



MANGAUNG IPTN – ENVIRONMENTAL SCREENING REPORT

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



Client Reference: Contract No.: C447

GladAfrica Reference: Project Number 127

Project Name: Integrated Public Transport Network (IPTN)

QUALITY REVIEW

Report Heading: Environmental Screening Report for the City-Wide Network, Dr Belcher Corridor as part of the Integrated Public Transport Network in Bloemfontein, Mangaung Metropolitan Municipality, Free State Province

Compiled by: Kirthi Peramaul

Signature: 

Date: 4/09/2019

BSc (Hons), Cert.Sci.Nat

Reviewed by: Dirk Prinsloo

Signature: 

Date: 04/09/2019

M.Env Mgmt. REAP 2019/471

Released by: Nkhensani Khandlela

Signature: 

Date: 04/09/2019

MSc, Pr.Sci.Nat

Received and accepted by a duly authorised representative of the client

Client representative name:

Athenkosi Godongwana

Signature: _____

Date: _____

Steve Rapulungoane

Signature: _____

Date: _____

Report Status

Draft		Revision Number		Final	✓
-------	--	-----------------	--	-------	---

TABLE OF CONTENTS

1. INTRODUCTION AND BACKGROUND	10
1.1 Project Description	11
1.2 Assumptions,Gaps and Limitations.....	13
1.3 Project Location	13
2. SITE ENVIRONMENTAL CONDITIONS	14
2.2 Site Sensitivity	14
2.3 Geology and Soils	15
2.4 Hydrological Conditions	16
2.5 Vegetation.....	18
2.6 Cultural and Heritage	19
2.7 Stakeholder Engagement.....	20
3. LEGISLATIVE REQUIREMENTS	21
3.1 NEMA EIA Regulations 2014 (as amended)	21
3.2 National Water Act, 1998 (Act No. 36 of 1998)	22
3.3 National Heritage Resources Act, 1999 (Act No. 25 of 1999)	23
3.4 Department of Environmental Affairs Screening Tool.....	24
4. CONCLUSION AND RECOMMENDATIONS.....	26
5. REFERENCES	28

LIST OF FIGURES

Figure 1: Locality Map showing the Dr Belcher Corridor	13
Figure 2: Dr Belcher Site Sensitivity	15
Figure 3: Dr Belcher Geology Map	16
Figure 4: Dr Belcher Hydrology Map.....	17
Figure 5: Wetland at the Existing Low-Lying Bridge	18
Figure 6: Bloemfontein's Vegetation Map	19
Figure 7: Paleontology Map (Source: DEA Screening Tool, 2009)	20

LIST OF FIGURES

Table 1: Facility Type Description	11
Table 2: Listed Activities in Terms of NEMA EIA Regulations (as amended)	21

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 NEMA 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 2 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
DWS	Department of Water and Sanitation
EIA	Environmental Impact Assessment
ESA	Ecological Support Areas
FSPHRA	Free State Provincial Heritage Resources Agency
GIS	Geographical Information Systems
G.N	Government Notice
IPTN	Integrated Public Transport System
MMM	Mangaung Metropolitan Municipality
NEMA	National Environmental Management Act (Act 107 of 1998)
NEM:BA	National Environmental Management: Biodiversity Act (Act 10 of 2004)
NMT	Non-Motorised Transport
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 Dr Belcher corridor. 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.

The proposed project will include the construction of stormwater infrastructure on one of the low-lying bridges towards the south west of the corridor. The screening assessment revealed that a Basic Assessment process will be required for the proposed Corridor, a NEMA enquiry will be lodged with the Competent Authority in order to confirm the authorisation requirements. In addition, a Water Use Authorisation will also be required for the proposed Corridor due to the construction and rehabilitation of roads within a DWS regulated area.

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 AND 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 by the National Department of Transport (NDoT) for its community. 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 reason is that such systems relieve inhabitants' reliance on private transportation, which in turn, reduce Greenhouse Gas (GHG) emissions and therefore the impact of the city on the environment. The MMM has decided to implement an IPTN with the assistance of the NDoT and to ensure that the system is as sustainable as possible.

There has been a 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 **Dr Belcher** 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 provide the 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 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 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.


1.1 Project Description

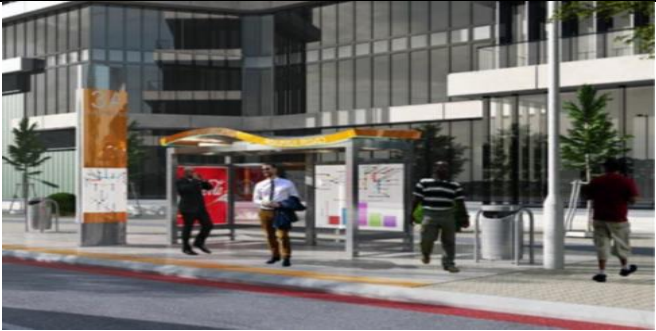


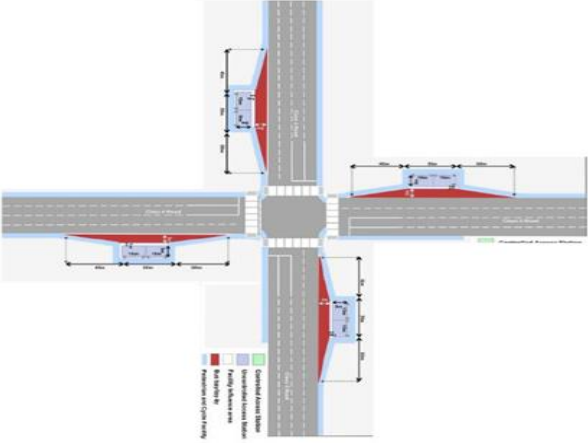
According to the CWIPTP, 2019 the Dr Belcher corridor will include the following infrastructure:

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

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 (EAP) during the finalization of this report.

Table 1: Facility Type Description

Facility Type Description	Visual Illustration
1. Stops Incremental implementation	
2. Uncontrolled Access Stations Provided along all routes. The stops can have a shelter depending on the location along the route and space availability.	

	
<p>3. Controlled Access Stations (stop with shelter)</p> <p>Will provide the following level of service:</p> <ul style="list-style-type: none"> • Pedestrian waiting area; • Pedestrian walkways; • Staircase; • Station access points/gates 	
<p>4. Transfers High Capacity</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>5. Transfers low capacity</p> <p>Provide transfer opportunities to passengers within the system. These transfers are positioned where main corridors or routes intersect.</p>	

1.2 Assumptions,Gaps and Limitations

The assessment is based on information obtained from the CWIPTP, 2019 and a desktop assessment using the GIS data set for the MMM from the South African National Biodiversity Institute (SANBI). Ground truthing was only undertaken for the site where stormwater infrastructure is proposed for the low water bridge. Ground truthing of the entire corridor will be undertaken at a later stage once the project unfolds.

No specialist field assessment or data collection was undertaken to verify the desktop 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.

1.3 Project Location

The MMM covers approximately 6863km², and comprises of three urban centres namely Bloemfontein, Botshabelo and Thaba Nchu. Due to the MMM being centrally located, most of the provincial and national road networks converge at the town resulting in a radial network (CWIPTP, 2019). Dr Belcher corridor is situated south east of the Bloemfontein Central Business District. **Figure 1** shows the geographic extent of the corridor, which comprises of the proposed network.

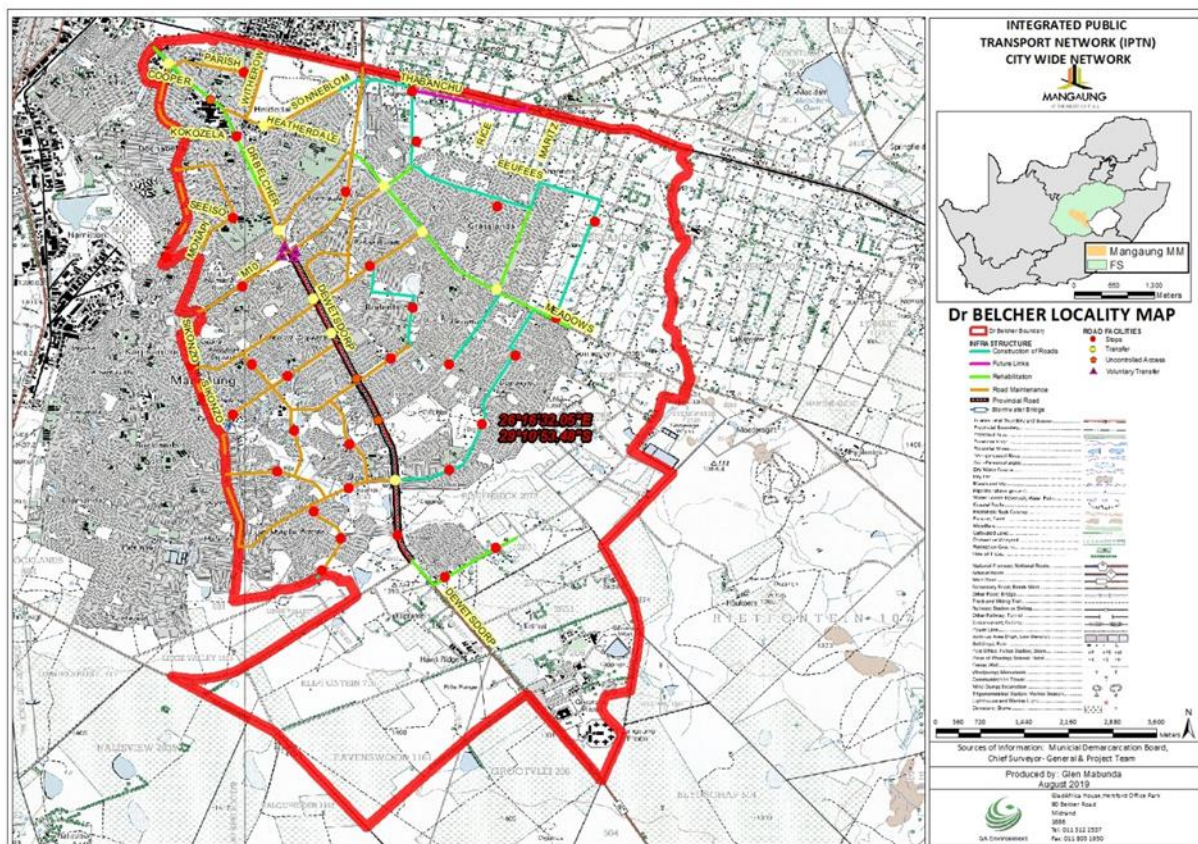


Figure 1: Locality Map showing the Dr Belcher Corridor

The network centre coordinates are 29°10'53.48"S, 26°16'32.05"E with the majority of the proposed study area situated within the urban edge of the metropolitan. The corridor comprises of a mixed-use development, with predominantly commercial use situated in the northern parts of the corridor. The M10 intersects the corridor towards the north west, the area south and south west of the M10 is characterised by residential developments and small retail nodes. There are two main trunk routes within this corridor is Dr Belcher road and Meadows Road. There are approximately fourteen feeder routes within this corridor.

2. SITE ENVIRONMENTAL CONDITIONS

This section provides an overview of the environmental setting and issues identified based on desktop assessment that was undertaken for the proposed corridor.

2.2 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 the GIS data the proposed Dr Belcher corridor does not fall within a CBA or ESA and most of the study area is characterised as degraded (**Figure 2**).

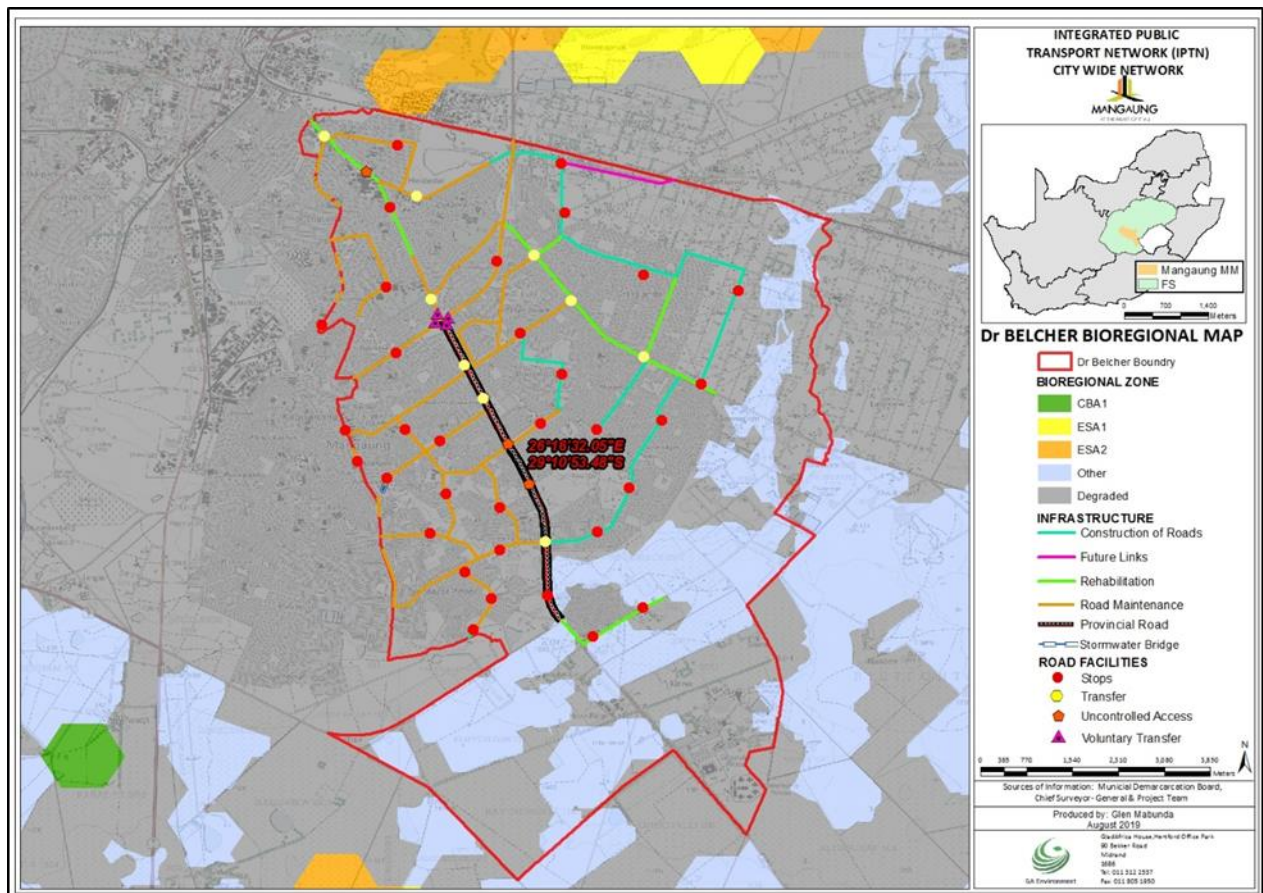


Figure 2: Dr Belcher Site Sensitivity

The proposed corridor does not fall within any protected area.

2.3 Geology and Soils

A desktop-based assessment with the use of shapefiles from the National Department of Rural Development and Land Reform was undertaken. Based on the assessment, the site is largely underlain by Mudstone (**Figure 3**).

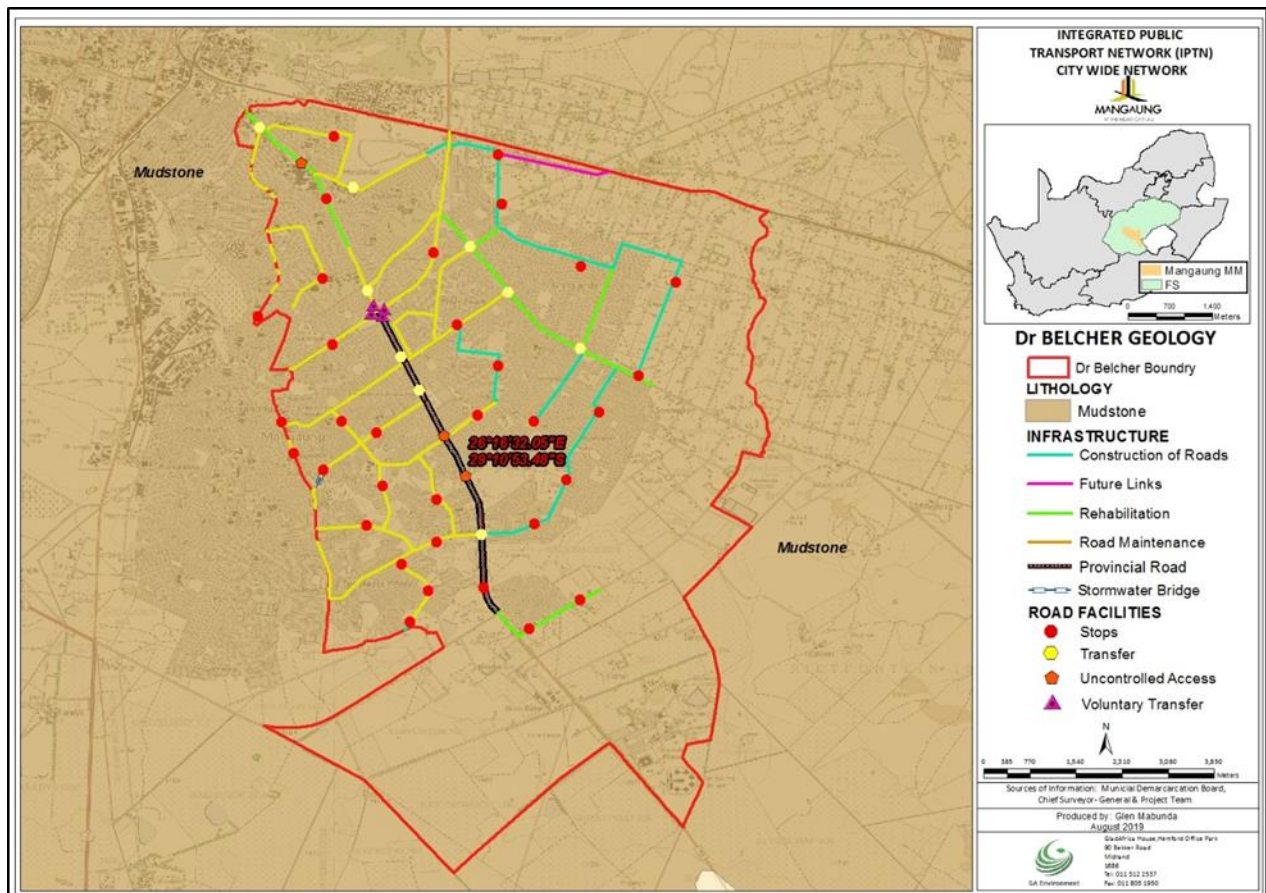


Figure 3: Dr Belcher Geology Map

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. A Geotechnical Assessment will be required to be undertaken; however, this assessment does not fall within the scope of GA Environment.

