



## **MANGAUNG IPTN – ENVIRONMENTAL SCREENING REPORT**

ENVIRONMENTAL SCREENING REPORT FOR THE CITY-WIDE NETWORK (BOTSHABELO CORRIDOR), AS PART OF THE INTEGRATED PUBLIC TRANSPORT NETWORK IN MANGAUNG METROPOLITAN MUNICIPALITY, FREE STATE PROVINCE



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QUALITY REVIEW

**Report Heading:** Environmental Screening Report for the City-Wide Network (Botshabelo Corridor), as part of the Integrated Public Transport Network, Mangaung Metropolitan Municipality, Free State Province

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## TABLE OF CONTENTS

1. INTRODUCTION .....	11
1.1 Background .....	11
1.2 Assumptions,Gaps and Limitations.....	12
2. PROJECT LOCATION.....	13
3. PROJECT DESCRIPTION .....	13
4. SITE ENVIRONMENTAL CONDITIONS .....	16
4.1 General conditions of existing roads .....	16
4.2 Site Sensitivity .....	18
4.3 Geology and Soils .....	18
4.4 Hydrological Conditions .....	19
4.5 Fauna and Flora.....	22
4.6 Cultural and Heritage .....	23
4.7 Waste Management .....	24
4.8 Stakeholder Engagement .....	25
5. LEGISLATIVE REQUIREMENTS .....	26
5.1 NEMA EIA Regulations 2014 (as amended) .....	26
5.2 National Water Act, 1998 (Act No. 36 of 1998) .....	27
5.3 National Heritage Resources Act, 1999 (Act No. 25 of 1999) .....	28
5.4 Department of Environmental Affairs Screening Tool.....	29
6. CONCLUSION AND RECOMMENDATIONS.....	30
7. REFERENCES .....	31

## LIST OF FIGURES

Figure 1:Botshabelo Locality Map showing the proposed Corridor .....	13
Figure 2: The conditions of some of the fully operational unnamed roads proposed for the Botshabelo Corridor .....	17
Figure 4: Botshabelo Sensitivity Map .....	18
Figure 5: Botshabelo Geology Map.....	19
Figure 6: Botshabelo Hydrology Map .....	20
Figure 7: Conditions of some of the watercourses within the Botshabelo Corridor .....	21
Figure 8: Botshabelo's Vegetation Map.....	22
Figure 9: Cattles grazing along the roadside of one of the routes that forms part of Botshabelo Corridor .....	23
Figure 10:Botshabelo's Palaeontological Map (Source: DEA Screening Tool, 2019).....	24
Figure 11: Soil heaps and litter noted on the road side.....	25

**LIST OF FIGURES**

Table 1: Facility Type Description .....	14
Table 2: Listed Activities in Terms of NEMA EIA Regulations (as amended) .....	26

## GLOSSARY OF TERMS

**Alien Invasive Species:** Species of plants, animals or other organisms that are not indigenous to a region and which easily spread and destroy the indigenous plant species, taking over an area and causing biological and socio-economic harm.

**Basic Assessment Process:** An environmental assessment process that is undertaken in line with Listing Notices 1 and 3 the National Environmental Management Act (107 of 1998) EIA Regulations with the aim of obtaining Environmental Authorisation.

**Competent Authority:** An organ of state charged by the National Environmental Management Act (NEMA) with evaluating the environmental impact of an activity and, where appropriate, with granting or refusing an environmental authorisation in respect of that activity.

**Critical Biodiversity Area:** Areas that are deemed important to conserve ecosystems and species. For this reason, these areas require protection.

**Cultural significance :** means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

**Development:** means the building, erection, construction or establishment of a facility, structure or infrastructure, including associated earthworks or borrow pits, that is necessary for the undertaking of a listed or specified activity, but excludes any modification, alteration or expansion of such a facility, structure or infrastructure, including associated earthworks or borrow pits, and excluding the redevelopment of the same facility in the same location, with the same capacity and footprint.

**Ecological Support Area:** area that must retain its ecological processes in order to: meet biodiversity targets for ecological processes that have not been met in CBAs or protected areas; meet biodiversity targets for representation of ecosystem types or species of special concern when it is not possible to meet them in CBAs; support ecological functioning of a protected area or CBA (e.g. protected area buffers); or a combination of these.

**Environmental Assessment Practitioner:** individual responsible for the planning, management, coordination or review of environmental impact assessments, strategic environmental assessments, environmental management programmes or any other appropriate environmental instruments introduced through regulations.

**Environmental Authorisation:** This is a decision by a Competent Authority to authorise a listed activity in terms of the National Environmental Management Act (NEMA). The authorisation means that a project, either in totality or partially, can commence subject to certain conditions. The Competent Authority has a right to refuse to grant authorisation for a project in totality or partially.

**Environmental Impact Assessment Process:** An environmental assessment process that is undertaken in line with Listing Notice 1, 2 and 3 of the NEMA EIA Regulations with the aim of obtaining Environmental Authorisation.

**Environmental Management Programme:** A programme with set objectives and timeframes that seek to achieve a required end state and describes how activities that have or could have an adverse impact on the environment will be mitigated, controlled and monitored.

**Fatal Flaw:** an environmental or social negative impact that is not possible to mitigate and significant enough to prevent the scheme from being able to be implemented.

**Flora:** plant life that occurs in a specific geographical region and/habitat.

**Fauna:** animal life that occurs in a specific geographical region and/habitat.

**Heritage Resource:** means any place or object of cultural significance.

**Indigenous Vegetation:** plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years.

**Interested and Affected Party:** in relation to an application for Environmental Authorisation, this refers to an interested and affected party whose name is recorded in the register opened for that application in terms of regulation 42 of the NEMA EIA Regulations. This party will ideally be interested in the development but also affected by the proposed application and have a certain interest in the application.

**Regulated area of a watercourse:**

- The outer edge of the 1:100-year flood line and /or delineated riparian habitat whichever is the greatest measured from the middle of a river, spring, natural channel, lake or dam;
- In the absence of a determined 1:100-year flood line or riparian area, the area within 100m from the edge of a watercourse where the edge of the watercourse is the first identifiable annual bank fill flood bench (subject to compliance to section 144 of the Act);
- 500m radius from the delineated boundary of any wetland or pan.

**Riparian Area:** A Habitat that includes the physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterised by alluvial soils, and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent land areas.

**Screening:** Screening determines whether or not a development proposal requires environmental assessment, and if so, what level of assessment is appropriate Screening is therefore a decision-making process that is initiated during the early stages of the development of a proposal.

**Threatened or Protected Species:** These refers to either plants or animals that are at a threat of Extinction or are protected due to their high conservation value or national importance.

**Watercourse:**

- (a) a river or spring;
- (b) a natural channel in which water flows regularly or intermittently;
- (c) a wetland, lake or dam into which, or from which, water flows; and
- (d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks.

**Wetland:** land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

#### LIST OF ABBREVIATIONS/ACRONYMS

CBA	Critical Biodiversity Area
DEA	Department of Environmental Affairs
DESTEA	Department of Economic, Small Business Development, Tourism and Environmental Affairs
DWS	Department of Water and Sanitation
EIA	Environmental Impact Assessment
ESA	Ecological Support Areas
GIS	Geographical Information Systems
IPTN	Integrated Public Transport System
MMM	Mangaung Metropolitan Municipality
NDOT	National Department of Transport
NEMA	National Environmental Management Act (Act 107 of 1998)
NEM:BA	National Environmental Management: Biodiversity Act (Act 10 of 2004)
NWA	National Water Act (Act 36 of 1998)
NMT	Non-Motorised Transport
FSPHRA	Free State Provincial Heritage Resource Agency
SANBI	South African National Biodiversity Institute



## EXECUTIVE SUMMARY

Over the recent years, there has been a great emphasis in reviving the public transportation system and the upgrading and development of supporting infrastructure by Mangaung Metropolitan Municipality (MMM). As a result, the City has been planning for the implementation of an Integrated Public Transport Network (IPTN) known as *Hauweng*, as part of the National Public Transport Strategy and Action Plan that was released by the National Department of Transport (NDoT) in 2007. The development of the Integrated Transport Networks (ITN) in metropolitan areas is a process driven at national level by the NDoT. The ITN is planned and implemented by metropolitan authorities under the direction and guidelines set by the NDoT and funded by National Treasury (NT). The main objectives of the *Hauweng* services will be to transform the City's current public transport system by providing a high-quality, safe, affordable and integrated public transport services to its communities. The project is to be implemented in a number of phases over the next decade.

Five (5) demand public transport Corridors are currently being proposed as part of the network/system planning of *Hauweng*. These Corridors were derived by obtaining regional and local travel patterns, existing public transport demand, as well as existing functional transport Corridors (minibus taxi operational areas and subsidised bus operators). The proposed Corridors for the *Hauweng* Services are as follows:

- Dr Belcher;
- Maphisa;
- Central Business District;
- **Botshabelo**; and
- Thaba Nchu.

GA Environment (Pty) Ltd, a member of the GladAfrica Group, has been appointed by GladAfrica Consulting Engineers on behalf of MMM to undertake an Environmental Screening for the Botshabelo Corridor which forms part of the City Wide. The purpose of this report is to present the results of the screening assessment for the proposed project. The report will present the following:

- Legislative framework governing the sites;
- The status quo of the environmental conditions of the site as well as applicable environmental studies, licences and permits; and
- Overall findings to indicate the sensitivity of the sites, potential fatal flaws, and issues that require the attention of the MMM.

In order to determine the nature of considerations that must be made prior to maintenance and rehabilitation of existing roads, construction of new routes and the erection of bus stops and shelter along the Botshabelo Corridor; ground truthing of the site was undertaken on the 30<sup>th</sup> of August 2019. It must be noted that the routes are in the jurisdiction of MMM and within an urban edge. The proposed new roads fall within Ecological Support Areas as defined by the competent authority, hence listed activities from the NEMA 2014 EIA regulations (as amended) will be triggered. In addition, the occurrence of pockets of wetlands within the Corridor and the Klein River (which is traversed by the

proposed routes at various locations) will require a Water Use Authorisation. This application process will have to be undertaken in consultation with regional DWS in order to obtain guidance on the required process.

As this screening report was compiled in the initial stages of the project, it is important that project details be finalised as soon as possible to allow for the early undertaking of all relevant activities in order to ensure adherence to legislation and overall environmental protection whilst ensuring that the MMM meets their objectives in line with IPTN.

## 1. INTRODUCTION

### 1.1 Background

Mangaung Metropolitan Municipality (MMM) has proposed the implementation of an Integrated Public Transport Network (IPTN) known as *Hauweng*, as part of the National Public Transport Strategy and Action Plan released in 2007 and driven by the National Department of Transport (NDoT) in metropolitan. The strategy proposes the implementation of Integrated Rapid Public Transport Networks (IRPTN) in 12 (now 13) South African cities. Currently the cities which have successfully implemented this system are Cape Town (MyCiTi), Johannesburg (Rea Vaya) and Pretoria (A re Yeng). The main objectives of the *Hauweng* services will be to transform the City's current public transport system by providing a high-quality, safe, affordable and integrated public transport services to its communities. The project is to be implemented in a number of phases over the next decade.

Based on the information provided in the MMM IPTN First Order Operations Plan Report (2014), decay in Botshabelo is leading to an unsafe environment. The CBD precinct of Botshabelo is in a state of dilapidation due to the overcrowding of hawkers. This has led to crime and no proper urban planning within the CBD. Other issues noted were:

- Pedestrians and vehicles are forced to share the street space due to an overburdened hawker facilities on pedestrian sidewalks;
- Crime hotspots have been created due to a lack of lighting in-between the hawkers' container passages, which are heavily utilised by pedestrians;
- The CBD requires more intensive urban planning to direct pedestrian and vehicle flows;
- The roads are in a poor condition;
- The drainage system also needs to be upgraded; and
- There is a lack of sufficient street lighting provided within the urban space.

It is for the reasons highlighted above, that there has been great emphasis in reviving the public transportation system and the upgrading and development of supporting infrastructure by MMM. The implementation of *Hauweng* will enable service provision to numerous communities of the City. These services will transform the existing public transport system through the provision of an integrated, high-quality, safe and affordable public transport system. The primary aim of the *Hauweng* is to incrementally transform the existing public transport services to a multi-modal, integrated, high-quality, affordable, universally accessible, safe and reliable commuter service.

It is envisaged that the *Hauweng* will consist of an extensive network of bus and pedestrian walkways mainly concentrated within the City. According to the Draft City Wide Integrated Public Transport Plan (CWIPTP) 2019, the minimum requirements for an Integrated Public Transport system are based on best practice and standards set by National Department of Transport for public transport systems in South Africa. The CWIPTP, 2019 makes reference to an IPTN that is based on demand Corridors taking into account the existing public transport supply and land use.

Five (5) demand public transport Corridors are currently being proposed as part of the network/system planning of *Hauweng*. These Corridors were derived by obtaining regional and local travel patterns, existing public transport demand, as well as existing functional transport Corridors

(minibus taxi operational areas and subsidised bus operators). The proposed Corridors for the *Hauweng* Services are as follows:

- Dr Belcher;
- Maphisa;
- Central Business District;
- **Botshabelo**; and
- Thaba Nchu.

GA Environment (Pty) Ltd has been appointed by GladAfrica Consulting Engineers on behalf of MMM to undertake an Environmental Screening for the City-Wide Network (five Corridors). This Screening report is applicable to the **Botshabelo** Corridor. The purpose of this screening report is to document the findings of the site assessment and advise MMM on the applicable environmental legislative requirements that must be met prior to the commencement of any proposed activity. Environmental screening is a process whereby key environmental issues associated with a proposed development are identified and form an integral part of prefeasibility investigations to allow adjustments to be made to the proposal prior to the submission of the final development plans. The identified issues will provide MMM with adequate time and opportunity to respond to the environmental implications arising from the proposed development. The screening process may include the need for further comprehensive environmental assessments, if it is determined with certainty that the proposed activities will not require any Environmental Authorisations, Licences or Permits.

The findings contained in this report should not be regarded as indicative of a comprehensive environmental assessment as the assessment was undertaken in response to the requirements of MMM. The main objective of the screening exercise is to provide input in the plans for the City-Wide Network based on the identified environmental constraints and opportunities. The methods to be employed for each task will be underpinned by the key environmental legislation that governs each process within the prescribed administrative timeframes.

## 1.2 Assumptions,Gaps and Limitations

The assessment is based on information gathered during the site visit and the review of available information. No specialist field assessment or data collection was undertaken to verify site observations. This report will therefore provide recommendations in terms of the required specialist assessment and further investigative studies that will be required before the construction.

Ground truthing was undertaken on the 30<sup>th</sup> of August 2019, however all areas of environmental sensitivity were not visited, hence this report also includes a desktop assessment for some of the environmental sensitive areas. Ground truthing of the entire Corridor will be undertaken at a later stage once the project unfolds.

## 2. PROJECT LOCATION

The proposed study area for the network is located within the jurisdiction Mangaung Metropolitan Municipality within the urban edge of Botshabelo township, 55km to the east of Bloemfontein town. The network centre coordinates area 29°14'11.50"S, 26°41'18.72"E. The N8 intersects the Corridor on the northern end and the site can be accessed via Jazzman Mokhothu highway. The Botshabelo Mall is situated towards the north of the Corridor, along Jazzman Mokhothu street, with Botshabelo Waste Water Treatment Works situated west of the Corridor and the Botshabelo quarry on the far west. Health facilities and various primary and secondary schools exist within the Corridor. **Figure 1** shows the geographic extent of the site, which comprises of the proposed network.

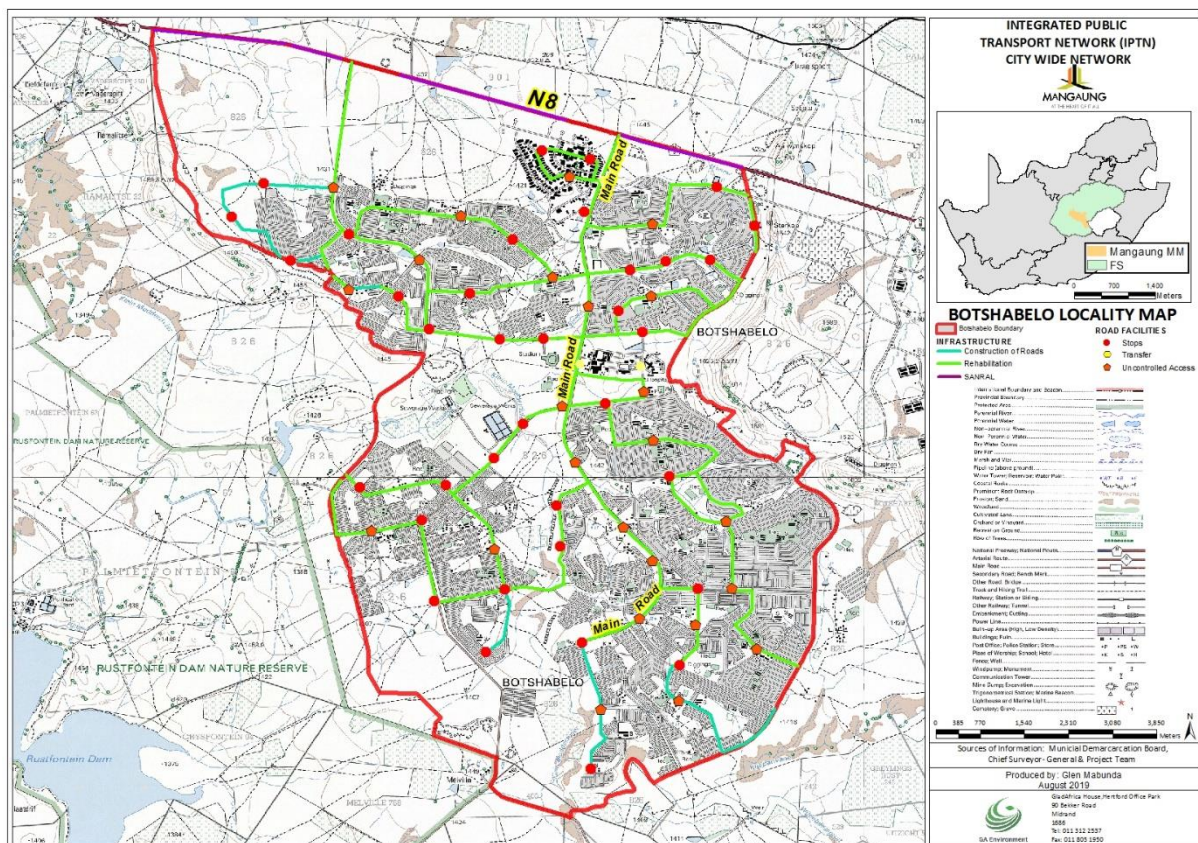


Figure 1: Botshabelo Locality Map showing the proposed Corridor

## 3. PROJECT DESCRIPTION

According to the CWIPTNP (2019), the Botshabelo Corridor will be comprised of the following infrastructure:



- Resurfacing and rehabilitation of certain sections of the roads;
- Maintenance of certain sections of the road including stormwater infrastructure;
- Intersection upgrades; and
- Non-Motorized infrastructure.




The architectural impression of the Corridor facilities as proposed in the CWIPTP, 2019 are provided in **Table 1**. It should be noted that the dimensions of the facility types were not made available to the



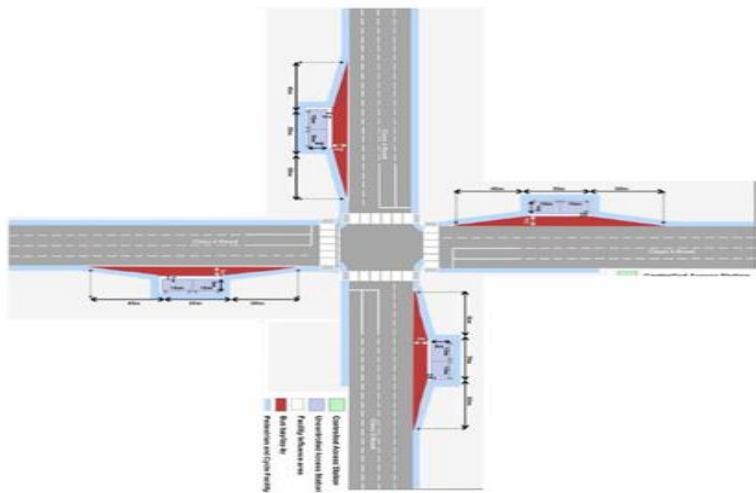
Environmental Assessment Practitioner during the finalization of this report. The Blue Rank will be utilized as a main transfer station for Botshabelo.

