has no further use for the purposes of production; that must be treated or disposed off; or that is identified as a waste by the relevant Minister by notice in the Gazette, and includes waste generated by the mining, medical or other sector, but - a by-product is not considered waste; and any portion of waste, once re-used, recycled and recovered, ceases to be waste.
Waste Disposal Facility	any site or premise used for the accumulation of waste with the purpose of disposing of that waste at that site or on that premises.

Term	Definition
Water Pollution	as defined in the National Water Act, 36 of 1998, water pollution refers to the direct or indirect alteration of the physical, chemical or biological properties of a water resource so as to make it – less fit for any beneficial purpose for which it may reasonably be expected to be used; or harmful or potentially harmful: a. to the welfare, health or safety of human beings; b. to any aquatic or non-aquatic organisms; c. to the resource quality; or d. to property.

Expertise of the Environmental Assessment Practitioner (EAP)

Dikgato Epitome JV and Ralema Consulting have appointed Tholoana Environmental Consulting (TEC) to act as Independent Environmental Assessment Practitioners (EAP's) on behalf of the City of Ekurhuleni Metropolitan Municipality (CoEMM): Roads and Storm Water Department for the proposed upgrade of Barry Marais Road (K155) located in Boksburg, under the CoEMM.

Tholoana Environmental Consulting (TEC) brings together a team of dedicated professional scientists, environmental managers and practitioners who have many years of combined experience in environmental services, including services not limited to mixed land use development, housing development, shopping complexes, landfill sites, storm water management systems, roads, community health centre and bio-plant related environmental applications for authorisation including Water Use Applications. We provide comprehensive Integrated Environmental Management (IEM) services to a broad range of clients throughout the African continent and other international countries.

TEC has no interest in the aforementioned project or any component that may emerge from the processes of the proposed activities.

- **Bonginkosi Hlongwane (Report Author)**

  Bonginkosi Hlongwane holds a Bachelor of Arts Degree in Environmental Planning and Development obtained from University of Zululand in KwaZulu-Natal. He is also a member of the International Association for Impact Assessment South Africa (IAIAsa) and is an Environmental Assessment Practitioner within TEC. He has worked at Nkungumathe Youth Development Forum as an Environmental Project Administrator. He has been employed by Tholoana Environmental Consulting since 2016 and has been involved in the following projects: Ventersdorp Buy-Back centre - Section 24G rectification application, Krugersdorp station Basic Assessment process as a Public Participation Process (PPP) assistant, Cradle View – Mixed Land Use Housing Development Munsieville as a Junior EAP and PPP assistant, Blydeville Ext 4 – Mixed Land Use Development (S&EIR) and the Kelland Wetland Rehabilitation Project

  Bonginkosi's Curriculum Vitae is attached as ***Appendix J.***

Report Reviewers

- **Mr Vusmuzi Hlatshwayo (Report Reviewer)**

Mr Vusmuzi Hlatshwayo has a National Diploma in Environmental Sciences obtained from Tshwane University of Technology in Pretoria. He is a Registered Environmental Assessment Practitioner with EAPASA and also a member of the International Association for Impact Assessment - South Africa (IAIAsa) and is an Environmental Assessment Practitioner within TEC. In addition, Mr Vusmuzi Hlatshwayo was involved in the following projects: Madiba Heights (mixed-use development), Msibi Bio-Plant (waste management license application; BAR and Atmospheric Emission License Application), and Refilwe Hostel Development (Environmental Management Programme Report), Krugersdorp Station Intermodal facility; Cradle View Mixed Land Use Development; Maluti A Phofung Landfill site, Blydeville and Ventersdorp housing development, Kelland Wetland

Rehabilitation project, Randfontein Community Health Centre and the Pam Brink Reservoir Feeder line – just to mention a few.

Vusmuzi's Curriculum Vitae is attached as ***Appendix K.***

- **Mrs Ntsebo Mkhize (External Report Reviewer)**

Ntsebo Mkhize is an Environmental Assessment Practitioner (EAP) with over 7 years working experience. She is registered with the Environmental Assessment Practitioner Association of South Africa (EAPASA). Ntsebo is currently enrolled for a Masters in Environmental Management Degree with the North West University. She holds a BSc (Honours) in Environmental Management (cum laude) from the University of South Africa. Prior to that, she completed a BSc (Honours) in Geography from the University of the Witwatersrand in 2010 and a BSc Landscape Architecture from the University of Pretoria in 2009. Her additional key qualifications are a Certificate in Environmental Law (with distinction) from the University of Pretoria in 2015 and a Certificate in ISO 9001:2008 Implementation and Facilitation (with distinction) from South African Certification and Auditing Services (SACAS).

Her project experience covers the following developments/sectors: aviation (e.g. Environmental Screening Reports for 29 Distance Measurement Equipment (DME) sites within the Terminal Maneuvering Areas (TMAs) of the OR Tambo, King Shaka, Port Elizabeth, East London, George and Cape Town Airports); waste management (e.g. licensing of various waste disposal facilities in the Kwa-Zulu Natal Province); mixed-use developments (e.g. Water Use License Application for Stone River's Arch Mixed Use Development); electricity (e.g. Basic Assessments for the Battery Storage Systems for four substations in the Western Cape); bulk water supply schemes (Environmental Feasibility study for the Gariep Dam Water Supply Scheme); roads and stormwater (Basic Assessment for the Upgrading of internal roads in Mandela Village); biodiversity and watercourse protection projects (e.g. Zoning plans for the proclamation of two municipal Nature Reserves: Klipriviersberg and Kloofendal); and schools (e.g. landscape designs plan for Langeni Senior Primary School).
Ntsebo's Curriculum Vitae is attached as ***Appendix L***

- **Ms Snowy Makhudu (Report Reviewer)**

Ms Snowy Makhudu has a National Higher Diploma in Meteorology obtained from Tshwane University of Technology in Pretoria. She is the Managing Director of Tholoana Environmental Consulting. She is a member of Institute of Waste Management of Southern Africa (IWMSA); Board Chairperson for Environmental Assessment Practitioners Association of South Africa (EAPASA) and a member of the International Association for Impact Assessment - South Africa (IAIAsa). She has been in Environmental sector for more than 25 years and in environmental consultancy for more than 13 years. In addition, Ms Snowy Makhudu has been involved at Senior and Executive Management level in Government and Private sector. She also worked with communities in a consulting capacity as a project director or advisor, including management of consultants' contracts

and Service Level Agreements. This includes development of State of Environmental Reports; Environmental Management Frameworks; Application for Environmental Authorisation; Rectification of NEMA Section 24G; Environmental Compliance officers services; Strategic EIA's; IWMP's; Waste Minimisation Strategy – development and implementation; training of senior Management on Integrated Environmental Management including Integrated Waste Management funding and financial models, Clean Development Mechanism project; Social facilitation and community survey; Project in Extended Public Works Programme, whilst in Local and Provincial Government.

Ms Snowy Makhudu was involved in the following projects:

District Hospital, Ladybrand, Free State – Basic Assessment, IWMP and AQMP for West Rand District Municipality including its constituent Municipalities, several Initial Environmental Evaluations and EIA's for the Swaziland Electricity Board 400kv Integration Phase 2, Orient Hills Township/Mixed Land Use Development – Basic Assessment, Rectification of NEMA Section 24G for 9 BP Filling Stations, Diesel Tanks – Basic Assessment, Social Facilitation and community mobilisation for Indalo Yethu Eco-Towns, Training of Eco-Towns environmental Ambassadors on waste management including waste minimisation for Indalo Yethu. As a Project Manager/Implementing Agent, she managed Youth Jobs in Waste – North West & Free State, Qwa-Qwa Phuthaditjhaba Landfill Site Waste License & EIA. She was a Project Director for the Msibi Bio-Plant (Pyrolysis) – Environmental Authorisation Application including Atmospheric Emission License, Ventersdorp and Blydeville Mixed Land Use Housing Development – EIA, Munsieville Mixed Land Use Development – Basic Assessment, Randfontein Community Health Centre – Environmental Scan & OHS, Kelland Wetland Rehabilitation – Basic Assessment.

Snowy's Curriculum Vitae is attached as ***Appendix M***

PROJECT TEAM CONTACT DETAILS

- **EAP Details**

Contact Person	Bonginkosi Hlongwane
Company	Tholoana Environmental Consulting CC
Mailing Address	PO Box 1549, Honeydew, 2040
Telephone	011 704 5071
Cell-phone	076 155 4825
E-Mail	bonginkosi@tholoanaconsulting.co.za

- **The Applicant**

Organisation	City of Ekurhuleni Metropolitan Municipality: Roads and Stormwater Department
Contact Person	Nkululeko Ncube
Mailing Address	6th Floor, Golden Heights Building, Cnr Victoria Str. And FH Odendaal Str. Germiston. 1400
Telephone	011 999 3644
Cell-phone	N/A
E-Mail	Nkululeko.ncube@ekurhuleni.gov.za

- **The Project Engineer**

Company	Dikgato Epitome JV and Ralema Consulting
Contact Person	Karel Hermanus
Mailing Address	3 Rose Avenue Kempton Park 1619
Telephone	011 391 5049/3259
Cell-phone	083 445 1188
E-Mail	karel@epitomeconsulting.co.za

- **The Competent Authority**

Competent Authority	Gauteng Department of Agriculture and Rural Development
Director	Steven Mukhula
Telephone Number	011 240 2500
Email	Erick.Moletsane@gauteng.gov.za
Postal Address	PO Box 8769, Johannesburg, 2000
Physical Address	56 Eloff Street, Umnotho House, Johannesburg, 2000

- **The Local Authority**

Local Authority	City of Ekurhuleni Metropolitan Municipality: Environmental Resource and Waste Management Department
Contact Person	Lilian Kwakwa
Telephone Number	011 999 3171
Email	Lillian.Kwakwa@ekurhuleni.gov.za
Postal Address	PO Box 25, Edenvale, 1610
Physical Address	Edenvale Civic Centre, Cnr Hendrik Potgieter and Van Riebeeck Street, Edenvale.

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 **A**ssessment 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 Sustainable Utilisation of the Environment (SUE) Branch
Ground floor, Umnotho House, 56 Eloff Street, Johannesburg
Email Address: bongani.shabangu@gauteng.gov.za

Administrative Unit telephone number: (011) 240 3377/3051
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? N/A

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

The proposed activities are for the upgrading of an existing road and associated stormwater management systems. Closure activities are not applicable for the project.

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.

N/A

Have State Departments including the competent authority commented? No

If no, why?

This report is a draft Basic Assessment Report (DBAR) which is subjected to the Public Participation Process. Comments from the State Departments and the Competent Authority are anticipated during this process and will be included in the final Basic Assessment Report (FBAR).

SECTION A: ACTIVITY INFORMATION

1. PROPOSAL OR DEVELOPMENT DESCRIPTION

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

Proposed Barry Marais Road Upgrade (K155)

Select the appropriate box

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

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

YES	

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

According to the Risk Assessment completed by Oasis Environmental specialists by Oasis Environmental Specialists, it emerged that a General Authorisation for Section 21(c) and (i) activities of the National Water Act, 1998 (Act No. 36 of 1998) should be obtained from the Department Water and Sanitation (DWS). An application was lodged with the DWS on 17 October 2019. A decision had not been issued at the time of compiling this Draft Basic Assessment Report.