2.4 Hydrological Conditions

The proposed corridor falls within the Quaternary Catchment C52F within the Orange Water Management Area (WMA). According to the desktop assessment using the GIS data, an unknown river is situated south east within the corridor. Various pockets of wetlands are situated within the corridor. From the GIS data it could be noted that informal housing units were constructed on top of the identified wetlands. The proposed road network (rehabilitation of roads) will traverse the identified wetlands mainly within the central section of the Corridor (**Figure 4**).

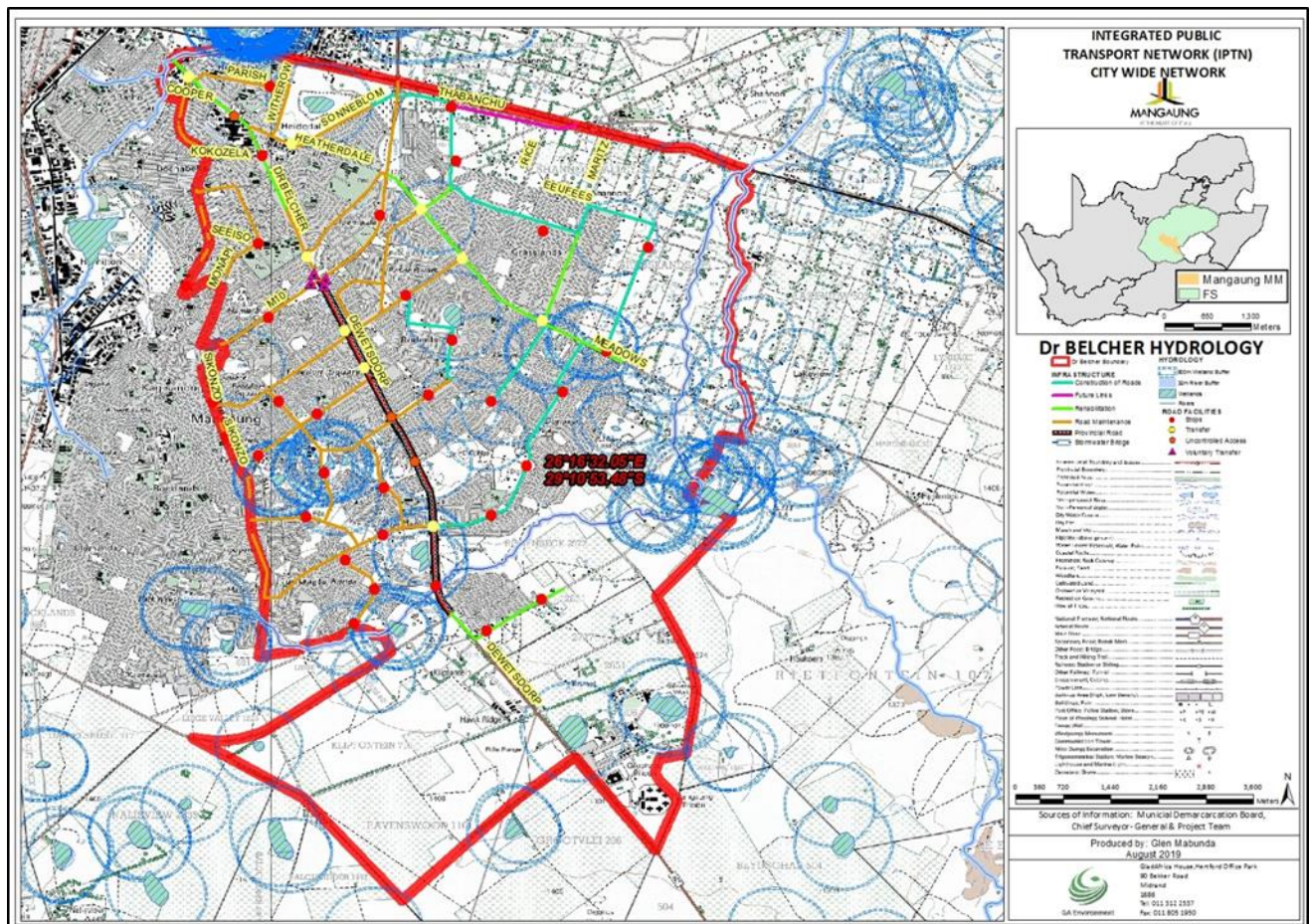


Figure 4: Dr Belcher Hydrology Map

The proposed new roads towards the east and south east of the Corridor falls within a DWS regulated area. The proposed project will include the construction of stormwater infrastructure on one of the low-lying bridges towards the south west of the corridor (**Figure 5**).

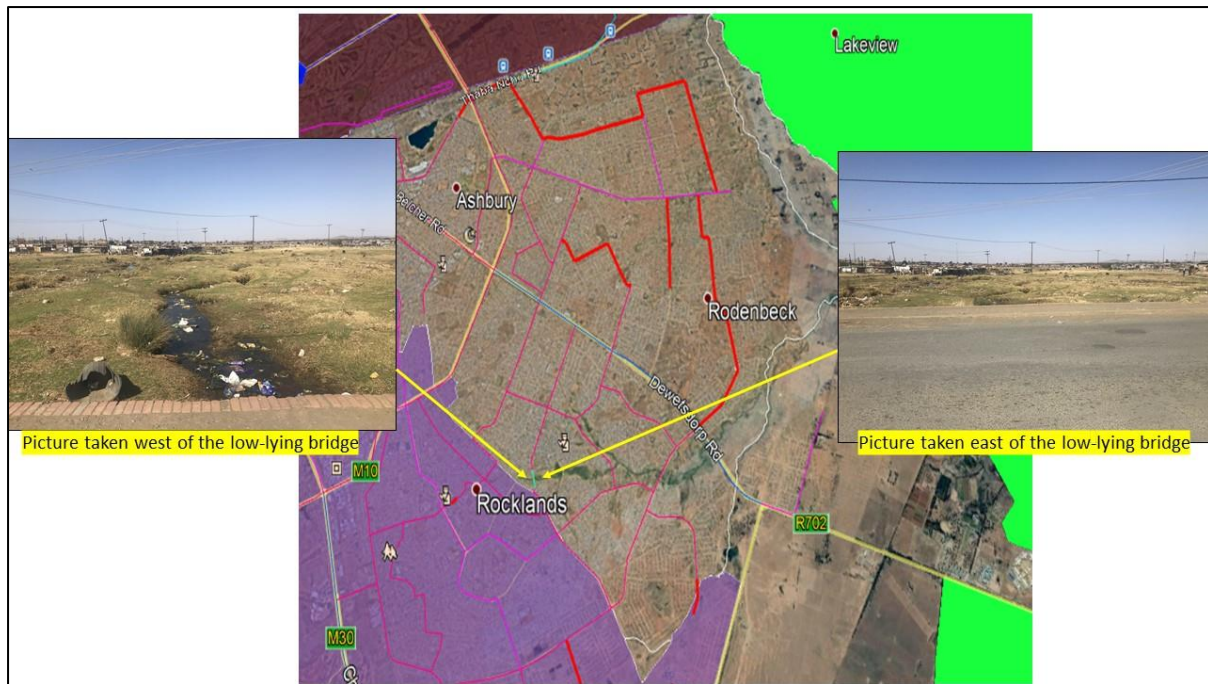


Figure 5: Wetland at the Existing Low-Lying Bridge

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 and riparian assessment and delineation;
- Floodline Assessment; and;
- Stormwater Management Plan.

The legislation governing any activities within the watercourse is discussed in **Section 3.2** of this Screening Report

2.5 Vegetation

According to the 2006 vegetation map produced by Mucina & Rutherford's (2006), most of the corridor site is located within the *Bloemfontein Dry Grassland (Mapping Unit Gh 5)* vegetation unit (**Figure 6**) which is considered Endangered. A minor portion towards the north east of the Corridor is

situated within the Winburg Grassy Shrubland (*Mapping Unit Gh 7*) which is considered Least threatened.

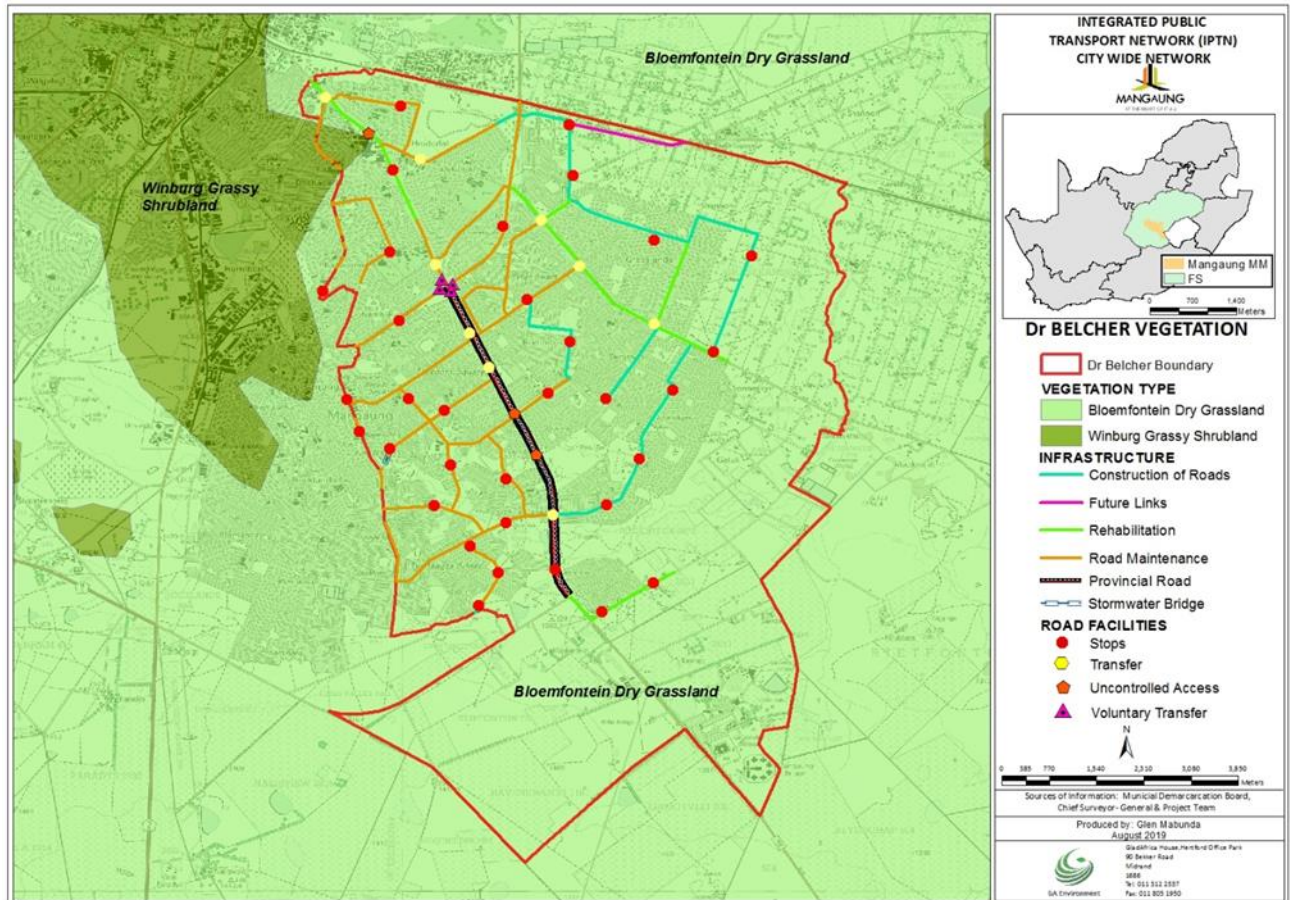


Figure 6: Bloemfontein's Vegetation Map

At this early stage of the project, it is unknown whether trees alongside the roads will be removed or retained. The MMM City parks Department will be involved should any of the trees be impacted by the proposed development.

2.6 Cultural and Heritage

According to information obtained from the DEA Screening Tool (**Appendix A**) and as presented in **Figure 7**, the entire corridor is situated within an area of high paleontological sensitivity. Paleontological 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 **Paleontological Assessment** must be undertaken for the project.

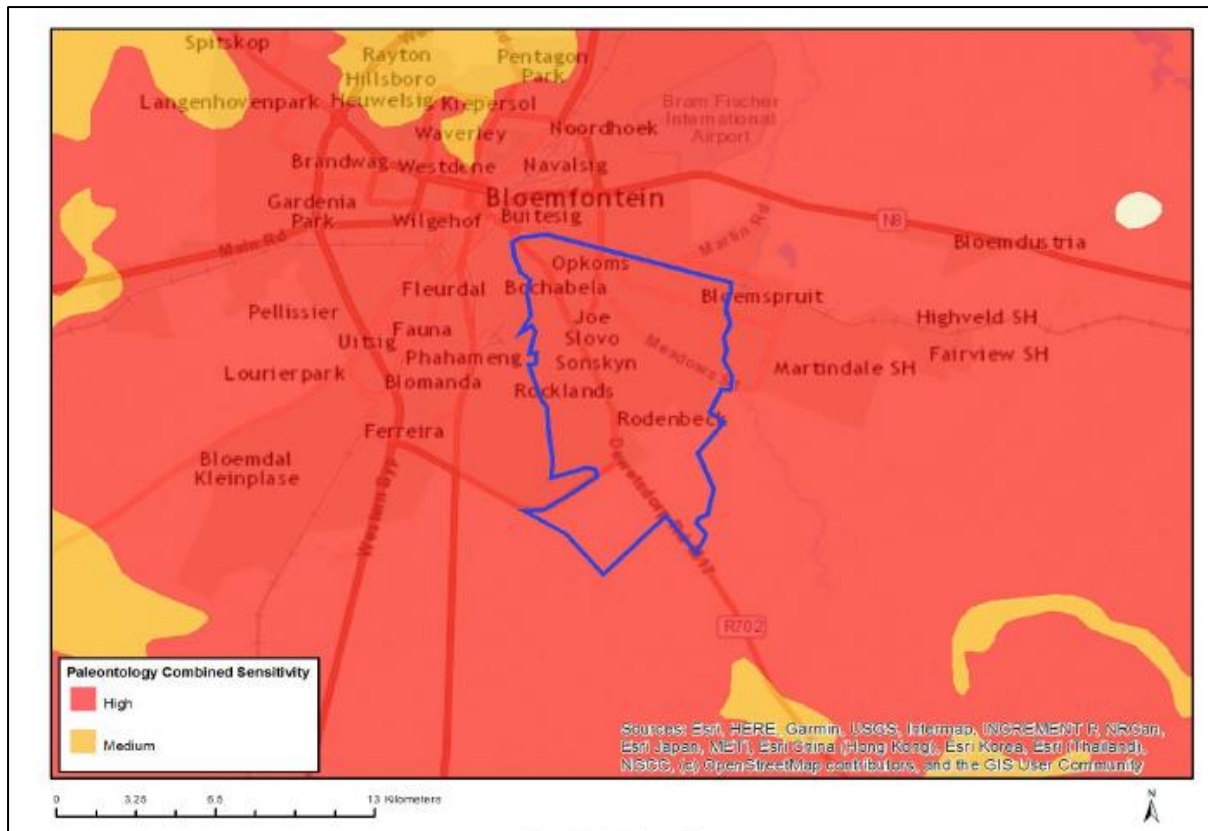


Figure 7: Paleontology Map (Source: DEA Screening Tool, 2009)

In addition to the above, it must be mentioned that the proposed activities 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 pertains to Heritage Resources Management based on the undertaking of certain activities. As part of the proposed corridor, an activity within Section 38 will be triggered. This includes the construction of roads, laying of pipelines and other linear infrastructure over 300m in length. **Section 3.3** details the above-mentioned activities in line with the National Heritage Resources Act, 1999 (Act No. 25 of 1999).