Table 1: Facility Type Description

Facility Type Description	Visual Illustration
<p><b>1. Stops</b> Incremental implementation</p>	
<p><b>2. Uncontrolled Access Stations</b> Provided along all routes. The stops can have a shelter depending on the location along the route and space availability.</p>	
<p><b>3. Controlled Access Stations (stop with shelter)</b> Will provide the following level of service:</p> <ul style="list-style-type: none"> <li>• Pedestrian waiting area;</li> <li>• Pedestrian walkways;</li> <li>• Staircase;</li> <li>• Station access points/gates</li> </ul>	

	
<p><b>4. Transfers (Main)</b></p> <p>The route design alternatives all require a transfer facility in the CBD of Bloemfontein, Botshabelo and Thaba Nchu. These facilities will be the main integration points between modes and services in the areas and to other areas. Long distance and cross border public transport services will integrate with the local Corridors at these points.</p>	<p><b>Transfer - Main</b></p>  <ul style="list-style-type: none"> <li>• Feeder trunk service integration point</li> <li>• High capacity</li> <li>• Space available for transfer facility</li> </ul>
<p><b>5. Transfers High Capacity</b></p> <p>Provide transfer between routes in the network. The size is dependent on the number of feeder routes and vehicle fleet servicing the feeder routes.</p>	<p><b>High Capacity Transfer</b></p>  <p>12 m vehicle</p> <p>Shelter</p> <p>Other vehicles, pick-up drop-off only, Kiss and Ride</p>
<p><b>6. Transfers low capacity</b></p>	

Provide transfer opportunities to passengers within the system. These transfers are positioned where main Corridors or routes intersect.



#### 4. SITE ENVIRONMENTAL CONDITIONS

This section provides an overview of the environmental setting and issues identified on site during the site visit that was undertaken on 30<sup>th</sup> of August 2019. Site Photographs are provided to present an overview of the existing site conditions.

##### 4.1 General conditions of existing roads

Although a discussion of site infrastructure does not fall within the scope of Environmental Reporting, this aspect was presented in order to provide an idea of the activities that have already impacted on the site as the proposed development will itself further impact of the site.

Most of the roads that are proposed for the Botshabelo Corridor are generally in good condition and currently in full operation as shown in **Figure 2**. However five gravel roads (where road construction is proposed) were noted during the site visit. It must be highlighted that street lighting as well as electricity infrastructure does exist within the Corridor and also present on the gravel roads proposed for construction.





*Figure 2: The conditions of some of the fully operational unnamed roads proposed for the Botshabelo Corridor*

Although the tared roads were easily drivable, it was observed that these roads are gradually deteriorating, as several poor conditions, such as potholes were noted along the roads (see **Figure3**). Some of these potholes had been filled with tar.



*Figure 3: Poor road conditions noted on some of the unnamed roads proposed for the Botshabelo Corridor*

## 4.2 Site Sensitivity

The South African National Biodiversity Institute (SANBI) data was consulted in order to determine the location of areas of increased ecological or conservation importance and sensitivity within the vicinity of the study area. This was undertaken by an investigation of biodiversity priority areas which include Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs). According to GIS data, the majority of the proposed study area for the Botshabelo Corridor is regarded as an ESA and the northern edge of the Corridor is situated within a degraded area. The proposed Corridor does not fall within any protected area (see **Figure 4** for the Sensitivity map of the proposed study area).

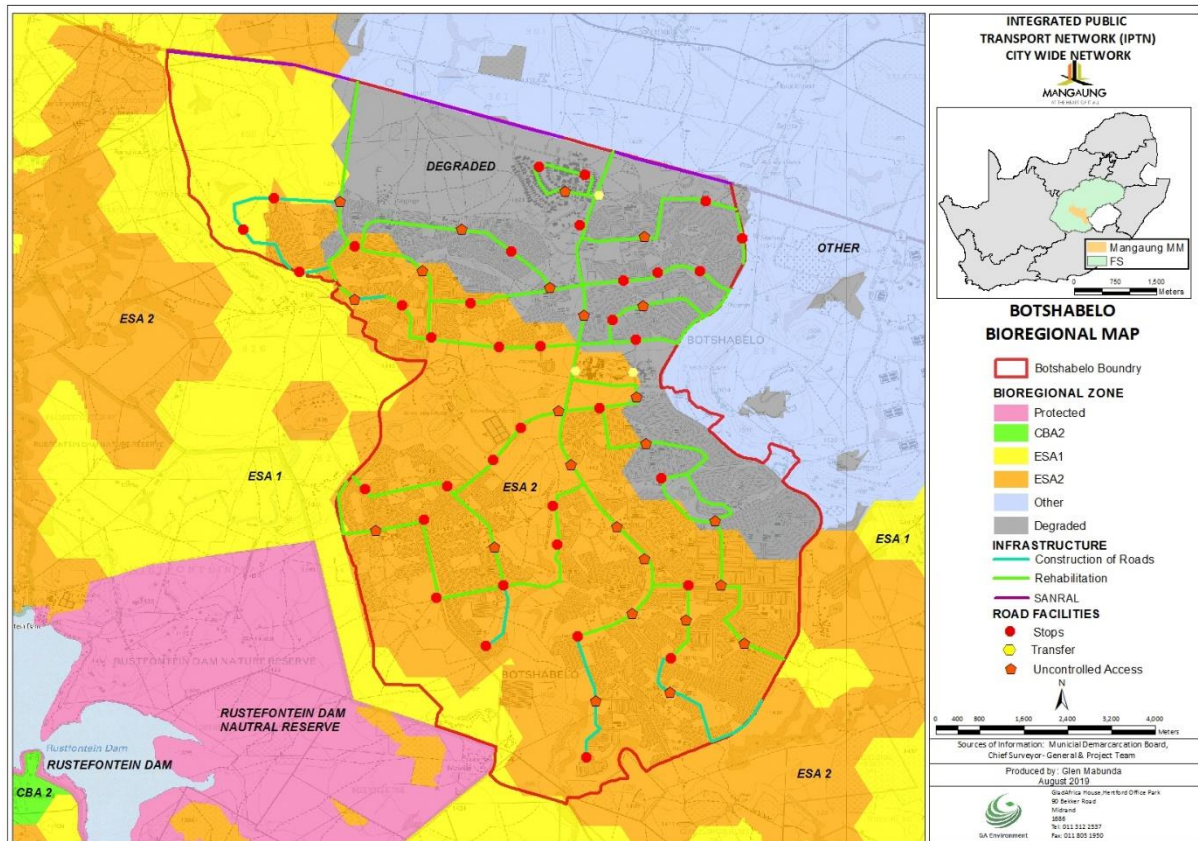


Figure 3: Botshabelo Sensitivity Map

## 4.3 Geology and Soils

According to the geological information taken from SANBI data (2008), the site falls within the Adelaide Subgroup of the Beaufort Group. Extensive dolerite sills forming ridges, plateaus and slopes of koppies and small escarpments marking the erosion terraces, occur within the proposed study site. Sedimentary mudstones and sandstone mainly of the Adelaide Subgroup (Beaufort Group, Karoo Supergroup) as well as those of the Ecca Group (Karoo Supergroup) occur in the extreme northern section of the grassland giving rise to vertic, melanic and red soils (typical forms are Arcadia, Bonheim, Kroonstad, Valsrivier and Rensburg). See **Figure 5** for the Geology map of the site.



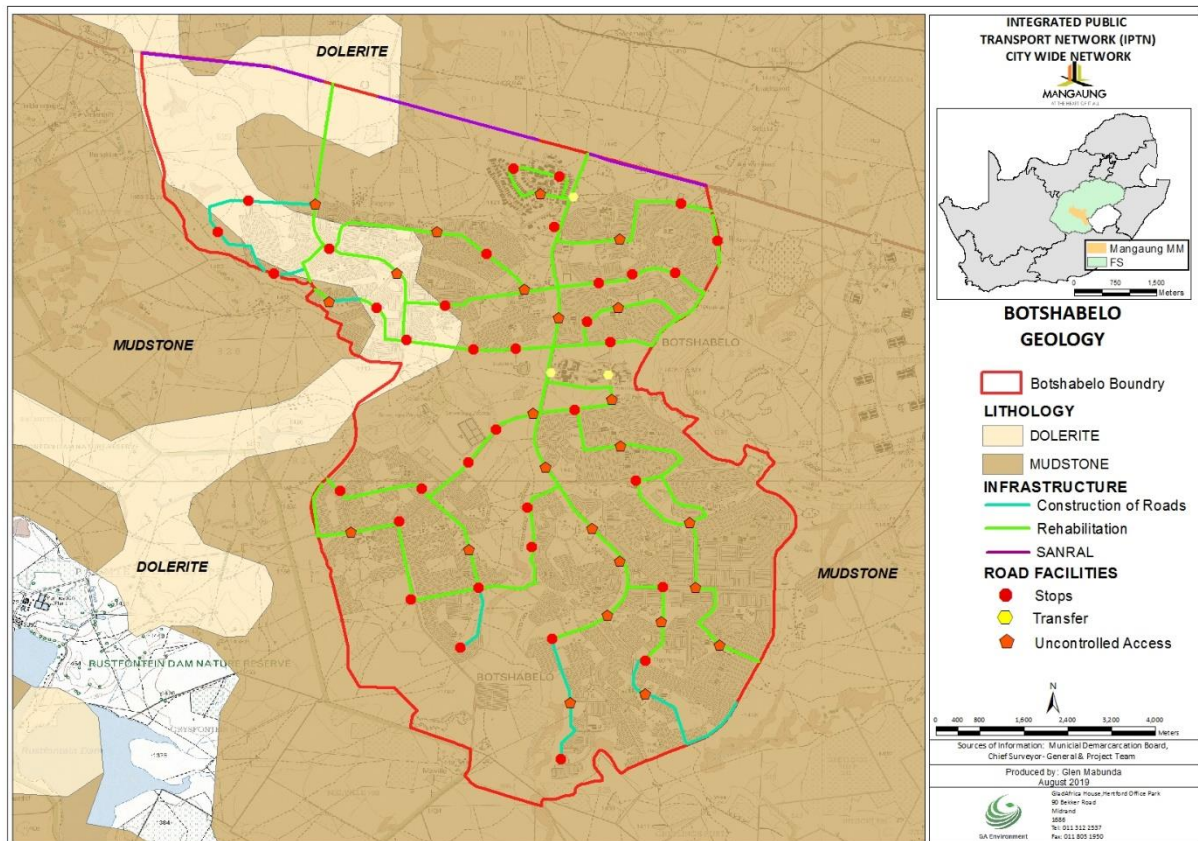


Figure 4: Botshabelo Geology Map

The proposed project also includes the construction of roads. This will require knowledge on the geology of the site in order to determine the founding conditions and pavement designs. It is apparent based on the GIS based desktop study that there are dolomitic issues that exists within the network area. A Geotechnical Assessment will however be required to determine specific geotechnical issues that may be encountered on site. This scope does not fall within the scope of GA Environment.

#### 4.4 Hydrological Conditions

The proposed Corridor falls within the Quaternary Catchment C52B. This catchment is located in Water Management Area 13 (WMA). In this catchment, the major rivers include the Modder River, Riet River, Caledon River and Orange River. The Klein-Modder River is situated within a dense urban environment and remaining natural areas have been significantly degraded.

According to the desktop assessment using GIS data, the Klein Modder River runs through the township and drains in a south westerly direction. The proposed routes will traverse this river at various locations within the Corridor. Pockets of wetlands are situated at various locations within the Corridor (see **Figure 6**). Based on the information provided by the Systems planning Work Stream, approximately five new roads will be constructed in this Corridor. Two routes fall within the DWS regulated area (within 500m radius from a wetland). From the site investigation, certain areas of the stream were seen to be severely degraded due to the dumping of rubble and waste along watercourses (see **Figures 7**), which cover the natural soil profile and removes the natural vegetation. The canalising of portions of these watercourses, disturbance of the soil profile and clearing of vegetation also contributes to the degradation.

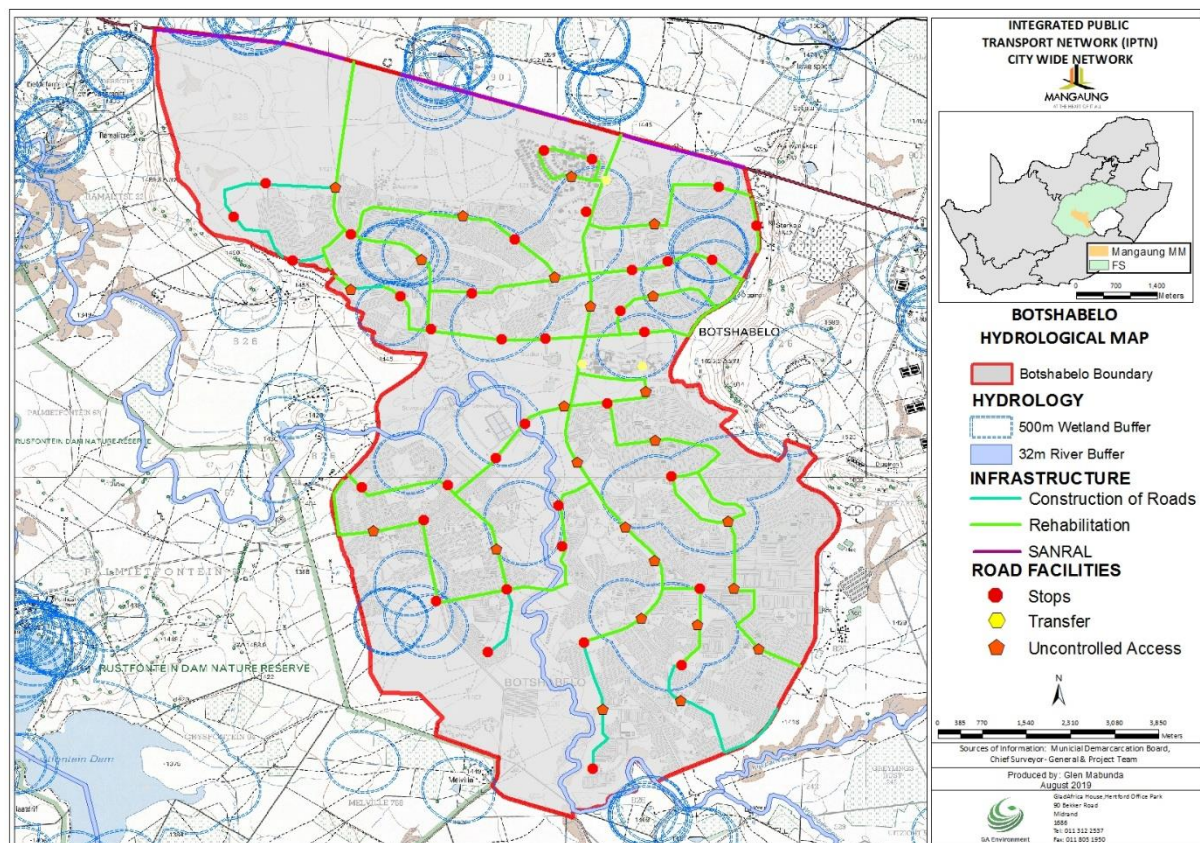


Figure 5: Botshabelo Hydrology Map





*Figure 6: Conditions of some of the watercourses within the Botshabelo Corridor*

The Department of Water and Sanitation's (DWS) regulated areas for watercourses are as follows:

- An outer edge of the 1:100-year flood line and /or delineated riparian habitat whichever is the greatest measured from the middle of a river, spring, natural channel, lake or dam; or
- In the absence of a determined 1:100-year flood line or riparian area, the area within 100m from the edge of a watercourse where the edge of the watercourse is the first identifiable annual bank fill flood bench (subject to compliance to section 144 of the Act); or
- 500m radius from the delineated boundary of any wetland or pan.

This means that the relevant Water Use Authorisation (WUA) must be acquired to permit the proposed development. Further to the above, it is important that the following water related studies be undertaken to aid the MMM with determining the suitability of the site for development:

- Wetland Assessment and Delineation; and
- Aquatic Assessment.

The legislation governing any activities within the watercourse is discussed in Section 5 of this Screening Report.

#### 4.5 Fauna and Flora

Central Free State Grassland and Basotho Montane Shrubland are found in the Botshabelo area. Undulating plains supporting short grassland, in natural condition dominated by *Themeda triandra* while *Eragrostis curvula* and *E. chloromelas* become dominant in degraded habitats (SANBI Data, 2008). The remaining natural areas of the dense urban environment of Botshabelo township have been significantly degraded. The urban area and activities associated with this study area also contribute to alteration of the vegetation structure (DPR Ecologists & Environmental Services, 2017). (refer to **Figure 8** for the Vegetation Map of the study area).

It is evident from the site investigation that most of the natural vegetation has been transformed and degraded due to human activities. Grazing of livestock (as shown in **Figure 9**) was observed in close proximity to the site.

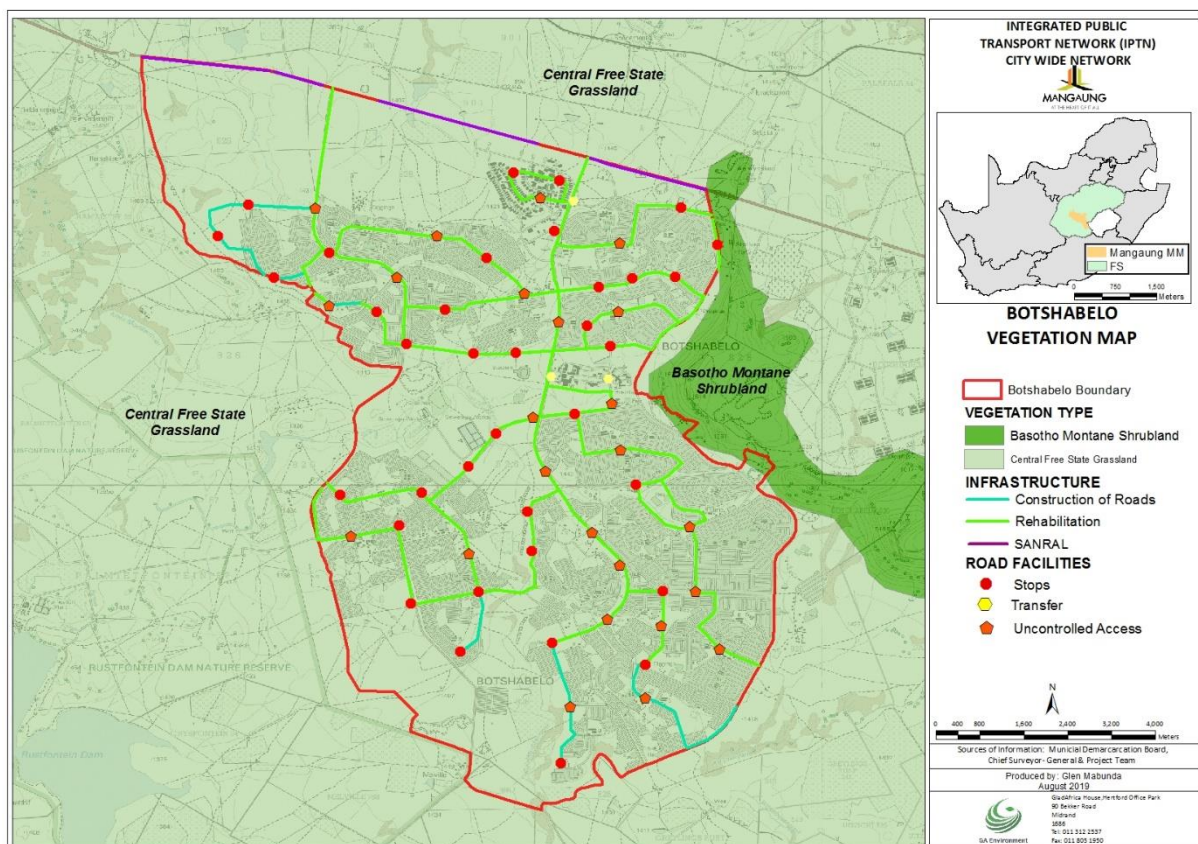


Figure 7: Botshabelo's Vegetation Map



*Figure 8: Cattles grazing along the roadside of one of the routes that forms part of Botshabelo Corridor*

In terms of the fauna observed on site, with the exception of domesticated animals such as the livestock, dogs and cats, no other fauna was noted on site during the visit.