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

2. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

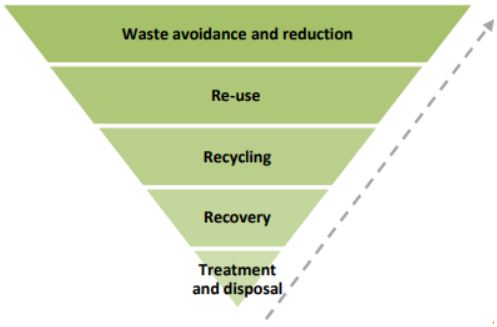
List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations:

Table 2: Applicable legislation

Title of legislation, policy, or guideline:	Administering authority:	Promulgation Date:
National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).	National	27 November 1998
The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996, as amended).	National	18 December 1996
National Environmental Management: Waste Act, 2008 (Act 59 of 2008, as amended)	National	10 March 2009
National Heritage Resources, 1999 (Act No. 25 of 1999)	National	28 April 1999
National Water Act, 1989 (Act No. 36 of 1998, as amended)	National	26 August 1998
National Environmental Biodiversity, 2004 (Act No. 10 of 2004)	National	7 June 2004
Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)	National	23 June 1993

Title of legislation, policy, or guideline:	Administering authority:	Promulgation Date:
National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)	National	24 February 2005
Hazardous Substances amendment Act, 1992 (Act No.53 of 1992) (as amended)	National	4 April 1973
Promotion of Access to Information Act, 2000 (Act No. 2 of 2000)	National	2 February 2000
Environmental Impact Assessment Regulations, 2014 (as amended)	National	7 April 2017
National Environmental Management: Biodiversity Act: Alien and Invasive Species Regulations R 598 of 2014	National	1 August 2014
National Environmental Management Act, 1998 (Act no.107 of 1998, as amended): Publication of Public Participation Guideline	National	10 October 2012
Gauteng Conservation Plan Version 3.3 (C-Plan 3.3)	Provincial	January 2011
Gauteng Provincial Environmental Management Framework (GPEMF)	Provincial	2 March 2018
City of Ekurhuleni Regional Spatial Development Framework Region E & F	Local	2015
City of Ekurhuleni Metropolitan Municipality Solid Waste by-laws.	Local	6 March 2002
City of Ekurhuleni Metropolitan Municipality By-Laws for the planting, pruning, removal, and treatment of street trees	Local	25 April 2007

Description of compliance with the relevant legislation, policy or guideline:	
Legislation, policy of guideline	**Description of compliance**
The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996, as amended).	Section 24 of the constitution stipulates that everyone has the right — to an environment that is not harmful to their health or well-being; and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that — prevent pollution and ecological degradation; promote conservation; and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development. The applicant has the responsibility to ensure that project activities are undertaken in a manner that does not cause environmental degradation, whilst ensuring the principle of sustainable development is adhered to. This should

Description of compliance with the relevant legislation, policy or guideline:	
Legislation, policy of guideline	**Description of compliance**
	be achieved through implementation and adherence to the EMPr at all phases of the proposed activities.
National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended	Section 28 of the act applies to the activities to be undertaken by the Applicant. The Applicant has a duty to ensure that any activities that cause or may cause environmental degradation are assessed and measures for prevention, avoidance or minimization of such impacts from occurring are in place for all phases of the proposed development.
National Environmental Management: Waste Act, 2008 (Act 59 of 2008) as amended	The Applicant should adhere to the following waste management practices:  **Figure 1:** Waste Management Hierarchy: (Department of Environmental Affairs, 2011) The waste management mitigation measures as provided within the EMPr should be adhered to achieve compliance with the requirements of this act.
National Heritage Resources, 1999 (Act No. 25 of 1999)	The Applicant should ensure compliance to Section 38 of this Act, thus ensuring that the Heritage Resources Agency is notified and provides comments on the proposed activities. Based on the conducted Phase 1 AIA no heritage resources have been identified on site.
National Water Act, 1989 (Act No. 36 of 1998, as amended)	In line with this Act, the proposed project activities should ensure compliance to section 19, thus putting in place measures that prevent pollution and/degradation on water resources.
National Environmental Biodiversity, 2004 (Act No. 10 of 2004)	This Act requires that any red data and sensitive species within the site development should be conserved during the project implementation phases. Although no Threatened species were encountered during the field survey, recommendation in the EMPr and ecological assessment should be adhered to for the proposed project.
Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)	All persons at work are entitled to a healthy and safe working environment while undertaking their respective activities. The Applicant has a responsibility to ensure that this requirement is adhered to.
National Environmental Management: Air	Project activities should be undertaken in manner which does not cause air pollution, through implementation of mitigation measures as per the EMPr on air quality related impacts.

Description of compliance with the relevant legislation, policy or guideline:	
Legislation, policy of guideline	**Description of compliance**
Quality Act, 2004 (Act No. 39 of 2004)	
Hazardous Substances amendment Act, 1992 (Act No.53 of 1992) (as amended)	To provide for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances, and for the control· of certain electronic products; to provide for the division of such substances or products into groups in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances and products; and to provide for matters connected therewith.
Promotion of Access to Information Act, 2000 (Act No. 2 of 2000)	All documents relating to the project should be accessible to the Public. For the environmental impact assessment process all documents for review by the public should be made available.
Environmental Impact Assessment Regulations, 2014 (as amended)	An Environmental Authorisation for the project should be acquired from GDARD for any triggered Listed Activity within the Listed Activities of the EIA regulations 2014 (as amended).
National Environmental Management: Biodiversity Act: Alien and Invasive Species Regulations R 598 of 2014	Regulations should be complied with for the removal and controlling of alien and invasive species within the proposed project area.
National Environmental Management Act, 1998 (Act No.107 of 1998, as amended): Publication of Public Participation Guideline	This guideline is used for the Public Participation process undertaken as part of the Basic Assessment application process. The main objective is to ensure that the Public Participation requirements are complied with and the process is undertaken in a fair and reasonable manner.
Gauteng Conservation Plan Version 3.3 (C-Plan 3.3)	The C-Plan is used for this report as a tool in determining protected areas that may be affected by the proposed project activities. Furthermore, the C-Plan is used by GDARD as a supporting tool for decision-making process.

Description of compliance with the relevant legislation, policy or guideline:	
Legislation, policy of guideline	**Description of compliance**
Gauteng Provincial Environmental Management Framework (GPEMF) (2 March 2018)	The GPEMF was used to determine the zoning and applicable management standard based on the site for the proposed project activities.
City of Ekurhuleni Regional Spatial Development Framework Region E & F (2015)	The spatial development framework serves as a decision-making tool for cities to be able take opportunity on economic potentials within them and at the same time creating sustainable livelihoods for all. This is done cognisance of key challenges in relation to environmental degradation, service provision/delivery and provision of public transportation. The City of Ekurhuleni Regional Spatial Development Framework is applicable to the proposed project in determining the alignment of the planned land uses vs the proposed activities.
City of Ekurhuleni Metropolitan Municipality Solid Waste by-laws (6 March 2002)	These by-laws deal with the overall collection and removal of solid waste within the city, as a result due to the anticipated solid waste that will be generated during the construction of the proposed activities, adherence to these by-laws becomes a requirement.
City of Ekurhuleni Metropolitan Municipality By-Laws for the planting, pruning, removal, and treatment of street trees (25 April 2007)	These by-laws are applicable to the proposed activities due to the requirements in line with street planting requirements that needs to be adhered to.

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

Findings and recommendations from the following specialist reports were considered applied in the selection of the alternatives:

- The preliminary design report by Dikgato Epitome JV and Ralema Consulting
- Wetland Assessment compiled by Oasis Environmental Specialists (Pty) Ltd;
- Archaeological Impact Assessment compiled by Millenium Heritage Group (Pty) Ltd;
- Dolomite Stability Investigation by Bear GeoConsultants (Pty) Ltd

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 proposed Barry Marais Road upgrade is proposed in East Region of CoEMM. The activities are confined between Barry Marais/N3 interchange, starting approximately 600m before the K133 and ending with

K155 around Glasglow Road. Figure 2 shows the project study area.

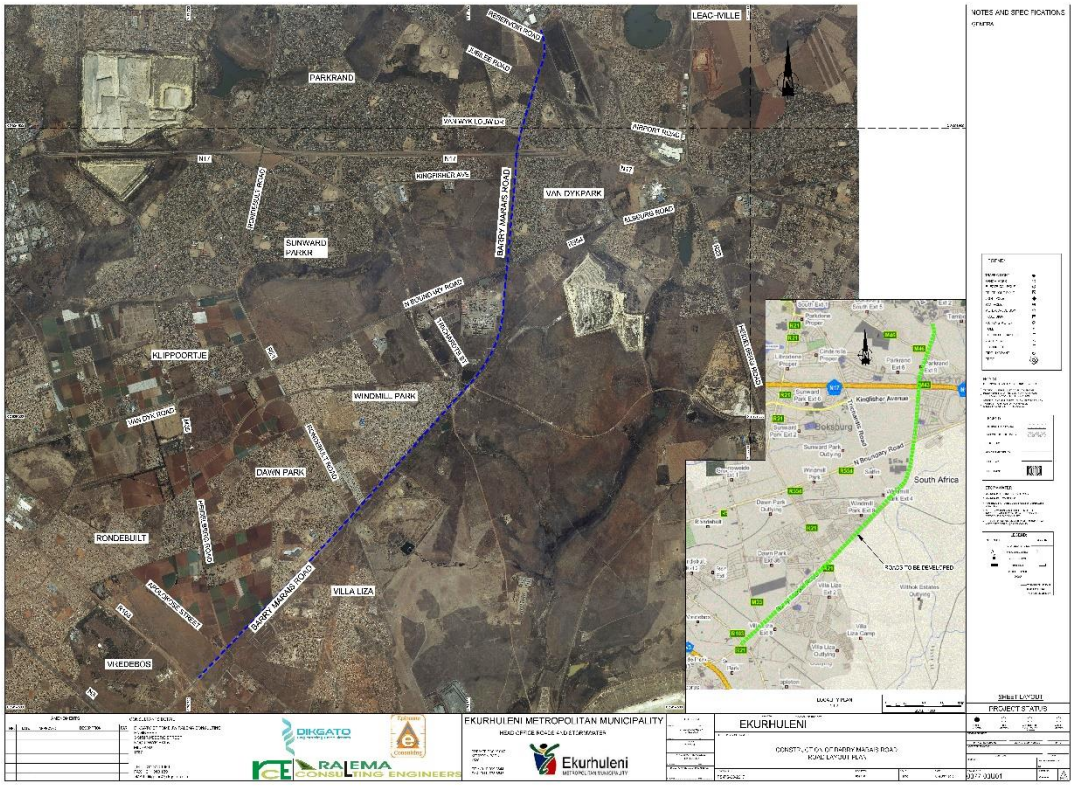


Figure 2: Site Locality Map

The key proposed activities for the project are as follows:

The outline of project activities is as follows:

- The doubling/upgrading of the Barry Marais Road (K155), which is a provincial road. The road is currently a single carriageway on which a dual carriageway is proposed;

- Upgrading of the following intersections; Intersection with unknown street (currently gravel road); K133 intersection; K129 intersection; Intersection with Lama Street; Intersection with Partridge Street; Intersection with Dagbreek Street; K131 Intersection; Intersection No 6 leading into Windmill; Intersection with Morema Street; Intersection with Central Road (No 2); Intersection with K165; Intersection with New Road; Intersection with Unknown Street (Prison Access Road) (No 3); Intersection with Keurboom Street; Intersection with Kershout Street; Intersection with Kingfisher Avenue / Besembos Street; Intersection with Mimosa Street /Van Wyk Louw Dr; Intersection with Jubilee Road; Intersection with Reservoir Road; and Glasglow Road;
- Access to Midas Business Centre is planned for temporal closeure.
- Installation/construction of a storm water management system on the upgraded road.

Barry Marais road is categorized as a class 2 road, which is the main access road between Vosloorus and Boksburg. The proposed activities area identified by the (CoEMM): Road Masterplan, which provides details on planned activities and developments in relation to road upgrades. As a result of the planned airport city (Aerotropolis) around the OR Tambo International Airport, the (CoEMM): has identified several routes which need to be upgraded in order to serve the Aerotropolis, thus the proposed activities are aligned to planned future developments. The geometric parameters of the road are in Table 3 below:

Table 3: Geometric Design Parameters

PARAMETER	ROAD CATEGORY
	K155: Principal Arterial (Class 2)
Road Reserve Width	62,0m
Carriage way width (surfaced)**	7,4m
Desired maximum Speed	100km/h
Minimum Stopping Distance	155m
Minimum Gradient	0.5%
Maximum Gradient	6%
Minimum K-Value (Crest)	62
Minimum K-Value (SAG)	37
Minimum Vertical Curve	180
Cross Fall	3%

A formal storm water system will be constructed along the road, with roadways forming part of the storm water management system. The proposed system is a storm water pipe and concrete channel system.

The following materials are proposed where pipes will be required:

- Concrete pipes of the following classes are to be used;
  - Under roads: 600mmØ (min) class 100D.
  - Under sidewalks, parks and servitudes: 600mmØ class 75D.
- Manholes of brick with concrete slabs;
- Kerb inlets and grid inlets of brick with concrete slabs;
- Field inlet of brick with concrete slabs; and
- Wingwall outlet will be of concrete.

In addition to the above, the following associated infrastructure comprising four (4) bridges are required at the following locations which are shown in Figure 3.

- 6+950;
- 7+050 Road over rail bridge;
- 13+300 Road over rail bridge; and
- 15+500.