2.7 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);
- Free State Heritage Resources Agency (FSHRA); and
- MMM Roads and Stormwater Unit.

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

3. LEGISLATIVE REQUIREMENTS

3.1 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;
- Listing Notice 1 (G.N 983) defines activities which will trigger the need for a Basic Assessment process;
- Listing Notice 2 (G.N 984) defines activities which trigger an Environmental Impact Assessment (EIA) process. If activities from both R983 and R984 are triggered, then an EIA process will be required.
- Listing Notice 3 (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.

The review revealed that an activity from **Listing Notice 1** will be triggered, hence a Basic Assessment Process will 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
Listing Notice 1 Activity 19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse.	The proposed project will include the construction of stormwater infrastructure on one of the low lying bridges towards the south west of the corridor.

The possible triggered Listed Activities presented in this report 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 (DESTEa) to confirm the EAP's findings about the required processes mainly in line with the site conditions which include a built-up area. DESTEa has established an enquiry system where advice and guidance can be provided prior to a formal Environmental application process.

3.2 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 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.

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. Eleven (11) Water Uses are covered under Section 21 of the National Water Act, 1998 (Act No. 36 of 1998) and are as follows:

(a) taking water from a water resource;

(b) storing water;

(c) impeding or diverting the flow of water in a watercourse;

(d) engaging in a stream flow reduction activity contemplated in section 36;

(e) engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1);

(f) discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;

(g) disposing of waste in a manner which may detrimentally impact on a water resource;

(h) disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process;

(i) altering the bed, banks, course or characteristic of a watercourse;

(j) removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and

(k) using water for recreational purposes.

As shown in **Section 2.4**, the proposed road network (rehabilitation of roads) will traverse the identified wetlands mainly within the central section of the Corridor. The proposed new roads towards the east and south east of the Corridor falls within a DWS regulated area. The proposed project will include the construction of stormwater infrastructure on one of the low-lying bridges towards the south west of the corridor.

3.3 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 Heritage Resources Agency (FSHRA)

Section 2.6 presented the 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 Dr Belcher corridor. With regards to the project, Section 35 and 36 of the Act are applicable and will be discussed

3.3.1 Activities governed by the National Heritage Resources Act, 1999 (Act No. 25 of 1999)

As presented in Section 2.6, the Rietfontein site 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 **Paleontology Impact Assessment** must be undertaken 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 m² in extent; or

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

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

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

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

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

Based on the above, a **Heritage Impact Assessment** must be undertaken 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.

3.4 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 Dr Belcher corridor. The results of the tool are indicated in the Report attached as **Appendix A**.

Page 24 of 32 of the Report indicates that certain Specialist assessments will be required for the undertaking of the proposed development and upgrades in the Dr Belcher Corridor. There is however an allowance of the EAP to motivate for the reasons for not including certain assessments in the assessment report. The following Specialist assessments have been identified as per the DEA Screening tool:

- Agricultural Impact Assessment;
- Landscape/Visual Impact Assessment;
- Archaeological and Cultural Heritage Impact Assessment;
- Palaeontology Impact Assessment;
- Terrestrial Biodiversity Impact Assessment;
- Aquatic Biodiversity Impact Assessment;
- Noise Impact Assessment;

- Traffic Impact Assessment;
- Geotechnical Assessment;
- Socio-Economic Assessment;
- Ambient Air Quality Impact Assessment.

The need for the above-mentioned studies will be discussed with the competent authority during the pre-application meeting.

4. CONCLUSION AND RECOMMENDATIONS

This Environmental Screening investigation was undertaken to determine if any legislative or other requirements must be met for the proposed Dr Belcher Corridor. This report is based on an assessment of information gathered during desktop studies and the site ground truthing for only the proposed stormwater infrastructure at the low-lying bridge south west of the Corridor.

The report presented the site conditions and also outlined all possible legislative requirements based on these site conditions as well as proposed activities. The legislative requirements discussed were in line with various pieces of legislation governing the protection of flora and fauna, water, heritage resources, etc. and outlined the need for authorisations, permits and licences where applicable as well as the authorities that will be involved in the granting of these. The screening assessment revealed that a Basic Assessment process will be required for the proposed Corridor, a NEMA enquiry will be lodged with the Competent Authority in order to confirm the authorisation requirements. In addition, a Water Use Authorisation will also be required for the proposed Corridor, due to the construction and rehabilitation of roads within a DWS regulated area.

The report also outlined the need for various specialist studies that are recommended for the project. These were as follows:

- Wetland and riparian assessment and delineation;
- Flood line delineation;
- Stormwater Management Plan; and
- Palaeontological Impact Assessment and Heritage Impact Assessment

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 the 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 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.

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.

5. REFERENCES

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

Manguang Metropolitan Municipality, 2019, Draft City Wide Integrated Public Transport Plan

APPENDIX A

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: Dr Belcher

Date screening report generated: 02/09/2019 20:33:44

Applicant: Mangaung Metropolitan Municipality

Compiler: Kirthi Peramaul

Compiler signature:

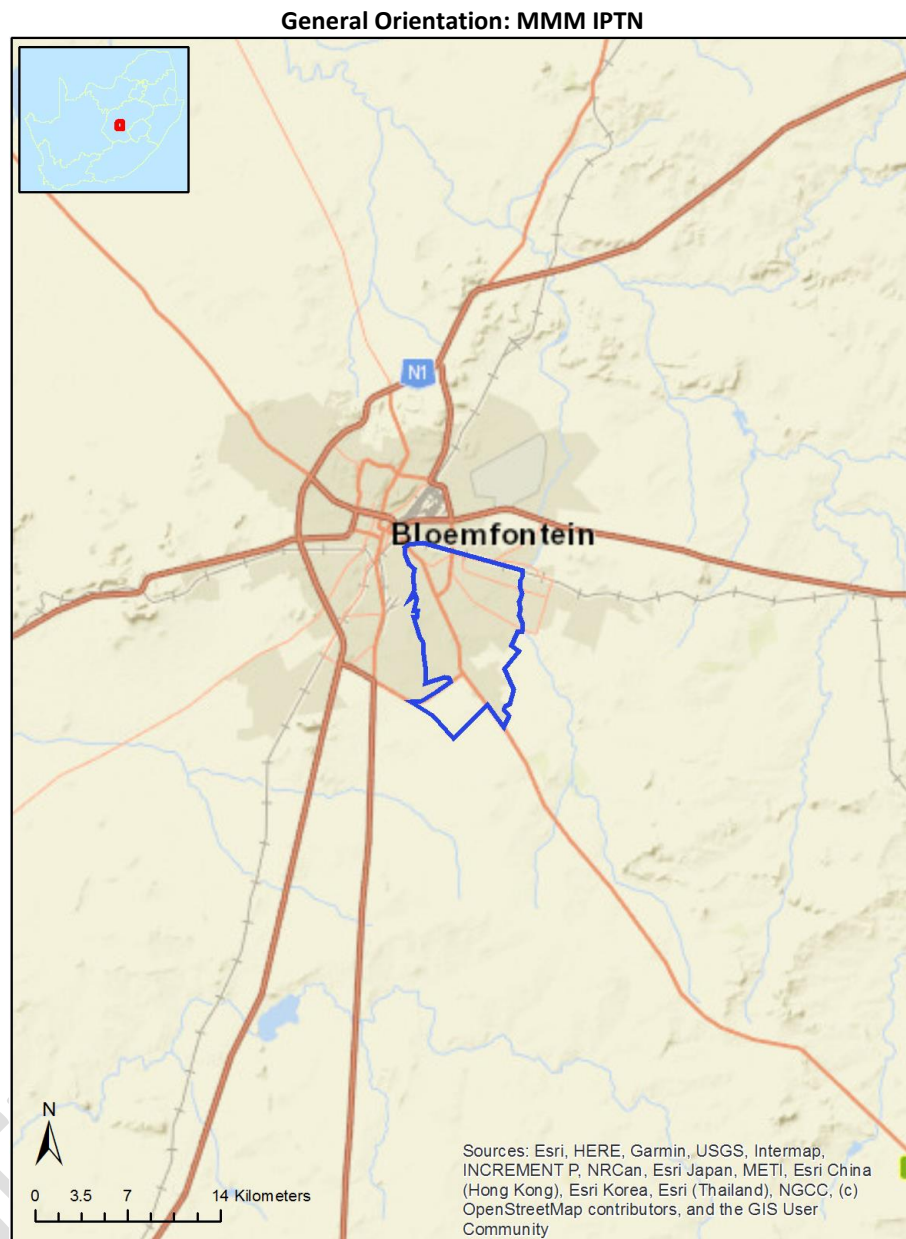
.....

Table of Contents

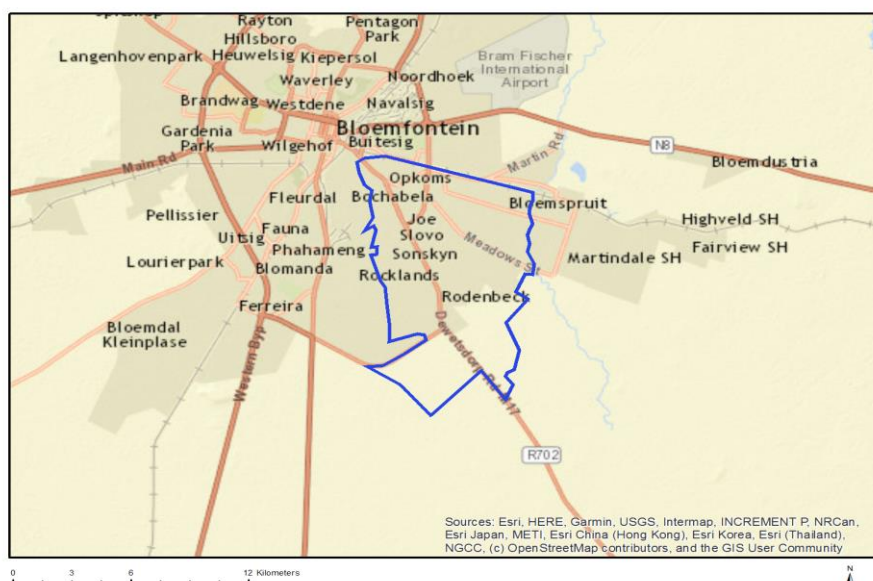
Proposed Project Location	3
Orientation map 1: General location	3
Map of proposed site and relevant area(s)	4
Cadastral details of the proposed site	4
Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area	21
Environmental 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/Erff Number	Portion	Latitude	Longitude
1	ASHBURY	1086	00000	-29.13908	26.25008
2	ASHBURY	1467	00000	-29.14698	26.25312
3	ASHBURY	314	00000	-29.13343	26.24693
4	ASHBURY	650	00000	-29.13407	26.24173
5	ASHBURY	1452	00000	-29.14694	26.25489
6	ASHBURY	2099	00000	-29.14841	26.25355
7	ASHBURY	880	00000	-29.13553	26.25043
8	ASHBURY	1001	00000	-29.13735	26.24958
9	ASHBURY	3507	00000	-29.15437	26.25716
10	ASHBURY	2762	00000	-29.14404	26.26021
11	ASHBURY	2770	00000	-29.14453	26.25972
12	ASHBURY	2549	00000	-29.14162	26.25803
13	ASHBURY	1678	00000	-29.14658	26.25852
14	ASHBURY	2082	00000	-29.14882	26.25578
15	ASHBURY	2661	00000	-29.1419	26.26513
16	ASHBURY	752	00000	-29.13615	26.24419
17	ASHBURY	761	00000	-29.13535	26.24302
18	ASHBURY	3030	00000	-29.14146	26.26183
19	ASHBURY	3041	00000	-29.14247	26.26255
20	ASHBURY	1121	00000	-29.13974	26.2498
21	ASHBURY	294	00000	-29.13328	26.2462
22	ASHBURY	3404	00000	-29.15627	26.25578
23	ASHBURY	3184	00000	-29.14118	26.2629
24	ASHBURY	1564	00000	-29.14648	26.24998
25	ASHBURY	116	00000	-29.13168	26.24861
26	ASHBURY	2387	00000	-29.15071	26.25692
27	ASHBURY	2006	00000	-29.15239	26.25312
28	ASHBURY	2915	00000	-29.14075	26.26045
29	ASHBURY	1232	00000	-29.14132	26.24831
30	ASHBURY	763	00000	-29.13464	26.24366

31	ASHBURY	1143	00000	-29.13989	26.24812
32	ASHBURY	425	00000	-29.13313	26.25262
33	ASHBURY	717	00000	-29.13655	26.24405
34	ASHBURY	3329	00000	-29.13962	26.26412
35	ASHBURY	3532	00000	-29.15215	26.25827
36	ASHBURY	1242	00000	-29.14217	26.24947
37	ASHBURY	1259	00000	-29.14283	26.24888
38	ASHBURY	3350	00009	-29.13107	26.24777
39	ASHBURY	1858	00000	-29.14452	26.25514
40	ASHBURY	1214	00000	-29.14111	26.25006
41	ASHBURY	1436	00000	-29.14661	26.25315
42	ASHBURY	990	00000	-29.13734	26.25139
43	ASHBURY	2470	00000	-29.15017	26.25357
44	ASHBURY	2473	00000	-29.15001	26.25392
45	ASHBURY	1619	00000	-29.14776	26.25169
46	ASHBURY	1555	00000	-29.14747	26.25044
47	ASHBURY	2816	00000	-29.1439	26.25761
48	ASHBURY	2537	00000	-29.14173	26.25726
49	ASHBURY	1264	00000	-29.14427	26.24903
50	ASHBURY	1869	00000	-29.14526	26.25888
51	ASHBURY	2316	00000	-29.1493	26.25541
52	ASHBURY	257	00000	-29.13271	26.2433
53	ASHBURY	2572	00000	-29.14317	26.25523
54	ASHBURY	2826	00000	-29.14427	26.25888
55	ASHBURY	113	00000	-29.13158	26.24813
56	ASHBURY	2910	00000	-29.14104	26.25993
57	ASHBURY	920	00000	-29.13624	26.24927
58	ASHBURY	437	00000	-29.13323	26.25167
59	ASHBURY	1355	00000	-29.14397	26.25454
60	ASHBURY	2729	00056	-29.1428	26.26115
61	ASHBURY	3418	00000	-29.15563	26.25604
62	ASHBURY	3428	00000	-29.15567	26.25501
63	ASHBURY	2935	00000	-29.14134	26.25986
64	ASHBURY	1838	00000	-29.14542	26.25817
65	ASHBURY	21	00000	-29.13191	26.23925
66	ASHBURY	1502	00000	-29.148	26.25289
67	ASHBURY	502	00000	-29.13442	26.25068
68	ASHBURY	572	00000	-29.13314	26.23987
69	ASHBURY	3430	00000	-29.15543	26.25492
70	ASHBURY	2707	00000	-29.1457	26.26373
71	ASHBURY	3547	00000	-29.15052	26.25943
72	ASHBURY	2070	00000	-29.14902	26.25175
73	ASHBURY	468	00000	-29.13385	26.25137
74	ASHBURY	504	00000	-29.1349	26.25105
75	ASHBURY	514	00000	-29.13538	26.25206
76	ASHBURY	1098	00000	-29.13931	26.24844
77	ASHBURY	253	00000	-29.13259	26.24268
78	ASHBURY	268	00000	-29.13298	26.24323
79	ASHBURY	3478	00000	-29.15464	26.25501
80	ASHBURY	1738	00000	-29.14832	26.25714
81	ASHBURY	2852	00000	-29.14385	26.25664
82	ASHBURY	2128	00000	-29.15054	26.25894
83	ASHBURY	2168	00000	-29.14991	26.25826
84	ASHBURY	2174	00000	-29.15029	26.25896
85	ASHBURY	2181	00000	-29.15101	26.25777
86	ASHBURY	987	00000	-29.13713	26.25177
87	ASHBURY	2729	00042	-29.14233	26.26171
88	ASHBURY	2999	00000	-29.14217	26.25965
89	ASHBURY	191	00000	-29.13261	26.24637
90	ASHBURY	3566	00000	-29.15259	26.25826