#### 4.6 Cultural and Heritage

According to information obtained from the DEA Screening Tool (**Appendix A**) and as presented in **Figure 10**, the entire Corridor is situated within an area of high and medium palaeontological sensitivity. Palaeontological sites are protected according to Section 34 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) which is further discussed in **Section 3.3**. Based on this, a Palaeontological Assessment will have to be undertaken for the proposed project.



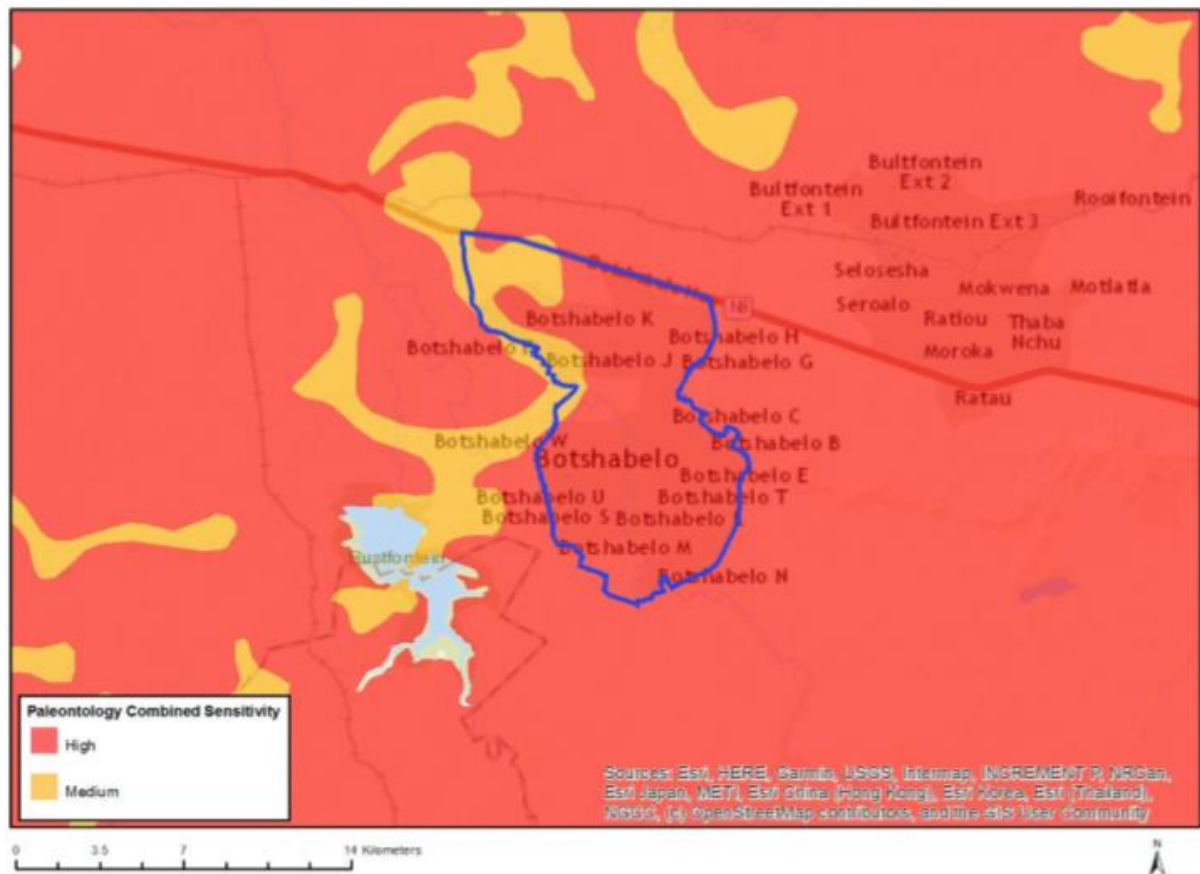


Figure 9: Botshabelo's Palaeontological Map (Source: DEA Screening Tool, 2019)

In addition to the above, it must be noted that the proposed activity of constructing roads (or linear infrastructure of 300m in length) will trigger the need for a Heritage Impact Assessment. This is based on Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999), which governs the Management of Heritage Resources associated with certain activities. **Section 5.3** of this report details the above-mentioned activities in line with the National Heritage Resources Act, 1999 (Act No. 25 of 1999).

#### 4.7 Waste Management

Waste management in this Corridor was noted to be unsatisfactory as several incidents of illegally disposed domestic waste noted. Rubbish dumping, building rubble and littering is also problematic along the watercourses and was noted to be causing visual nuisances along the local roads. **Figure 11** shows soil heaps and litter noted on the road side of one of the Botshabelo Corridor routes.





*Figure 10: Dumped heap of soil and litter nuisances noted on the road side*

#### 4.8 Stakeholder Engagement

Stakeholder consultation activities are typically undertaken to provide project stakeholders with an opportunity for early participation in the planning and development of a proposed project. Such participation can lead to improved decision-making by the proponent, while fostering good neighbour relationships with project stakeholders. It is of critical importance that adequate public participation is undertaken to avoid any project opposition.

Stakeholder consultation is managed by the Marketing and Stakeholder Engagement Work Stream. It is critical that the public is informed of the proposed activities through the relevant channels as approved by MMM.

A Social Impact Assessment (SIA) has been commissioned for the City-Wide IPTN. The SIA investigates the potential change in the activity, interaction and/or sentiment of the community, as it responds to the impacts resulting from the alteration in the surrounding environment.

Based on the observations and discussions with residents during the site visit, the following were identified as key stakeholders and authorities who must be notified of the project:

- Adjacent residents and businesses;
- Ward Councillor;
- Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTEa);
- Department of Water and Sanitation (DWS);
- Mangaung Roads and Stormwater Unit; and
- South African Heritage Resources Agency (SAHRA).

Any additional stakeholders and authorities will be identified in subsequent project stages.

## 5. LEGISLATIVE REQUIREMENTS

### 5.1 NEMA EIA Regulations 2014 (as amended)

Environmental Impact Assessment (EIA) Regulations were promulgated in December 2014 (as amended) in terms of Section 24(5) and Section 44 of the National Environmental Management Act (NEMA), Act 107 of 1998 and consist of the following:

- Government Notice (G.N.) 982 provides details on the processes and procedures to be followed when undertaking an Environmental Authorisation process;
- EIA Regulations Listing Notice 1 published in G.N. 983 defines activities which will trigger the need for a Basic Assessment process;
- EIA Regulations Listing Notice 2 published in G.N. 984 defines activities which trigger an Environmental Impact Assessment (EIA) process. If activities from both G.N.983 and G.N.984 are triggered, then a Scoping EIA process will be required.
- EIA Regulations Listing Notice 3 published in G.N. 985 defines certain additional listed activities for which a Basic Assessment process would be required within identified geographical areas.

The above regulations were reviewed to determine whether the proposed project will trigger any of the above listed activities, and if so, what Environmental Authorisation Process would be required.

Table 2: Listed Activities in Terms of NEMA EIA Regulations (as amended)

Listing Number	Description of Listing triggered by the proposed activity	Applicability
<b>Listing Notice 3</b> Activity 4	The development of a road wider than 4 meters with a reserve less than 13.5 meters.  b. Free State  ii Inside Urban Areas  (aa) Areas zoned for use as public open space;  (bb) Areas designated for conservation use in the Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose; or  (cc) Areas within urban protected areas.	The proposed new roads will have a road reserve of 13m.
<b>Listing Notice 3</b> Activity 18	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre.  b. Free State  ii Inside Urban Areas	This activity is yet to be confirmed depending on the design of the roads that will require upgrading.

Listing Number	Description of Listing triggered by the proposed activity	Applicability
	(aa) Areas zoned for use as public open space;  (bb) Areas designated for conservation use in the Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose; or  (cc) Areas within urban protected areas.	

The possible triggered listed activities presented in this report, as well as any possible activities are dependent on the following:

- the finalising of project details by the relevant Work Streams; and
- confirmation of the Listed Activities with the Free State Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTE) to confirm the EAP's findings about the required processes. DESTE has established an enquiry system where advice and guidance can be provided prior to a formal Environmental application process.

It is important to note that this Environmental Screening was undertaken in terms of the current promulgated 2014 EIA Regulations (as amended). Since the proposed IPTN will be implemented in an incremental manner, there is a possibility of legislation changes, as well as possible promulgation of Provincial Environmental Management Framework Regulations. The implication of the aforementioned could result in triggered activities as documented in this report being not applicable. Should this be the case, Section 28 (Duty of Care) of the National Environmental Management Act (Act 107 of 1998) shall be implemented.

The prevention of any site degradation due to non-compliance, administrative or financial problems, and inactivity during the demolition/construction phase, illegal activities, delays caused by archaeological finds etc. are ultimately the responsibility of the applicant / developer as per Section 28 of NEMA, 1998 (as amended) which discusses 'Duty of Care and remediation of environmental change'. An Environmental Management Plan shall be compiled for the proposed project in order to management potential environmental impacts and independent Environmental Control Monitoring and Auditing is recommended.

## 5.2 National Water Act, 1998 (Act No. 36 of 1998)

The National Water Act No. 36 of 1998 (NWA) governs the management of water resources. It aims to ensure the sustainable use of water through the protection of the quality and quantity of water resources for the benefit of all water users. According to the Act, a person can only be entitled to use water if the use is permissible under the NWA. Section 21 of the NWA specifies the water uses, which require authorisation from the Department of Water and Sanitation (DWS) prior to the commencement of the activity. Based on desktop studies and initial field assessments, a list of regulated areas that could possibly be triggered by the development are presented as follows:

- The outer edge of the 1:100-year flood line and /or delineated riparian habitat whichever is the greatest measured from the middle of a river, spring, natural channel, lake or dam;
- In the absence of a determined 1:100-year flood line or riparian area, the area within 100m from the edge of a watercourse where the edge of the watercourse is the first identifiable annual bank fill flood bench (subject to compliance to section 144 of the Act); or
- 500m radius from the delineated boundary of any wetland or pan.

Certain activities, such as construction activities within these areas are regulated by the Department of Water and Sanitation and will require a Water Use Authorisation in terms of Section 21 of the National Water Act.

Any activity that occurs within a regulated area requires an application for a Water Use Authorisation (WUA) in the form of a Water Use License Application (WULA) or a General Authorisation (GA) with the DWS. The proposed project in Botshabelo Corridor will trigger the following Water Uses under Section 21 of the National Water Act, 1998 (Act No. 36 of 1998):

*(c) impeding or diverting the flow of water in a watercourse; and  
(i) altering the bed, banks, course or characteristic of a watercourse.*

As presented in **Section 4.4**, the proposed route will traverse the Klein River at various locations within the Corridor. Pockets of wetlands are also situated at various locations within the Corridor. A Water Use Authorisation will be required for the proposed Corridor. Consultation with the regional DWS must be undertaken to obtain guidance about the required process.

### 5.3 National Heritage Resources Act, 1999 (Act No. 25 of 1999)

The objective of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) is to introduce an integrated system for the management of national heritage resources. The Act defines a 'heritage resource' as any place or object of cultural significance (aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance). The identification, evaluation and assessment of any cultural heritage site, artefact or find in South Africa is required by this Act. This section of the report will present the heritage issues. In this section of the report and based on National Heritage Resources Act (1999), all mention of the 'Responsible Heritage Resources Authority' refers to the Free State Provincial Heritage Resources Authority (FSPHRA).

**Section 4.6** of this report has presented the potential cultural and heritage matters applicable to the project. National Heritage Resources Act, 1999 (Act No. 25 of 1999) must be applied in the management of all heritage resources that could potentially occur within the Botshabelo Corridor. With regards to the project, Section 35,36 and 38 of the Act are applicable and will be discussed

As presented in **Section 4.6**, the Botshabelo Corridor occurs within a site with a high Palaeontological rating. Section 35 of the Act pertains to the protection of archaeological and palaeontological sites or material as well as meteorites. Section 35(4)(1)(a) states that:

*'No person may, without a permit issued by the responsible heritage resources authority—*

*(a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite.*

Based on the above, a **Palaeontology Impact Assessment** might be required for the project. With regards to the proposed activities, the relevant parts of Section 38, which pertains to Heritage Resources Management must be adhered to. Section 38(1) and indicated in maroon as follows:

*'Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as—*

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

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

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

*(i) exceeding 5 000 m<sup>2</sup> 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 m<sup>2</sup> in extent; or*

*(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,*

Based on the above, a **Heritage Impact Assessment** might be required for the project. FSHRA as the relevant Heritage Resource Authority for the project must be notified of the project as early as possible in the initiation stage of the project.

#### 5.4 Department of Environmental Affairs Screening Tool

According to Regulation 16(1)(v) of the NEMA EIA Regulations 2014, as amended, an Application for Environmental Authorisation must be accompanied by a the "report generated by the national web based environmental screening tool, once this tool is operational". The custodian of this report is the Department of Environmental Affairs (DEA). At the time of the compilation of this Screening Report, the tool was operational but not yet effected as this would take place on the 04th October 2019. Regardless of the status quo and while confirmation regarding the need for the undertaking of an application for Environmental Authorisation was still awaited, the EAP utilised a proactive approach to use this tool in the compilation of the Screening Report for the MMM IPTN Botshabelo Corridor. The results of the tool are indicated in the Report attached as **Appendix A**.

Certain Specialist assessments will be required for the undertaking of the proposed development in Botshabelo. There is however an allowance of the EAP to motivate for the reasons for not including certain assessments in the assessment report. Based on the screening tool and the site visit which was undertaken as part of the screening process, the following Specialist Assessments will likely be undertaken for the proposed project in Botshabelo Corridor. However, the need for these assessments will be discussed with the competent authority during the pre-application meeting.

- Archaeological and Cultural Heritage Impact Assessment;
- Palaeontology Impact Assessment;
- Aquatic and Wetland Impact Assessment;
- Noise Impact Assessment;
- Traffic Impact Assessment;
- Geotechnical Assessment; and
- Socio-Economic Assessment.

## 6. CONCLUSION AND RECOMMENDATIONS

This Environmental Screening investigation was undertaken to determine if any legislative or other requirements must be met for the proposed Mangaung City Wide Scan (Botshabelo Corridor). This report is based on an assessment of information gathered during the site investigation and a subsequent review of available information.

Based on the findings of this report there were no technical flaws identified, the proposed development is feasible and will have impacts of low significance. In a case where major construction activities such as the construction of the new roads and rehabilitation of roads within the Botshabelo Corridor routes are proposed, the following recommendations can be deduced from the environmental screening process:

- Undertake a Basic Assessment process as per the National Environmental Management Act, 1998 (Act 107 of 1998);
- Undertake a Water Use Authorisation as per the National Water Act; 1998 (Act 36 of 1998);
- Storm water management plan should be compiled by the Infrastructure Work stream. This plan will be implemented in order to prevent contaminated water from entering the watercourses; and
- Consultation with DESTEA and DWS must be undertaken to confirm the Specialist assessments that must be undertaken for the proposed project.

## 7. REFERENCES

Mucina, L, & Rutherford, M.C. (Eds.) (2006). *The vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19*. South African National Biodiversity Institute, Pretoria.

Mangaung Metropolitan Municipality (2014). Integrated Public Transport Plan First Order Operations Plan Report (2014),

Mangaung Metropolitan Municipality (2019). Draft City Wide Integrated Public Transport Plan

## APPENDIX A

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### DEA SCREENING TOOL



**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**

**EIA Reference number:** Not Applicable

**Project name:** MMM IPTN

**Project title:** MMM IPTN

**Date screening report generated:** 27/08/2019 10:00:01

**Applicant:** Manguang Metropolitan Municipality

**Compiler:** Kirthi Peramaul

**Compiler signature:**

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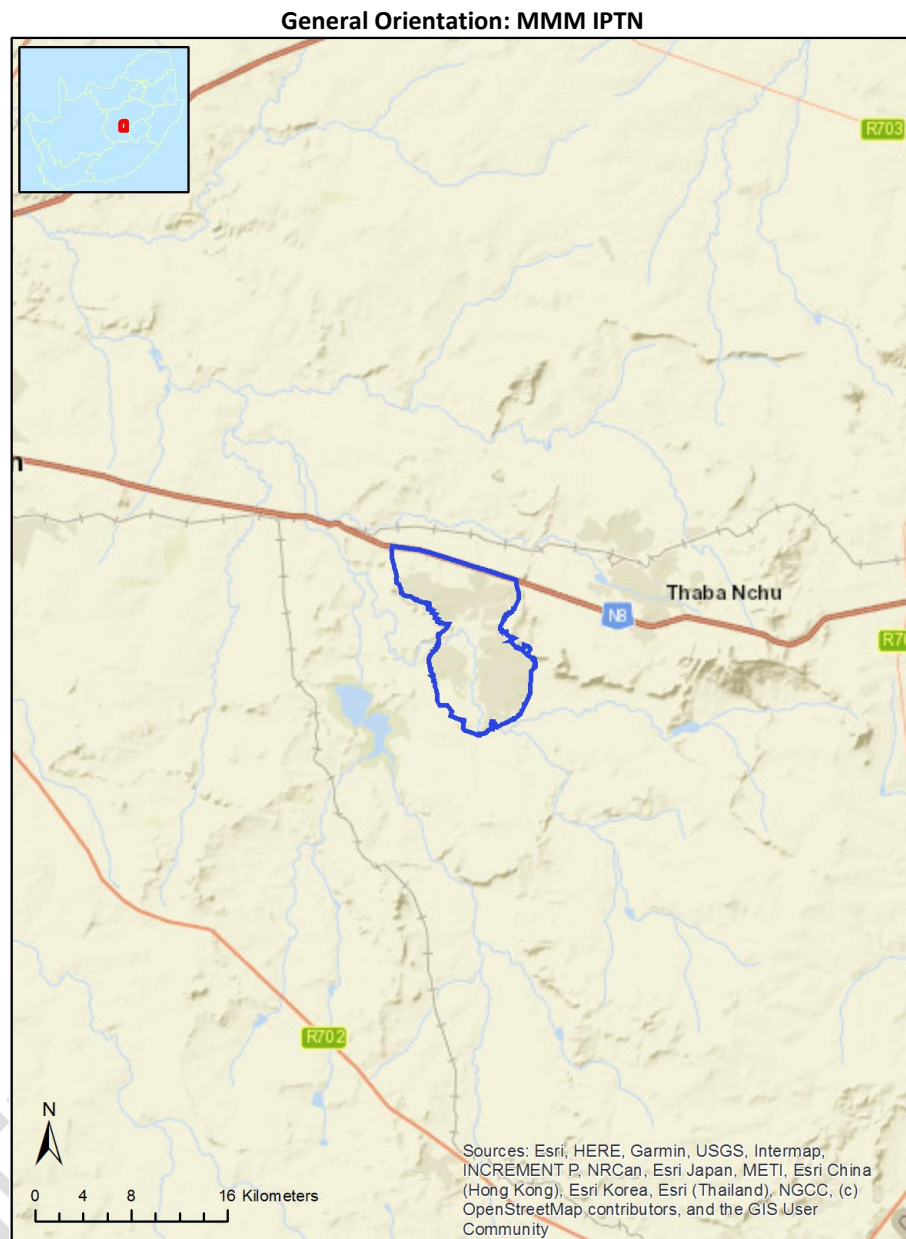
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## Table of Contents