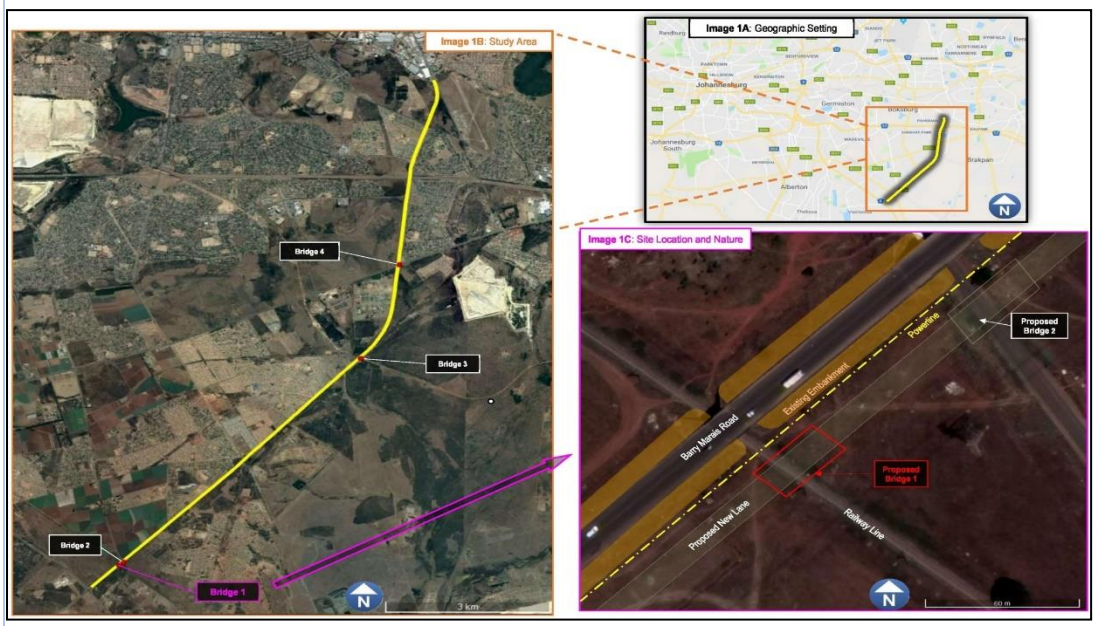


Figure 3: Location of Bridges

Source: Dikgato Engineering Consultants, 2019

An outline of the phased approach for the proposed project is as follows:

- Phase 1A – Upgrading of Jubilee Road to Glasglow Road (Dual Carriageway);
- Phase 1B- Quarter Link Interchange to Jubilee Road;

- Phase 2 - K165 to Quarter Link Interchange;
- Phase 3 - Rondebult Road (R21) to K165;
- Phase 4 - K129 to Rondebult Road (R21); and
- Phase 5 - Start of Road Upgrade to K129.

Refer to table 3 for further details on the details relating to the project phases.

Table 3: Project Phasing

PRIORITY	PHASE	SECTION	LENGTH (km)	START (km)	END (km)	CHALLENGES	IMPLEMENTABLE IMMEDIATELY	CAPACITY IMPROVEMENT
1	1A	Jubilee Road to Glasglow Road (Dual Carriageway)	1,158	18 681.72	19 840.00	Re-alignment of the existing K116 (Jubilee Road) at intersection with Barry Marais. Expropriation of land for the re-agligning of Reservoir Road Intersection, Van Dyk Road and New Link road to Glasglow Road.	NO	YES
	1B	Quarter Link Interchange to Jubilee Road	3.344	15 337.02	18 681.72	Re-alignment of the existing K116 (Jubilee Road) at intersection with Barry Marais.	YES – excluding the re-alignment of K116 (Jubilee Road)	YES
2	2	K165 to Quarter Link Interchange	2.437	12 900.00	15 337.02	Relocation of an informal settlement on the K165 route at intersection with Barry Marais Road. Transnet wayleave approvals for Bridge drilling.	NO	YES
3	3	Rondebuilt Road (R21) to K165	2.734	10 165.05	12 900.00	Relocation of an informal settlement on the K165 route at intersection with Barry Marais Road.	NO	YES
4	4	K129 to Rondebuilt Road (R21)	2.881	7 283.18	10 165.05	No challenges.	YES	NO (Low traffic volume sections)
5	5	Start of Road Upgrade to K129	1.823	5 459.47	7 283.18	Access road to Vredebos AH. Expropriation of land. Transnet wayleave approvals for Bridge drilling.	NO	NO (Low traffic volume sections)

No.	Alternative type, either alternative: site on property, properties, activity, design, technology, energy, operational or other (provide details of "other")	Description
2	Alternative 1	N/A

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

Alternative types can include location/property activity, design, technology, energy, operational or other. While alternatives are desirable for any project, none were identified for the project as they are not applicable due to the following reasons:

- Location/property alternatives – these are not applicable as the project is an upgrade of an existing development.
- Technology alternatives – These are not applicable as the project is part of a Municipal programme o which contractors with specific rates have already been appointed. The use of alternative technologies will affect these rates and is an undesirable scenario for the CoEMM as the developer. Furthermore, the appointed contractors may not be familiar with new technologies.
- Energy alternatives: similar to the technology alternatives above, any use of energy in the upgrade has already been included in the contractor's costing.
- Operational alternatives: These are not applicable as the operational phase of the road will function as any other road that has been upgraded with both positive and negative impacts:
- Other; No other alternatives were identified.

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)***	N/A
Alternatives:	
Alternative 1 (if any)	N/A
Alternative 2 (if any)	N/A
	Ha/ m^2

or, for linear activities:

	Length of the activity:
Proposed activity	15 km
Alternatives:	
Alternative 1 (if any)	N/A
Alternative 2 (if any)	N/A
	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	The proposed project activities will be undertaken within an existing route. The length for the proposed upgrades is approximately 15 km. The road is a class 2 road, with a road reserve width of 62m.

	The study area is 93 Ha.

Alternatives:

Alternative 1 (if any)	N/A
Alternative 2 (if any)	N/A

Ha/m^2

5. SITE ACCESS

Proposal

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

Describe the type of access road planned:

The study area is located within the existing servitude of route the Barry Marais Road (K155) and does not require new access. The project activities will be implemented along the Barry Marais Road (K155) starting from the interchange with National Road N3 in Vosloorus and running in the north-easterly direction towards Benoni/Boksburg. The specific section for the proposed activities starts from 5,459 km into Barry Marais Road from the N3 to approximately 19,840 km towards R554, which is approximately 15 km. The Barry Marais road upgrade will play a key role on easing the traffic and improving economic development of areas located around Boksburg.

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

Describe the type of access road planned:

N/A

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

Describe the type of access road planned:

N/A

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

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

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

6. LAYOUT OR ROUTE PLAN

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

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

- The following should serve as a guide for scale issues on the layout plan:

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

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

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

7. SITE PHOTOGRAPHS

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

Site photographs are attached under **Appendix B.**

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.

Facility Illustrations are attached under **Appendix C.**

SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT

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

Instructions for completion of Section B for linear activities

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

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

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	**0**	(complete only when appropriate for above)
Section B – Location/route Alternative No.	**0**	(complete only when appropriate for above)

1. PROPERTY DESCRIPTION

Property description: (Including Physical Address and Farm name, portion etc.)	PTN 44 (RE), FARM FINAALSPAN, 114IR PTN 68, FARM FINAALSPAN, 114IR PTN 60 (RE), FARM FINAALSPAN, 114IR PTN 62 (RE), FARM WITPOORTJE, 117IR PTN 38, FARM WITPOORTJE, 117IR PTN 47 (RE), FARM WITPOORTJE, 117IR PTN 159, FARM WITPOORTJE, 117IR PTN 0(RE), FARM VILLA LIZA, 675IR PTN 36(RE), FARM VLAKPLAATS, 138IR PTN 34 (RE), FARM VLAKPLAATS, 138IR

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):**
	N/A	N/A

In the case of linear activities:

Alternative:	**Latitude (S):**	**Longitude (E):**
• Starting point of the activity	26°20'24.98"S	28°13'22.12"E
• Middle point of the activity	26°17'38.60"S	28°16'30.92"E
• End point of the activity	26°13'53.45"S	28°17'40.45"E

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

Addendum of route alternatives attached	**N/A**

The 21 digit Surveyor General code of each cadastral land parcel: **N/A**

PROPOSAL	T	0	I	R	0	0	0	0	0	0	0	0	0	1	1	4	0	0	0	4	4
	T	0	I	R	0	0	0	0	0	0	0	0	0	1	1	4	0	0	0	6	8
	T	0	I	R	0	0	0	0	0	0	0	0	0	1	1	4	0	0	0	6	0
	T	0	I	R	0	0	0	0	0	0	0	0	0	1	1	7	0	0	0	6	2
	T	0	I	R	0	0	0	0	0	0	0	0	0	1	1	7	0	0	0	3	8
	T	0	I	R	0	0	0	0	0	0	0	0	0	1	1	7	0	0	0	4	7
	T	0	I	R	0	0	0	0	0	0	0	0	0	1	1	7	0	0	1	5	9
	T	0	I	R	0	0	0	0	0	0	0	0	0	6	7	5	0	0	0	0	0
	T	0	I	R	0	0	0	0	0	0	0	0	0	1	3	8	0	0	0	3	6
	T	0	I	R	0	0	0	0	0	0	0	0	0	1	3	8	0	0	0	3	4

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
	X					

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
					X	

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

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

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

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

Latitude (S):	**Longitude (E):**
N/A	N/A

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

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

Latitude (S):	**Longitude (E):**
N/A	N/A

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

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

Latitude (S):	**Longitude (E):**
N/A	N/A

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

The Geotechnical investigation report which provides the results on the Groundwater, Soil and Geological stability is attached under Appendix G.

6. AGRICULTURE

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

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

7. GROUNDCOVER

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

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

Natural veld - good condition % = 0	Natural veld with scattered aliens % = 22	Natural veld with heavy alien infestation % = 0	Veld dominated by alien species % = 0	Landscaped (vegetation) % = 5
Sport field % = 0	Cultivated land % = 8	Paved surface (hard landscaping) % = 50	Building or other structure % = 10	Bare soil % = 5

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

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

If YES, specify and explain:

N/A

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

If YES, specify and explain:

N/A

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

If YES, specify and explain:

N/A

Was a specialist consulted to assist with completing this section	YES	

If yes complete specialist details

Name of the specialist:	Marianne Strohbach		
Qualification(s) of the specialist:	M.Sc. Botany		
Postal address:	P.O. Box 145202, Brackengardens		
Postal code:	1452		
Telephone:	N/A	Cell:	082 863 0769
E-mail:	str.marianne@gmail.com	Fax:	N/A

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

If YES list the specialist reports attached below

N/A

Signature of specialist: _____ Date:

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

8. LAND USE CHARACTER OF SURROUNDING AREA

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

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

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

NORTH

8	**9**	**14**	**15**	**16**
9	**7**	**9**	**14;15**	**9;12**
12;14	**8;9**		**8**	**9**
7	**14**	**12**	**1;4**	**4**
9	**8**	**8**	**8**	**9;10**

WEST EAST

SOUTH

= Site

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	NO	
If yes indicate the type of reports below		
N/A		

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.

Noting that the site is located within Boksburg, all information presented in this section was obtained from the StatsSA 2011 data on Boksburg. The socio-economic context presented in this section of the report is regarding information regarding population, population groups, gender, and age distribution, language spoken at home, educational levels, employment, average household income and service delivery. Each of these will be briefly discussed.

- **Population**

Boksburg has a population of 260 321. The highest percentage is that of Blacks at 56,7%. This is followed by Whites 28,4% and Coloureds at 11,6%. The smallest percentages of population groups residing in Boksburg is Indians/Asians at 2,5% and other at 0,8%. See **Figure 4** below.