91	ASHBURY	2869	00000	-29.14251	26.25727
92	ASHBURY	2962	00000	-29.14256	26.25845
93	ASHBURY	3513	00000	-29.15476	26.25634
94	ASHBURY	742	00000	-29.13515	26.24323
95	ASHBURY	746	00000	-29.1355	26.24374
96	ASHBURY	598	00000	-29.13534	26.24097
97	ASHBURY	712	00000	-29.1361	26.24341
98	ASHBURY	2952	00000	-29.14313	26.25741
99	ASHBURY	1147	00000	-29.13955	26.2475
100	ASHBURY	3518	00000	-29.15485	26.25558
101	ASHBURY	3523	00000	-29.15493	26.25481
102	ASHBURY	2727	00000	-29.14567	26.2634
103	ASHBURY	3999	00000	-29.15219	26.25546
104	ASHBURY	2239	00000	-29.15351	26.25452
105	ASHBURY	1880	00000	-29.14475	26.25716
106	ASHBURY	948	00000	-29.13651	26.25064
107	ASHBURY	957	00000	-29.13656	26.24888
108	ASHBURY	552	00000	-29.13303	26.2388
109	ASHBURY	561	00000	-29.13296	26.24012
110	ASHBURY	2514	00000	-29.15072	26.25546
111	ASHBURY	2878	00000	-29.14235	26.25803
112	ASHBURY	2729	00004	-29.14249	26.2598
113	ASHBURY	6299	00000	-29.14487	26.25372
114	ASHBURY	2685	00000	-29.14174	26.26488
115	ASHBURY	3007	00000	-29.14263	26.2588
116	ASHBURY	3301	00000	-29.13932	26.2642
117	ASHBURY	3493	00000	-29.1538	26.25715
118	ASHBURY	1693	00000	-29.1465	26.25828
119	ASHBURY	2792	00000	-29.14497	26.26042
120	ASHBURY	2412	00000	-29.15285	26.25506
121	ASHBURY	3109	00000	-29.14266	26.26348
122	ASHBURY	3151	00000	-29.14042	26.26265
123	ASHBURY	3161	00000	-29.14134	26.26331
124	ASHBURY	3597	00002	-29.15337	26.25842
125	ASHBURY	471	00000	-29.13378	26.25099
126	ASHBURY	162	00000	-29.13226	26.24804
127	ASHBURY	3231	00000	-29.14124	26.26372
128	ASHBURY	1925	00000	-29.15216	26.25742
129	ASHBURY	2358	00001	-29.14991	26.25702
130	ASHBURY	788	00000	-29.13483	26.24516
131	ASHBURY	1599	00000	-29.14664	26.25175
132	ASHBURY	2428	00000	-29.15147	26.25405
133	ASHBURY	2433	00000	-29.15202	26.25447
134	ASHBURY	2349	00000	-29.14918	26.25568
135	ASHBURY	3280	00000	-29.14068	26.26409
136	ASHBURY	934	00000	-29.13633	26.25116
137	ASHBURY	895	00000	-29.13602	26.25157
138	ASHBURY	278	00000	-29.13268	26.2417
139	ASHBURY	3216	00000	-29.14104	26.26386
140	ASHBURY	2365	00000	-29.15092	26.25707
141	ASHBURY	3389	00000	-29.13202	26.24198
142	ASHBURY	1958	00000	-29.15413	26.25538
143	ASHBURY	6299	00001	-29.14419	26.2539
144	ASHBURY	2729	00016	-29.14373	26.2605
145	ASHBURY	901	00000	-29.13584	26.25065
146	ASHBURY	1362	00000	-29.14459	26.2529
147	ASHBURY	204	00000	-29.1327	26.24538
148	ASHBURY	1033	00000	-29.13794	26.24935
149	ASHBURY	1709	00000	-29.14884	26.25714
150	ASHBURY	336	00000	-29.13328	26.24123

151	ASHBURY	6303	00000	-29.13154	26.23838
152	ASHBURY	3379	00000	-29.13235	26.24362
153	HEIDEDAL	14210	00000	-29.18062	26.28973
154	HEIDEDAL	5812	00000	-29.16347	26.26199
155	HEIDEDAL	4663	00000	-29.15758	26.25791
156	HEIDEDAL	4667	00000	-29.15746	26.25765
157	HEIDEDAL	6091	00000	-29.17639	26.26851
158	HEIDEDAL	6952	00000	-29.17331	26.27042
159	HEIDEDAL	6961	00000	-29.172	26.2706
160	HEIDEDAL	7969	00000	-29.16334	26.27518
161	HEIDEDAL	7144	00000	-29.16902	26.27126
162	HEIDEDAL	6654	00000	-29.16801	26.26664
163	HEIDEDAL	6664	00000	-29.16862	26.267
164	HEIDEDAL	11120	00000	-29.17728	26.27308
165	HEIDEDAL	11355	00000	-29.17911	26.27126
166	HEIDEDAL	10058	00000	-29.13938	26.26911
167	HEIDEDAL	12903	00000	-29.19143	26.28214
168	HEIDEDAL	13328	00000	-29.19532	26.28325
169	HEIDEDAL	11648	00000	-29.18425	26.26976
170	HEIDEDAL	9178	00000	-29.1596	26.26817
171	HEIDEDAL	14357	00000	-29.17859	26.29324
172	HEIDEDAL	13050	00000	-29.19492	26.2775
173	HEIDEDAL	5476	00000	-29.1603	26.26394
174	HEIDEDAL	6204	00039	-29.15242	26.26063
175	HEIDEDAL	4894	00000	-29.15244	26.26778
176	HEIDEDAL	4064	00000	-29.15587	26.25829
177	HEIDEDAL	5256	00000	-29.15717	26.2647
178	HEIDEDAL	8395	00000	-29.15411	26.26768
179	HEIDEDAL	7081	00000	-29.17049	26.27029
180	HEIDEDAL	5302	00000	-29.15799	26.26371
181	HEIDEDAL	10618	00000	-29.14764	26.27355
182	HEIDEDAL	11555	00000	-29.18015	26.26759
183	HEIDEDAL	11565	00000	-29.18086	26.26752
184	HEIDEDAL	9630	00000	-29.14488	26.26886
185	HEIDEDAL	8226	00000	-29.16514	26.2634
186	HEIDEDAL	9856	00000	-29.14914	26.27192
187	HEIDEDAL	7740	00000	-29.16235	26.27293
188	HEIDEDAL	12688	00000	-29.19295	26.27533
189	HEIDEDAL	12417	00000	-29.18968	26.28026
190	HEIDEDAL	6713	00000	-29.16986	26.26623
191	HEIDEDAL	4899	00000	-29.15194	26.26852
192	HEIDEDAL	4859	00000	-29.15241	26.2694
193	HEIDEDAL	4868	00000	-29.1532	26.2669
194	HEIDEDAL	7826	00000	-29.15997	26.27638
195	HEIDEDAL	9278	00000	-29.15915	26.26969
196	HEIDEDAL	8571	00000	-29.15354	26.27005
197	HEIDEDAL	5088	00000	-29.15166	26.2659
198	HEIDEDAL	7593	00000	-29.16542	26.26904
199	HEIDEDAL	7952	00000	-29.16243	26.27581
200	HEIDEDAL	7170	00000	-29.16878	26.27196
201	HEIDEDAL	9780	00000	-29.14733	26.27107
202	HEIDEDAL	11018	00000	-29.17758	26.27201
203	HEIDEDAL	13435	00000	-29.1931	26.28447
204	HEIDEDAL	8702	00000	-29.15685	26.26926
205	HEIDEDAL	12003	00000	-29.18169	26.27487
206	HEIDEDAL	8688	00000	-29.15587	26.27012
207	HEIDEDAL	9863	00000	-29.14977	26.27247
208	HEIDEDAL	8176	00000	-29.165	26.26283
209	HEIDEDAL	7767	00000	-29.16268	26.27346
210	HEIDEDAL	9923	00000	-29.1501	26.27246

211	HEIDEDAL	13160	00000	-29.19371	26.28275
212	HEIDEDAL	14256	00000	-29.1813	26.28944
213	HEIDEDAL	13661	00000	-29.19009	26.28638
214	HEIDEDAL	4593	00000	-29.15886	26.25926
215	HEIDEDAL	4047	00000	-29.15507	26.25946
216	HEIDEDAL	4054	00000	-29.15524	26.25888
217	HEIDEDAL	4443	00010	-29.14826	26.26509
218	HEIDEDAL	4709	00000	-29.15807	26.25892
219	HEIDEDAL	6163	00000	-29.17753	26.26883
220	HEIDEDAL	10327	00000	-29.14199	26.2696
221	HEIDEDAL	7983	00000	-29.16319	26.27458
222	HEIDEDAL	6544	00000	-29.16513	26.26738
223	HEIDEDAL	5396	00000	-29.15882	26.26305
224	HEIDEDAL	8145	00000	-29.16523	26.2726
225	HEIDEDAL	5985	00000	-29.17767	26.26586
226	HEIDEDAL	6425	00000	-29.17021	26.26396
227	HEIDEDAL	10241	00000	-29.14519	26.26999
228	HEIDEDAL	12093	00000	-29.18272	26.27497
229	HEIDEDAL	9043	00000	-29.16247	26.26708
230	HEIDEDAL	10593	00000	-29.14909	26.27337
231	HEIDEDAL	13332	00000	-29.19503	26.28373
232	HEIDEDAL	9115	00000	-29.15885	26.2688
233	HEIDEDAL	9925	00000	-29.14996	26.27266
234	HEIDEDAL	8201	00000	-29.1657	26.26314
235	HEIDEDAL	8210	00000	-29.16434	26.26324
236	HEIDEDAL	14119	00000	-29.17962	26.28964
237	HEIDEDAL	13584	00000	-29.18843	26.28581
238	HEIDEDAL	14702	00000	-29.18393	26.2939
239	HEIDEDAL	5527	00000	-29.16125	26.26442
240	HEIDEDAL	4283	00000	-29.15018	26.26433
241	HEIDEDAL	4460	00000	-29.15059	26.26485
242	HEIDEDAL	5841	00000	-29.16336	26.26251
243	HEIDEDAL	4695	00000	-29.15807	26.25731
244	HEIDEDAL	4534	00000	-29.15807	26.2606
245	HEIDEDAL	5282	00000	-29.15747	26.2633
246	HEIDEDAL	5295	00000	-29.15811	26.26493
247	HEIDEDAL	6972	00000	-29.17242	26.27081
248	HEIDEDAL	8872	00000	-29.15892	26.27284
249	HEIDEDAL	7375	00000	-29.17396	26.27098
250	HEIDEDAL	6847	00000	-29.17033	26.26732
251	HEIDEDAL	7166	00000	-29.16884	26.27103
252	HEIDEDAL	6428	00000	-29.17052	26.26352
253	HEIDEDAL	6310	00000	-29.16829	26.2627
254	HEIDEDAL	12540	00000	-29.19216	26.2755
255	HEIDEDAL	9214	00000	-29.16121	26.26859
256	HEIDEDAL	11610	00000	-29.18448	26.26946
257	HEIDEDAL	9144	00000	-29.16163	26.26745
258	HEIDEDAL	6978	00000	-29.17336	26.2707
259	HEIDEDAL	11578	00000	-29.18237	26.26834
260	HEIDEDAL	10394	00000	-29.14328	26.27127
261	HEIDEDAL	15954	00000	-29.14893	26.26892
262	HEIDEDAL	14663	00000	-29.18059	26.29419
263	HEIDEDAL	6494	00000	-29.16689	26.26478
264	HEIDEDAL	5001	00000	-29.14983	26.26628
265	HEIDEDAL	5991	00000	-29.17865	26.26638
266	HEIDEDAL	5728	00000	-29.16339	26.25959
267	HEIDEDAL	7106	00000	-29.16914	26.26991
268	HEIDEDAL	6616	00000	-29.16728	26.26628
269	HEIDEDAL	8359	00000	-29.16797	26.2607
270	HEIDEDAL	7304	00000	-29.1699	26.27424

271	HEIDEDAL	7717	00000	-29.16212	26.27225
272	HEIDEDAL	6315	00000	-29.16876	26.26201
273	HEIDEDAL	8616	00000	-29.15517	26.27193
274	HEIDEDAL	11208	00000	-29.17874	26.27458
275	HEIDEDAL	9755	00000	-29.14843	26.27027
276	HEIDEDAL	9767	00000	-29.14741	26.2696
277	HEIDEDAL	12056	00000	-29.1806	26.2767
278	HEIDEDAL	8297	00000	-29.16407	26.25896
279	HEIDEDAL	8303	00000	-29.16647	26.26046
280	HEIDEDAL	7002	00000	-29.17206	26.26933
281	HEIDEDAL	12026	00000	-29.17971	26.27719
282	HEIDEDAL	12035	00000	-29.18056	26.27621
283	HEIDEDAL	12341	00000	-29.19099	26.27797
284	HEIDEDAL	12573	00000	-29.19402	26.27475
285	HEIDEDAL	12810	00000	-29.19207	26.27826
286	HEIDEDAL	5362	00000	-29.16035	26.26238
287	HEIDEDAL	5443	00000	-29.15903	26.26376
288	HEIDEDAL	4210	00000	-29.15456	26.26071
289	HEIDEDAL	10365	00000	-29.14439	26.27152
290	HEIDEDAL	8980	00000	-29.15684	26.27419
291	HEIDEDAL	7552	00000	-29.16133	26.27237
292	HEIDEDAL	7201	00000	-29.16959	26.27161
293	HEIDEDAL	5105	00000	-29.1546	26.26489
294	HEIDEDAL	4401	00000	-29.15334	26.26359
295	HEIDEDAL	5779	00000	-29.16316	26.26114
296	HEIDEDAL	7271	00000	-29.16943	26.27284
297	HEIDEDAL	7187	00000	-29.17166	26.27159
298	HEIDEDAL	9618	00000	-29.14623	26.2698
299	HEIDEDAL	10148	00000	-29.14146	26.26845
300	HEIDEDAL	11004	00000	-29.17677	26.27285
301	HEIDEDAL	11226	00000	-29.17952	26.27456
302	HEIDEDAL	11662	00000	-29.18279	26.26991
303	HEIDEDAL	11239	00000	-29.17982	26.27371
304	HEIDEDAL	9087	00000	-29.16208	26.2667
305	HEIDEDAL	7398	00000	-29.17295	26.27117
306	HEIDEDAL	7016	00000	-29.17155	26.26976
307	HEIDEDAL	7025	00000	-29.16975	26.26875
308	HEIDEDAL	9749	00000	-29.14804	26.27023
309	HEIDEDAL	12782	00000	-29.19172	26.27734
310	HEIDEDAL	15099	00000	-29.18621	26.28766
311	HEIDEDAL	4576	00000	-29.1579	26.2596
312	HEIDEDAL	6733	00000	-29.16791	26.26801
313	HEIDEDAL	4587	00000	-29.15858	26.25975
314	HEIDEDAL	5829	00000	-29.16227	26.26265
315	HEIDEDAL	4678	00000	-29.15865	26.25764
316	HEIDEDAL	5852	00000	-29.16383	26.26354
317	HEIDEDAL	4721	00000	-29.15829	26.2589
318	HEIDEDAL	7911	00000	-29.16208	26.27801
319	HEIDEDAL	9445	00000	-29.16327	26.26696
320	HEIDEDAL	9455	00000	-29.16267	26.26843
321	HEIDEDAL	5190	00000	-29.16088	26.26155
322	HEIDEDAL	6400	00000	-29.16992	26.26339
323	HEIDEDAL	6439	00000	-29.17067	26.26389
324	HEIDEDAL	11269	00000	-29.18099	26.27345
325	HEIDEDAL	11278	00000	-29.17995	26.27253
326	HEIDEDAL	10487	00000	-29.14215	26.27189
327	HEIDEDAL	10406	00000	-29.1431	26.27082
328	HEIDEDAL	10427	00000	-29.14282	26.2716
329	HEIDEDAL	8778	00000	-29.15747	26.27051
330	HEIDEDAL	10709	00000	-29.14534	26.27236