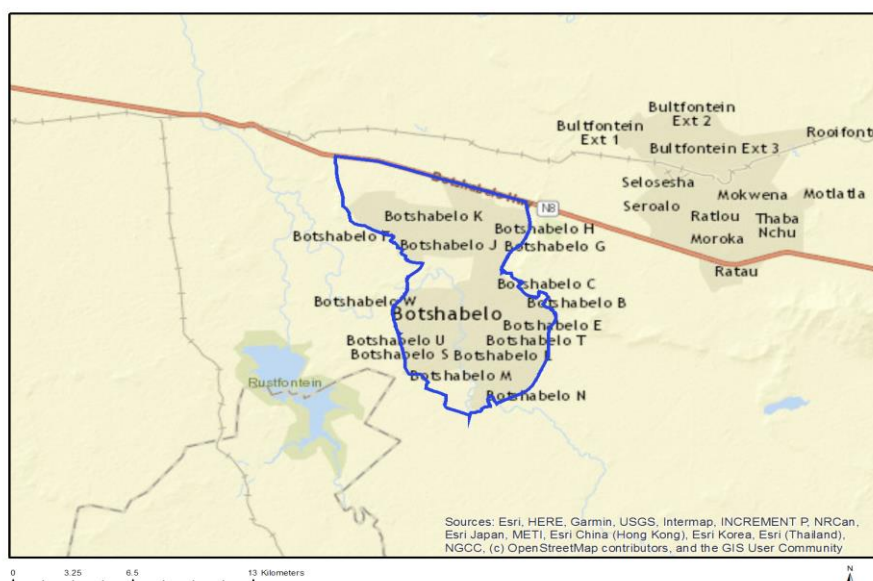
Proposed Project Location .....	3
Orientation map 1: General location .....	3
Map of proposed site and relevant area(s) .....	4
Cadastral details of the proposed site .....	4
Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area .....	21
Environmental Management Frameworks relevant to the application .....	21
Environmental screening results and assessment outcomes .....	22
Relevant development incentives, restrictions, exclusions or prohibitions .....	22
Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones .....	23
Proposed Development Area Environmental Sensitivity .....	23
Specialist assessments identified .....	24
Results of the environmental sensitivity of the proposed area. ....	25
MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY .....	26
MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY .....	27
MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY .....	28
MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY .....	29
MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY .....	30
MAP OF RELATIVE DEFENCE THEME SENSITIVITY .....	31
MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY .....	32

## Proposed Project Location

### Orientation map 1: General location



## Map of proposed site and relevant area(s)



## Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/Erf Number	Portion	Latitude	Longitude
1	BOTSHABELO-R	1967	00000	-29.27909	26.6731
2	BOTSHABELO-R	2026	00000	-29.28032	26.67302
3	BOTSHABELO-T	917	00000	-29.26587	26.71046
4	BOTSHABELO-K	3959	00000	-29.20859	26.69455
5	BOTSHABELO-C	2276	00000	-29.24123	26.70705
6	BOTSHABELO-C	2598	00000	-29.24642	26.70559
7	BOTSHABELO-C	2360	00000	-29.24278	26.70417
8	BOTSHABELO-C	2437	00000	-29.24318	26.70417
9	BOTSHABELO-F	1349	00000	-29.2156	26.67607
10	BOTSHABELO-C	2390	00000	-29.24184	26.70448
11	BOTSHABELO-F	1335	00000	-29.21544	26.67477
12	BOTSHABELO-C	2049	00000	-29.24221	26.70354
13	BOTSHABELO-C	2482	00000	-29.24395	26.70512
14	BOTSHABELO-C	2537	00000	-29.24645	26.705
15	BOTSHABELO-C	2695	00000	-29.24685	26.71002
16	BOTSHABELO-C	2047	00000	-29.24241	26.70374
17	BOTSHABELO-C	2118	00000	-29.23897	26.70782
18	BOTSHABELO-F	1475	00000	-29.21358	26.67433
19	BOTSHABELO-C	2141	00000	-29.24088	26.7043
20	BOTSHABELO-F	1383	00000	-29.21852	26.67588
21	BOTSHABELO-N	703	00000	-29.28022	26.70439
22	BOTSHABELO-F	1269	00000	-29.21574	26.67327
23	BOTSHABELO-F	3460	00000	-29.22791	26.6805
24	BOTSHABELO-F	3648	00000	-29.22897	26.67319
25	BOTSHABELO-F	3352	00000	-29.22818	26.67616
26	BOTSHABELO-B	3	00000	-29.24698	26.7271
27	BOTSHABELO-B	20	00000	-29.24523	26.72993
28	BOTSHABELO-A	1547	00000	-29.26251	26.732
29	BOTSHABELO-E	1049	00000	-29.25976	26.72935
30	BOTSHABELO-C	640	00000	-29.24749	26.72096

31	BOTSHABELO-B	723	00000	-29.2496	26.72632
32	BOTSHABELO-B	728	00000	-29.25046	26.72598
33	BOTSHABELO-B	581	00000	-29.25337	26.72579
34	BOTSHABELO-B	591	00000	-29.25438	26.7275
35	BOTSHABELO-A	254	00000	-29.25777	26.72975
36	BOTSHABELO-C	82	00000	-29.24518	26.71616
37	BOTSHABELO-E	1379	00000	-29.26527	26.72758
38	BOTSHABELO-C	1360	00000	-29.24192	26.71974
39	BOTSHABELO-D	1057	00000	-29.27618	26.73511
40	BOTSHABELO-D	1485	00000	-29.27719	26.7291
41	BOTSHABELO-B	353	00000	-29.25003	26.73302
42	BOTSHABELO-B	356	00000	-29.25041	26.73334
43	BOTSHABELO-E	629	00000	-29.25978	26.71675
44	BOTSHABELO-E	182	00000	-29.25643	26.71819
45	BOTSHABELO-C	1138	00000	-29.2403	26.71646
46	BOTSHABELO-A	1292	00000	-29.26062	26.73632
47	BOTSHABELO-D	251	00000	-29.27296	26.73377
48	BOTSHABELO-C	1845	00000	-29.24371	26.7128
49	BOTSHABELO-C	306	00000	-29.24924	26.71682
50	BOTSHABELO-F	2418	00000	-29.22652	26.68058
51	BOTSHABELO-E	707	00000	-29.26081	26.71771
52	BOTSHABELO-C	1001	00000	-29.23899	26.71429
53	BOTSHABELO-E	206	00000	-29.25418	26.72163
54	BOTSHABELO-E	210	00000	-29.2545	26.721
55	BOTSHABELO-D	847	00000	-29.27399	26.73816
56	BOTSHABELO-E	212	00000	-29.25456	26.7207
57	BOTSHABELO-C	2006	00000	-29.24384	26.71815
58	BOTSHABELO-C	1595	00000	-29.24402	26.72474
59	BOTSHABELO-C	2004	00000	-29.2425	26.71791
60	BOTSHABELO-C	1576	00000	-29.24246	26.72541
61	BOTSHABELO-D	1126	00000	-29.27762	26.73925
62	BOTSHABELO-C	354	00000	-29.24765	26.71514
63	BOTSHABELO-E	1194	00000	-29.26606	26.72827
64	BOTSHABELO-B	211	00000	-29.2488	26.73548
65	BOTSHABELO-A	629	00000	-29.25441	26.73988
66	BOTSHABELO-E	1196	00000	-29.26635	26.72851
67	BOTSHABELO-E	1216	00000	-29.26736	26.72721
68	BOTSHABELO-A	1056	00000	-29.25808	26.74026
69	BOTSHABELO-C	361	00000	-29.24876	26.71518
70	BOTSHABELO-B	451	00000	-29.25152	26.72901
71	BOTSHABELO-E	777	00000	-29.2629	26.72124
72	BOTSHABELO-J	512	00000	-29.22006	26.68631
73	BOTSHABELO-B	683	00000	-29.25587	26.72793
74	BOTSHABELO-C	171	00000	-29.24614	26.71398
75	BOTSHABELO-B	280	00000	-29.25036	26.73763
76	BOTSHABELO-A	1502	00000	-29.2614	26.73079
77	BOTSHABELO-A	1499	00000	-29.26141	26.73125
78	BOTSHABELO-B	27	00000	-29.24604	26.73123
79	BOTSHABELO-A	1562	00000	-29.26276	26.73107
80	BOTSHABELO-A	711	00000	-29.25446	26.73911
81	BOTSHABELO-A	1142	00000	-29.26402	26.73627
82	BOTSHABELO-A	869	00000	-29.25725	26.74456
83	BOTSHABELO-A	881	00000	-29.25877	26.74403
84	BOTSHABELO-L	383	00000	-29.26875	26.73024
85	BOTSHABELO-A	689	00000	-29.25399	26.73926
86	BOTSHABELO-D	570	00000	-29.26991	26.7395
87	BOTSHABELO-C	188	00000	-29.24618	26.71367
88	BOTSHABELO-D	2146	00000	-29.28355	26.7336
89	BOTSHABELO-C	65	00000	-29.24494	26.71339
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96	BOTSHABELO-D	1855	00000	-29.28409	26.73194
97	BOTSHABELO-D	152	00000	-29.27118	26.73491
98	BOTSHABELO-C	2153	00000	-29.23958	26.7051
99	BOTSHABELO-C	1332	00000	-29.24021	26.72187
100	BOTSHABELO-B	567	00000	-29.25405	26.72833
101	BOTSHABELO-E	393	00000	-29.25595	26.72239
102	BOTSHABELO-C	2174	00000	-29.24046	26.70491
103	BOTSHABELO-E	409	00000	-29.25659	26.72088
104	BOTSHABELO-C	503	00000	-29.24559	26.72252
105	BOTSHABELO-C	922	00000	-29.24479	26.72744
106	BOTSHABELO-A	1078	00000	-29.25908	26.74303
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108	BOTSHABELO-D	487	00000	-29.26953	26.73717
109	BOTSHABELO-A	718	00000	-29.25321	26.7391
110	BOTSHABELO-A	731	00000	-29.25279	26.7407
111	BOTSHABELO-A	1163	00000	-29.26328	26.73763
112	BOTSHABELO-A	1320	00000	-29.26149	26.73942
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122	BOTSHABELO-C	508	00000	-29.24626	26.72263
123	BOTSHABELO-B	578	00000	-29.25312	26.72633
124	BOTSHABELO-A	1102	00000	-29.26117	26.74063
125	BOTSHABELO-A	1532	00000	-29.26208	26.73078
126	BOTSHABELO-A	907	00000	-29.25629	26.74544
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131	BOTSHABELO-C	237	00000	-29.24606	26.7124
132	BOTSHABELO-E	1085	00000	-29.26285	26.72835
133	BOTSHABELO-E	589	00000	-29.25822	26.71605
134	BOTSHABELO-D	598	00000	-29.26993	26.74104
135	BOTSHABELO-E	609	00000	-29.25889	26.71674
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139	BOTSHABELO-A	2228	00000	-29.26531	26.74199
140	BOTSHABELO-C	238	00000	-29.2462	26.71243
141	BOTSHABELO-C	107	00000	-29.24509	26.71536
142	BOTSHABELO-E	1388	00000	-29.26556	26.72882
143	BOTSHABELO-B	614	00000	-29.25479	26.72898
144	BOTSHABELO-C	1933	00000	-29.24275	26.71498
145	BOTSHABELO-C	1952	00000	-29.24252	26.71464
146	BOTSHABELO-B	755	00000	-29.25097	26.72703
147	BOTSHABELO-A	1889	00000	-29.26493	26.73515
148	BOTSHABELO-B	337	00000	-29.25064	26.73371
149	BOTSHABELO-C	271	00000	-29.2494	26.7177
150	BOTSHABELO-E	164	00000	-29.25413	26.71937



151	BOTSHABELO-E	619	00000	-29.25953	26.71645
152	BOTSHABELO-D	1908	00000	-29.28051	26.73883
153	BOTSHABELO-D	1920	00000	-29.2807	26.73705
154	BOTSHABELO-A	1603	00000	-29.26349	26.73405
155	BOTSHABELO-A	1177	00000	-29.26356	26.73778
156	BOTSHABELO-A	60	00000	-29.2557	26.73343
157	BOTSHABELO-A	63	00000	-29.25555	26.73386
158	BOTSHABELO-C	91	00000	-29.24639	26.71635
159	BOTSHABELO-C	1793	00000	-29.24477	26.72433
160	BOTSHABELO-B	604	00000	-29.2548	26.73018
161	BOTSHABELO-B	616	00000	-29.25479	26.72857
162	BOTSHABELO-C	1107	00000	-29.23985	26.71455
163	BOTSHABELO-C	683	00000	-29.24818	26.71983
164	BOTSHABELO-C	1128	00000	-29.23957	26.71741
165	BOTSHABELO-A	1907	00000	-29.26573	26.73436
166	BOTSHABELO-A	1021	00000	-29.25859	26.74118
167	BOTSHABELO-B	780	00000	-29.25087	26.72783
168	BOTSHABELO-B	77	00000	-29.24904	26.72592
169	BOTSHABELO-A	1622	00000	-29.26054	26.73541
170	BOTSHABELO-A	1196	00000	-29.26281	26.73977
171	BOTSHABELO-A	330	00000	-29.25775	26.73259
172	BOTSHABELO-A	933	00000	-29.25997	26.74362
173	BOTSHABELO-D	1067	00000	-29.2766	26.73673
174	BOTSHABELO-C	532	00000	-29.24528	26.72138
175	BOTSHABELO-C	1536	00000	-29.24021	26.72015
176	BOTSHABELO-C	977	00000	-29.23813	26.71404
177	BOTSHABELO-B	167	00000	-29.24824	26.73431
178	BOTSHABELO-A	1704	00000	-29.26254	26.73413
179	BOTSHABELO-C	873	00000	-29.24394	26.72892
180	BOTSHABELO-A	2070	00000	-29.26622	26.73157
181	BOTSHABELO-A	505	00000	-29.25505	26.73797
182	BOTSHABELO-A	1629	00000	-29.26081	26.7354
183	BOTSHABELO-A	943	00000	-29.2602	26.74266
184	BOTSHABELO-A	92	00000	-29.25642	26.73428
185	BOTSHABELO-D	1077	00000	-29.27764	26.73753
186	BOTSHABELO-B	797	00000	-29.24992	26.72864
187	BOTSHABELO-E	694	00000	-29.26076	26.71732
188	BOTSHABELO-C	997	00000	-29.23863	26.71386
189	BOTSHABELO-D	1523	00000	-29.27834	26.73324
190	BOTSHABELO-C	2395	00000	-29.24173	26.70536
191	BOTSHABELO-A	590	00000	-29.2561	26.74376
192	BOTSHABELO-A	595	00000	-29.25554	26.74344
193	BOTSHABELO-A	1288	00000	-29.26116	26.73631
194	BOTSHABELO-A	2094	00000	-29.26621	26.7308
195	BOTSHABELO-A	360	00000	-29.25365	26.7376
196	BOTSHABELO-A	1829	00000	-29.26579	26.73784
197	BOTSHABELO-A	513	00000	-29.25548	26.73681
198	BOTSHABELO-A	84	00000	-29.25591	26.73487
199	BOTSHABELO-B	113	00000	-29.24711	26.72918
200	BOTSHABELO-D	400	00000	-29.27241	26.74052
201	BOTSHABELO-B	380	00000	-29.2496	26.73295
202	BOTSHABELO-C	2403	00000	-29.24157	26.7068
203	BOTSHABELO-D	1943	00000	-29.28036	26.73553
204	BOTSHABELO-C	1998	00000	-29.2427	26.7189
205	BOTSHABELO-D	1517	00000	-29.27803	26.73108
206	BOTSHABELO-D	668	00000	-29.27297	26.73621
207	BOTSHABELO-D	1092	00000	-29.27847	26.73878
208	BOTSHABELO-A	1450	00000	-29.26047	26.73128
209	BOTSHABELO-B	174	00000	-29.24837	26.73273
210	BOTSHABELO-B	182	00000	-29.2485	26.73092

211	BOTSHABELO-A	2105	00000	-29.2662	26.73049
212	BOTSHABELO-A	1212	00000	-29.26246	26.74051
213	BOTSHABELO-A	1653	00000	-29.26122	26.73555
214	BOTSHABELO-A	1227	00000	-29.2626	26.73719
215	BOTSHABELO-D	404	00000	-29.27301	26.7405
216	BOTSHABELO-C	2414	00000	-29.24038	26.70753
217	BOTSHABELO-C	2270	00000	-29.24037	26.70722
218	BOTSHABELO-B	821	00000	-29.25041	26.72894
219	BOTSHABELO-B	400	00000	-29.25341	26.73212
220	BOTSHABELO-A	808	00000	-29.25689	26.74224
221	BOTSHABELO-A	1841	00000	-29.2666	26.73749
222	BOTSHABELO-A	1388	00000	-29.26077	26.73811
223	BOTSHABELO-A	538	00000	-29.25284	26.74303
224	BOTSHABELO-A	1248	00000	-29.26155	26.73997
225	BOTSHABELO-C	323	00000	-29.24753	26.71609
226	BOTSHABELO-C	332	00000	-29.2488	26.71597
227	BOTSHABELO-B	829	00000	-29.24901	26.72949
228	BOTSHABELO-D	259	00000	-29.27292	26.73198
229	BOTSHABELO-E	718	00000	-29.26132	26.71876
230	BOTSHABELO-C	1026	00000	-29.23849	26.71504
231	BOTSHABELO-D	418	00000	-29.27119	26.74024
232	BOTSHABELO-A	1936	00000	-29.26639	26.73512
233	BOTSHABELO-A	2192	00000	-29.26381	26.74043
234	BOTSHABELO-A	1035	00000	-29.25873	26.74065
235	BOTSHABELO-A	169	00000	-29.25799	26.73354
236	BOTSHABELO-A	1240	00000	-29.26238	26.73918
237	BOTSHABELO-A	803	00000	-29.25385	26.74172
238	BOTSHABELO-A	385	00000	-29.25451	26.73667
239	BOTSHABELO-C	2299	00000	-29.24014	26.70778
240	BOTSHABELO-B	843	00000	-29.25105	26.73069
241	BOTSHABELO-E	715	00000	-29.26136	26.71828
242	BOTSHABELO-D	1561	00000	-29.27934	26.73311
243	BOTSHABELO-D	1991	00000	-29.28085	26.73492
244	BOTSHABELO-A	1471	00000	-29.26073	26.73065
245	BOTSHABELO-A	2285	00000	-29.26539	26.73838
246	BOTSHABELO-A	1942	00000	-29.26653	26.73543
247	BOTSHABELO-A	976	00000	-29.26039	26.74148
248	BOTSHABELO-A	124	00000	-29.25725	26.73401
249	BOTSHABELO-A	838	00000	-29.25773	26.74261
250	BOTSHABELO-C	631	00000	-29.2487	26.72116
251	BOTSHABELO-D	863	00000	-29.27532	26.73965
252	BOTSHABELO-D	2005	00000	-29.28162	26.73569
253	BOTSHABELO-D	428	00000	-29.27254	26.73975
254	BOTSHABELO-D	6	00000	-29.27276	26.73072
255	BOTSHABELO-C	2019	00000	-29.24441	26.71362
256	BOTSHABELO-C	1600	00000	-29.24336	26.72489
257	BOTSHABELO-C	1612	00000	-29.24178	26.72487
258	BOTSHABELO-C	774	00000	-29.24577	26.72487
259	BOTSHABELO-A	2372	00000	-29.26646	26.74115
260	BOTSHABELO-B	190	00000	-29.24892	26.73728
261	BOTSHABELO-A	1483	00000	-29.26115	26.73172
262	BOTSHABELO-A	2294	00000	-29.26481	26.7398
263	BOTSHABELO-A	2164	00000	-29.26752	26.73618
264	BOTSHABELO-A	2134	00000	-29.26551	26.72974
265	BOTSHABELO-B	147	00000	-29.24578	26.72943
266	BOTSHABELO-A	2160	00000	-29.26751	26.73527
267	BOTSHABELO-A	1271	00000	-29.26288	26.73795
268	BOTSHABELO-A	830	00000	-29.2578	26.74294
269	BOTSHABELO-E	253	00000	-29.2555	26.71943
270	BOTSHABELO-D	1743	00000	-29.28177	26.72998