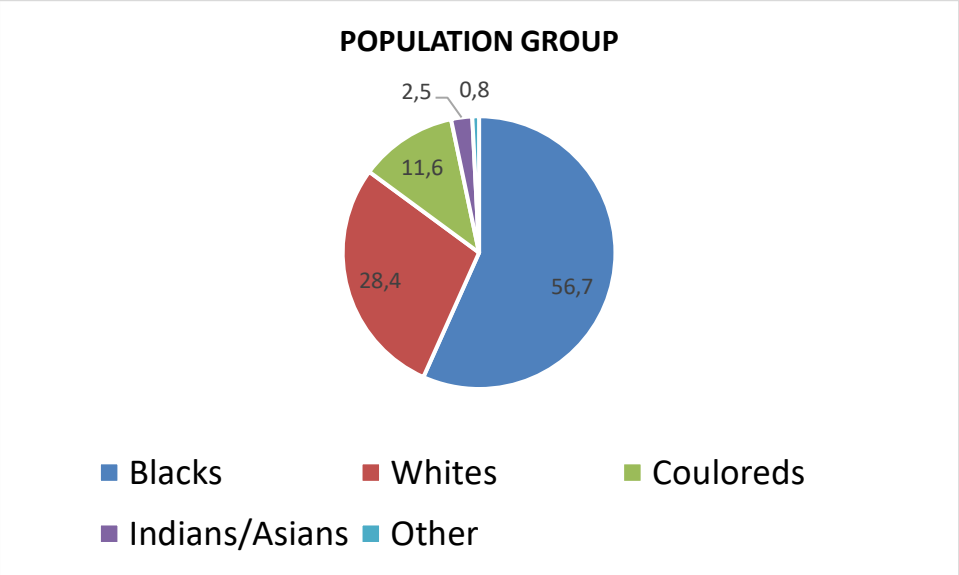


Figure 4: Population group

- Gender and Age distribution

Figure 5 below displays the gender and age distribution in Boksburg. In 2011, between the ages 0-4 to 40-44 there were more males than females who resided in Boksburg. From ages of 65-69 to 85+ females have more percentage than males. Most of households are headed by females.

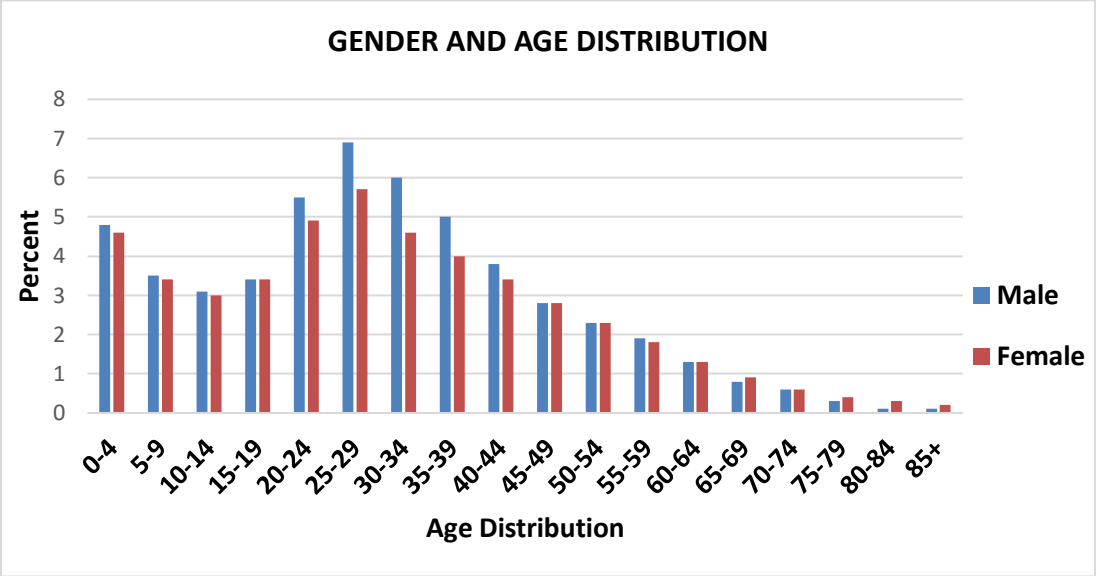


Figure 5: Gender and age distribution for Boksburg

- Language spoken at home

There are twelve (12) languages that are spoken at home in Boksburg. The most dominant language spoken in Boksburg is Afrikaans at 28,5%. This followed by English at 18,6% of the population. IsiZulu has 14,8% speakers. Sepedi has 9,1% and IsiXhosa language has 8,2% spoken at home. SeSotho is the home language spoken by 7,4% of Boksburg residents. Xitsonga language has 4,3% speakers and residents who speak other unspecified languages make up to 3% of the population. SeTswana has 2% home speakers and isiNdebele has 1,4% home speakers. Tshivenda and SiSwati both have 1,2% speakers. Sign language has the smallest percentage of home speakers at 0,3. See **Figure 6** below.

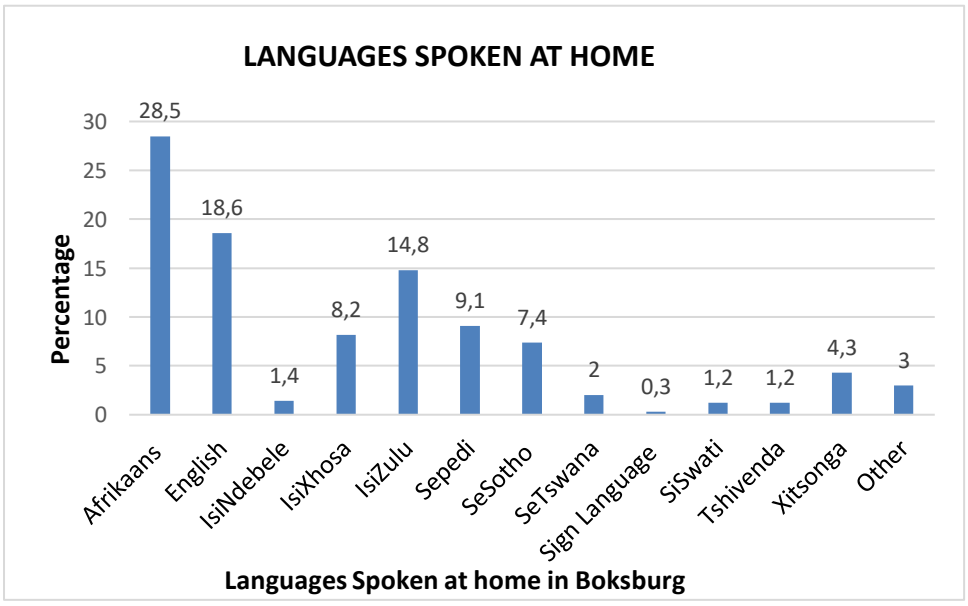


Figure 6: Languages spoken at home

- Educational levels

Matric is the highest level of education attained by Boksburg residents making up 38.2%. This is followed by residents with some secondary education at 33.5%, and high education at 16.5%.. 6% of residents have some primary schools education an only 3.1 completed primary school. The lowest educational level is 2.6 % made up of persons who have no schooling. Refer to **Figure 7** below.

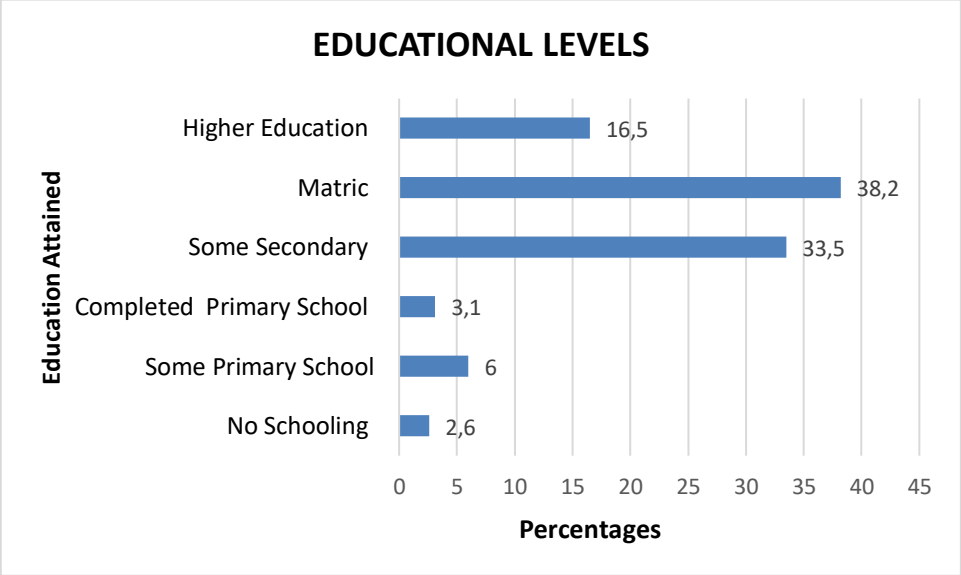


Figure 7: Educational levels attained

- Average household income

In Boksburg, the highest percentage of annual average household income was attributed to 19.4% who have no income. Those who earned between R1 and R4800 make up 3.1%. On the higher end of the scale of average household income, 0.9% of households earn an average of between R1 228 801 and R 2 457 600. Only 0.5% of households have an average household income of R2 457 601 and above. This and other information is presented in **Figure 8** below.

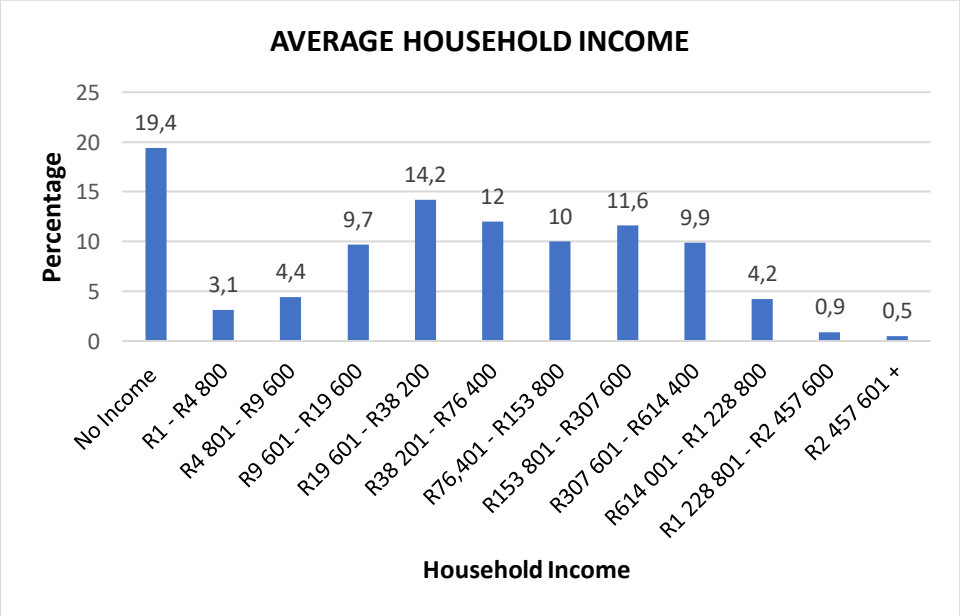


Figure 8: Average Household Income

- Service delivery

Under this heading, waste removal and sources of water will be covered.

Waste removal

The CoEMM collects waste in households once a week 74,6% of households. 16,9% of households have their own refuse dump and therefore do not use the services of the CoEMM. Households that use a communal refuse dump make up 3.6%. The households that do not have waste disposal facilities make up 2,9%. There other households their waste refusal is collected less than often is 1,5%. Please see **Figure 9** below for City of Ekurhuleni Metropolitan Municipality waste refusal.

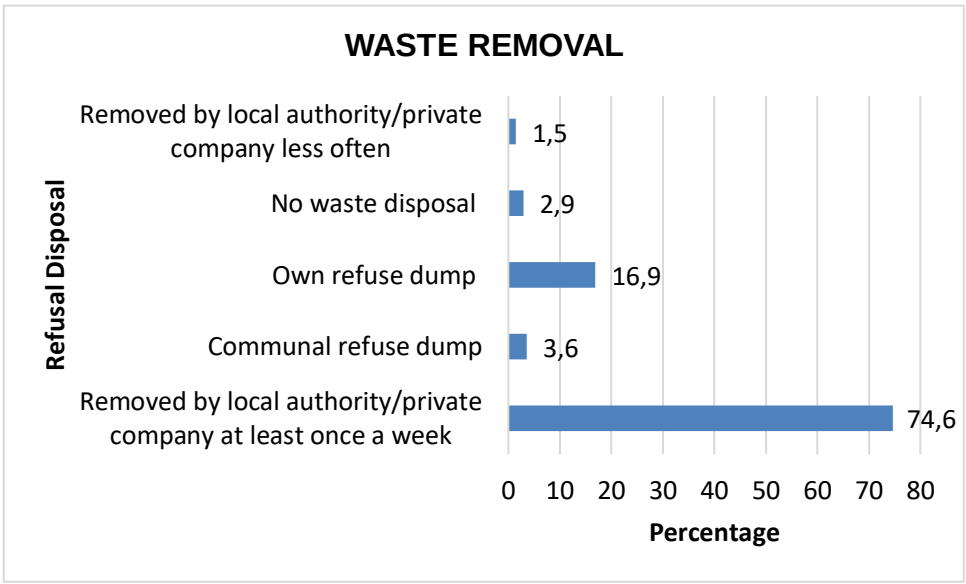


Figure 9: Waste removal

Sources of water

The Boksburg households receive water from different sources of water. 95,3% of households receive water from regional or local scheme. This is followed by households who obtain water from other sources and make up 2.3% of households. At the end of the scale, 0.1 of households collected water from dam/pool or stagnant water source or from a spring. There were no (i.e. 0%) of households who collected water from a river or stream. Refer **Figure 10** below.