331	HEIDEDAL	13127	00000	-29.19518	26.28246
332	HEIDEDAL	4934	00000	-29.15021	26.26744
333	HEIDEDAL	4684	00000	-29.15907	26.25756
334	HEIDEDAL	8343	00000	-29.16599	26.25964
335	HEIDEDAL	8355	00000	-29.16749	26.26041
336	HEIDEDAL	5054	00000	-29.15435	26.26538
337	HEIDEDAL	4797	00000	-29.15751	26.26084
338	HEIDEDAL	9524	00000	-29.16223	26.27013
339	HEIDEDAL	9534	00000	-29.16155	26.27112
340	HEIDEDAL	11624	00000	-29.18304	26.26937
341	HEIDEDAL	9611	00000	-29.14631	26.27017
342	HEIDEDAL	8801	00000	-29.15668	26.272
343	HEIDEDAL	9319	00000	-29.16012	26.27139
344	HEIDEDAL	9829	00000	-29.14949	26.27267
345	HEIDEDAL	8636	00000	-29.15504	26.27102
346	HEIDEDAL	11251	00000	-29.17956	26.27554
347	HEIDEDAL	11260	00000	-29.18033	26.27452
348	HEIDEDAL	15307	00000	-29.18425	26.28843
349	HEIDEDAL	15319	00000	-29.18345	26.28717
350	HEIDEDAL	15083	00000	-29.18742	26.28901
351	HEIDEDAL	12689	00000	-29.19308	26.27534
352	HEIDEDAL	5997	00000	-29.17956	26.26686
353	HEIDEDAL	6006	00000	-29.17594	26.26649
354	HEIDEDAL	4193	00000	-29.15367	26.26119
355	HEIDEDAL	4354	00000	-29.15208	26.26285
356	HEIDEDAL	8022	00000	-29.16347	26.27444
357	HEIDEDAL	5583	00000	-29.15982	26.2652
358	HEIDEDAL	5592	00000	-29.15853	26.26495
359	HEIDEDAL	9273	00000	-29.15924	26.27051
360	HEIDEDAL	8412	00000	-29.15601	26.26668
361	HEIDEDAL	8146	00000	-29.16505	26.27262
362	HEIDEDAL	6564	00000	-29.16581	26.26663
363	HEIDEDAL	5651	00000	-29.16284	26.25853
364	HEIDEDAL	5070	00000	-29.14953	26.26593
365	HEIDEDAL	5494	00000	-29.15868	26.2644
366	HEIDEDAL	13334	00000	-29.19478	26.28388
367	HEIDEDAL	8587	00000	-29.15436	26.26988
368	HEIDEDAL	10063	00000	-29.13859	26.26883
369	HEIDEDAL	8811	00000	-29.1574	26.27259
370	HEIDEDAL	12064	00000	-29.17985	26.2775
371	HEIDEDAL	12073	00000	-29.17998	26.2777
372	HEIDEDAL	9325	00000	-29.15977	26.27059
373	HEIDEDAL	10296	00000	-29.1443	26.27008
374	HEIDEDAL	10310	00000	-29.14462	26.27096
375	HEIDEDAL	11699	00000	-29.18162	26.27047
376	HEIDEDAL	14126	00000	-29.17895	26.28978
377	HEIDEDAL	13573	00000	-29.1883	26.28606
378	HEIDEDAL	5047	00000	-29.15485	26.26616
379	HEIDEDAL	5946	00000	-29.16568	26.26121
380	HEIDEDAL	5924	00000	-29.1652	26.26096
381	HEIDEDAL	5933	00000	-29.1645	26.2623
382	HEIDEDAL	6456	00000	-29.16521	26.26664
383	HEIDEDAL	6368	00000	-29.16951	26.26198
384	HEIDEDAL	4548	00000	-29.15728	26.25959
385	HEIDEDAL	7782	00000	-29.16291	26.2727
386	HEIDEDAL	7793	00000	-29.16155	26.27829
387	HEIDEDAL	5784	00000	-29.16297	26.26188
388	HEIDEDAL	5232	00000	-29.1623	26.25813
389	HEIDEDAL	10154	00000	-29.14224	26.26845
390	HEIDEDAL	10164	00000	-29.14341	26.26822

391	HEIDEDAL	11008	00000	-29.17696	26.27257
392	HEIDEDAL	11667	00000	-29.18339	26.27027
393	HEIDEDAL	12973	00000	-29.1959	26.27727
394	HEIDEDAL	8666	00000	-29.15538	26.27051
395	HEIDEDAL	8823	00000	-29.15867	26.27258
396	HEIDEDAL	8844	00000	-29.15742	26.27307
397	HEIDEDAL	12302	00000	-29.19073	26.27664
398	HEIDEDAL	13301	00000	-29.1961	26.28037
399	HEIDEDAL	4292	00000	-29.15149	26.26215
400	HEIDEDAL	6378	00000	-29.16894	26.2634
401	HEIDEDAL	5022	00000	-29.15348	26.26578
402	HEIDEDAL	4157	00000	-29.15471	26.25977
403	HEIDEDAL	8542	00000	-29.15419	26.27188
404	HEIDEDAL	7800	00000	-29.16067	26.27752
405	HEIDEDAL	4748	00000	-29.15601	26.26018
406	HEIDEDAL	4757	00000	-29.15569	26.261
407	HEIDEDAL	8709	00000	-29.15796	26.26879
408	HEIDEDAL	11100	00000	-29.17916	26.27184
409	HEIDEDAL	11884	00000	-29.18282	26.27453
410	HEIDEDAL	9753	00000	-29.14839	26.27053
411	HEIDEDAL	10213	00000	-29.14552	26.26999
412	HEIDEDAL	8835	00000	-29.15739	26.27337
413	HEIDEDAL	7849	00000	-29.16073	26.27627
414	HEIDEDAL	12359	00000	-29.18863	26.27748
415	HEIDEDAL	15082	00000	-29.18748	26.28914
416	HEIDEDAL	13264	00000	-29.19468	26.27903
417	HEIDEDAL	12243	00000	-29.1907	26.27548
418	HEIDEDAL	4607	00000	-29.15936	26.2582
419	HEIDEDAL	6039	00000	-29.17624	26.26715
420	HEIDEDAL	4495	00000	-29.15324	26.26439
421	HEIDEDAL	5701	00000	-29.16393	26.25953
422	HEIDEDAL	7233	00000	-29.1707	26.27232
423	HEIDEDAL	9365	00000	-29.16074	26.26976
424	HEIDEDAL	9878	00000	-29.14864	26.27118
425	HEIDEDAL	8243	00000	-29.16468	26.26401
426	HEIDEDAL	7495	00000	-29.17609	26.27192
427	HEIDEDAL	7924	00000	-29.16223	26.27736
428	HEIDEDAL	5063	00000	-29.15456	26.26558
429	HEIDEDAL	6668	00000	-29.16888	26.26752
430	HEIDEDAL	9582	00000	-29.14584	26.26872
431	HEIDEDAL	8727	00000	-29.15696	26.26993
432	HEIDEDAL	11196	00000	-29.17881	26.27293
433	HEIDEDAL	11201	00000	-29.1784	26.27354
434	HEIDEDAL	9964	00000	-29.14611	26.26788
435	HEIDEDAL	8741	00000	-29.15734	26.2696
436	HEIDEDAL	8505	00000	-29.15298	26.26936
437	HEIDEDAL	9647	00000	-29.1467	26.26964
438	HEIDEDAL	9560	00000	-29.14489	26.26853
439	HEIDEDAL	15211	00000	-29.18519	26.28543
440	HEIDEDAL	14543	00000	-29.18384	26.29261
441	HEIDEDAL	15967	00000	-29.14746	26.26886
442	HEIDEDAL	13691	00000	-29.19031	26.28727
443	HEIDEDAL	5800	00000	-29.16434	26.26032
444	HEIDEDAL	4430	00000	-29.15229	26.26372
445	HEIDEDAL	4435	00000	-29.15251	26.26404
446	HEIDEDAL	5818	00000	-29.16397	26.26122
447	HEIDEDAL	4256	00000	-29.15462	26.26165
448	HEIDEDAL	7897	00000	-29.1623	26.27663
449	HEIDEDAL	7246	00000	-29.17002	26.27216
450	HEIDEDAL	8456	00000	-29.15476	26.26875

451	HEIDEDAL	5165	00000	-29.15858	26.26154
452	HEIDEDAL	6602	00000	-29.1662	26.26665
453	HEIDEDAL	8255	00000	-29.16704	26.26191
454	HEIDEDAL	8078	00000	-29.16461	26.27146
455	HEIDEDAL	5148	00000	-29.15717	26.26315
456	HEIDEDAL	6104	00000	-29.17804	26.26665
457	HEIDEDAL	5305	00000	-29.15772	26.26329
458	HEIDEDAL	11973	00000	-29.17966	26.27643
459	HEIDEDAL	9166	00000	-29.16002	26.26719
460	HEIDEDAL	9029	00000	-29.16182	26.26601
461	HEIDEDAL	9486	00000	-29.16328	26.26796
462	HEIDEDAL	8508	00000	-29.15294	26.26981
463	HEIDEDAL	8939	00000	-29.15948	26.27241
464	HEIDEDAL	10103	00000	-29.14108	26.27007
465	HEIDEDAL	9400	00000	-29.16135	26.27029
466	HEIDEDAL	10190	00000	-29.14302	26.26908
467	HEIDEDAL	13171	00000	-29.19305	26.28248
468	HEIDEDAL	4843	00000	-29.1497	26.26796
469	HEIDEDAL	5821	00000	-29.16423	26.26083
470	HEIDEDAL	4806	00000	-29.15657	26.26087
471	HEIDEDAL	5248	00000	-29.15696	26.26455
472	HEIDEDAL	7042	00000	-29.17086	26.27083
473	HEIDEDAL	5611	00000	-29.16065	26.26533
474	HEIDEDAL	5265	00000	-29.15738	26.26414
475	HEIDEDAL	6189	00000	-29.17795	26.26881
476	HEIDEDAL	11352	00000	-29.1788	26.271
477	HEIDEDAL	9259	00000	-29.15955	26.27195
478	HEIDEDAL	12990	00000	-29.19604	26.27481
479	HEIDEDAL	9340	00000	-29.16031	26.27111
480	HEIDEDAL	10226	00000	-29.14391	26.2695
481	HEIDEDAL	8325	00000	-29.16391	26.2585
482	HEIDEDAL	9907	00000	-29.14958	26.27127
483	HEIDEDAL	8653	00000	-29.15572	26.27113
484	HEIDEDAL	15574	00000	-29.1807	26.28308
485	HEIDEDAL	14769	00000	-29.18814	26.29166
486	HEIDEDAL	4118	00000	-29.15676	26.25821
487	HEIDEDAL	6020	00000	-29.17585	26.2671
488	HEIDEDAL	4734	00000	-29.15891	26.258
489	HEIDEDAL	6074	00000	-29.17763	26.26648
490	HEIDEDAL	9870	00000	-29.14935	26.27181
491	HEIDEDAL	5505	00000	-29.16016	26.26422
492	HEIDEDAL	6198	00000	-29.17632	26.2695
493	HEIDEDAL	6204	00004	-29.15497	26.25807
494	HEIDEDAL	12077	00000	-29.18041	26.27729
495	HEIDEDAL	11110	00000	-29.17824	26.27166
496	HEIDEDAL	9507	00000	-29.16366	26.26801
497	HEIDEDAL	10121	00000	-29.14087	26.26817
498	HEIDEDAL	12893	00000	-29.19076	26.28216
499	HEIDEDAL	12902	00000	-29.19132	26.2822
500	HEIDEDAL	11159	00000	-29.17846	26.27238
501	HEIDEDAL	8334	00000	-29.165	26.25909
502	HEIDEDAL	8743	00000	-29.15707	26.26964
503	HEIDEDAL	9307	00000	-29.15952	26.27028
504	HEIDEDAL	13916	00000	-29.17921	26.28844
505	HEIDEDAL	14868	00000	-29.18622	26.2914
506	HEIDEDAL	14268	00000	-29.18106	26.29056
507	HEIDEDAL	12672	00000	-29.19263	26.27813
508	HEIDEDAL	10963	00000	-29.17613	26.27721
509	HEIDEDAL	10972	00000	-29.17492	26.27791
510	HEIDEDAL	12445	00000	-29.1883	26.279

511	HEIDEDAL	12454	00000	-29.18915	26.2781
512	HEIDEDAL	12467	00000	-29.19005	26.27813
513	HEIDEDAL	13089	00000	-29.1945	26.27992
514	HEIDEDAL	15800	00000	-29.18271	26.27877
515	HEIDEDAL	15813	00000	-29.18154	26.27953
516	HEIDEDAL	14959	00000	-29.18761	26.28729
517	HEIDEDAL	14103	00000	-29.18052	26.28876
518	HEIDEDAL	15034	00000	-29.1877	26.28828
519	HEIDEDAL	13939	00000	-29.18053	26.28729
520	MANGAUNG	8899	00000	-29.15179	26.24787
521	MANGAUNG	21101	00000	-29.19659	26.2515
522	MANGAUNG	24073	00000	-29.14276	26.24047
523	MANGAUNG	18677	00000	-29.18918	26.24798
524	MANGAUNG	19118	00000	-29.18128	26.24444
525	MANGAUNG	18949	00000	-29.18456	26.24624
526	MANGAUNG	19084	00000	-29.1811	26.24408
527	MANGAUNG	26923	00000	-29.1623	26.24274
528	MANGAUNG	26681	00000	-29.15875	26.24437
529	MANGAUNG	25420	00000	-29.15267	26.24485
530	MANGAUNG	25046	00000	-29.15162	26.24603
531	MANGAUNG	25063	00000	-29.15225	26.24517
532	MANGAUNG	29225	00000	-29.18604	26.26484
533	HEIDEDAL	12191	00000	-29.18984	26.2757
534	HEIDEDAL	11405	00000	-29.18004	26.27085
535	HEIDEDAL	16714	00000	-29.14509	26.27286
536	HEIDEDAL	16760	00000	-29.14525	26.27415
537	HEIDEDAL	15336	00000	-29.18439	26.28902
538	HEIDEDAL	14417	00000	-29.18208	26.29131
539	MANGAUNG	9061	00000	-29.15534	26.24933
540	MANGAUNG	8079	00000	-29.17001	26.24627
541	MANGAUNG	8603	00000	-29.15061	26.24865
542	MANGAUNG	8846	00000	-29.14991	26.24963
543	MANGAUNG	8764	00000	-29.1552	26.25054
544	MANGAUNG	19017	00000	-29.18017	26.24434
545	MANGAUNG	27364	00000	-29.15948	26.25487
546	MANGAUNG	27056	00000	-29.16348	26.24701
547	MANGAUNG	23915	00002	-29.17599	26.25432
548	HEIDEDAL	14430	00000	-29.17885	26.2938
549	HEIDEDAL	13192	00000	-29.19443	26.28253
550	HEIDEDAL	11933	00000	-29.18202	26.27289
551	HEIDEDAL	15734	00000	-29.1843	26.28008
552	HEIDEDAL	15480	00000	-29.18359	26.28393
553	HEIDEDAL	14048	00000	-29.18222	26.29005
554	HEIDEDAL	14453	00000	-29.17842	26.29457
555	MANGAUNG	834	00000	-29.13738	26.23922
556	MANGAUNG	739	00000	-29.13824	26.23689
557	MANGAUNG	8566	00000	-29.14924	26.24923
558	MANGAUNG	9270	00000	-29.14832	26.25014
559	MANGAUNG	9309	00000	-29.1482	26.24934
560	MANGAUNG	8409	00000	-29.17183	26.24699
561	MANGAUNG	18772	00000	-29.19002	26.2485
562	MANGAUNG	25382	00000	-29.15495	26.24256
563	MANGAUNG	18731	00000	-29.18868	26.24752
564	MANGAUNG	25850	00000	-29.15894	26.24223
565	MANGAUNG	24458	00000	-29.14828	26.24609
566	MANGAUNG	20953	00000	-29.16301	26.24414
567	MANGAUNG	24148	00000	-29.14452	26.24236
568	MANGAUNG	25019	00000	-29.14966	26.24544
569	HEIDEDAL	13685	00000	-29.18941	26.2878
570	HEIDEDAL	12392	00000	-29.18674	26.27962

571	HEIDEDAL	13385	00000	-29.19188	26.28305
572	HEIDEDAL	13627	00000	-29.18868	26.28687
573	HEIDEDAL	12276	00000	-29.19132	26.27522
574	MANGAUNG	757	00000	-29.13885	26.23707
575	HEIDEDAL	15782	00000	-29.18362	26.27884
576	HEIDEDAL	14604	00000	-29.18303	26.29374
577	HEIDEDAL	15176	00000	-29.18295	26.28573
578	HEIDEDAL	14467	00000	-29.17877	26.29472
579	MANGAUNG	835	00000	-29.13741	26.23938
580	MANGAUNG	8517	00000	-29.1494	26.24873
581	MANGAUNG	8273	00000	-29.17175	26.25033
582	MANGAUNG	9326	00000	-29.14462	26.24683
583	MANGAUNG	8430	00000	-29.15009	26.24642
584	MANGAUNG	19220	00000	-29.18525	26.246
585	MANGAUNG	19047	00000	-29.17956	26.24399
586	MANGAUNG	19176	00000	-29.18433	26.24582
587	MANGAUNG	26602	00002	-29.15943	26.24215
588	MANGAUNG	25650	00000	-29.15777	26.24448
589	MANGAUNG	23914	00001	-29.17747	26.25246
590	MANGAUNG	24436	00000	-29.1478	26.24672
591	MANGAUNG	29426	00000	-29.18651	26.26415
592	HEIDEDAL	14709	00000	-29.18311	26.29428
593	HEIDEDAL	15142	00000	-29.18433	26.29185
594	HEIDEDAL	10984	00000	-29.17598	26.27482
595	HEIDEDAL	11964	00000	-29.17927	26.27755
596	HEIDEDAL	13466	00000	-29.19301	26.28612
597	HEIDEDAL	12474	00000	-29.1893	26.27747
598	HEIDEDAL	10569	00000	-29.14707	26.27416
599	HEIDEDAL	13520	00000	-29.19027	26.28479
600	HEIDEDAL	15644	00000	-29.1801	26.28225
601	HEIDEDAL	15492	00000	-29.18227	26.28478
602	MANGAUNG	3328	00000	-29.17181	26.26019
603	MANGAUNG	3365	00000	-29.17216	26.26078
604	MANGAUNG	3369	00000	-29.17241	26.26017
605	MANGAUNG	3377	00000	-29.17253	26.26078
606	MANGAUNG	8706	00000	-29.15394	26.25027
607	MANGAUNG	8248	00000	-29.17211	26.24924
608	MANGAUNG	20975	00000	-29.16223	26.24603
609	MANGAUNG	21357	00000	-29.19433	26.25581
610	MANGAUNG	20710	00000	-29.16081	26.24776
611	MANGAUNG	21112	00000	-29.19667	26.24998
612	MANGAUNG	21369	00000	-29.1942	26.25421
613	MANGAUNG	25657	00000	-29.15737	26.24471
614	MANGAUNG	26065	00000	-29.15565	26.24129
615	MANGAUNG	25161	00000	-29.15039	26.2444
616	MANGAUNG	27409	00000	-29.15937	26.25255
617	HEIDEDAL	13490	00000	-29.19005	26.28419
618	HEIDEDAL	12405	00000	-29.18817	26.28018
619	HEIDEDAL	10847	00000	-29.1742	26.27683
620	HEIDEDAL	12717	00000	-29.19305	26.27597
621	HEIDEDAL	15648	00000	-29.18053	26.28191
622	HEIDEDAL	14043	00000	-29.18169	26.28944
623	HEIDEDAL	14550	00000	-29.18351	26.29167
624	HEIDEDAL	14582	00000	-29.18334	26.29359
625	HEIDEDAL	16748	00000	-29.14482	26.27337
626	MANGAUNG	1139	00000	-29.14211	26.24052
627	MANGAUNG	731	00000	-29.13796	26.23664
628	MANGAUNG	747	00000	-29.13855	26.23666
629	MANGAUNG	3347	00000	-29.17126	26.25889
630	MANGAUNG	8857	00000	-29.15226	26.24739