271	BOTSHABELO-D	1155	00000	-29.27887	26.73965
272	BOTSHABELO-D	1468	00000	-29.27728	26.72963
273	BOTSHABELO-C	1890	00000	-29.24271	26.71311
274	BOTSHABELO-A	2387	00000	-29.26683	26.73929
275	BOTSHABELO-A	619	00000	-29.25675	26.74324
276	BOTSHABELO-B	144	00000	-29.24607	26.72975
277	BOTSHABELO-A	991	00000	-29.25939	26.74203
278	BOTSHABELO-A	1837	00000	-29.26695	26.73779
279	BOTSHABELO-C	792	00000	-29.24704	26.7247
280	BOTSHABELO-C	365	00000	-29.24929	26.71527
281	BOTSHABELO-D	872	00000	-29.27556	26.73901
282	BOTSHABELO-D	1431	00000	-29.27632	26.72984
283	BOTSHABELO-D	453	00000	-29.27011	26.73573
284	BOTSHABELO-C	1617	00000	-29.24248	26.72462
285	BOTSHABELO-A	1965	00000	-29.26563	26.73359
286	BOTSHABELO-A	1067	00000	-29.25812	26.74173
287	BOTSHABELO-A	2303	00000	-29.26483	26.74119
288	BOTSHABELO-A	997	00000	-29.25933	26.74148
289	BOTSHABELO-A	281	00000	-29.25788	26.73064
290	BOTSHABELO-A	2212	00000	-29.26409	26.74122
291	BOTSHABELO-A	1309	00000	-29.26153	26.73899
292	BOTSHABELO-D	1339	00000	-29.27459	26.7304
293	BOTSHABELO-R	1150	00000	-29.28066	26.68827
294	BOTSHABELO-R	1584	00000	-29.27876	26.67876
295	BOTSHABELO-N	2523	00000	-29.28743	26.71638
296	BOTSHABELO-M	2105	00000	-29.28715	26.71811
297	BOTSHABELO-N	822	00000	-29.27761	26.70815
298	BOTSHABELO-M	410	00000	-29.28373	26.72954
299	BOTSHABELO-R	2440	00000	-29.27699	26.67621
300	BOTSHABELO-R	2445	00000	-29.27687	26.67681
301	BOTSHABELO-R	1575	00000	-29.27855	26.67828
302	BOTSHABELO-R	2008	00000	-29.28061	26.67249
303	BOTSHABELO-N	2959	00000	-29.29838	26.70659
304	BOTSHABELO-S	613	00000	-29.27717	26.68909
305	BOTSHABELO-L	4	00000	-29.26827	26.7272
306	BOTSHABELO-L	1566	00000	-29.26813	26.72043
307	BOTSHABELO-L	1120	00000	-29.27254	26.72994
308	BOTSHABELO-L	1133	00000	-29.2689	26.72394
309	BOTSHABELO-J	1787	00000	-29.22209	26.69185
310	BOTSHABELO-M	1880	00000	-29.28164	26.71319
311	BOTSHABELO-M	1893	00000	-29.28307	26.71331
312	BOTSHABELO-K	1308	00000	-29.20738	26.6783
313	BOTSHABELO-H	2963	00000	-29.21713	26.71563
314	BOTSHABELO-H	2106	00000	-29.20942	26.72229
315	BOTSHABELO-H	2524	00000	-29.21181	26.71588
316	BOTSHABELO-H	1679	00000	-29.21786	26.7295
317	BOTSHABELO-L	994	00000	-29.27583	26.72658
318	BOTSHABELO-M	2248	00000	-29.28669	26.72367
319	BOTSHABELO-M	2259	00000	-29.28633	26.72247
320	BOTSHABELO-K	2779	00000	-29.2128	26.68593
321	BOTSHABELO-M	944	00000	-29.28713	26.73399
322	BOTSHABELO-M	519	00000	-29.28436	26.72788
323	BOTSHABELO-H	2948	00000	-29.21667	26.7167
324	BOTSHABELO-F	1633	00000	-29.21356	26.66907
325	BOTSHABELO-K	447	00000	-29.2089	26.67346
326	BOTSHABELO-J	1169	00000	-29.22229	26.68624
327	BOTSHABELO-H	2164	00000	-29.21096	26.72688
328	BOTSHABELO-H	1287	00000	-29.21072	26.73207
329	BOTSHABELO-F	2486	00000	-29.2189	26.67895
330	BOTSHABELO-H	3132	00000	-29.21678	26.71278

331	BOTSHABELO-J	186	00000	-29.21795	26.68524
332	BOTSHABELO-H	2718	00000	-29.21692	26.71781
333	BOTSHABELO-G	892	00000	-29.21769	26.72105
334	BOTSHABELO-H	1438	00000	-29.20992	26.7317
335	BOTSHABELO-H	1872	00000	-29.21176	26.72341
336	BOTSHABELO-H	1018	00000	-29.20585	26.72578
337	BOTSHABELO-K	582	00000	-29.20827	26.66835
338	BOTSHABELO-J	2125	00000	-29.22592	26.69597
339	BOTSHABELO-F	1364	00000	-29.21622	26.67655
340	BOTSHABELO-F	204	00000	-29.21916	26.67592
341	BOTSHABELO-E	1589	00000	-29.26184	26.72456
342	BOTSHABELO-F	3355	00000	-29.22801	26.67932
343	BOTSHABELO-F	1329	00000	-29.21616	26.67475
344	BOTSHABELO-F	2921	00000	-29.22312	26.67658
345	BOTSHABELO-J	2097	00000	-29.22508	26.69695
346	BOTSHABELO-F	3748	00000	-29.20697	26.66552
347	BOTSHABELO-F	3614	00000	-29.22893	26.67458
348	BOTSHABELO-G	5	00000	-29.22462	26.7156
349	BOTSHABELO-F	2786	00000	-29.22602	26.67856
350	BOTSHABELO-G	22	00000	-29.22435	26.71713
351	BOTSHABELO-H	422	00038	-29.2081	26.71088
352	BOTSHABELO-H	29	00000	-29.20519	26.71734
353	BOTSHABELO-G	593	00000	-29.22311	26.7119
354	BOTSHABELO-H	653	00000	-29.20842	26.70756
355	BOTSHABELO-G	144	00000	-29.2247	26.72245
356	BOTSHABELO-G	843	00000	-29.21955	26.72335
357	BOTSHABELO-E	840	00000	-29.25875	26.72623
358	BOTSHABELO-D	956	00000	-29.2767	26.73993
359	BOTSHABELO-D	93	00000	-29.26928	26.73452
360	BOTSHABELO-D	929	00000	-29.27701	26.73959
361	BOTSHABELO-E	305	00000	-29.25732	26.7229
362	BOTSHABELO-N	2545	00000	-29.29195	26.7124
363	BOTSHABELO-N	2115	00000	-29.28945	26.7106
364	BOTSHABELO-M	2113	00000	-29.28836	26.71815
365	BOTSHABELO-N	841	00000	-29.27763	26.7086
366	BOTSHABELO-M	1704	00000	-29.27934	26.71591
367	BOTSHABELO-M	1274	00000	-29.28446	26.7312
368	BOTSHABELO-M	842	00000	-29.28873	26.7343
369	BOTSHABELO-R	2456	00000	-29.27737	26.67807
370	BOTSHABELO-R	31	00000	-29.27481	26.67277
371	BOTSHABELO-R	2286	00000	-29.28272	26.67667
372	BOTSHABELO-L	1571	00000	-29.26786	26.7208
373	BOTSHABELO-J	2216	00000	-29.22629	26.69877
374	BOTSHABELO-H	1536	00000	-29.21439	26.73001
375	BOTSHABELO-L	1871	00000	-29.275	26.72223
376	BOTSHABELO-L	1446	00000	-29.26902	26.71991
377	BOTSHABELO-M	2240	00000	-29.28627	26.72279
378	BOTSHABELO-L	167	00000	-29.26795	26.72593
379	BOTSHABELO-K	1969	00000	-29.20978	26.69197
380	BOTSHABELO-M	940	00000	-29.28732	26.73444
381	BOTSHABELO-J	30	00000	-29.21463	26.68507
382	BOTSHABELO-H	2977	00000	-29.21554	26.71428
383	BOTSHABELO-M	99	00000	-29.28077	26.72246
384	BOTSHABELO-M	2393	00000	-29.28926	26.72528
385	BOTSHABELO-J	2259	00000	-29.22722	26.69752
386	BOTSHABELO-M	2814	00000	-29.29259	26.72473
387	BOTSHABELO-J	1412	00000	-29.22461	26.68596
388	BOTSHABELO-J	747	00000	-29.21937	26.68926
389	BOTSHABELO-H	1300	00000	-29.2126	26.73131
390	BOTSHABELO-J	751	00000	-29.21935	26.68864

391	BOTSHABELO-IA	91	00000	-29.2086	26.70603
392	BOTSHABELO-J	1692	00000	-29.22209	26.68834
393	BOTSHABELO-J	402	00000	-29.21918	26.68451
394	BOTSHABELO-G	502	00000	-29.22191	26.7093
395	BOTSHABELO-G	896	00000	-29.21743	26.72126
396	BOTSHABELO-H	1881	00000	-29.21191	26.72296
397	BOTSHABELO-G	77	00000	-29.22624	26.72114
398	BOTSHABELO-F	4365	00000	-29.2157	26.66154
399	BOTSHABELO-J	1474	00000	-29.22696	26.68472
400	BOTSHABELO-J	1890	00000	-29.22397	26.69702
401	BOTSHABELO-J	1065	00000	-29.22088	26.6902
402	BOTSHABELO-J	206	00000	-29.21698	26.68417
403	BOTSHABELO-E	2027	00000	-29.26538	26.71878
404	BOTSHABELO-F	3369	00000	-29.22894	26.678
405	BOTSHABELO-E	2006	00000	-29.26405	26.71919
406	BOTSHABELO-F	2083	00000	-29.22282	26.67277
407	BOTSHABELO-E	1569	00000	-29.26329	26.72193
408	BOTSHABELO-F	3576	00000	-29.22884	26.67567
409	BOTSHABELO-G	16	00000	-29.22373	26.71804
410	BOTSHABELO-F	3206	00000	-29.22579	26.67192
411	BOTSHABELO-C	152	00000	-29.24689	26.71457
412	BOTSHABELO-F	1882	00000	-29.21509	26.67503
413	BOTSHABELO-E	2123	00000	-29.2673	26.72133
414	BOTSHABELO-G	979	00000	-29.22182	26.72683
415	BOTSHABELO-H	660	00000	-29.2109	26.7091
416	BOTSHABELO-F	4057	00000	-29.21256	26.66418
417	BOTSHABELO-D	939	00000	-29.27708	26.73904
418	BOTSHABELO-L	2385	00000	-29.27217	26.71965
419	BOTSHABELO-L	829	00000	-29.27381	26.72516
420	BOTSHABELO-M	2125	00000	-29.2887	26.7187
421	BOTSHABELO-N	204	00000	-29.27861	26.70404
422	BOTSHABELO-M	1283	00000	-29.28471	26.7304
423	BOTSHABELO-M	1711	00000	-29.28008	26.71557
424	BOTSHABELO-M	860	00000	-29.28739	26.7326
425	BOTSHABELO-R	44	00000	-29.27514	26.672
426	BOTSHABELO-R	2035	00000	-29.28033	26.67333
427	BOTSHABELO-K	2426	00000	-29.21309	26.69578
428	BOTSHABELO-K	2002	00000	-29.2109	26.68936
429	BOTSHABELO-N	964	00000	-29.27912	26.7107
430	BOTSHABELO-R	2303	00000	-29.28367	26.67682
431	BOTSHABELO-R	1839	00000	-29.28257	26.68114
432	BOTSHABELO-N	950	00000	-29.27956	26.70926
433	BOTSHABELO-K	2218	00000	-29.21197	26.69669
434	BOTSHABELO-M	2368	00000	-29.28743	26.72379
435	BOTSHABELO-J	2225	00000	-29.22671	26.69747
436	BOTSHABELO-M	2352	00000	-29.28681	26.72498
437	BOTSHABELO-J	527	00000	-29.2163	26.69004
438	BOTSHABELO-H	881	00000	-29.2045	26.72304
439	BOTSHABELO-L	1010	00000	-29.27702	26.72676
440	BOTSHABELO-K	2109	00000	-29.20881	26.69749
441	BOTSHABELO-L	154	00000	-29.26823	26.72653
442	BOTSHABELO-K	2803	00000	-29.21298	26.68673
443	BOTSHABELO-M	528	00000	-29.28481	26.72846
444	BOTSHABELO-M	539	00000	-29.28429	26.72723
445	BOTSHABELO-H	2549	00000	-29.21229	26.71674
446	BOTSHABELO-L	2321	00000	-29.27811	26.71815
447	BOTSHABELO-L	1894	00000	-29.2763	26.72377
448	BOTSHABELO-J	1843	00000	-29.22246	26.69322
449	BOTSHABELO-M	2398	00000	-29.28912	26.7259
450	BOTSHABELO-M	1940	00000	-29.28465	26.71524

451	BOTSHABELO-J	2272	00000	-29.22753	26.6976
452	BOTSHABELO-J	1603	00000	-29.22664	26.6847
453	BOTSHABELO-J	1608	00000	-29.22654	26.68394
454	BOTSHABELO-J	759	00000	-29.2193	26.68741
455	BOTSHABELO-J	324	00000	-29.21691	26.6827
456	BOTSHABELO-F	17	00000	-29.21879	26.66683
457	BOTSHABELO-J	629	00000	-29.21597	26.68749
458	BOTSHABELO-H	2730	00000	-29.21631	26.71782
459	BOTSHABELO-H	1887	00000	-29.21282	26.7232
460	BOTSHABELO-F	4378	00000	-29.21524	26.66259
461	BOTSHABELO-H	1461	00000	-29.21358	26.7329
462	BOTSHABELO-H	1470	00000	-29.21287	26.73178
463	BOTSHABELO-J	2562	00000	-29.22397	26.69909
464	BOTSHABELO-K	145	00000	-29.20577	26.66932
465	BOTSHABELO-K	153	00000	-29.2061	26.66987
466	BOTSHABELO-H	908	00000	-29.20661	26.72389
467	BOTSHABELO-F	2970	00000	-29.2236	26.67596
468	BOTSHABELO-E	1601	00000	-29.26229	26.7232
469	BOTSHABELO-F	2097	00000	-29.22326	26.67232
470	BOTSHABELO-F	1151	00000	-29.21808	26.67374
471	BOTSHABELO-G	411	00000	-29.21908	26.70844
472	BOTSHABELO-G	482	00000	-29.22094	26.70812
473	BOTSHABELO-F	3215	00000	-29.22641	26.67263
474	BOTSHABELO-H	830	00000	-29.20748	26.709
475	BOTSHABELO-F	1870	00000	-29.2149	26.67348
476	BOTSHABELO-E	1453	00000	-29.2647	26.72427
477	BOTSHABELO-G	997	00000	-29.22108	26.72711
478	BOTSHABELO-G	600	00000	-29.2227	26.71276
479	BOTSHABELO-E	1713	00000	-29.25327	26.71266
480	BOTSHABELO-G	620	00000	-29.22178	26.71464
481	BOTSHABELO-F	4080	00000	-29.21095	26.66459
482	BOTSHABELO-G	469	00000	-29.22	26.70989
483	BOTSHABELO-G	474	00000	-29.21928	26.71053
484	BOTSHABELO-D	806	00000	-29.275	26.73577
485	BOTSHABELO-D	2082	00000	-29.28321	26.73636
486	BOTSHABELO-L	845	00000	-29.27379	26.72758
487	BOTSHABELO-N	1286	00000	-29.27726	26.7137
488	BOTSHABELO-N	226	00000	-29.27784	26.70601
489	BOTSHABELO-M	851	00000	-29.28827	26.73312
490	BOTSHABELO-S	816	00000	-29.27711	26.69244
491	BOTSHABELO-M	1291	00000	-29.28552	26.72996
492	BOTSHABELO-R	480	00000	-29.27036	26.68203
493	BOTSHABELO-N	2970	00000	-29.29801	26.7069
494	BOTSHABELO-N	2973	00000	-29.29806	26.70731
495	BOTSHABELO-N	2983	00000	-29.29847	26.70716
496	BOTSHABELO-N	2546	00000	-29.29208	26.7124
497	BOTSHABELO-N	2554	00000	-29.29316	26.71239
498	BOTSHABELO-N	1715	00000	-29.28479	26.70912
499	BOTSHABELO-M	2595	00000	-29.29272	26.72562
500	BOTSHABELO-R	1443	00000	-29.27728	26.68623
501	BOTSHABELO-N	1396	00000	-29.28261	26.70844
502	BOTSHABELO-R	993	00000	-29.281	26.68425
503	BOTSHABELO-L	1592	00000	-29.2682	26.71829
504	BOTSHABELO-M	2786	00000	-29.29325	26.72434
505	BOTSHABELO-J	1806	00000	-29.22068	26.69289
506	BOTSHABELO-M	1903	00000	-29.28438	26.71445
507	BOTSHABELO-K	890	00000	-29.21125	26.67171
508	BOTSHABELO-H	2852	00000	-29.21532	26.71591
509	BOTSHABELO-M	2685	00000	-29.29008	26.72397
510	BOTSHABELO-M	2266	00000	-29.28677	26.72276

511	BOTSHABELO-M	1389	00000	-29.29156	26.72777
512	BOTSHABELO-M	1394	00000	-29.29192	26.72789
513	BOTSHABELO-M	960	00000	-29.28692	26.73397
514	BOTSHABELO-J	37	00000	-29.21497	26.68608
515	BOTSHABELO-J	467	00000	-29.22052	26.68533
516	BOTSHABELO-L	1462	00000	-29.26875	26.71992
517	BOTSHABELO-H	2568	00000	-29.21253	26.71645
518	BOTSHABELO-M	2410	00000	-29.28746	26.72532
519	BOTSHABELO-J	2284	00000	-29.22794	26.6966
520	BOTSHABELO-L	2172	00000	-29.27642	26.71991
521	BOTSHABELO-L	1313	00000	-29.26815	26.72157
522	BOTSHABELO-G	1118	00000	-29.22434	26.71061
523	BOTSHABELO-J	854	00000	-29.22082	26.6885
524	BOTSHABELO-G	528	00000	-29.22177	26.71269
525	BOTSHABELO-F	4374	00000	-29.21564	26.66282
526	BOTSHABELO-K	784	00000	-29.21029	26.66884
527	BOTSHABELO-J	2751	00000	-29.22587	26.70265
528	BOTSHABELO-J	2759	00000	-29.22634	26.70188
529	BOTSHABELO-J	1485	00000	-29.22693	26.6857
530	BOTSHABELO-J	1077	00000	-29.22051	26.69129
531	BOTSHABELO-J	219	00000	-29.21644	26.6831
532	BOTSHABELO-H	1343	00000	-29.21332	26.72886
533	BOTSHABELO-F	2113	00000	-29.22215	26.67438
534	BOTSHABELO-H	559	00000	-29.20974	26.70939
535	BOTSHABELO-D	1263	00000	-29.27843	26.73482
536	BOTSHABELO-D	1272	00000	-29.27673	26.73354
537	BOTSHABELO-H	181	00000	-29.20802	26.71688
538	BOTSHABELO-D	757	00000	-29.2748	26.73486
539	BOTSHABELO-C	1652	00000	-29.24135	26.72416
540	BOTSHABELO-C	596	00000	-29.24856	26.72223
541	BOTSHABELO-F	2384	00000	-29.2226	26.6812
542	BOTSHABELO-H	838	00000	-29.20735	26.70954
543	BOTSHABELO-E	2144	00000	-29.26738	26.72395
544	BOTSHABELO-G	609	00000	-29.22187	26.71322
545	BOTSHABELO-H	687	00000	-29.20556	26.71
546	BOTSHABELO-G	168	00000	-29.22675	26.72145
547	BOTSHABELO-F	4069	00000	-29.21092	26.66499
548	BOTSHABELO-C	1037	00000	-29.23829	26.71675
549	BOTSHABELO-D	1686	00000	-29.28193	26.73109
550	BOTSHABELO-C	2431	00000	-29.2431	26.70492
551	BOTSHABELO-C	727	00000	-29.24844	26.72422
552	BOTSHABELO-L	889	00000	-29.27417	26.72492
553	BOTSHABELO-N	863	00000	-29.27794	26.70905
554	BOTSHABELO-S	811	00000	-29.27659	26.69232
555	BOTSHABELO-R	2060	00000	-29.27807	26.67455
556	BOTSHABELO-L	238	00000	-29.2711	26.73024
557	BOTSHABELO-M	2602	00000	-29.29199	26.7254
558	BOTSHABELO-M	1725	00000	-29.28002	26.71808
559	BOTSHABELO-L	2041	00000	-29.27339	26.72075
560	BOTSHABELO-L	1185	00000	-29.26971	26.72314
561	BOTSHABELO-M	2371	00000	-29.28777	26.72391
562	BOTSHABELO-M	1830	00000	-29.28084	26.71418
563	BOTSHABELO-M	981	00000	-29.28691	26.73466
564	BOTSHABELO-J	889	00000	-29.21766	26.69159
565	BOTSHABELO-J	464	00000	-29.22067	26.68494
566	BOTSHABELO-J	45	00000	-29.21474	26.68444
567	BOTSHABELO-L	1914	00000	-29.27678	26.722
568	BOTSHABELO-H	2563	00000	-29.21245	26.71724
569	BOTSHABELO-K	2126	00000	-29.20857	26.69751
570	BOTSHABELO-K	2555	00000	-29.21312	26.69108