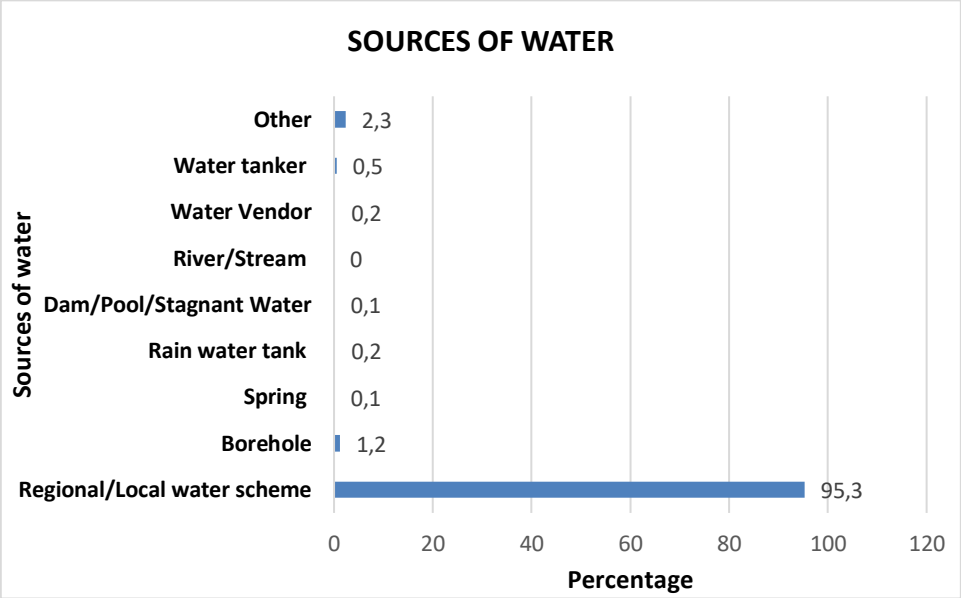


Figure 10: Sources of water

In Boksburg, trade and finance employed more people followed by community services. There are people who do not have monthly income. Most of these employment sector of do not employ people without any skills. Most of the community members depends on the City of Ekurhuleni service delivery such as removal of waste and water. In the City of Ekurhuleni, trade industry and finance contributed with 22% of people that are employed. It is 19% of people that are working I a community service. There is 13% of people that are employed at manufacturing industry. Construction, transport and households contributed with 7% of employment. Agriculture, mining and electricity contributed with 1% of employment. Please see **figure 11** below.

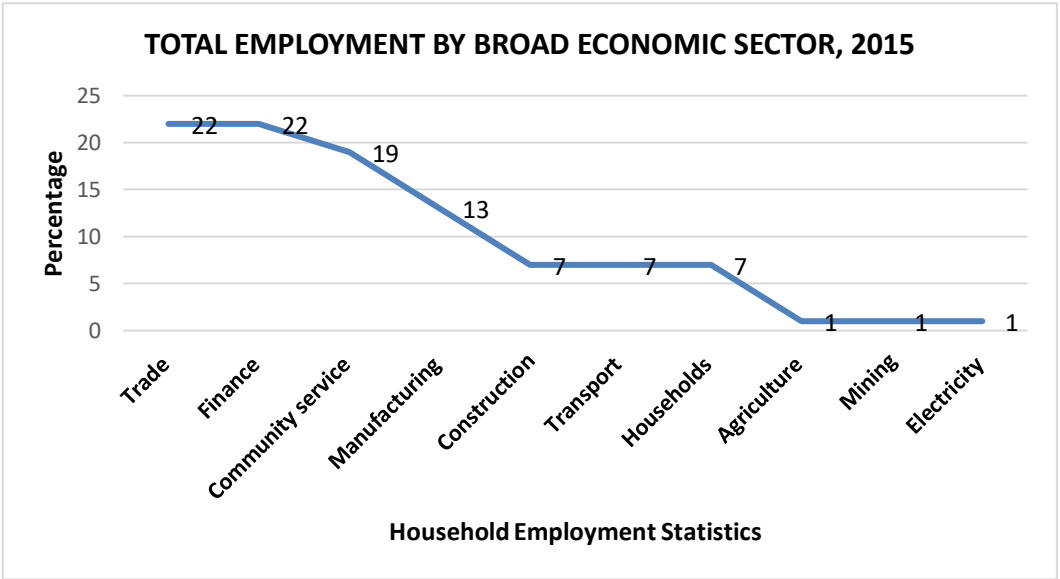


Figure 11: Economic activities

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 categorized as-
(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
(b) the construction of a bridge or similar structure exceeding 50m in length;
(c) any development or other activity which will change the character of a site-
(i) exceeding 5 000 m2 in extent; or
(ii) involving three or more existing erven or subdivisions thereof; or
(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
(d) the re-zoning of a site exceeding 10 000 m2 in extent; or
(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

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

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:

The results of an AIA undertaken by Millenium Heritage Group (Pty) indicated that no archaeological materials or heritage remains. Although no archaeological remains were found, it is possible that some significant features may be buried beneath the ground. Should buried archaeological materials and burials be encountered during the process of development, the following must apply:

- Work must stop immediately, and a professional archaeologist or nearest heritage authority must be contacted.

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

SECTION C: PUBLIC PARTICIPATION (SECTION 41)

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?		NO

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

N/A

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

This report is subjected to the 30 days Public Participation Process. It is anticipated that comments will be received from the Local Authority during this process. Any comments received and responses will be incorporated into the final Basic Assessment Report.

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?		NO

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

N/A

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

This report is subjected to the 30 days review period. It is anticipated that comments will be received from applicable stakeholders during this process. Any comments received will be incorporated into the final Basic Assessment Report

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.

- **Aims of the Public Participation Process (PPP)**
  The Public Participation is a process carried out in terms of the National Environmental Management Act No. 107 of 1998 (as amended) and the Environmental Impact Assessment regulations 2014 (as amended). Furthermore, the process is outlined in the public participation guideline (10 October 2012).

  The Public Participation process is a legal framework that ensures public and stakeholder participation during the stages of acquiring the decision on the Environmental Authorisation from the Competent Authority (GDARD). This process is designed to enable all I&APs to voice their opinion and/ or concerns in relation to proposed project activities.

- **The Role of Registered Interested and Affected Parties**
  I&APs form part of the decision-making process taken to either grant or refuse environmental authorisation applications. Additionally, this further enables the EAP to evaluate all aspects of the proposed project, with the objective of ensuring that, adverse impacts are avoided/minimized and the positive ones are enhanced. I&APs include all interested stakeholders, technical specialists, and the various relevant organs of state who issue decisions in line with applications.

- **The Role of the Environmental Assessment Practitioner (EAP)**
  The EAP is appointed by the Applicant to act independent on the environmental assessment process pursuant a record of decision from the competent authority. Specifically, in relation to the Public Participation Process (PPP), the EAP is responsible for the following:

  - Ensure that the PPP is carried out in a fair unbiased manner. This includes fair commenting period allocation to I&Aps;
  - Ensure that all reasonable alternatives in communication or participation of I&APs are implemented i.e. language
  - Carry out and arrange PPP activities that inform I&APs of project planned interventions/developments;
  - Opening and maintaining the I&AP register, this includes recording all issues/comments raised by I&APs and responses thereof; and
  - Ensuring that all correspondents, decisions and/or amendments thereof in terms of proposals are communicated to registered I&APs and outline applicable processes i.e. appeal process.

- **Overview of the Public Participation Process**

This draft report is subjected to the 30-day review period and is communicated to the various identified I&APs and applicable stakeholders for comments. The planned Public Participation Process is as outlined below:

- The DBARs will be accessible from Tholoana Consulting on electronic versions by request, and a link from '*We transfer'* or similar system will be provided by email.
- Notifications will be undertaken with the local ward councillors 31, 41, 43, 45, 99 and 105
- One local newspaper will be placed in the *Boksburg Advertiser*.
- Site notices will be placed along the study area in Barry Marais road street poles, bus stops and shopping centres.

  - The following stakeholders have been identified and communication with them will be undertaken.
  - Telkom; Eskom; Transnet; RASA; Rand Water Board & Sasol.

- **Authority Consultation**.
  The following authorities will be consulted

  - *Gauteng Department of Agriculture and Rural Development:*
  - *The South African Heritage Resource Agency and Gauteng Provincial Heritage Resource Agency:*
  - *Department of Water and Sanitation*
  - *City of Ekurhuleni Metropolitan Municipality*: Environmental Resource and Waste Management Department

The public participation process will be carried out for a period of 30 days, from which all issues and responses will be compiled into the final report for the final submission to the CA.

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.	**0**		(complete only when appropriate for above)

1. WASTE, EFFLUENT, AND EMISSION MANAGEMENT

Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	**YES**	
If yes, what estimated quantity will be produced per month?	Waste will be load into trucks and take to a spoil area or to a borrow pit for rehabilitative purposes.	

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

A designated area on site will be allocated for the temporary storage of solid construction waste. Waste skips will be used for collection of rubbles during construction of Barry Marais road upgrade. Excavated material can be used as fill material where applicable.

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

The construction waste will be disposed off at Rooikraal landfill site.

Will the activity produce solid waste during its operational phase?		NO
If yes, what estimated quantity will be produced per month?	N/A	

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

N/A

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

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

N/A

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?		NO

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

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

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

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

N/A

Liquid effluent (other than domestic sewage)

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?		NO
If yes, what estimated quantity will be produced per month?	N/A 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)?		NO

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

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

N/A

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

Will the activity produce effluent that will be treated and/or disposed of at another facility?		NO

If yes, provide the particulars of the facility: N/A

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

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

N/A

Liquid effluent (domestic sewage)

Will the activity produce domestic effluent that will be disposed of in a municipal sewage system?		NO
If yes, what estimated quantity will be produced per month?	N/A 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)?		NO

Will the activity produce any effluent that will be treated and/or disposed of on site?		NO
If yes describe how it will be treated and disposed off.		
N/A		

Emissions into the atmosphere

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

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:

N/A

2. WATER USE

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

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

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

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	
If yes, list the permits required		

A General Authorisation will be required for the below mentioned Section 21 activities of the National Water Act (NWA) 1998 (Act No 36 of 1998) Section 21 Water Uses:

- 21(c) – impeding or diverting the flow of water in a watercourse; and
- 21 (i) - altering the bed, banks, course, or characteristics of a watercourse.

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

3. POWER SUPPLY

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

The anticipated power supply when required for the proposed project activities will be diesel powered generators.

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

Power will be sourced from diesel powered generators .

4. ENERGY EFFICIENCY

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

N/A

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

N/A

SECTION 2: 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.

Since this is a draft report subjected to the 30-day review process to receive comments form Interested and Affected Parties. The issues received will be incorporated into the Final Basic Assessment Report.

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

The responses to I&AP's will be captured in the Final Basic Assessment Report.

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

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

The significance rating method applied for assessing impacts associated with the proposed project activities is outlined below.

In order to calculate the significance of the impact, each category is assigned a point. The points are then computed into the equation below and each potential impact is then assigned a significance rating (S). The calculation for the significance rating is S=(E+D+M) * P. the aspects that comprise this calculation will be discussed under Tables 5, 6, 7, 8, 9. It is also important to note that each impact can either be rated as positive (beneficial) or negative (detrimental).

- **Significance of the Impact(S):**

  Each category is assigned points. These points are then computed by using the equation below and each potential impact is then assigned a significance rating (S).

  - *Therefore: S= (E+D+M) * P*

Table 5: Significance(S) ratings

RATING	DESCRIPTIONS
(<30) Low	The impact will not have a direct influence on the decision to develop in the area
(30-60) Medium	The impact can influence the decision to develop in the area unless it is effectively mitigated
(>60) High	The impact should have an influence on the decision process to develop in the area

Table 6: Extent of The Impact (E)

This refers to the area that the activity will have an impact on (i.e. geographical area). The ratings and descriptions associated with the extent of the impact are as per 6 Table below.