631	MANGAUNG	7901	00000	-29.16807	26.24791
632	MANGAUNG	7951	00000	-29.16944	26.24574
633	MANGAUNG	9306	00000	-29.14858	26.24951
634	MANGAUNG	18907	00000	-29.19324	26.24858
635	MANGAUNG	21175	00000	-29.19469	26.24999
636	MANGAUNG	24119	00000	-29.14306	26.24116
637	MANGAUNG	24128	00000	-29.14423	26.24216
638	MANGAUNG	25163	00000	-29.1502	26.24418
639	MANGAUNG	24188	00000	-29.14407	26.2429
640	MANGAUNG	27849	00000	-29.16648	26.24322
641	HEIDEDAL	14441	00000	-29.17989	26.29284
642	HEIDEDAL	12825	00000	-29.19322	26.27752
643	HEIDEDAL	12127	00000	-29.18184	26.27617
644	HEIDEDAL	10869	00000	-29.17399	26.27674
645	HEIDEDAL	15874	00000	-29.18067	26.27867
646	HEIDEDAL	14928	00000	-29.189	26.29068
647	HEIDEDAL	13992	00000	-29.17922	26.28917
648	HEIDEDAL	14999	00000	-29.18781	26.28716
649	HEIDEDAL	15009	00000	-29.18678	26.28689
650	MANGAUNG	8278	00000	-29.17122	26.25037
651	MANGAUNG	8392	00000	-29.17231	26.24735
652	MANGAUNG	25393	00000	-29.15415	26.2419
653	MANGAUNG	19042	00000	-29.17904	26.2438
654	MANGAUNG	20706	00000	-29.16121	26.24811
655	MANGAUNG	27295	00000	-29.16305	26.25063
656	MANGAUNG	27304	00000	-29.16391	26.24939
657	MANGAUNG	27041	00000	-29.16317	26.24354
658	MANGAUNG	27216	00000	-29.16205	26.24964
659	MANGAUNG	25333	00000	-29.15542	26.24213
660	MANGAUNG	20963	00000	-29.16317	26.24473
661	MANGAUNG	21395	00000	-29.19464	26.25434
662	MANGAUNG	24202	00000	-29.14352	26.24437
663	MANGAUNG	27855	00000	-29.16518	26.24424
664	HEIDEDAL	15393	00000	-29.18437	26.28662
665	HEIDEDAL	13393	00000	-29.19093	26.2835
666	HEIDEDAL	11316	00000	-29.17835	26.27042
667	HEIDEDAL	11086	00000	-29.17786	26.27264
668	HEIDEDAL	11516	00000	-29.18096	26.26881
669	MANGAUNG	1011	00000	-29.13992	26.23985
670	MANGAUNG	8808	00000	-29.15391	26.25253
671	MANGAUNG	8811	00000	-29.15406	26.25205
672	MANGAUNG	8701	00000	-29.15327	26.25031
673	MANGAUNG	8825	00000	-29.15292	26.25182
674	MANGAUNG	8833	00000	-29.15196	26.25144
675	MANGAUNG	21273	00000	-29.19474	26.25254
676	MANGAUNG	24075	00000	-29.14292	26.24076
677	MANGAUNG	18972	00000	-29.18225	26.24403
678	MANGAUNG	21242	00000	-29.19424	26.25344
679	MANGAUNG	18990	00000	-29.18317	26.24556
680	MANGAUNG	27252	00000	-29.16242	26.24769
681	MANGAUNG	25443	00000	-29.15291	26.24688
682	MANGAUNG	25337	00000	-29.15566	26.24232
683	MANGAUNG	29535	00000	-29.1949	26.26985
684	HEIDEDAL	13549	00000	-29.18842	26.28499
685	HEIDEDAL	13394	00000	-29.19082	26.28357
686	HEIDEDAL	11397	00000	-29.18023	26.2714
687	HEIDEDAL	12114	00000	-29.18203	26.27469
688	HEIDEDAL	10859	00000	-29.17525	26.27637
689	HEIDEDAL	15907	00000	-29.17968	26.27916
690	HEIDEDAL	15989	00000	-29.14839	26.26931

691	HEIDEDAL	15439	00000	-29.18519	26.28756
692	HEIDEDAL	13895	00000	-29.17764	26.28917
693	MANGAUNG	847	00000	-29.13753	26.23887
694	MANGAUNG	892	00000	-29.13851	26.23831
695	MANGAUNG	3410	00000	-29.17306	26.26019
696	MANGAUNG	8111	00000	-29.1695	26.24671
697	MANGAUNG	7929	00000	-29.16907	26.24723
698	MANGAUNG	8790	00000	-29.15535	26.2524
699	MANGAUNG	21128	00000	-29.19616	26.25132
700	MANGAUNG	19130	00000	-29.18207	26.24478
701	MANGAUNG	21262	00000	-29.19453	26.25308
702	MANGAUNG	25306	00000	-29.15434	26.24327
703	MANGAUNG	25273	00000	-29.15246	26.24302
704	MANGAUNG	25290	00000	-29.15318	26.24242
705	MANGAUNG	25244	00000	-29.15222	26.24097
706	MANGAUNG	29221	00000	-29.18659	26.26488
707	HEIDEDAL	13405	00000	-29.19196	26.28365
708	HEIDEDAL	12202	00000	-29.19011	26.2769
709	HEIDEDAL	10518	00000	-29.14028	26.27158
710	HEIDEDAL	11082	00000	-29.17746	26.27324
711	HEIDEDAL	15865	00000	-29.1797	26.27945
712	MANGAUNG	969	00000	-29.1387	26.24048
713	HEIDEDAL	14932	00000	-29.18798	26.29103
714	HEIDEDAL	14755	00000	-29.18973	26.29067
715	HEIDEDAL	15157	00000	-29.18404	26.2913
716	MANGAUNG	800	00000	-29.13986	26.2365
717	MANGAUNG	8052	00000	-29.17051	26.24516
718	MANGAUNG	8670	00000	-29.15355	26.25177
719	MANGAUNG	21324	00000	-29.19563	26.25287
720	MANGAUNG	21337	00000	-29.19402	26.25434
721	MANGAUNG	21033	00000	-29.19575	26.25036
722	MANGAUNG	19149	00000	-29.18223	26.24454
723	MANGAUNG	25324	00000	-29.1549	26.24168
724	MANGAUNG	24471	00000	-29.14775	26.24505
725	MANGAUNG	25186	00000	-29.15083	26.24226
726	MANGAUNG	25254	00000	-29.15301	26.24147
727	MANGAUNG	25262	00000	-29.15288	26.2421
728	HEIDEDAL	13209	00000	-29.19454	26.28212
729	HEIDEDAL	13842	00000	-29.19094	26.28987
730	HEIDEDAL	11524	00000	-29.18175	26.26903
731	HEIDEDAL	10547	00000	-29.14955	26.27365
732	MANGAUNG	988	00000	-29.13934	26.2408
733	HEIDEDAL	15365	00000	-29.185	26.28578
734	HEIDEDAL	15420	00000	-29.18532	26.28676
735	HEIDEDAL	15699	00000	-29.18245	26.27998
736	HEIDEDAL	15588	00000	-29.18124	26.28185
737	MANGAUNG	3387	00000	-29.17283	26.26035
738	MANGAUNG	3395	00000	-29.17395	26.26077
739	MANGAUNG	8990	00000	-29.1543	26.24947
740	MANGAUNG	8540	00000	-29.147	26.24843
741	MANGAUNG	8225	00000	-29.17166	26.24764
742	MANGAUNG	24525	00000	-29.14752	26.24311
743	MANGAUNG	21346	00000	-29.19411	26.25558
744	MANGAUNG	18979	00000	-29.18297	26.24432
745	MANGAUNG	24213	00000	-29.14372	26.24533
746	MANGAUNG	24242	00000	-29.14351	26.24373
747	HEIDEDAL	10637	00000	-29.14836	26.27322
748	HEIDEDAL	13636	00000	-29.18975	26.28626
749	HEIDEDAL	14238	00000	-29.18207	26.29075
750	HEIDEDAL	11727	00000	-29.18228	26.27043

751	HEIDEDAL	10944	00000	-29.17469	26.277
752	HEIDEDAL	15916	00000	-29.14937	26.26884
753	HEIDEDAL	15297	00000	-29.18332	26.28743
754	HEIDEDAL	15593	00000	-29.18072	26.28227
755	HEIDEDAL	15606	00000	-29.18049	26.28397
756	MANGAUNG	876	00000	-29.13824	26.23805
757	MANGAUNG	703	00000	-29.13711	26.23669
758	MANGAUNG	3241	00000	-29.16912	26.25855
759	MANGAUNG	8244	00000	-29.17216	26.24865
760	MANGAUNG	20939	00000	-29.16186	26.24549
761	MANGAUNG	27162	00000	-29.16092	26.24964
762	MANGAUNG	24217	00000	-29.14389	26.2456
763	MANGAUNG	25546	00000	-29.15527	26.24453
764	MANGAUNG	25449	00000	-29.15339	26.24682
765	MANGAUNG	24230	00000	-29.14385	26.24455
766	MANGAUNG	21048	00000	-29.1969	26.25101
767	MANGAUNG	24264	00000	-29.1444	26.24387
768	HEIDEDAL	10641	00000	-29.14866	26.2727
769	HEIDEDAL	13376	00000	-29.19303	26.28332
770	HEIDEDAL	11036	00000	-29.1774	26.27143
771	HEIDEDAL	13828	00000	-29.19075	26.28957
772	HEIDEDAL	14670	00000	-29.17977	26.29442
773	HEIDEDAL	11847	00000	-29.18467	26.2718
774	HEIDEDAL	12176	00000	-29.191	26.27399
775	HEIDEDAL	14527	00000	-29.18349	26.2923
776	HEIDEDAL	14087	00000	-29.1804	26.28913
777	HEIDEDAL	14003	00000	-29.17979	26.2885
778	MANGAUNG	3224	00000	-29.16942	26.25961
779	MANGAUNG	8304	00000	-29.17083	26.25153
780	MANGAUNG	21089	00000	-29.19649	26.24997
781	MANGAUNG	20755	00000	-29.1607	26.24456
782	MANGAUNG	18692	00000	-29.1899	26.24731
783	MANGAUNG	27389	00000	-29.15933	26.25199
784	MANGAUNG	24003	00000	-29.14079	26.24157
785	MANGAUNG	29828	00000	-29.19393	26.27094
786	HEIDEDAL	13604	00000	-29.18939	26.28578
787	HEIDEDAL	13832	00000	-29.1903	26.28988
788	HEIDEDAL	11477	00000	-29.1802	26.26904
789	HEIDEDAL	10545	00000	-29.14167	26.27213
790	HEIDEDAL	11494	00000	-29.18203	26.26988
791	HEIDEDAL	14303	00000	-29.17996	26.29059
792	HEIDEDAL	15352	00000	-29.18351	26.288
793	HEIDEDAL	14007	00000	-29.17933	26.2888
794	HEIDEDAL	14016	00000	-29.18058	26.28828
795	MANGAUNG	1072	00000	-29.13991	26.23772
796	MANGAUNG	3424	00000	-29.17451	26.26197
797	MANGAUNG	8536	00000	-29.14639	26.24817
798	MANGAUNG	9365	00000	-29.14541	26.24731
799	MANGAUNG	8310	00000	-29.17019	26.25127
800	MANGAUNG	8318	00000	-29.17101	26.25198
801	MANGAUNG	8743	00000	-29.1541	26.25149
802	MANGAUNG	18911	00000	-29.19339	26.24871
803	MANGAUNG	21212	00000	-29.19464	26.25404
804	MANGAUNG	20783	00000	-29.15963	26.24543
805	MANGAUNG	25738	00000	-29.15845	26.24147
806	MANGAUNG	25201	00000	-29.14959	26.24053
807	MANGAUNG	24130	00000	-29.14439	26.24212
808	MANGAUNG	26740	00000	-29.16213	26.24333
809	MANGAUNG	25354	00000	-29.15606	26.24353
810	MANGAUNG	27621	00000	-29.16326	26.2515

811	HEIDEDAL	11917	00000	-29.18259	26.27303
812	HEIDEDAL	15680	00000	-29.18229	26.28049
813	HEIDEDAL	16782	00000	-29.14578	26.2744
814	HEIDEDAL	14724	00000	-29.18136	26.29509
815	HEIDEDAL	14791	00000	-29.18653	26.29266
816	HEIDEDAL	14814	00000	-29.18439	26.29227
817	HEIDEDAL	14823	00000	-29.1859	26.29257
818	MANGAUNG	954	00000	-29.13821	26.24076
819	MANGAUNG	8547	00000	-29.14616	26.24784
820	MANGAUNG	8964	00000	-29.15336	26.2494
821	MANGAUNG	8191	00000	-29.17151	26.24987
822	MANGAUNG	8749	00000	-29.15372	26.25111
823	MANGAUNG	8662	00000	-29.15237	26.25118
824	MANGAUNG	18870	00000	-29.19171	26.24836
825	MANGAUNG	20718	00000	-29.16001	26.24706
826	MANGAUNG	21231	00000	-29.19526	26.25398
827	MANGAUNG	25210	00000	-29.1503	26.24073
828	MANGAUNG	24463	00000	-29.14823	26.2457
829	MANGAUNG	24157	00000	-29.14367	26.24332
830	MANGAUNG	25224	00000	-29.1513	26.24098
831	MANGAUNG	29109	00000	-29.18074	26.26397
832	HEIDEDAL	11948	00000	-29.17991	26.27569
833	HEIDEDAL	12629	00000	-29.19468	26.27531
834	HEIDEDAL	13084	00000	-29.19509	26.28023
835	HEIDEDAL	12521	00000	-29.19021	26.27953
836	HEIDEDAL	10951	00000	-29.17447	26.27842
837	HEIDEDAL	16729	00000	-29.14517	26.27336
838	HEIDEDAL	14589	00000	-29.18336	26.29295
839	HEIDEDAL	14598	00000	-29.18268	26.29344
840	MANGAUNG	830	00000	-29.13726	26.23861
841	MANGAUNG	3207	00000	-29.16883	26.25775
842	MANGAUNG	8499	00000	-29.15021	26.24796
843	MANGAUNG	20832	00000	-29.16136	26.24774
844	MANGAUNG	20841	00000	-29.16129	26.24737
845	MANGAUNG	19105	00000	-29.18107	26.24455
846	MANGAUNG	25777	00000	-29.15928	26.24296
847	MANGAUNG	25786	00000	-29.1598	26.2426
848	MANGAUNG	27819	00000	-29.16596	26.24397
849	MANGAUNG	28807	00000	-29.18136	26.26131
850	MANGAUNG	28709	00000	-29.17876	26.26181
851	MANGAUNG	28717	00000	-29.17948	26.26076
852	MANGAUNG	27448	00000	-29.16048	26.25195
853	MANGAUNG	27457	00000	-29.15963	26.2532
854	MANGAUNG	32264	00000	-29.19107	26.25644
855	MANGAUNG	29341	00000	-29.18489	26.26773
856	MANGAUNG	37604	00000	-29.16966	26.25741
857	MANGAUNG	34028	00000	-29.18847	26.26007
858	MANGAUNG	35286	00000	-29.17404	26.25165
859	MANGAUNG	35718	00000	-29.17815	26.25146
860	MANGAUNG	37520	00000	-29.16801	26.25455
861	MANGAUNG	39918	00000	-29.18556	26.24532
862	MANGAUNG	39707	00000	-29.19767	26.25701
863	MANGAUNG	37729	00000	-29.17231	26.25535
864	MANGAUNG	38678	00000	-29.17758	26.24675
865	MANGAUNG	35925	00000	-29.1772	26.25424
866	MANGAUNG	37436	00006	-29.16758	26.25201
867	MANGAUNG	38654	00000	-29.17614	26.24563
868	MANGAUNG	36452	00000	-29.17629	26.25912
869	MANGAUNG	39774	00000	-29.19595	26.25774
870	MANGAUNG	52306	00000	-29.20057	26.26071