571	BOTSHABELO-K	1717	00000	-29.20839	26.68949
572	BOTSHABELO-M	2702	00000	-29.29029	26.72387
573	BOTSHABELO-L	2190	00000	-29.27713	26.71981
574	BOTSHABELO-M	2853	00000	-29.29379	26.72582
575	BOTSHABELO-L	2619	00000	-29.2744	26.71828
576	BOTSHABELO-M	646	00000	-29.28267	26.72575
577	BOTSHABELO-L	2436	00000	-29.27184	26.71833
578	BOTSHABELO-L	2444	00000	-29.27476	26.71553
579	BOTSHABELO-L	450	00000	-29.26965	26.73005
580	BOTSHABELO-H	1753	00000	-29.21901	26.72951
581	BOTSHABELO-H	2176	00000	-29.20981	26.7282
582	BOTSHABELO-H	1317	00000	-29.21037	26.73134
583	BOTSHABELO-F	2677	00000	-29.22545	26.68003
584	BOTSHABELO-H	3166	00000	-29.21532	26.70996
585	BOTSHABELO-H	2329	00000	-29.21234	26.70959
586	BOTSHABELO-H	2747	00000	-29.21504	26.72005
587	BOTSHABELO-H	1904	00000	-29.21368	26.72282
588	BOTSHABELO-H	1041	00000	-29.20759	26.72338
589	BOTSHABELO-H	1049	00000	-29.2067	26.72452
590	BOTSHABELO-J	2137	00000	-29.22535	26.69772
591	BOTSHABELO-J	2155	00000	-29.22587	26.69679
592	BOTSHABELO-G	1327	00000	-29.22701	26.71607
593	BOTSHABELO-H	2429	00000	-29.21303	26.71093
594	BOTSHABELO-H	2442	00000	-29.2135	26.71134
595	BOTSHABELO-K	1357	00000	-29.20644	26.67711
596	BOTSHABELO-D	1277	00000	-29.27702	26.73427
597	BOTSHABELO-H	569	00000	-29.20961	26.71093
598	BOTSHABELO-G	1144	00000	-29.22497	26.70838
599	BOTSHABELO-D	834	00000	-29.27453	26.73905
600	BOTSHABELO-C	820	00000	-29.24602	26.72384
601	BOTSHABELO-E	489	00000	-29.25787	26.72004
602	BOTSHABELO-F	2400	00000	-29.22473	26.68109
603	BOTSHABELO-E	1730	00000	-29.25301	26.71018
604	BOTSHABELO-G	635	00000	-29.22	26.71317
605	BOTSHABELO-F	3671	00000	-29.23006	26.67534
606	BOTSHABELO-F	2825	00000	-29.22305	26.67808
607	BOTSHABELO-C	1732	00000	-29.24303	26.72075
608	BOTSHABELO-C	1708	00000	-29.2429	26.72156
609	BOTSHABELO-B	703	00000	-29.25087	26.72528
610	BOTSHABELO-M	645	00000	-29.28271	26.72586
611	BOTSHABELO-M	2157	00000	-29.28685	26.71963
612	BOTSHABELO-R	484	00000	-29.27116	26.68223
613	BOTSHABELO-R	911	00000	-29.28136	26.68278
614	BOTSHABELO-M	2171	00000	-29.28659	26.71975
615	BOTSHABELO-N	2563	00000	-29.29249	26.71219
616	BOTSHABELO-N	2999	00000	-29.29725	26.70835
617	BOTSHABELO-N	2138	00000	-29.28914	26.71025
618	BOTSHABELO-N	1729	00000	-29.28497	26.70943
619	BOTSHABELO-N	876	00000	-29.27831	26.70887
620	BOTSHABELO-N	1304	00000	-29.27722	26.7151
621	BOTSHABELO-N	236	00000	-29.27779	26.70515
622	BOTSHABELO-R	1878	00000	-29.28209	26.68174
623	BOTSHABELO-L	1717	00000	-29.27143	26.72326
624	BOTSHABELO-L	1189	00000	-29.2697	26.72264
625	BOTSHABELO-R	140	00000	-29.27491	26.67767
626	BOTSHABELO-R	143	00000	-29.27536	26.67778
627	BOTSHABELO-R	571	00000	-29.27201	26.67836
628	BOTSHABELO-L	1170	00000	-29.26997	26.72263
629	BOTSHABELO-L	302	00000	-29.27099	26.73196
630	BOTSHABELO-J	974	00000	-29.21936	26.69266



631	BOTSHABELO-M	2727	00000	-29.29058	26.72344
632	BOTSHABELO-M	1842	00000	-29.27986	26.71416
633	BOTSHABELO-J	1336	00000	-29.22269	26.6847
634	BOTSHABELO-M	1407	00000	-29.29282	26.72827
635	BOTSHABELO-J	47	00000	-29.21483	26.68473
636	BOTSHABELO-M	983	00000	-29.28682	26.73444
637	BOTSHABELO-K	2560	00000	-29.21353	26.69169
638	BOTSHABELO-L	1478	00000	-29.26985	26.71872
639	BOTSHABELO-K	2998	00000	-29.21397	26.68955
640	BOTSHABELO-L	613	00000	-29.26845	26.72841
641	BOTSHABELO-L	622	00000	-29.26825	26.72767
642	BOTSHABELO-J	1317	00000	-29.22281	26.68419
643	BOTSHABELO-J	1327	00000	-29.22356	26.68447
644	BOTSHABELO-M	1962	00000	-29.28318	26.71416
645	BOTSHABELO-L	1767	00000	-29.27453	26.72218
646	BOTSHABELO-M	1110	00000	-29.28609	26.7325
647	BOTSHABELO-L	896	00000	-29.27457	26.72542
648	BOTSHABELO-L	2462	00000	-29.27316	26.71474
649	BOTSHABELO-J	775	00000	-29.21964	26.68847
650	BOTSHABELO-L	2016	00000	-29.2765	26.72164
651	BOTSHABELO-K	801	00000	-29.21272	26.67546
652	BOTSHABELO-K	806	00000	-29.2126	26.67466
653	BOTSHABELO-K	1233	00000	-29.20871	26.67859
654	BOTSHABELO-K	343	00000	-29.20584	26.67206
655	BOTSHABELO-J	2338	00000	-29.21967	26.70235
656	BOTSHABELO-J	662	00000	-29.21815	26.68829
657	BOTSHABELO-H	1914	00000	-29.21227	26.72276
658	BOTSHABELO-H	1360	00000	-29.21052	26.7305
659	BOTSHABELO-H	1570	00000	-29.21529	26.72883
660	BOTSHABELO-K	465	00000	-29.20962	26.6736
661	BOTSHABELO-G	1151	00000	-29.22537	26.70813
662	BOTSHABELO-F	4634	00000	-29.21304	26.66082
663	BOTSHABELO-E	501	00000	-29.2584	26.71875
664	BOTSHABELO-H	431	00000	-29.20939	26.71364
665	BOTSHABELO-G	1014	00000	-29.22008	26.72564
666	BOTSHABELO-G	624	00000	-29.22107	26.71336
667	BOTSHABELO-H	336	00000	-29.20973	26.71502
668	BOTSHABELO-F	4522	00000	-29.21434	26.65896
669	BOTSHABELO-G	1286	00000	-29.22707	26.71488
670	BOTSHABELO-F	93	00000	-29.22119	26.67111
671	BOTSHABELO-F	104	00000	-29.22116	26.67347
672	BOTSHABELO-E	1917	00000	-29.25915	26.71475
673	BOTSHABELO-F	1912	00000	-29.21468	26.67224
674	BOTSHABELO-H	85	00000	-29.20654	26.7176
675	BOTSHABELO-C	1304	00000	-29.24147	26.72249
676	BOTSHABELO-E	1031	00000	-29.26059	26.72856
677	BOTSHABELO-E	1040	00000	-29.25818	26.72883
678	BOTSHABELO-K	2086	00000	-29.20876	26.69626
679	BOTSHABELO-S	395	00000	-29.27425	26.68759
680	BOTSHABELO-S	400	00000	-29.27466	26.68799
681	BOTSHABELO-L	2498	00000	-29.27332	26.71393
682	BOTSHABELO-N	4	00000	-29.27892	26.70613
683	BOTSHABELO-R	1376	00000	-29.27865	26.68593
684	BOTSHABELO-L	1641	00000	-29.27009	26.71735
685	BOTSHABELO-M	2616	00000	-29.29227	26.72517
686	BOTSHABELO-M	1750	00000	-29.28071	26.71583
687	BOTSHABELO-R	929	00000	-29.28155	26.68479
688	BOTSHABELO-R	2503	00000	-29.27746	26.67618
689	BOTSHABELO-L	256	00000	-29.27159	26.73037
690	BOTSHABELO-K	2465	00000	-29.2128	26.69404



691	BOTSHABELO-K	2896	00000	-29.2125	26.68791
692	BOTSHABELO-K	2467	00000	-29.21264	26.69379
693	BOTSHABELO-R	2320	00000	-29.28242	26.67741
694	BOTSHABELO-L	1632	00000	-29.27039	26.71845
695	BOTSHABELO-L	757	00000	-29.2728	26.72732
696	BOTSHABELO-N	3492	00000	-29.29391	26.71994
697	BOTSHABELO-N	3053	00000	-29.30079	26.70675
698	BOTSHABELO-M	1502	00000	-29.29084	26.72947
699	BOTSHABELO-K	681	00000	-29.20882	26.66909
700	BOTSHABELO-J	902	00000	-29.21756	26.69064
701	BOTSHABELO-M	563	00000	-29.28508	26.72791
702	BOTSHABELO-L	2350	00000	-29.2777	26.72198
703	BOTSHABELO-K	2061	00000	-29.20998	26.69682
704	BOTSHABELO-L	645	00000	-29.268	26.7288
705	BOTSHABELO-M	995	00000	-29.28624	26.73352
706	BOTSHABELO-M	1548	00000	-29.29132	26.73068
707	BOTSHABELO-L	2200	00000	-29.27634	26.72043
708	BOTSHABELO-L	2467	00000	-29.27332	26.71449
709	BOTSHABELO-K	688	00000	-29.20936	26.66847
710	BOTSHABELO-K	2223	00000	-29.21165	26.69659
711	BOTSHABELO-J	2767	00000	-29.22575	26.70139
712	BOTSHABELO-H	1504	00000	-29.21407	26.73193
713	BOTSHABELO-H	1925	00000	-29.21377	26.72407
714	BOTSHABELO-H	1074	00000	-29.20706	26.72604
715	BOTSHABELO-J	2588	00000	-29.2231	26.70092
716	BOTSHABELO-J	2596	00000	-29.22199	26.70134
717	BOTSHABELO-J	1729	00000	-29.22251	26.68973
718	BOTSHABELO-H	384	00000	-29.20898	26.71437
719	BOTSHABELO-G	1342	00000	-29.22572	26.71616
720	BOTSHABELO-H	2337	00000	-29.2117	26.71055
721	BOTSHABELO-K	1251	00000	-29.20837	26.68076
722	BOTSHABELO-H	2868	00000	-29.21345	26.71613
723	BOTSHABELO-H	926	00000	-29.20674	26.72327
724	BOTSHABELO-H	1575	00000	-29.21538	26.72856
725	BOTSHABELO-H	928	00000	-29.20652	26.72355
726	BOTSHABELO-H	937	00000	-29.20687	26.7224
727	BOTSHABELO-K	931	00000	-29.21238	26.67533
728	BOTSHABELO-K	1571	00000	-29.21133	26.68537
729	BOTSHABELO-F	1232	00000	-29.21619	26.67391
730	BOTSHABELO-F	2270	00000	-29.22111	26.67774
731	BOTSHABELO-F	2689	00000	-29.22557	26.67978
732	BOTSHABELO-G	768	00000	-29.21695	26.72078
733	BOTSHABELO-B	500	00000	-29.25274	26.73
734	BOTSHABELO-E	1748	00000	-29.25305	26.7088
735	BOTSHABELO-H	330	00000	-29.20957	26.71526
736	BOTSHABELO-H	347	00000	-29.20821	26.71486
737	BOTSHABELO-F	4106	00000	-29.21215	26.66374
738	BOTSHABELO-G	1298	00000	-29.22641	26.71482
739	BOTSHABELO-C	1475	00000	-29.23939	26.71899
740	BOTSHABELO-E	1907	00000	-29.2566	26.71312
741	BOTSHABELO-G	642	00000	-29.22057	26.71186
742	BOTSHABELO-H	714	00000	-29.2057	26.71142
743	BOTSHABELO-F	4385	00000	-29.21536	26.66152
744	BOTSHABELO-E	88	00000	-29.25307	26.71783
745	BOTSHABELO-E	550	00000	-29.25651	26.71654
746	BOTSHABELO-N	1787	00000	-29.28498	26.71097
747	BOTSHABELO-M	284	00000	-29.2818	26.72132
748	BOTSHABELO-L	783	00000	-29.27295	26.72627
749	BOTSHABELO-N	2262	00000	-29.28687	26.71302
750	BOTSHABELO-N	92	00000	-29.27764	26.70233

751	BOTSHABELO-S	673	00000	-29.27838	26.69094
752	BOTSHABELO-R	1038	00000	-29.28166	26.6849
753	BOTSHABELO-R	1445	00000	-29.27741	26.68606
754	BOTSHABELO-R	180	00000	-29.27676	26.67879
755	BOTSHABELO-L	1204	00000	-29.26951	26.72191
756	BOTSHABELO-N	3505	00000	-29.2926	26.71927
757	BOTSHABELO-K	2519	00000	-29.2135	26.69034
758	BOTSHABELO-N	2632	00000	-29.29302	26.71116
759	BOTSHABELO-K	1809	00000	-29.20731	26.69083
760	BOTSHABELO-K	272	00000	-29.20602	26.67176
761	BOTSHABELO-M	570	00000	-29.28475	26.72713
762	BOTSHABELO-L	1939	00000	-29.27547	26.72327
763	BOTSHABELO-L	1073	00000	-29.27531	26.72638
764	BOTSHABELO-L	639	00000	-29.26801	26.72954
765	BOTSHABELO-M	1436	00000	-29.29272	26.72862
766	BOTSHABELO-J	1351	00000	-29.22391	26.68548
767	BOTSHABELO-K	2580	00000	-29.21564	26.69298
768	BOTSHABELO-H	3012	00000	-29.21532	26.71294
769	BOTSHABELO-H	1521	00000	-29.21418	26.7307
770	BOTSHABELO-K	1863	00000	-29.20739	26.69194
771	BOTSHABELO-M	2433	00000	-29.28795	26.72524
772	BOTSHABELO-M	426	00000	-29.28298	26.72768
773	BOTSHABELO-L	2204	00000	-29.27602	26.72007
774	BOTSHABELO-L	2213	00000	-29.27622	26.72058
775	BOTSHABELO-M	693	00000	-29.28288	26.72508
776	BOTSHABELO-L	481	00000	-29.27036	26.73151
777	BOTSHABELO-H	1157	00000	-29.20573	26.73005
778	BOTSHABELO-H	1169	00000	-29.20719	26.73177
779	BOTSHABELO-K	2670	00000	-29.21531	26.69341
780	BOTSHABELO-K	1151	00000	-29.20913	26.67911
781	BOTSHABELO-F	4219	00000	-29.21571	26.6634
782	BOTSHABELO-K	811	00000	-29.21251	26.6739
783	BOTSHABELO-K	821	00000	-29.21168	26.67356
784	BOTSHABELO-H	1062	00000	-29.20537	26.72678
785	BOTSHABELO-J	2795	00000	-29.22568	26.70228
786	BOTSHABELO-J	2583	00000	-29.22334	26.70016
787	BOTSHABELO-J	1526	00000	-29.22568	26.68506
788	BOTSHABELO-J	1095	00000	-29.21997	26.693
789	BOTSHABELO-J	1111	00000	-29.22237	26.68246
790	BOTSHABELO-H	3200	00000	-29.21729	26.71078
791	BOTSHABELO-H	2777	00000	-29.21591	26.71661
792	BOTSHABELO-H	1938	00000	-29.21465	26.72215
793	BOTSHABELO-H	2223	00000	-29.2111	26.72631
794	BOTSHABELO-H	1588	00000	-29.21577	26.72795
795	BOTSHABELO-H	2014	00000	-29.20826	26.72179
796	BOTSHABELO-F	2162	00000	-29.21972	26.67858
797	BOTSHABELO-K	48	00000	-29.20549	26.66879
798	BOTSHABELO-H	3024	00000	-29.21492	26.71147
799	BOTSHABELO-J	2035	00000	-29.22647	26.69427
800	BOTSHABELO-F	4652	00000	-29.2136	26.6617
801	BOTSHABELO-G	194	00000	-29.22312	26.72166
802	BOTSHABELO-G	210	00000	-29.22341	26.72251
803	BOTSHABELO-E	1930	00000	-29.25997	26.71585
804	BOTSHABELO-G	659	00000	-29.22053	26.71432
805	BOTSHABELO-H	722	00000	-29.20633	26.71059
806	BOTSHABELO-G	1301	00000	-29.22677	26.7155
807	BOTSHABELO-C	41	00000	-29.25026	26.71464
808	BOTSHABELO-C	478	00000	-29.24449	26.7199
809	BOTSHABELO-N	1802	00000	-29.28507	26.71118
810	BOTSHABELO-N	3532	00000	-29.2918	26.7178