Table 6: and description for the extent of the impact

RATING	DESCRIPTION
1	Site – impact extends to site only
2	Local – impact extends as far as the boundary of site and immediate surroundings
3	Regional
4	Provincial
5	National

Table 7: Duration of the Impact (D)

This refers to the length of time that the impact will last. Refer Table 7 for the ratings and descriptions associated with the duration of the impact.

Table 7: rating and description for the duration of the impact

RATING	DESCRIPTION
1	Immediate – less than one year
2	Short term – between one year & five years
3	Medium Term – between five years & 15 years
4	Long term – impact ceases after operational life span of the project
5	Permanent

Table 8: Severity/Magnitude (M)

This refers to the degree at which the impact will occur. Refer to Table 8 for the ratings and descriptions associated with the severity/magnitude of the impact.

Table 8: Rating and description for the severity/magnitude of the impact

RATING	DESCRIPTION
10	Very High – an irreversible and permanent change that cannot be mitigated
8	High – impacts that could be mitigated, however this mitigation would be costly
6	Medium – medium term impacts that could be mitigated
4	Low – short term impacts with very easy mitigation
0	No effect – the proposed development would have no impact

Table 9: Probability (P)

This refers to the likelihood that the impact will occur. Refer to Table 9 for the ratings and description associated with the probability of the impact.

Table 9: rating and description for the probability of the impact

RATING	DESCRIPTION
0	None – impact will not occur
1	Improbable – probability very low due to design or experience
2	Low – unlikely to occur
3	Medium – distinct probability that the impact will occur
4	High – most likely to occur
5	Definite

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.

Table 10: Impact assessment construction phase: 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
• **Loss of Flora and Fauna.** Impact caused by activities such as: ○ Site establishment; ○ Vegetation clearance for road construction/upgrade; ○ Removal of topsoil; ○ Excavations and soil compaction; ○ Construction of construction site camp; ○ Movement of construction equipment (machinery); ○ Uncontrolled spillages of hydrocarbons or distribution of other pollutants; and ○ Sealing of surface area	Negative	• An ECO should be appointed prior construction for the monitoring of compliance on mitigation measures contained in the EMPr, recommendations in the specialists reports and conditions from the Competent Authority • The clearing of vegetation should be limited to the construction working areas, this includes access routes. • A walk-through survey during the peak growing season – between December and March – must be carried out to establish if and where Protected and Threatened plant species occur. GPS positions of occurrences should be recorded. • Protected geophytes and succulents must all be relocated towards the end of the growing season (April-May). Permits required from the applicable authorities should be obtained Where Geophytes cannot be relocated directly into an area where they will not be disturbed again, they should be relocated to a suitable	**Extent** **Duration** **Magnitude** **Probability (X)** **Outcome** **Significance**	1 5 1 4 28 Low	**High**

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
		area as recommended by the responsible authorities. • Parking bays, temporary load-off areas or turning areas should be positioned in areas already disturbed or dominated by alien invasive plants. Alien vegetation management plan should be in place and implemented. • Hydrocarbons spillages and other construction material should be prevented, where such occurs, measures to contain and treat any spillages should in place and implemented. • Work carried out within High sensitivity areas as per the Ecological assessment should be minimized and where disturbance occurs rehabilitation should be carried out as soon as possible. • Visual inspections should be carried out at heavy machinery parking areas for oil spills/leaks. Impermeable, absorbent layer or pans can be used where spillages are likes to occur. • Open fires for cooking or any other purposes are prohibited unless lit at specific designated and secured areas. • The handling, interference, killing, injuring and removing of wild animals by construction workers is prohibited. The environmental			

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
		awareness training should be done for construction workers. • Hunting or collection of fauna is prohibited. • Any snares or traps found on or adjacent to the site must be removed and disposed of. • Any faunal species located on the site during the construction phase, which cannot relocate themselves (e.g. burrowing or hibernating animals) or may pose a risk to workers (e.g. snakes), must be moved to a more suitable location. This should be undertaken by a suitable qualified staff member. • Culverts or other structures should be installed where wetlands are present on both sides of the road to facilitate the safe migration of fauna most likely to be in the area E.g. south of the R554 (Boundary Road) bridge. • Mitigation measures contained in the EMPr should be adhered to in line with construction and post-construction activities. • Off-road driving beyond designated areas is prohibited.			
• **Impacts on the Geology and Soil** Impacts by activities such as: ○ Removal of topsoil;	Negative	• Rehabilitation of the disturbed areas should be undertaken concurrently with construction activities. • Soil disturbance should be minimized.	**Extent** **Duration** **Magnitude** **Probability (X)** **Outcome** **Significance**	1 2 6 3 27 Low	**High**

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
○ Bulk earthworks (excavations) and soil compaction); ○ Movement of construction equipment (machinery); and ○ Uncontrolled spillages of hydrocarbons or distribution of other pollutants		• Any topsoil removed should be stockpiled for use during rehabilitation. • Topsoil stockpiles should be kept free from weeds. • Stockpiles should not be located on watercourse or near drainages • Continued monitoring for erosion should be carried out. • Any borrow pits should be located 25 metres away from any infrastructure and should be landscaped to avoid ponding. Alternatively, it should be backfilled and landscaped where initial option is not applicable. • The road reserve should be shaped to prevent ponding. • Stormwater should be captured and directed to nearby water courses without being spread in a concentrated form on the adjacent ground. • Water captured in the road reserve should be released to the open veld and should be spread evenly to avoid ponding and erosion. • Storm water channels should be constructed at least 3m from the shoulder of the road. • The road should be constructed at least 1 m above natural ground level and with shoulders of at least 3 m width. • The recommendations in accordance with SANS 1936 Part 3: It is important to ensure			

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
		that the road reserve is shaped to ensure that there is no ponding and that all stormwater is effectively captured and led into nearby water courses without being spread in a concentrated form on the adjacent ground. • The specific foundation (Shallow and Deep) recommendations in the Engineering Geological Investigation for Bridge 1 to 4 by Bear GeoConsultants (Pty) Ltd should be adhered to. • Appropriate measures to dissipate flow velocity below structures must be considered and designed during pre-construction. • Stormwater and any runoff generated by the hard surfaces must be discharged into energy dissipation structures prior to being discharged back into the natural watercourses (such as retention ponds or areas with rock rip-rap grassed with indigenous vegetation to encourage the trapping of silt and attenuation of flows). Long term attenuation measures, such as attenuation/infiltration trenches, swales along roadways/pavements. • Construction equipment should be regularly inspected for oil or fuel leakages. Construction vehicles should be serviced. Where necessary drip-trays should be placed below standing			

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
		vehicles below parts that are susceptible to leakage • Mitigation measures as per the EMPr should be adhered to.			
• **Pollution of water resources** Impact by activities such as: ○ Possible chemical spillages. Hydrocarbon leakages (Petrol, diesel etc.), from storage areas or construction vehicles; ○ Leaks of grease/oil from stores, construction machinery or poor handling practices; ○ Cement/concrete spillages; ○ Bitumen - spillages from poor application, handling, and disposal practices; ○ Sewage leakages from chemical portable toilets; and ○ Sedimentation from disturbed sols and altered flow patterns.	**Negative**	• The construction camp or any storage facilities should not be located within 50m of any watercourse. • Spill kits should be available on site for immediate cleanup of fuels, oils and other potentially harmful substances. Temporary storage receptacles for hazardous waste should be available and clearly marked. Any hazardous waste should be disposed off at the licensed waste disposal facility and records of safe disposal kept thereof. • Soil contaminated by spillages should be removed and the area rehabilitated immediately. • Portable toilets must be placed on impervious level surfaces that are lipped to prevent spillage. They must be at least 50 m away from any watercourses. Maintenance should be done weekly. • Delineated riparian and instream habitats outside of the construction zone are considered sensitive “No-Go” areas and access/activities are to be strictly prohibited in these areas.	**Extent**	2	Low
			Duration	2	
			Magnitude	4	
			Probability	2	
			Outcome	16	
			Significance	Low	

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
		• The construction working servitude width is restricted to 15-m only. • Good house-keeping practices should be implemented. Construction waste should be disposed at a licensed landfill site. • The washing of construction equipment near any watercourses is prohibited. • Substances such as cement, oil, bitumen should not be released to surrounding environment including within watercourses. • Catch nets must be installed adjacent to the site to minimise cement and other debris (pollutants) from entering the Channelled Valley bottom wetland during the construction phase. • Cut-off trenches must be constructed to prevent any harmful substances from entering watercourses. • The stormwater outlets should have litter traps installed. • Construction employees should be educated on pollution prevention practices i.e. information on material handling and spill prevention and response, to better prepare employees in case of an emergency. • Handling of fuels and any hazardous materials must not take place closer than 100 meters from any watercourses.		

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
		• Storm water and any runoff generated by the road must be discharged into sustainable energy dissipation structures prior to being discharged back into the natural water courses. This must be designed and implemented by a qualified civil engineer.			
• **Noise nuisance** Impact caused by activities such as: ○ Bulk earthworks and excavations: operation of construction machinery for rock breaking. ○ Increased noise due to construction activities emanating from movement of construction equipment and construction working hours.	**Negative**	• Construction noise should not exceed 85DB. • Employees working on areas where noise may exceed the set level should be provided with ear protection equipment. • Construction activities must be limited to working hours (from 7am to 5p.m) during the week, not including public holidays. • A noise complaints register must be kept on site. • Construction equipment should be maintained in good working conditions, where applicable engine muffler systems can be used for construction equipment. • Through the CLO, within no later than 24 hours, the nearby residents should be notified of construction activities that may cause highly undesirable noise levels.	**Extent** **Duration** **Magnitude** **Probability** **Outcome** **Significance**	1 2 4 2 14 Low	**Low**
	Negative		**Extent**	1	**Medium**

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
• **Generation of waste** Impact caused by activities such as: site clearance construction site activities and activities within the construction camp.		• Construction waste, for instance unused concrete must be disposed of at a licensed Waste disposal facility/Landfill site. However, if suitable, it can be used as fill material (e.g. crushed concrete for road-base or rehabilitation of existing borrow pits). • Receptacles and waste skips on site should be used for temporary waste storage if the waste will not be reused. However, the final disposal point should be a licensed landfill site. Records of the waste disposal must be kept. • Waste sorting into recyclables and non-recyclables should be done at the construction camp. • Waste should be separated into hazardous and non-hazardous • Chemical spills should be contained and the contaminated material should be stored in a suitable container in preparation for discarding at a licensed landfill site. • Construction site and camp should be kept neat and tidy. • Designated areas should be allocated for the storage of chemicals, this includes temporary storage for both hazardous and non-hazardous waste. • Burning of waste is prohibited on site.	**Duration**	2	
			Magnitude	4	
			Probability	2	
			Outcome	14	
			Significance	Low	

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
		• Portable chemical toilets should be provided for the duration of the construction phase and should be maintained weekly or as and when required.		
• **Temporary visual impacts** Impact caused by activities such as: o Bulk earthworks and excavation; o Location and establishment of construction camp; and o Use of lighting.	**Negative**	• A complaints register should be available on site to record any visual disturbance complaints and actions taken to mitigate issues raised where applicable. • Bulk earthworks and excavations should be undertaken in a phased manner as per the proposed construction phasing schedule. • The location of the construction camp should not be near sensitive receptors. • The construction site should be kept neat and tidy, this includes implementing the waste management measures stipulated under the generation of waste point above. • Appropriate lighting (low flux and frequency) which will not result in visual disturbances should be used should construction work be carried out of working hours which are 07:00 A.M – 05:00 P.M. • Location of stockpiles should be agreed on by the ECO and Contractor.	**Extent** 1 **Duration** 2 **Magnitude** 4 **Probability** 2 **Outcome** 14 **Significance** Low	**Medium**
• **Air quality**	**Negative**	• Speed limit of 10km/h should be implemented on working areas to limit the generation of dust by construction vehicles.	**Extent** 2 **Duration** 2 **Magnitude** 6 **Probability** 3	**Medium**