871	MANGAUNG	54251	00000	-29.19481	26.24871
872	MANGAUNG	53083	00000	-29.20149	26.26898
873	MANGAUNG	54048	00000	-29.20048	26.25461
874	MANGAUNG	52834	00000	-29.20032	26.26374
875	MANGAUNG	52862	00000	-29.20123	26.26281
876	MANGAUNG	27827	00000	-29.16519	26.24487
877	MANGAUNG	25495	00000	-29.15385	26.24591
878	MANGAUNG	27802	00000	-29.1668	26.2442
879	MANGAUNG	32160	00000	-29.18715	26.25276
880	MANGAUNG	35353	00000	-29.17356	26.25263
881	MANGAUNG	33804	00000	-29.18493	26.25968
882	MANGAUNG	32179	00000	-29.18817	26.25372
883	MANGAUNG	29498	00000	-29.18593	26.26305
884	MANGAUNG	32195	00000	-29.18777	26.25445
885	MANGAUNG	37494	00000	-29.16768	26.25316
886	MANGAUNG	35965	00000	-29.17758	26.25519
887	MANGAUNG	35968	00000	-29.1778	26.25488
888	MANGAUNG	35176	00000	-29.17353	26.24836
889	MANGAUNG	34253	00000	-29.19173	26.26022
890	MANGAUNG	36758	00000	-29.16659	26.25067
891	MANGAUNG	34673	00000	-29.19569	26.26493
892	MANGAUNG	34686	00000	-29.19456	26.26443
893	MANGAUNG	35732	00000	-29.17939	26.25257
894	MANGAUNG	36204	00000	-29.17291	26.25941
895	MANGAUNG	36659	00000	-29.16551	26.25132
896	MANGAUNG	37528	00000	-29.1672	26.25415
897	MANGAUNG	35657	00000	-29.17658	26.25196
898	MANGAUNG	38493	00000	-29.18131	26.25301
899	MANGAUNG	39699	00000	-29.19902	26.25442
900	MANGAUNG	38076	00000	-29.17883	26.25155
901	MANGAUNG	36881	00000	-29.16652	26.2536
902	MANGAUNG	36455	00000	-29.1762	26.25878
903	MANGAUNG	40037	00000	-29.16129	26.24113
904	MANGAUNG	52049	00000	-29.20003	26.25782
905	MANGAUNG	53982	00000	-29.20022	26.25282
906	MANGAUNG	54071	00000	-29.1994	26.25538
907	MANGAUNG	56806	00000	-29.13599	26.24051
908	MANGAUNG	56815	00000	-29.13685	26.24014
909	MANGAUNG	29238	00000	-29.18457	26.26589
910	MANGAUNG	29312	00000	-29.18198	26.26626
911	MANGAUNG	29321	00000	-29.18281	26.26669
912	MANGAUNG	27959	00000	-29.16712	26.24751
913	MANGAUNG	25893	00000	-29.16061	26.24004
914	MANGAUNG	25897	00000	-29.16086	26.23989
915	MANGAUNG	27082	00000	-29.16396	26.2488
916	MANGAUNG	25520	00000	-29.15363	26.24412
917	MANGAUNG	32288	00000	-29.19366	26.25325
918	MANGAUNG	29481	00000	-29.18579	26.26373
919	MANGAUNG	29773	00000	-29.18893	26.26948
920	MANGAUNG	27679	00000	-29.16775	26.246
921	MANGAUNG	36158	00000	-29.17186	26.25891
922	MANGAUNG	36979	00000	-29.16434	26.25737
923	MANGAUNG	33944	00000	-29.18902	26.26029
924	MANGAUNG	37194	00000	-29.16641	26.25633
925	MANGAUNG	37104	00000	-29.1649	26.25561
926	MANGAUNG	35754	00000	-29.17834	26.25327
927	MANGAUNG	34158	00000	-29.19026	26.26244
928	MANGAUNG	37834	00000	-29.17623	26.24855
929	MANGAUNG	37846	00000	-29.17534	26.24746
930	MANGAUNG	37015	00000	-29.16553	26.25613

931	MANGAUNG	52679	00000	-29.19849	26.26276
932	MANGAUNG	52525	00000	-29.20372	26.26092
933	MANGAUNG	53405	00000	-29.20529	26.26405
934	MANGAUNG	53049	00000	-29.20291	26.26809
935	MANGAUNG	53161	00000	-29.19663	26.26742
936	MANGAUNG	28966	00000	-29.17904	26.26416
937	MANGAUNG	28796	00000	-29.18092	26.26134
938	MANGAUNG	28806	00000	-29.18145	26.26118
939	MANGAUNG	28933	00000	-29.17542	26.26318
940	MANGAUNG	27967	00000	-29.16588	26.24745
941	MANGAUNG	33285	00000	-29.18066	26.2558
942	MANGAUNG	33352	00000	-29.18106	26.25611
943	MANGAUNG	36717	00000	-29.16751	26.25069
944	MANGAUNG	36059	00000	-29.17844	26.25499
945	MANGAUNG	36394	00000	-29.17585	26.26138
946	MANGAUNG	36850	00000	-29.16531	26.25269
947	MANGAUNG	35562	00000	-29.17632	26.25012
948	MANGAUNG	32798	00000	-29.18861	26.25409
949	MANGAUNG	34583	00000	-29.19321	26.26735
950	MANGAUNG	38177	00000	-29.17966	26.25001
951	MANGAUNG	38604	00000	-29.17811	26.24575
952	MANGAUNG	38668	00000	-29.17697	26.24673
953	MANGAUNG	37668	00000	-29.17091	26.2574
954	MANGAUNG	36550	00000	-29.17569	26.25671
955	MANGAUNG	36355	00000	-29.1753	26.26015
956	MANGAUNG	37937	00000	-29.17962	26.24787
957	MANGAUNG	39161	00000	-29.18478	26.24721
958	MANGAUNG	38430	00000	-29.18168	26.25261
959	MANGAUNG	37281	00000	-29.16843	26.25059
960	MANGAUNG	52028	00000	-29.20156	26.25563
961	MANGAUNG	52316	00000	-29.20125	26.26188
962	MANGAUNG	52817	00000	-29.20074	26.26249
963	MANGAUNG	58261	00000	-29.19691	26.24864
964	MANGAUNG	28975	00000	-29.1778	26.26436
965	MANGAUNG	28884	00000	-29.18143	26.26274
966	MANGAUNG	27905	00000	-29.169	26.24139
967	MANGAUNG	25668	00000	-29.15705	26.24366
968	MANGAUNG	28947	00000	-29.17916	26.26442
969	MANGAUNG	28485	00000	-29.14807	26.24048
970	MANGAUNG	33294	00000	-29.1815	26.2561
971	MANGAUNG	32697	00000	-29.19105	26.25677
972	MANGAUNG	33808	00000	-29.18495	26.25915
973	MANGAUNG	32410	00000	-29.19239	26.25162
974	MANGAUNG	29375	00000	-29.18333	26.26379
975	MANGAUNG	29748	00000	-29.18986	26.26925
976	MANGAUNG	36495	00000	-29.17602	26.25814
977	MANGAUNG	38788	00000	-29.18065	26.24645
978	MANGAUNG	37466	00000	-29.16773	26.25264
979	MANGAUNG	37475	00000	-29.16707	26.25367
980	MANGAUNG	33960	00000	-29.18748	26.26085
981	MANGAUNG	33966	00000	-29.18875	26.25864
982	MANGAUNG	34362	00000	-29.19204	26.26337
983	MANGAUNG	34690	00000	-29.19419	26.26436
984	MANGAUNG	37203	00000	-29.16632	26.25612
985	MANGAUNG	37207	00000	-29.16611	26.25662
986	MANGAUNG	36753	00000	-29.16636	26.25089
987	MANGAUNG	39587	00000	-29.19775	26.25253
988	MANGAUNG	39596	00000	-29.19846	26.25226
989	MANGAUNG	39125	00000	-29.18256	26.24787
990	MANGAUNG	38078	00000	-29.17902	26.25172

991	MANGAUNG	37367	00000	-29.1708	26.25652
992	MANGAUNG	37424	00000	-29.16878	26.25135
993	MANGAUNG	37959	00000	-29.17821	26.24831
994	MANGAUNG	54277	00000	-29.19539	26.24818
995	MANGAUNG	54287	00000	-29.19642	26.24809
996	MANGAUNG	53226	00000	-29.20378	26.26545
997	MANGAUNG	53848	00000	-29.19882	26.25899
998	MANGAUNG	52509	00000	-29.20474	26.26291
999	MANGAUNG	54009	00000	-29.20137	26.25315
1000	MANGAUNG	27648	00000	-29.16387	26.25124

Development footprint¹ 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	14/12/16/3/3/1/1093	Solar PV	Approved	14.6
2	14/12/16/3/3/1/615	Solar PV	Approved	28.3
3	14/12/16/3/3/2/360	Solar PV	Approved	28.3
4	14/12/16/3/3/1/1092	Solar PV	Approved	14.6
5	14/12/16/3/3/1/564	Solar PV	Approved	12.3

Environmental Management Frameworks relevant to the application

¹ “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.

No intersections with EMF areas found.

Environmental screening results and assessment outcomes

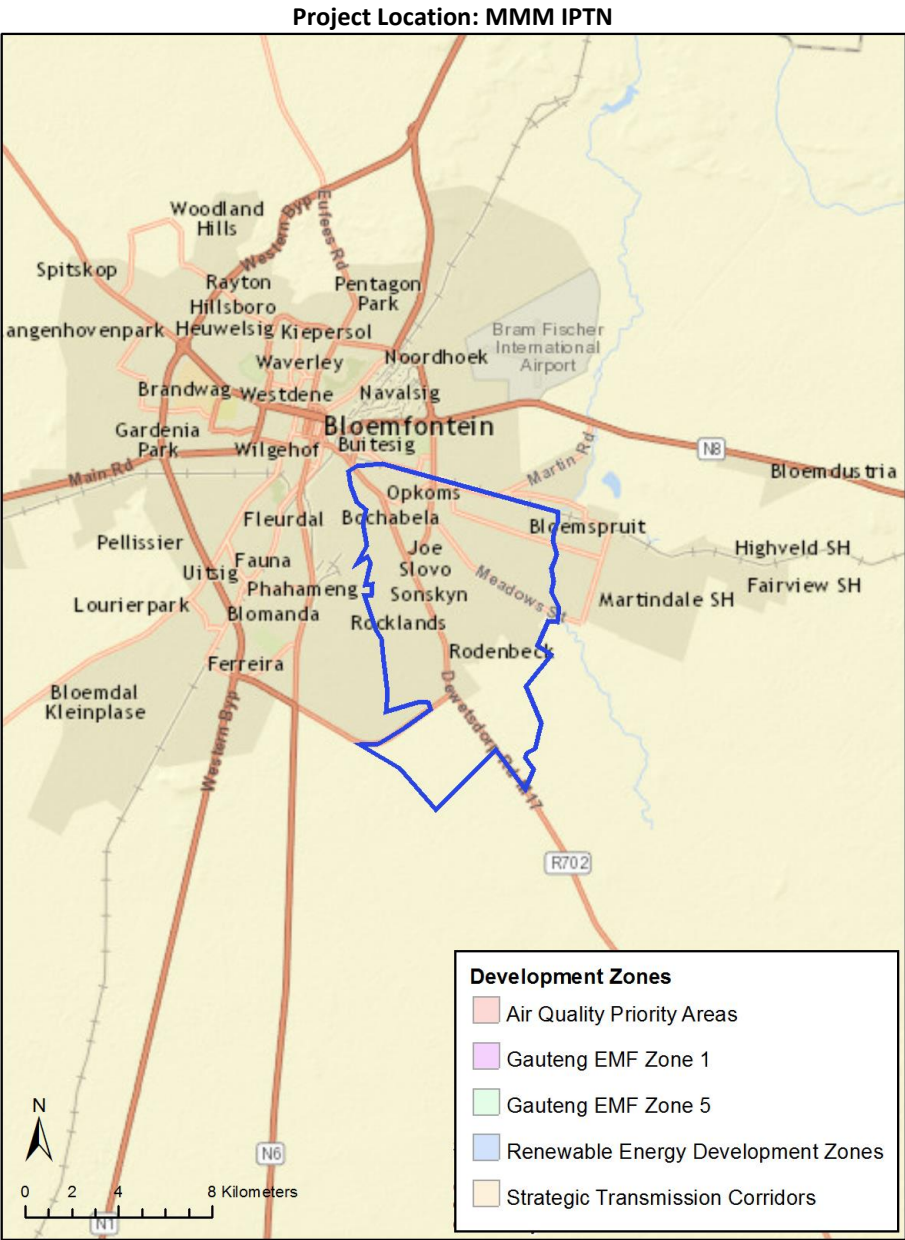
The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification 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

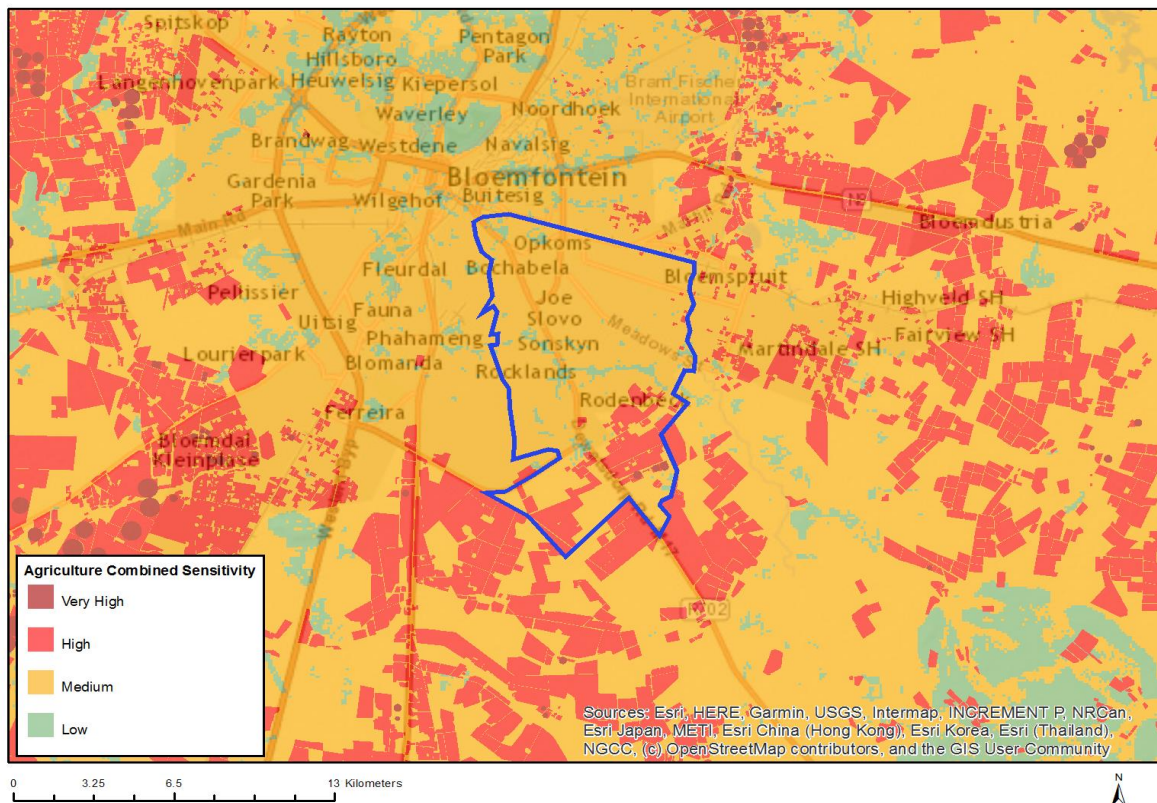
Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment 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	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/DraftAgricultureProtocol.pdf
2	Landscape/Visual Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
3	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
4	Palaeontology Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
5	Terrestrial Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
6	Aquatic Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
7	Noise Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
8	Traffic Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
9	Geotechnical Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
10	Socio-Economic Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
11	Ambient Air Quality Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf

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

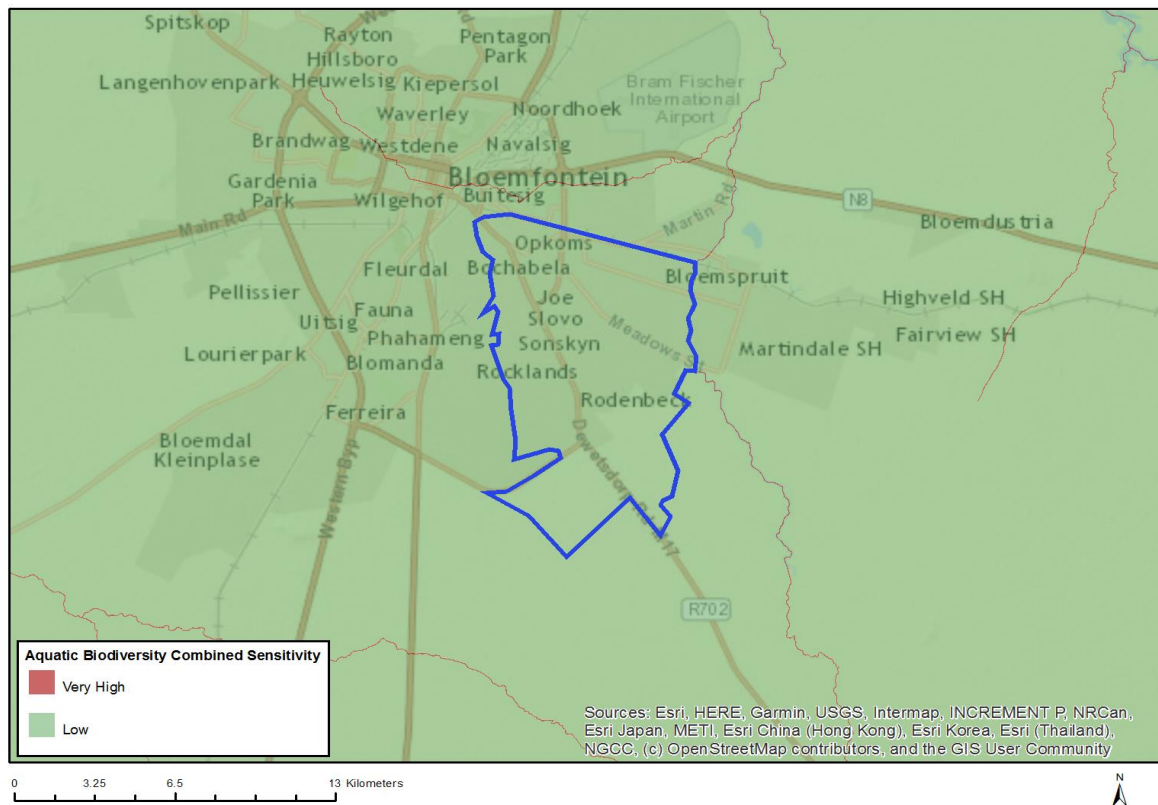


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

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

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

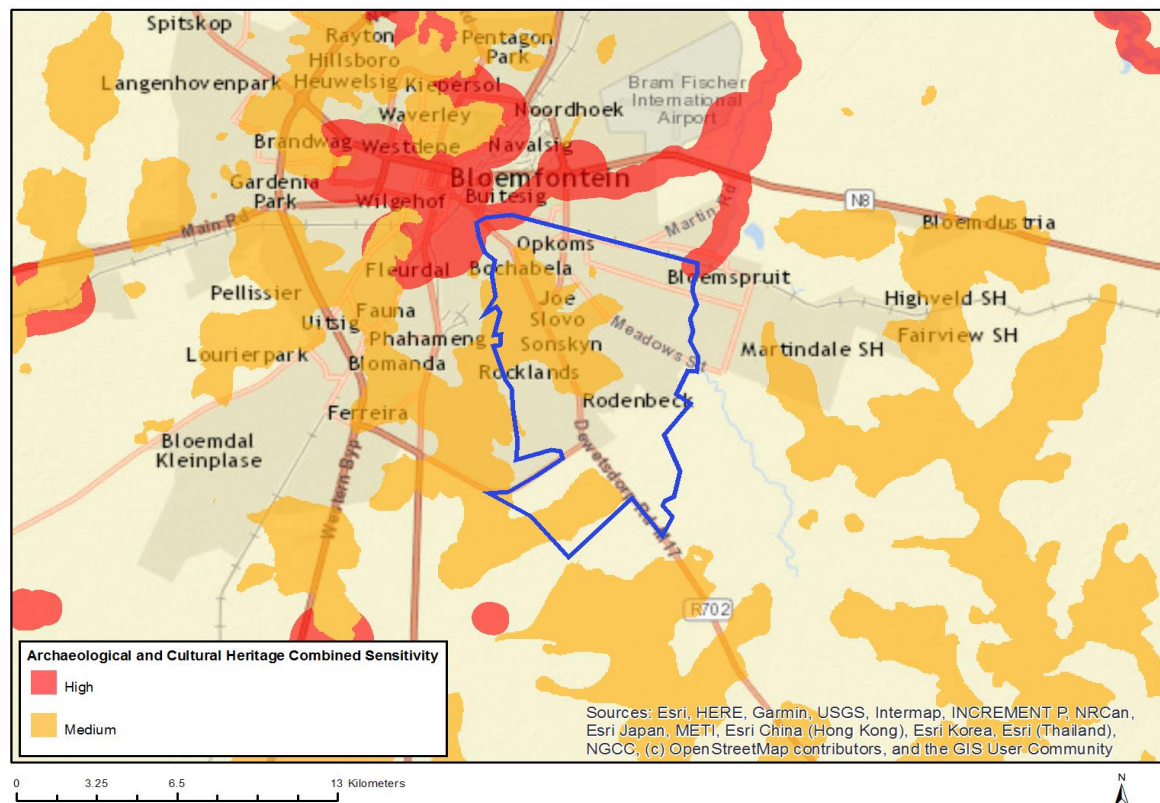


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity Areas
Very High	CBA,River,Renosterspruit

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

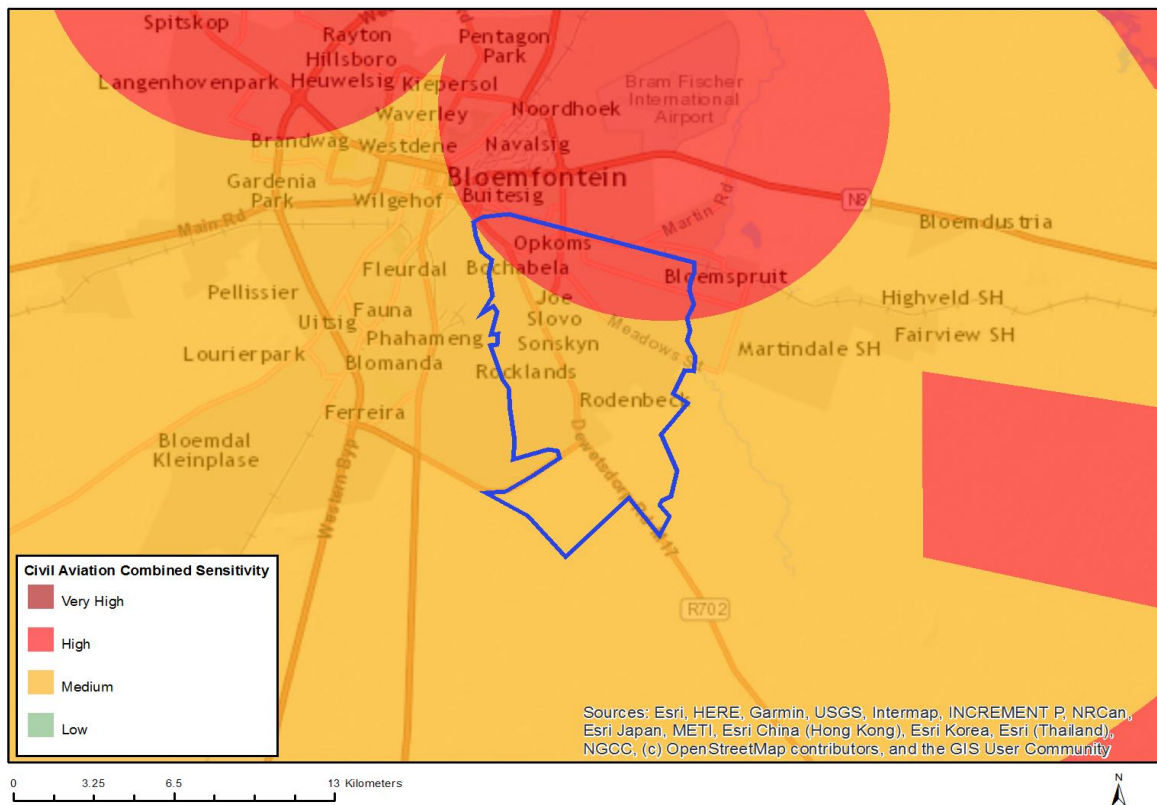


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Within 500 m of an important river
High	Within 500 m of a heritage site
Medium	Mountain or ridge

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY

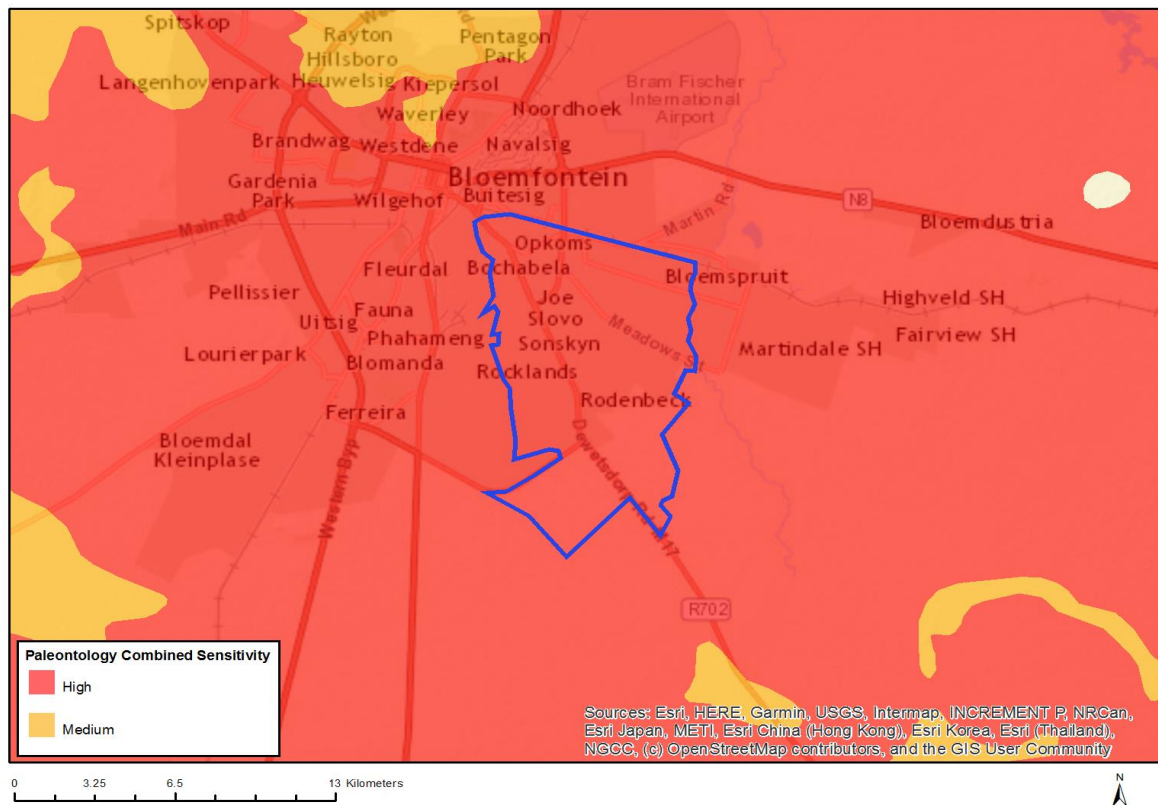


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Within 15 km of a civil aviation radar
High	Within 8 km of other civil aviation aerodrome
Medium	Within 5 km of an air traffic control or navigation site
Medium	Between 15 and 35 km from a civil aviation radar
Medium	Between 8 and 15 km of other civil aviation aerodrome

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

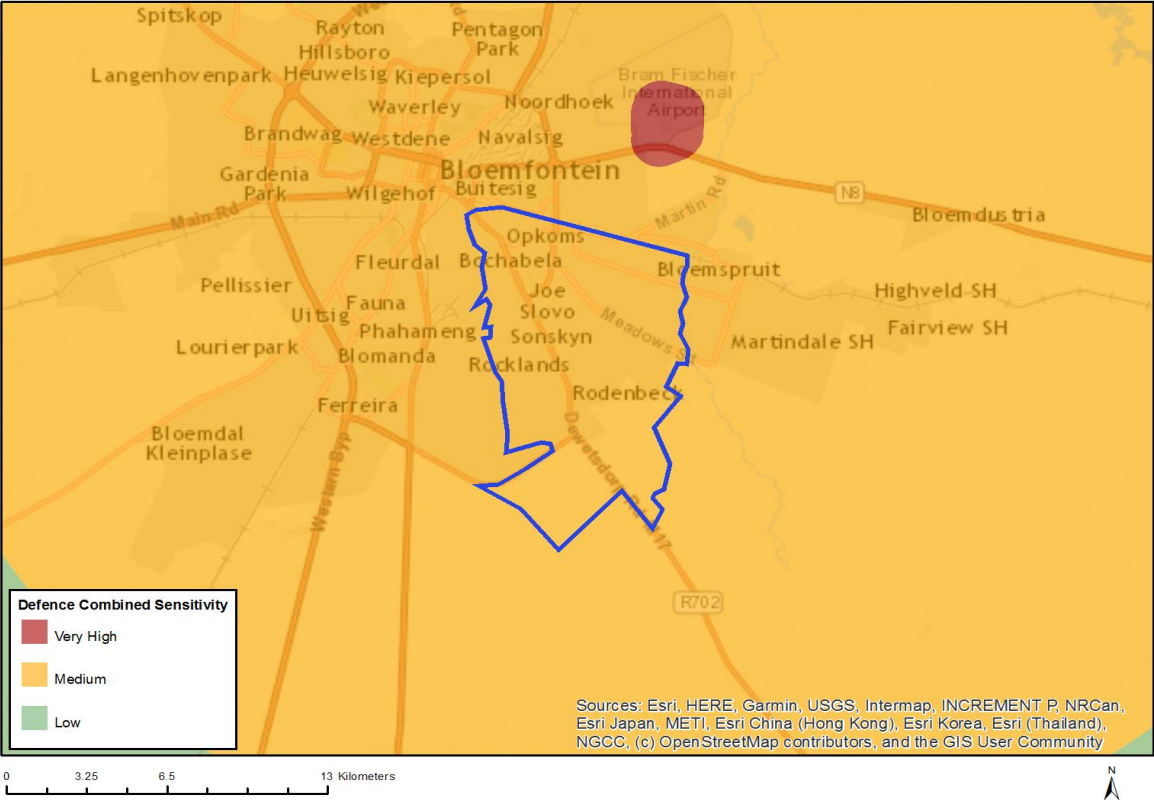


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

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

MAP OF RELATIVE DEFENCE THEME SENSITIVITY

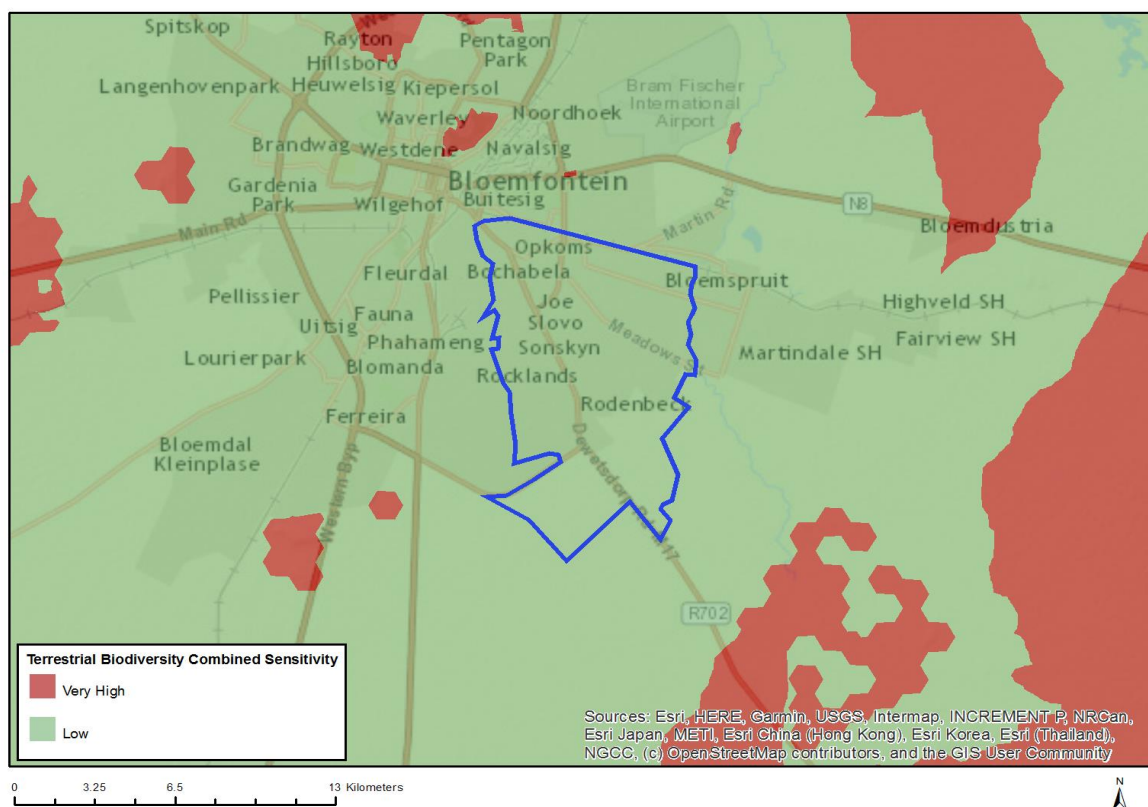


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Defence Site

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	None