811	BOTSHABELO-R	2356	00000	-29.28189	26.67776
812	BOTSHABELO-N	2686	00000	-29.29227	26.71052
813	BOTSHABELO-N	2698	00000	-29.29204	26.70891
814	BOTSHABELO-L	2510	00000	-29.27444	26.71472
815	BOTSHABELO-L	2521	00000	-29.27539	26.71545
816	BOTSHABELO-L	2099	00000	-29.2762	26.71782
817	BOTSHABELO-L	1243	00000	-29.26907	26.72253
818	BOTSHABELO-L	805	00000	-29.27351	26.72771
819	BOTSHABELO-L	815	00000	-29.27341	26.72644
820	BOTSHABELO-N	1163	00000	-29.27646	26.71507
821	BOTSHABELO-R	610	00000	-29.27165	26.67723
822	BOTSHABELO-N	111	00000	-29.27799	26.70316
823	BOTSHABELO-L	333	00000	-29.26805	26.73142
824	BOTSHABELO-R	1024	00000	-29.28005	26.68527
825	BOTSHABELO-N	2651	00000	-29.29132	26.70983
826	BOTSHABELO-L	338	00000	-29.26804	26.7308
827	BOTSHABELO-S	638	00000	-29.27706	26.6883
828	BOTSHABELO-J	2264	00000	-29.22746	26.69674
829	BOTSHABELO-J	2269	00000	-29.22767	26.69716
830	BOTSHABELO-J	76	00000	-29.21486	26.68322
831	BOTSHABELO-K	325	00000	-29.20697	26.672
832	BOTSHABELO-M	879	00000	-29.28825	26.73429
833	BOTSHABELO-M	154	00000	-29.28193	26.72205
834	BOTSHABELO-M	2319	00000	-29.28874	26.72622
835	BOTSHABELO-M	1431	00000	-29.2921	26.72847
836	BOTSHABELO-K	3014	00000	-29.21425	26.6909
837	BOTSHABELO-K	2592	00000	-29.21635	26.69449
838	BOTSHABELO-L	92	00000	-29.26887	26.72652
839	BOTSHABELO-K	400	00000	-29.20852	26.67169
840	BOTSHABELO-K	1523	00000	-29.21062	26.6807
841	BOTSHABELO-K	1527	00000	-29.21053	26.68036
842	BOTSHABELO-K	1158	00000	-29.20916	26.67991
843	BOTSHABELO-L	915	00000	-29.27476	26.72591
844	BOTSHABELO-K	1821	00000	-29.20852	26.69034
845	BOTSHABELO-H	2196	00000	-29.21178	26.72522
846	BOTSHABELO-H	1335	00000	-29.21222	26.73032
847	BOTSHABELO-H	1078	00000	-29.20759	26.72547
848	BOTSHABELO-J	1093	00000	-29.21998	26.69275
849	BOTSHABELO-H	417	00000	-29.20749	26.71283
850	BOTSHABELO-H	2785	00000	-29.21569	26.71791
851	BOTSHABELO-IA	135	00000	-29.20055	26.70871
852	BOTSHABELO-H	2231	00000	-29.21127	26.72559
853	BOTSHABELO-H	1369	00000	-29.21117	26.72993
854	BOTSHABELO-IA	143	00000	-29.19873	26.7035
855	BOTSHABELO-H	2018	00000	-29.20864	26.72132
856	BOTSHABELO-H	1380	00000	-29.21281	26.72866
857	BOTSHABELO-F	1829	00000	-29.21484	26.66776
858	BOTSHABELO-F	1773	00000	-29.21447	26.66815
859	BOTSHABELO-H	2179	00000	-29.20927	26.72829
860	BOTSHABELO-D	2094	00000	-29.28347	26.73484
861	BOTSHABELO-D	548	00000	-29.26935	26.73874
862	BOTSHABELO-H	364	00000	-29.20817	26.71349
863	BOTSHABELO-F	112	00000	-29.22045	26.67424
864	BOTSHABELO-E	1497	00000	-29.26438	26.72239
865	BOTSHABELO-H	448	00000	-29.20994	26.71205
866	BOTSHABELO-E	2194	00000	-29.25475	26.71376
867	BOTSHABELO-G	654	00000	-29.21981	26.71375
868	BOTSHABELO-G	663	00000	-29.22118	26.71423
869	BOTSHABELO-F	4549	00000	-29.21293	26.65839
870	BOTSHABELO-G	223	00000	-29.22404	26.72478

871	BOTSHABELO-F	4115	00000	-29.21091	26.66434
872	BOTSHABELO-F	3571	00000	-29.22853	26.67498
873	BOTSHABELO-F	4232	00000	-29.21473	26.66381
874	BOTSHABELO-F	3123	00000	-29.22748	26.67745
875	BOTSHABELO-F	2285	00000	-29.22041	26.67651
876	BOTSHABELO-R	2351	00000	-29.28169	26.67797
877	BOTSHABELO-R	2364	00000	-29.28103	26.67781
878	BOTSHABELO-R	1924	00000	-29.28184	26.68049
879	BOTSHABELO-R	206	00000	-29.27626	26.67946
880	BOTSHABELO-R	635	00000	-29.27146	26.67666
881	BOTSHABELO-N	3546	00000	-29.29208	26.71835
882	BOTSHABELO-N	3560	00000	-29.29249	26.71856
883	BOTSHABELO-N	3569	00000	-29.29274	26.71869
884	BOTSHABELO-M	1606	00000	-29.28926	26.7331
885	BOTSHABELO-M	168	00000	-29.28187	26.72151
886	BOTSHABELO-M	592	00000	-29.28289	26.72697
887	BOTSHABELO-M	312	00000	-29.28044	26.72046
888	BOTSHABELO-M	327	00000	-29.28036	26.72146
889	BOTSHABELO-L	1676	00000	-29.27113	26.71778
890	BOTSHABELO-L	2111	00000	-29.27601	26.71892
891	BOTSHABELO-K	2979	00000	-29.21183	26.68916
892	BOTSHABELO-N	2230	00000	-29.28675	26.7125
893	BOTSHABELO-M	2827	00000	-29.29332	26.72464
894	BOTSHABELO-M	2005	00000	-29.283	26.71614
895	BOTSHABELO-L	1803	00000	-29.27381	26.72182
896	BOTSHABELO-L	952	00000	-29.27657	26.72605
897	BOTSHABELO-H	1100	00000	-29.20759	26.72671
898	BOTSHABELO-H	1109	00000	-29.2079	26.72588
899	BOTSHABELO-J	2389	00000	-29.22043	26.70183
900	BOTSHABELO-J	2397	00000	-29.22051	26.70352
901	BOTSHABELO-J	2401	00000	-29.22043	26.70415
902	BOTSHABELO-M	1146	00000	-29.2858	26.73209
903	BOTSHABELO-L	1796	00000	-29.2737	26.72233
904	BOTSHABELO-L	925	00000	-29.27464	26.7243
905	BOTSHABELO-K	1596	00000	-29.21023	26.68709
906	BOTSHABELO-K	711	00000	-29.20966	26.66902
907	BOTSHABELO-H	1517	00000	-29.21415	26.73116
908	BOTSHABELO-J	699	00000	-29.21862	26.68791
909	BOTSHABELO-H	2371	00000	-29.21361	26.70977
910	BOTSHABELO-H	2380	00000	-29.21242	26.71031
911	BOTSHABELO-H	414	00000	-29.20745	26.71332
912	BOTSHABELO-J	2797	00000	-29.22577	26.70198
913	BOTSHABELO-K	1685	00000	-29.21013	26.68535
914	BOTSHABELO-K	1262	00000	-29.20817	26.67905
915	BOTSHABELO-F	1971	00000	-29.21399	26.67399
916	BOTSHABELO-H	2236	00000	-29.2135	26.7087
917	BOTSHABELO-H	485	00000	-29.21051	26.71379
918	BOTSHABELO-H	2027	00000	-29.20929	26.7201
919	BOTSHABELO-H	2249	00000	-29.21134	26.71051
920	BOTSHABELO-K	1396	00000	-29.20724	26.68121
921	BOTSHABELO-K	492	00000	-29.20977	26.67236
922	BOTSHABELO-J	2478	00000	-29.2215	26.6998
923	BOTSHABELO-J	108	00000	-29.21529	26.68387
924	BOTSHABELO-C	2535	00000	-29.2467	26.70518
925	BOTSHABELO-C	2543	00000	-29.24588	26.70611
926	BOTSHABELO-F	3275	00000	-29.22665	26.67157
927	BOTSHABELO-F	7223	00000	-29.21067	26.65659
928	BOTSHABELO-F	1933	00000	-29.2143	26.67357
929	BOTSHABELO-F	1537	00000	-29.21398	26.67175
930	BOTSHABELO-E	2187	00000	-29.25442	26.71411

931	BOTSHABELO-E	1788	00000	-29.2541	26.71049
932	BOTSHABELO-H	734	00000	-29.20596	26.71239
933	BOTSHABELO-H	743	00000	-29.20612	26.71302
934	BOTSHABELO-C	1922	00000	-29.24248	26.71385
935	BOTSHABELO-F	4679	00000	-29.21331	26.66246
936	BOTSHABELO-F	4684	00000	-29.21409	26.66245
937	BOTSHABELO-F	2303	00000	-29.22031	26.6781
938	BOTSHABELO-F	4238	00000	-29.21465	26.66477
939	BOTSHABELO-N	1598	00000	-29.28139	26.71017
940	BOTSHABELO-N	2025	00000	-29.29027	26.70966
941	BOTSHABELO-N	1172	00000	-29.27486	26.71388
942	BOTSHABELO-N	3556	00000	-29.29228	26.71859
943	BOTSHABELO-S	282	00000	-29.2723	26.68598
944	BOTSHABELO-R	1080	00000	-29.27836	26.68453
945	BOTSHABELO-L	389	00000	-29.26876	26.731
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947	BOTSHABELO-L	1684	00000	-29.27083	26.71806
948	BOTSHABELO-M	1619	00000	-29.28872	26.73229
949	BOTSHABELO-M	1194	00000	-29.28633	26.731
950	BOTSHABELO-K	2983	00000	-29.21216	26.68965
951	BOTSHABELO-S	1073	00000	-29.27091	26.69038
952	BOTSHABELO-N	3099	00000	-29.29807	26.70986
953	BOTSHABELO-K	284	00000	-29.20555	26.67262
954	BOTSHABELO-M	2872	00000	-29.29298	26.72701
955	BOTSHABELO-M	1999	00000	-29.28307	26.71536
956	BOTSHABELO-M	1594	00000	-29.2896	26.7332
957	BOTSHABELO-H	1644	00000	-29.21647	26.7279
958	BOTSHABELO-K	767	00000	-29.21015	26.669
959	BOTSHABELO-M	1319	00000	-29.28428	26.73006
960	BOTSHABELO-K	412	00000	-29.20933	26.67287
961	BOTSHABELO-J	1963	00000	-29.22803	26.69329
962	BOTSHABELO-K	1096	00000	-29.20975	26.67639
963	BOTSHABELO-J	1974	00000	-29.22827	26.69464
964	BOTSHABELO-M	1567	00000	-29.28986	26.73263
965	BOTSHABELO-J	2603	00000	-29.22069	26.7021
966	BOTSHABELO-M	1573	00000	-29.28957	26.73265
967	BOTSHABELO-H	2037	00000	-29.21028	26.72142
968	BOTSHABELO-K	717	00000	-29.21009	26.66816
969	BOTSHABELO-J	2705	00000	-29.22362	26.70272
970	BOTSHABELO-K	1842	00000	-29.20837	26.69092
971	BOTSHABELO-H	1779	00000	-29.21919	26.72828
972	BOTSHABELO-IA	148	00000	-29.1995	26.70101
973	BOTSHABELO-J	1122	00000	-29.22331	26.68241
974	BOTSHABELO-H	2888	00000	-29.21603	26.7156
975	BOTSHABELO-H	3219	00000	-29.2112	26.71812
976	BOTSHABELO-F	3477	00000	-29.22917	26.68021
977	BOTSHABELO-J	2810	00000	-29.22455	26.70301
978	BOTSHABELO-J	1387	00000	-29.22489	26.68575
979	BOTSHABELO-J	2379	00000	-29.22023	26.70339
980	BOTSHABELO-J	1549	00000	-29.22546	26.68354
981	BOTSHABELO-H	509	00000	-29.20834	26.70857
982	BOTSHABELO-H	490	00000	-29.2106	26.71277
983	BOTSHABELO-H	1391	00000	-29.21264	26.72839
984	BOTSHABELO-F	3881	00000	-29.20929	26.66433
985	BOTSHABELO-H	2631	00000	-29.21311	26.72021
986	BOTSHABELO-D	2118	00000	-29.28275	26.7349
987	BOTSHABELO-E	1525	00000	-29.26345	26.72243
988	BOTSHABELO-H	109	00000	-29.20714	26.71797
989	BOTSHABELO-G	680	00000	-29.22073	26.71298
990	BOTSHABELO-F	7238	00000	-29.21026	26.65886



991	BOTSHABELO-E	1228	00000	-29.2667	26.72906
992	BOTSHABELO-F	4003	00000	-29.21072	26.6653
993	BOTSHABELO-F	4011	00000	-29.21182	26.66507
994	BOTSHABELO-F	4248	00000	-29.21477	26.66422
995	BOTSHABELO-N	68	00000	-29.27808	26.70216
996	BOTSHABELO-N	2241	00000	-29.28719	26.71271
997	BOTSHABELO-M	341	00000	-29.28059	26.71989
998	BOTSHABELO-L	2119	00000	-29.27537	26.71964
999	BOTSHABELO-N	2033	00000	-29.29041	26.70997
1000	BOTSHABELO-N	1625	00000	-29.28206	26.71045

Development footprint<sup>1</sup> details:

No development footprint(s) specified.

Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No	EIA Reference No	Classification	Status of application	Distance from proposed area (km)
1	14/12/16/3/3/1/615	Solar PV	Approved	4
2	14/12/16/3/3/2/360	Solar PV	Approved	3.6
3	12/12/20/2514	Solar PV	Approved	0
4	14/12/16/3/3/2/391	Solar PV	Approved	5.3

Environmental Management Frameworks relevant to the application

No intersections with EMF areas found.

<sup>1</sup> "development footprint", means the area within the site on which the development will take place and includes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

## Environmental screening results and assessment outcomes

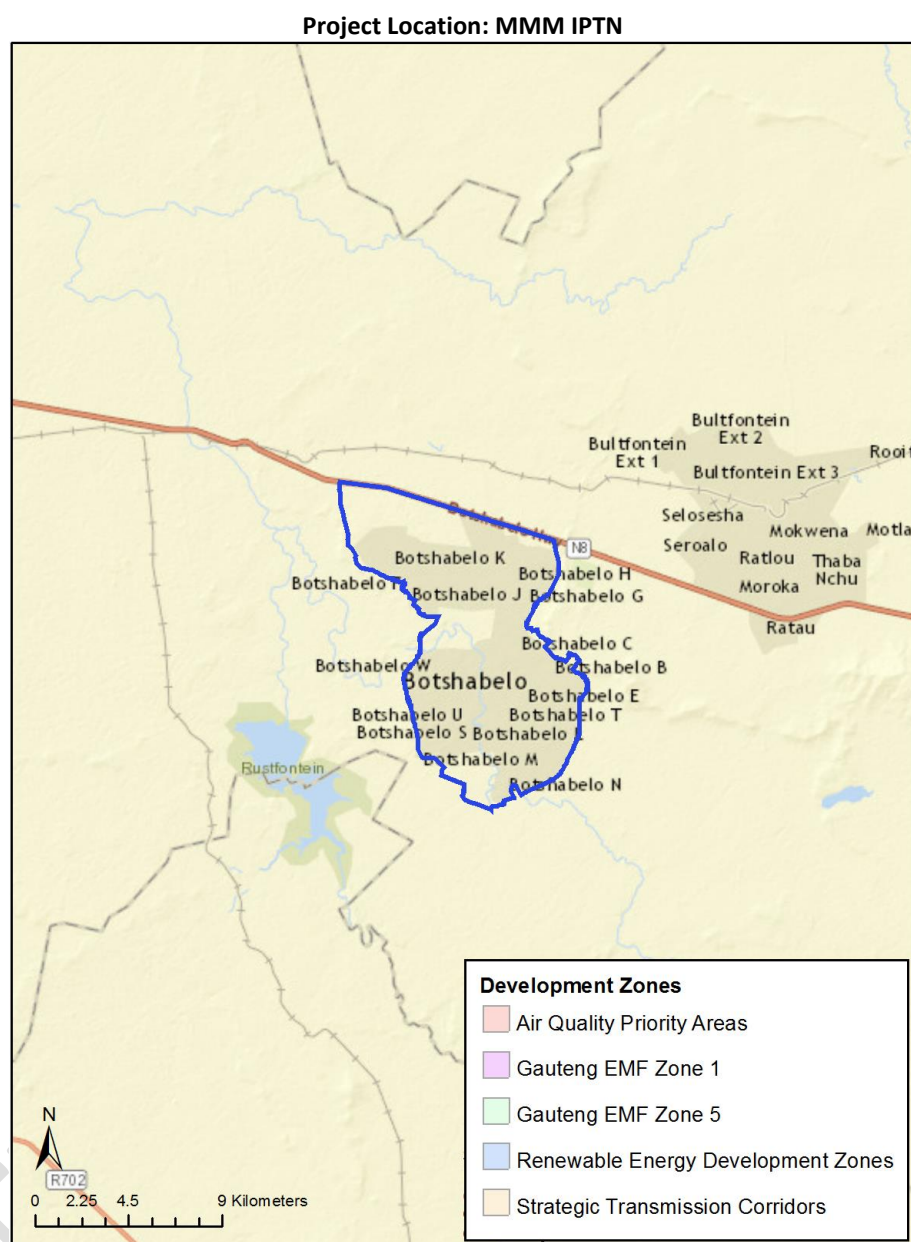
The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is: Infrastructure|Transport Services|Roads|Public|Roads - Public.

### Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

No intersection with any development zones found.

Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones



### Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme		X		
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme			X	

Civil Aviation Theme		X		
Paleontology Theme		X		
Defence Theme				X
Terrestrial Biodiversity Theme				X

### Specialist assessments identified

Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

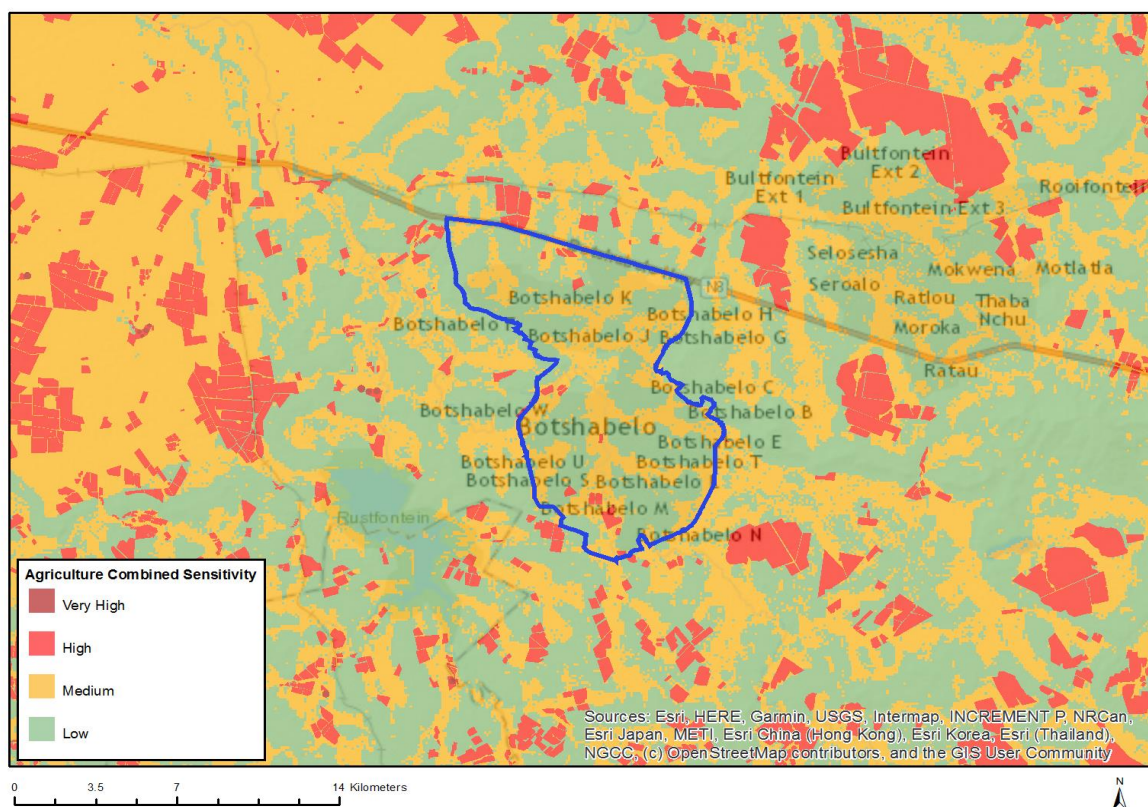
N o	Specialist assessment	Assessment Protocol
1	Agricultural Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/DraftAgricultureProtocol.pdf">https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/DraftAgricultureProtocol.pdf</a>
2	Landscape/Visual Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf">https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf</a>
3	Archaeological and Cultural Heritage Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf">https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf</a>
4	Palaeontology Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf">https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf</a>
5	Terrestrial Biodiversity Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf">https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf</a>
6	Aquatic Biodiversity Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf">https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf</a>
7	Noise Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf">https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf</a>
8	Traffic Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf">https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf</a>
9	Geotechnical Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf">https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf</a>
10	Socio-Economic Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf">https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf</a>
11	Ambient Air Quality Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf">https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf</a>

## Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.



## MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

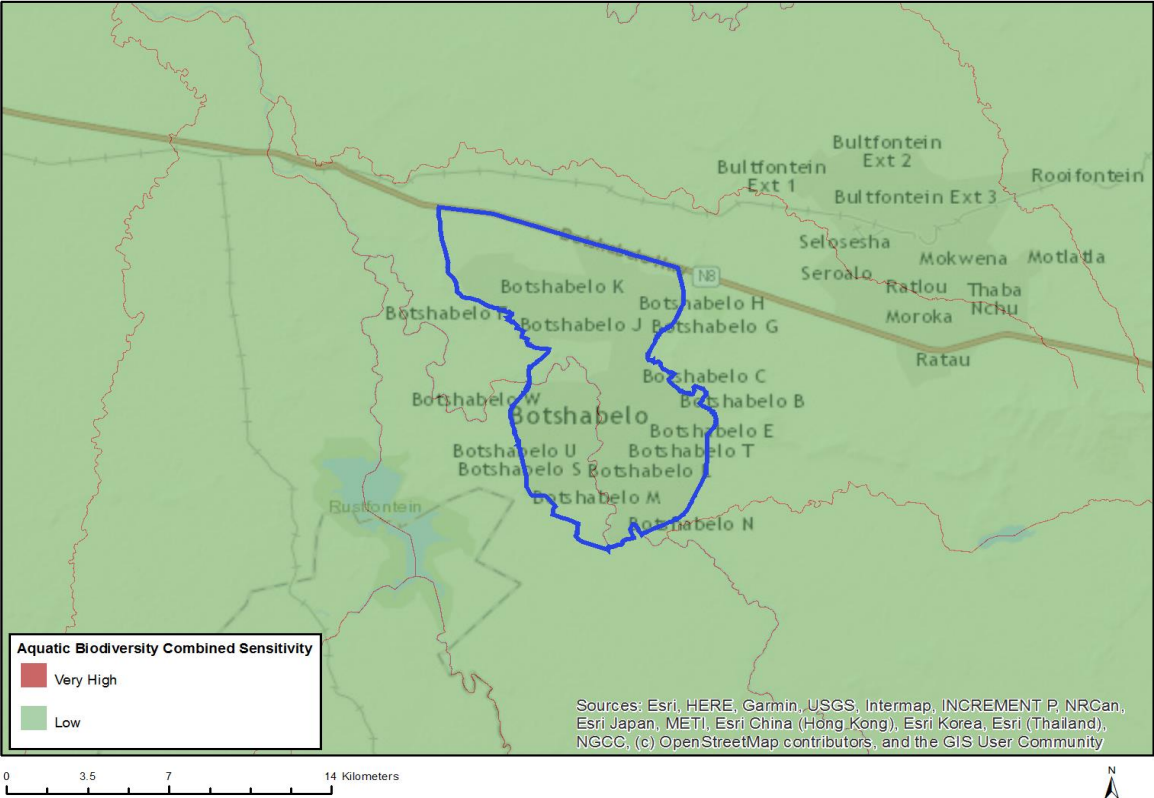


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

### Sensitivity Features:

Sensitivity	Feature(s)
High	Annual Crop Cultivation / Planted Pastures Rotation; Land capability; 01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low
High	Annual Crop Cultivation / Planted Pastures Rotation; Land capability; 06. Low-Moderate/07. Low-Moderate/08. Moderate
Low	Land capability; 01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low
Medium	Land capability; 06. Low-Moderate/07. Low-Moderate/08. Moderate

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

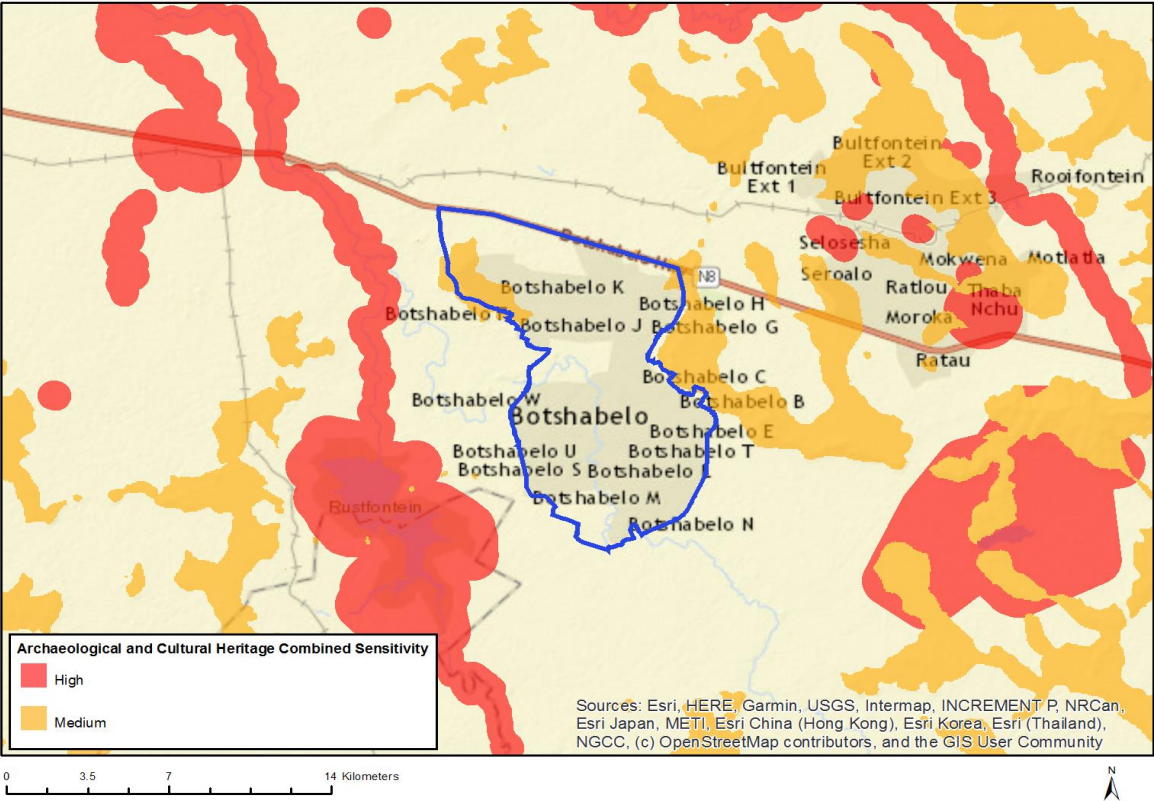


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity Areas
Very High	CBA,River,Klein-Modder

# MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

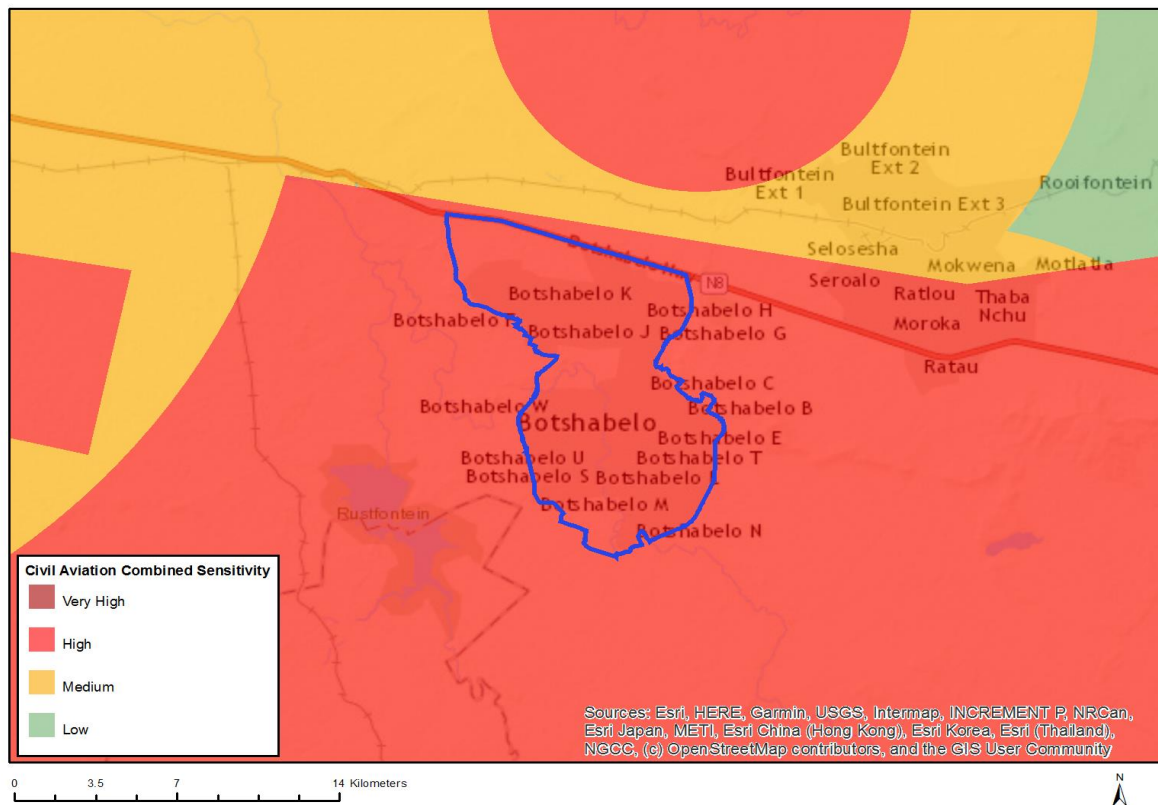


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

## Sensitivity Features:

Sensitivity	Feature(s)
Medium	Mountain or ridge

## MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY



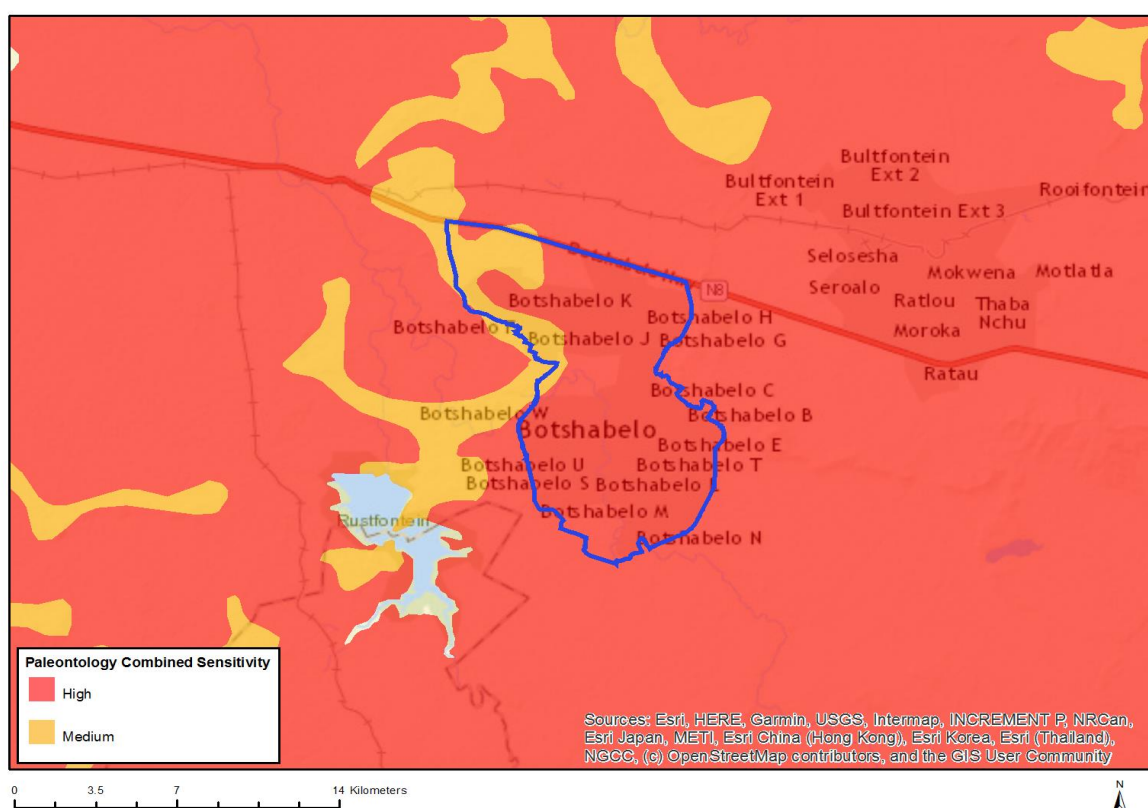
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

### Sensitivity Features:

Sensitivity	Feature(s)
High	Dangerous and restricted airspace as demarcated
Medium	Between 8 and 15 km of other civil aviation aerodrome



## MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY



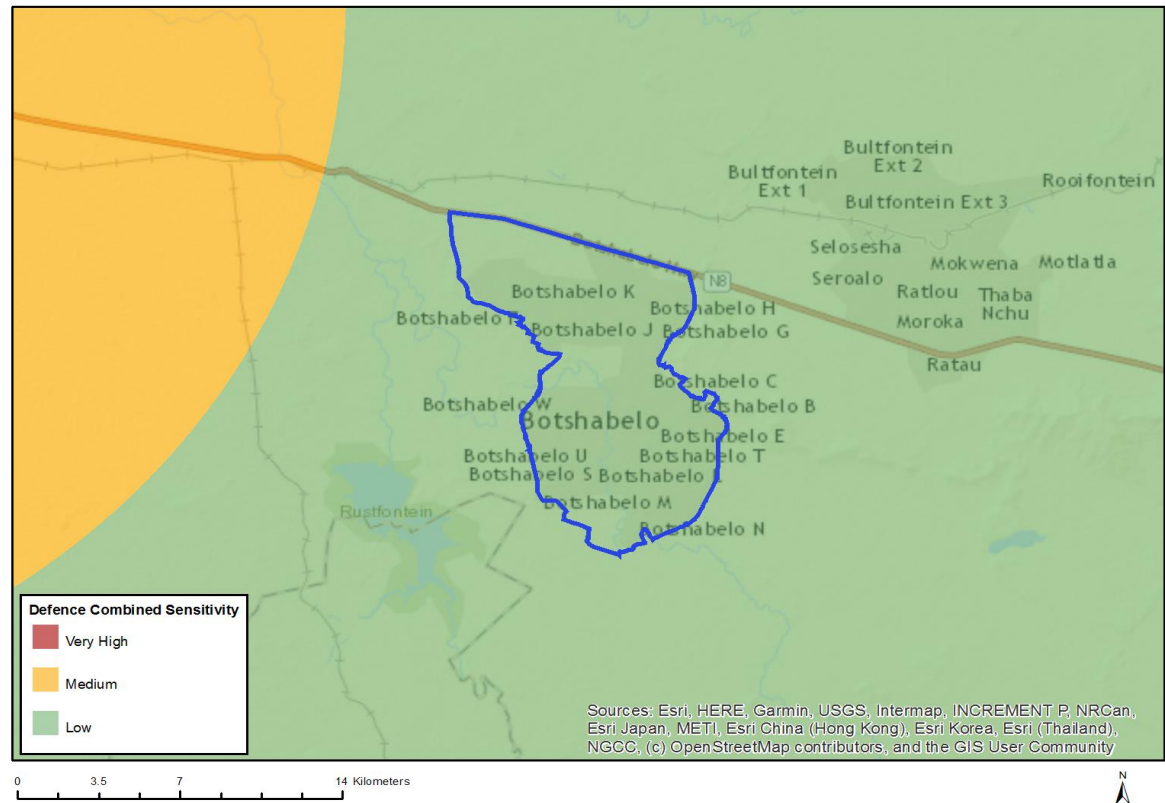
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

### Sensitivity Features:

Sensitivity	Feature(s)
High	Rock units with a high paleontological sensitivity
Medium	Rock units with a medium paleontological sensitivity



# MAP OF RELATIVE DEFENCE THEME SENSITIVITY

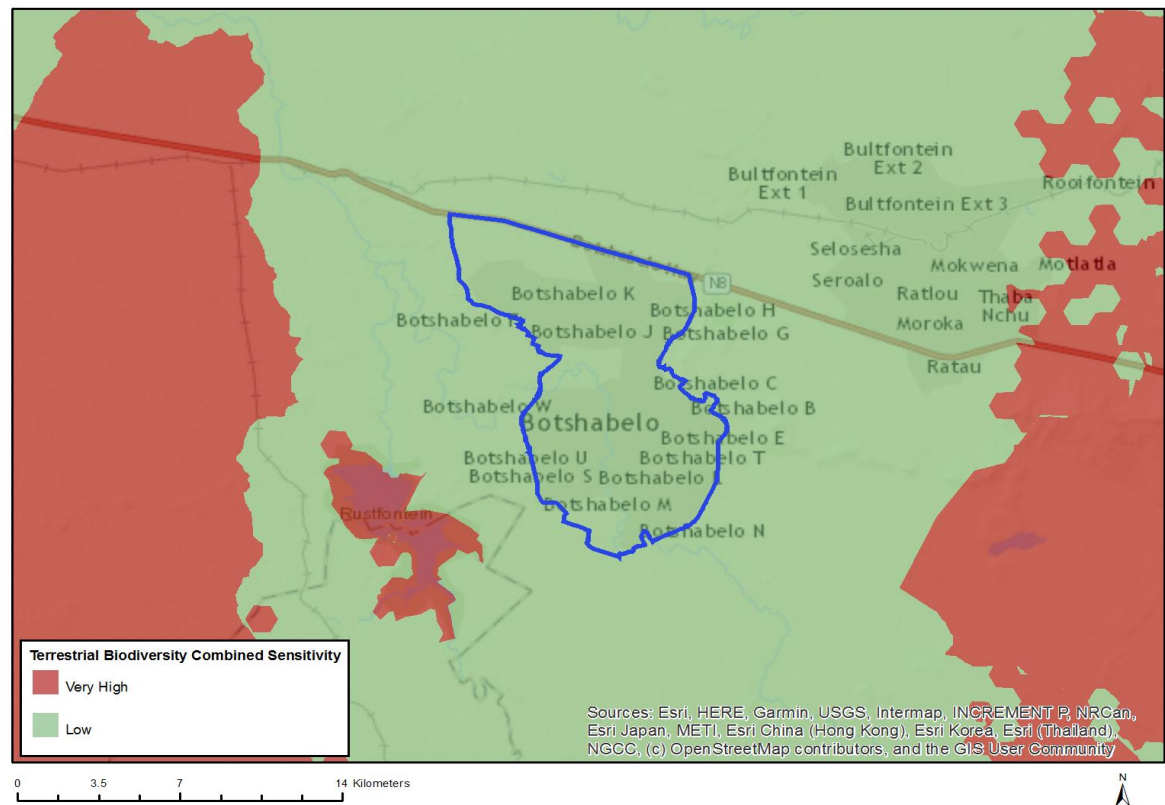


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

## Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

# MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

## Sensitivity Features:

Sensitivity	Feature(s)
Low	None