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
Impact caused by activities such as: Construction vehicles emissions; ○ Movement of construction vehicles at high speed; and ○ Uncontrolled fires.		• Fires are prohibited to avoid generation of smoke. • Dust complaints register should be on site. The contractor should ensure that any complaints are recorded, with reasonable measures taken in addressing complaints. • Dust suppression measures should be implemented. Measures such as hose pipes or spraying water tanks can be used; provided runoff is not generated. • During windy conditions, construction vehicles carrying materials for construction should covered.	**Outcome** **Significance**	30 Low	
• **Impact on Heritage Resources** Impact caused by activities such as: earthworks.	**Negative**	Should any heritage resources be encountered on site during construction, all activities in the affected area should be suspended, and the Provincial Heritage Resources Authority Gauteng (PHRAG) should be alerted. Further work should only be undertaken after the receipt of the go ahead from a heritage specialist as well as PHRAG.	**Extent** **Duration** **Magnitude** **Probability (X)** **Outcome** **Significance**	3 4 4 2 22 Low	**Low**
• **Traffic impacts and accidents** Impact caused by activities such as: ○ Construction activities (such as the movement of construction vehicles in and out of the site area); ○ Stop and go's; and	**Negative**	• Traffic safety measures should be in place and implemented • Warning signs must be erected in areas where traffic disruption or diversion along the route will occur. This should include i.e. detour signs, speed limits, stop and go signages where applicable.	**Extent** **Duration** **Magnitude** **Probability (X)** **Outcome** **Significance**	2 2 6 4 40 Medium	**Medium**

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
○ Construction vehicles driving at high speed on site and o local roads.		• During construction safe points for pedestrian and vehicular crossing at designated points must be erected and controlled. • Orange safety fencing must be used in order to indicate to pedestrians and road users about the construction work area.		
• **Temporary employment** Impact caused by construction activities such as: ○ Local labour will be employed during to construction activities. ○ Skills development of local labour ○ Training of local labour	**Positive**	• The contractor shall ensure that local labour is used where possible to improve the local economy of the area. • Skills transfer programme should be in place and implemented for unskilled labour.	**Extent** 2 **Duration** 2 **Magnitude** 8 **Probability** 4 **Outcome** 48 **Significance** Medium	**Low**

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
• **Health and Safety** Impact caused by activities such as the following: ○ Non-adherence to safety measures during construction which may result in accidents occurring; ○ Operation of construction equipment by unqualified personnel; ○ Disruption of electricity supply power lines; and ○ Removal of road signs during construction phase	**Negative**	• Safety signs on site must be erected on areas where hazards are present and where PPE is likely to be required • A daily toolbox talks should be undertaken every day in the morning. • Traffic safety protocols should be adhered to. • Trenches which have been excavated must be cordoned off to prevent injury to people who are not aware of their existence. • Emergency contact information should be provided and displayed at the contractor's office and site entrance • The use of PPE should always be enforced on site. This includes visitors. • Measures to restrict unauthorised persons from entering the construction site should be in place. • A first aid kit must always be placed on onsite and made accessible. A trained first aider must be available to administer first aid where required. • An HIV/AIDS policy should be placed and implemented by the contractor. • 24 Hour security must be provided at the construction site. • Appropriate signage board/s must be placed on site informing the public about construction activities taking place on site.	**Extent**	1	**High**
			Duration	2	
			Magnitude	4	
			Probability	3	
			Outcome	14	
			Significance	Low	

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
		• The community need to be aware about the disruption or shifting of power lines. • Road signs should not be removed until construction is finished.		

Table 11: Impact assessment post-construction and operational phase: 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
General Maintenance Requirements. • Increased establishment of alien invasive species. • Storm water management.	Negative	• Subsequent to the completion of the rehabilitation of the non-paved road reserve, all stockpiled materials must be entirely removed from site or landscaped to merge into the surroundings.	**Extent**	1	**Medium**
			Duration	2	
			Magnitude	6	
			Probability (X)	2	
			Outcome	18	
			Significance	Low	

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
• Pollution on water resources.		• The mitigation measures in this section were obtained from specialists reports and EAP experience. • Areas that will not be sealed/paved should be rehabilitated and revegetated as soon as practically possible after their disturbance • A dense low grass layer be established, and in such a manner that it can be mowed regularly to discourage the establishment of alien invasive species, as well as use of these areas by fauna – the latter in an effort to prevent loss of fauna due to collisions with road users. • The road reserve should be free of alien invasive species. • Herbicides should be carefully applied. Spraying of herbicides within or near to any watercourses is strictly forbidden. • Exotic trees should be removed from the road reserve • The herbaceous layer should be regularly mowed to a recommended height of <30cm • Culverts and storm water drains should be monitored for blockages and other possible obstacles. • Clean up of large-scale hydrocarbons spillages as a result of accidents should be executed rapidly.			

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
		• On-going water quality monitoring measures for adjacent watercourses should be implemented.			
Traffic Impacts • Ease of traffic congestion. • Improve access to social and economic facilities and services. • Improving road connectivity to contribute to local economic development. • Reduce road accidents.	**Positive**	• Proper road maintenance to improve access between regional and rural communities and enhancing socio-economic growth and development.	**Extent** **Duration** **Magnitude** **Probability (X)** **Outcome** **Significance**	1 2 6 4 36 medium	

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 disturbance to flora and fauna	**Positive**	• The non-implementation of the project implementation of the proposed project will not result in any loss of flora and fauna.	**Extent** **Duration** **Magnitude** **Probability** **Outcome** **Significance**	1 5 1 4 28 Low	**Low**

Alternative 1	***(REPEAT THIS TABLE FOR EACH ALTERNATIVE)***			
Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact** and **mitigation not being implemented**
N/A				
No Go				

Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed Mitigation:**	**Significance rating of impacts after mitigation:**		**Risk of the impact and mitigation not being implemented**
• **Unavailability of temporal employment**	**Negative**	• No mitigation is required. If the project is not implemented, temporary employment opportunities will not be created.	**Extent**	2	**Low**
			Duration	2	
			Magnitude	8	
			Probability (X)	4	
			Outcome	48	
			Significance	Medium	

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

- **Dolomite Stability Investigation** by Bear GeoConsultants (Pty) Ltd attached as Appendix G
- **Ecological Assessment** by Marianne Strohbach attached as Appendix G
- **Wetland Assessment Report conducted** by Oasis Environmental Specialists attached as Appendix G
- **Phase 1: Archaeological Impact Assessment** by Millenium Heritage Group (Pty) attached as Appendix G

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

- Information received from the Client and provided to Tholoana Environmental Consulting and their specialist consultants is correct and valid;
- The EAP does not accept any responsibility if additional information comes to light at a late stage of the Basic Assessment process subsequent to the submission of the final Basic Assessment Report to GDARD;
- The scope of this investigation is limited to assessing the potential environmental impacts associated with the proposed Barry Marais Road Upgrade.
- Tholoana Environmental Consulting assumes that the specialist investigations that have been conducted were carried are accurate and the best practicable methods have been applied
- Mitigation measures as provided in the EMPr shall be implemented during the construction of the proposed development.

3. IMPACTS THAT MAY RESULT FROM THE DECOMMISIONING 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 or closure activities are anticipated for the proposed project activities.				

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**
N/A				

Alternative 2

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
N/A				

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

N/A

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

N/A

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:

On the basis that the proposed project is granted a positive Environmental Authorisation, and based on the nature of identified impacts associated with the proposed activities, the following cumulative impacts have been determined:

- Increased levels of erosion. This impact is however deemed to be low on the basis that the mitigation measures during construction, post construction shall be implemented.
- Improved transport systems that will ease congestion for the planned future aerotropolis.
- Positive socio-economic contribution for both the locals, road users and businesses affected by the proposed activities.
- Infestation of invasive alien plant species. These have been identified within the study area. The cumulative impacts will however be of low significance on implementation of proposed mitigation measures. These include continued monitoring and maintenance activities to be undertaken during operation of the road.
- Increased loss or fragmentation of natural habitats and plant species of conservation concern, increasing the impact of existing surrounding anthropogenic activities.

It should be mentioned that with implementation of the mitigation measures contained in the EMPr and the recommendations within the specialist reports, these impacts can be avoided or minimised. The onus therefore rests with the developer to ensure that the required interventions and suggested control measures are implemented.

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

Based on the assessment carried out, the identified biophysical impacts in relation to the proposed activities are as follows:

- **Loss of vegetation**

The loss of flora and fauna during construction phase will be likely to occur and will have permanent impacts. During construction phase of Barry Marais road, some vegetation will be loss due to expansion of the road. The Barry Marais upgrade will have a significance impact on loss of vegetation.

- **Wetlands identified**

There were four wetland systems (three seep and one channelled valley bottom wetland systems) identified within the 500m buffer of the proposed Barry Marais Road upgrade. These wetland systems are depicted as HGM 1, HGM 2 and HGM 4. During cconstruction activities of the Barry Marais road upgrade, there will be associated bulk earthworks (such as excavations, reshaping, back-filling and compaction) which can alter natural patterns of surface runoff reaching water resources downslope/downstream. The excavations may impound and redirect water, starving downstream water resources. The infilling, compaction and rutting of soils caused by construction activity may also alter the patterns of diffuse surface and sub-surface flows by altering micro-topography and the permeability of soil profiles. There will be changes in flow patterns reaching aquatic ecosystems does not only affect hydrological functionality and ecosystem integrity but may lead to erosion and sedimentation though increased runoff velocities linked to concentrated flow paths created during construction. Furthermore, temporary damming and abstraction of water will cause a short-term reduction of flow to downstream wetland/riverine habitat. This may result in alterations to the sediment balance by retaining sediment and resulting in increased erosive power of sediment-starved water.

- **Groundwater**

The average groundwater level reported in the boreholes drilled in the current investigation undertaken in 1991 and previous investigation undertaken (August 2018) along the route is 9,8 m below surface. This is considerably higher than the water level that might be expected from the regional analysis. The absence of a water level recording is generally ascribed to either no attempt being made to record the water level in many of the older boreholes or due to shallow bedrock, both dolerite and dolomite, preventing effective inflow into the borehole in the 24 hour

monitoring period. In some instances, it is likely that collapse of the borehole prevented a reading from being obtained.

Alternative 1

N/A

Alternative 2

N/A

NO-GO (COMPULSORY)

The proposed Barry Marais upgrade is planned in line with the envisaged Aerotropolis around the O R Tambo International Airport. The Aerotropolis will comprise commercial and industrial land uses. This in turn will result in increased traffic congestion thus increasing the traveling time, which will in turn affect the economic activities. The main purpose of upgrading the Barry Marais K155 is to cater the planned future developments. Should the proposed project not be implemented to cater for the Aerotropolis, this may contribute to slow economic activities and increased traffic will contribute negatively towards air quality and in turn climate change. The proposed project will contribute to temporal employment during construction phase of the project.

6. IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE

For proposal:

The table below provides the summary of impacts in relation to the preferred Barry Marais Road upgrade:

Construction Phase			
Impact	**Nature of Impact**	**Significance Before Mitigation**	**Significance After Mitigation**
Loss of indigenous flora and fauna	Negative	Medium	Low
Loss of soil due to run-off or contamination	Negative	Medium	Low
Increase in Alien invasive plants	Negative	Medium	Low
Pollution of water resources	Negative	High	Medium
Air pollution	Negative	Low	Low
Noise pollution	Negative	Low	Low
Visual disturbances to for nearby receptors	Negative	Medium	Low
Generation of waste.	Negative	Medium	Low
Health and Safety risks	Negative	Medium	Low
Temporary Job Opportunities	Positive	Low	Medium
Increased traffic volumes	Negative	High	medium

Operational Phase			
Impact	**Nature of Impact**	**Significance Before Mitigation**	**Significance After Mitigation**
Improved road infrastructure	Positive	Low	High
Reduce traffic congestion during peak hour	Positive	Low	High
Increase road runoff during rainfall	Negative	High	Medium
Alien invasive plants	Negative	High	Low

For alternative:

N/A

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.

Based on the significance of impacts for the proposal, the majority of potential negative impacts, with the exception of the positive impact of temporary employment, are associated with the construction phase, whereas the majority positive impacts are associated with the post-construction and operation phase. The successful implementation of the proposed project will in turn yield the following positive impacts as indicated above:

- Improved road infrastructure;
- Improved storm water management systems
- Improved public safety for (both road users and pedestrians).
- Improved economic activities due to reduced travel times, leading to more production.

7. SPATIAL DEVELOPMENT TOOLS

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

The following spatial development tools have been applied for this development:

- **Gauteng Environmental Management Framework**

  The entire study area falls within the Gauteng Environmental Management Framework (GEMF). This aims to make environmental information readily available to the environmental management and development role players within the Gauteng Province. According to the National Screening Tool Report generated on the 6th October 2019, the study area falls within the following zones:

  - *Zone 1: Urban Development Zone*

    In terms of transportation infrastructure within this zone and in line with the proposed activities. In order for the Gauteng province to be able to realise its potential as a logistics and distribution centre the developments related to secondary and primary form part of high priority levels. Furthermore, principles of sustainable streets, green infrastructure such as

bioswales, street trees and permeable paving should be used to reduce environmental impacts associated with the road infrastructure.

- *Zone 2: Industrial and large commercial focus zone*

  Under the available information under Zone 2, in terms of land use, roads are categorized as being conditionally compatible with the intentions of this zone. This is based on impacts that result from construction activities in relation to road development, which could result in the degradation of areas determined as sensitive within the urban development zones.

  According to the ecological assessment conducted, sensitive areas (Conservation priority areas; CBA's etc.), it has been determined that these will be impacted by the proposed activities .Mitigation measures are provided in the Ecological Assessment in Appendix??? and the EMPr in Appendix H

  The study area falls within the Highveld Priority Area zone which implies that the Air Quality management plan (2011) targets and measures apply i.e. management alternative to burning, which are promoting grass cutting and bailing in road reserves for use as a resource (fodder, compost or smokeless fuel).

- **Gauteng Conservation Plan.**

  The Gauteng Conservation Plan (C-Plan) forms part of the Gauteng Information Data Series version3.3) and it provides the status of land-based information layers such as any occurrence of water resources, primary grasslands, or caves etc. The purpose of the C-Plan is to act as a decision supporting tool for Environmental assessment and provide information on the protected areas within the Gauteng province. Looking at the study area the following habitat categories were determined to be applicable:

  - "Critical Biodiversity Areas (CBAs): Areas that are required to meet biodiversity targets for species, ecosystems or ecological processes. These need to be kept in a natural or near-natural state, with no further loss of habitat or species. CBA Important Areas: Areas selected to meet biodiversity pattern and/or biodiversity process targets. Alternative sites might be available to meet biodiversity targets. These areas can furthermore support suitable habitat for red and orange listed faunal and floral species"
  - "Ecological Support Areas (ESAs): are areas that are not essential for meeting biodiversity representation targets/thresholds, but which play an important role in supporting the ecological functioning of critical biodiversity".

Figure 12: Gauteng C-Plan Map (Gauteng Conservation Plan version 3.3)

- **Gauteng Spatial Development Framework.**

  The purpose of the Gauteng Spatial Development Framework (GSDF) is providing spatial guidance on required spatial interventions within the province. This can be achieved jointly with the national government, considering the environment, social challenges and taking advantages of the economic opportunities within provinces. As stated in the GSDF in relation to the proposed activities, the inefficiencies and congestion with Gauteng roads contributes to loss of productivity higher energy consumption, pollution and GHG emissions. It can thus be concluded that the proposed activities in line with the planned development which will address part of issues related to i.e. Inefficiencies, productivity, and congestion.

- **City of Ekurhuleni Metropolitan Municipality Regional Spatial Development Framework**

  The CoEMM regional spatial development framework (RSDFS) are prepared for six separate regions, region a to region f. Barry Marais road crosses regions e and f which are earmarked for large portions of industrial and residential (subsidised and bonded) land uses. The proposed activities area aimed at servicing the current and planned future expansions which includes the airport city (aerotropolis) around the OR Tambo international airport. It can then be concluded that the proposed activities are as identified with the CoEMM: RSDFS.

- **City of Ekurhuleni Metropolitan Municipality Integrated Development Plan**

  The Integrated Development Plan (Plan) of a municipality is a process where the municipality prepares a strategic development plan aligned with the term of council of 5 years. The IDP sets out development objectives to be achieved, from which each determined project is allocated a certain budget. The IDP identified projects for each municipal department. The proposed activities are identified under the roads and storm water department within the CoEMM: IDP 2017/18-2019/2020

8. RECOMMENDATION OF THE PRACTITIONER

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

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

N/A

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:

Monitoring compliance with the EMPr Specialist recommendations should be adhered to. An Environmental Control Officer (ECO) should be appointed for monitoring compliance during the construction of the proposed interventions. Any changes to the current design layout should be communicated to GDARD for comments.

9. THE NEEDS AND DESIRIBILITY

The City of Ekurhuleni Metropolitan Municipality wants to upgrade Barry Marais to improve quality road infrastructure. The road upgrade will also to improve storm water management systems and installation of street lights in Barry Marais road.

NEED	
Question	**Response**
Is the land use considered within the timeframe intended by the existing approved spatial development framework?	The CoEMM Regional Spatial Development Framework (RSDFs) covers six regions and the Barry Marais Road crosses Regions E and F which are earmarked for large portions of industrial and residential (subsidised and bonded) land uses and bonded) land uses. The development will incorporate industrial and commercial land uses. This will be offering businesses fast connectivity to suppliers, clients and partners both nationally and world-wide. The proposed upgrading of Barry Marais Road will service the upcoming developments and result in the easing the traffic. The road will be doubled into two carriageway lanes to reduce traffic volume.

NEED	
Question	**Response**
Should development, or if applicable, expansion of the town/area concerned in terms of this land use occur here at this point in time?	Yes: The proposed upgrades will service developments envisaged for the future. It is therefore important that this development is completed ahead of the activities associated with the Aerotropolis.
Does the community/area need the activity and the associated land use concerned?	Yes: The route upgrade will ease traffic congestions for the residential, industrial, businesses and various other land uses. Additionally, temporal job opportunities will be created during the construction phase of the development. Skills transfer will also form part of the job opportunities. In addition to the above, it is envisaged that the upgrades will result in improved motorist, pedestrians, and public transport commuters' safety.
Are the necessary services with adequate capacity currently available or must additional capacity be created to cater for the development?	A storm water system will be constructed along the road, with roadways forming part of the storm water management system. The proposed system is a storm water pipe and concrete channel system.
Is this development provided for in the infrastructure planning of the municipality, and if not what will the implications be on the infrastructure planning of the municipality?	Yes, the project has been identified in the 2018/2019 Service delivery and Budget Implementation plan for CoEMM
Is this project part of a national programme to address an issue of national concern or importance?	Yes, the City of Ekurhuleni has adopted the National programme (Aerotropolis) to planned airport city around the OR Tambo International Airport. The City of Ekurhuleni Metropolitan Municipality has identified several routes which need to be upgraded in order to serve the Aerotropolis, thus the proposed activities are aligned to planned future developments. These routes are in lined with CoEMM plans and Aerotropolis programme.

Desirability	
Question	**Response**
Is this development the best practicable environmental option of this land/site?	Yes, required studies were undertaken by experienced specialists to ensure all environmental attributes are not affected by proposed project.
Would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF as agreed to by the relevant authorities?	No: The proposed project is identified within the CoEMM 2018/2019 Service delivery and Budget implementation plan and will therefore not compromise the integrity of the existing approved and credible municipal IDP and SDF as agreed to by the relevant authorities. The City of Ekurhuleni wants to improve road infrastructure and to ease traffic congestion in Barry Marais road.
Would the approval of this application compromise the integrity of the existing environmental management priorities of the area and if so, can it be justified in terms of sustainability considerations?	No, the proposed project will not compromise with environment. Relevant specialist studies were undertaken, and mitigation measures are incorporated in the report.
Do location factors favour this land use at this place?	Yes: the project entails the doubling of the existing Barry Marais Road to cater for the proposed aerotropolis in the vicinity of the site.
How will the activity or land use associated with the activity applied for, impact on sensitive natural and cultural areas?	As per the Ecological Assessment Report, the road reserve of Barry Marais Road between Glasgow Road and the N3 Intersection passes through several sections of vegetation currently mapped as being part of Threatened ecosystems (on a national level), as well as provincially classified CBA-Important as well as ESA areas. Furthermore, no cultural heritage resources have been identified but if uncovered during construction, the finding will need to be communicated to PHRAG while activities in the affected area is suspended and further investigated by a specialist.

How will the development impact on people's health and well-being?	The impact on people's health and well-being is expected to be positive as local labour and Small Medium Micro Enterprises should be employed on the project during the construction phase. In addition to this, Skills development will be incorporated into the employment opportunities. During the construction phase however, negative impacts such as dust can affect people's health and well-being. Dust suppression must therefore be undertaken as a mitigation measures. During construction phase noise will be not allowed on site. With regards to positive impacts once the project has been completed safe and eased traffic conditions will be realised.
Will the proposed activity or land use associated with the activity applied for, result in unacceptable opportunity costs?	No, the proposed project has been identified within CoEMM 2018/2019 service delivery and budget implementation plan with a set budget.
Will the proposed land use result in unacceptable cumulative impacts?	No. It is anticipated that the proposed storm water management systems will mitigate, the cumulative impacts such as flooding

10. THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

The proposed project will be implemented in phases. Due to budget constraints no timeframes could be allocated to the project phases that will follow the current proposed upgrading of Barry Marais Road. The period of the Environmental Authorisation should be able to cater for the phased project approach. It is anticipated however that the current project phase activities will commence within 5 years subsequent to the issuing of the Environmental Authorisation by GDARD.

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 appendix: H	**Yes**

REFERENCES

1. Bear GeoConsultants (Pty) Ltd. December 2018. Report on the Dolomite Stability Investigation for the upgrade to Barry Marais Road (k155), City of Ekurhuleni, Report j17-173/1.
2. Boksburg Advertiser. 2014. Ekurhuleni's air is the highest polluted in the country. https://boksburgadvertiser.co.za/210414/ekurhulenis-air-is-the-highest-polluted-in-the-country/ accessed 28 august 2019.
3. Department of Environmental Affairs. 2011. *National Waste Management Strategy*. Department of Environmental Affairs, Pretoria, South Africa.
4. Department of Environmental Affairs. 2010. *Guideline Series 5. Public Participation in the EIA Process*. Department of Environmental Affairs, Pretoria, South Africa.
5. Department of Environmental Affairs (DEA). 2018. Gauteng Provincial Environmental Management Framework Standard (GPEMF). (Government Notice No. 164). Government Gazette, 41473, 2 Mar.
6. Food and Agriculture Organization of the United Nations, 2011. Environmental Impact Assessment: Guidelines for FAO field projects. https://portals.iucn.org/library/sites/library/files/documents/man-tools-eia-031.pdf accessed 15 august 2019
7. Gauteng Department of Agriculture and Rural Development (GDARD). 2011. The Gauteng Conservation Plan (C-Plan), Version 3.3. Gauteng Department of Agriculture and Rural Development, Johannesburg, South Africa.
8. Greenroads. 2011. Greenroads Manual 1.5. https://www.greenroads.org/files/236.pdf accessed 08 september 2019.
9. Millennium Heritage Group (Pty) Ltd. September 2019. Phase1: Archaeological Impact Assessment relating to the proposed Barry Marais Road (K155) upgrade near Vosloorus, City of Ekurhuleni Metropolitan Municipality, Gauteng Province, South Africa.
10. Modal, P. Noise Pollution: Definition, Sources and Effects of Noise Pollution http://www.yourarticlelibrary.com/speech/noise-pollution-definition-sources-and-effects-of-noise-pollution/28295 accessed 20 august 2019.
11. Oasis Environmental Specialists. June 2018. Wetland Assessment: Proposed Barry Marais Road Upgrade, Boksburg, Ekurhuleni Metropolitan Municipality, Gauteng Province.
12. South Africa, 1998. *National Environmental Management Act 107 of 1998*.
13. Strohbach, M. August 2019. Ecological Assessment for the proposed upgrade of Barry Marais Road, Boksburg, Gauteng.
14. Statistics South Africa. 20111. http://www.statssa.gov.za/?page_id=4286&id=11267 accessed 09 October 2020.
15. World Weather Online. 2019. Vosloorus Monthly Climate Averages. https://www.worldweatheronline.com/vosloorus-weather-averages/gauteng/za.aspx accessed 20 august 2020.
16. Screening Report for an Environmental Authorization or for a Part Two Amendment of an Environmental Authorisation as required by the 2014 EIA Regulations – Proposed Site

Environmental Sensitivity. https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf accessed 6 October 2019.

SECTION F: APPENDICES

The following appendices 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 G: Dolomite Stability Investigation

Appendix G: Ecological Impact Assessment

Appendix G: Wetland Impact Assessment Report

Appendix G: Phase 1: Archaeological Impact Assessment

Appendix H: EMPr

Appendix I: Other information

Appendix J: EAP CV

Appendix K: Reviewer 1 CV

Appendix L: Reviewer 2 CV

Appendix M: Approver's CV

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.

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 G: Dolomite Stability Investigation

Appendix G: Ecological Impact Assessment

Appendix G: Wetland Impact Assessment Report

Appendix G: Phase 1: Archaeological Impact Assessment

Appendix H: EMPr

Appendix I: Other information

Appendix J: EAP CV

Appendix K: Reviewer 1 CV

Appendix L: Reviewer 2 CV

Appendix M: Approver’s CV