WATER USE LICENCE APPLICATION TECHNICAL REPORT

FOR THE PROPOSED DEVELOPMENT OF PORTION 260 (A PORTION OF PORTION 114) OF THE FARM RIETFONTEIN 189 IQ AS WELL NECESSARY SERVICES ON SURROUNDING PROPERTIES

Comment Period: 21 September 2020 to 22 October 2020

Proponent:

Hocom Properties (Pty) Ltd.

Project Reference:

21949-Ptn 260 Rietfontein 189

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1 INTRODUCTION

1.1 Project Description

The proposed development of Portion 260 of the Farm Rietfontein 189 IQ involves a mix use development which includes a broad range of uses including Business 1 and Commercial Uses. This aims to serve growing residential areas around the area. The following primary rights are being applied for:

- Erf 1 – 4 | Business 1 (As per Scheme: Shops, Office use, Dwelling Units, Residential Use, Hotel and Restaurant)
- Erf 5 | Commercial (As per Scheme: - Warehousing and Distribution)
- Erf 6-7 | Business 1 As per Scheme: Shops, Office use, Dwelling Units, Residential Use, Hotel and Restaurant)

Necessary roads and services required for the development will also be put in place. These include:

- Water
  - An existing 110mm dia. municipal water pipeline traverses the proposed development parallel to Beyers Naude Drive. A new 160mm dia. municipal water pipeline will be installed in the new service road and will connect to this existing line.
  - The average daily demand for the proposed township is 307.2 kl/day.
- Sewer
  - No existing municipal sewer infrastructure is located adjacent to the proposed development. The nearest connection point is situated approximately 1.1 km west from the proposed township. A new 160mm and 200mm dia. external sewer network will be constructed to connect to this existing line.
  - Dry Weather Flow (DWF) for the proposed township is 230.4 kl/day
- Stormwater
  - Stormwater attenuation will be provided for the 1:5 as well as the 1:25 year storm event such that the pre-development runoff is not exceeded. An industry guideline of 350 m³/ha will be used for the sizing of the attenuation ponds.
  - The stormwater network will be designed in order to safely channel the runoff from a 1:10 year storm event, to the nearby natural drainage course.
  - The internal roads will be provided with kerb inlets at strategic points to catch stormwater runoff from the development.
  - The underground system will consist of “Interlocking Joint” concrete pipes with a minimum diameter of 450mm (up to 675mm diameter) and discharged in the bio-retention pond.
  - The bio-retention pond will include an earth berm with crest protect with stone pitching and vegetation will be put in place to promote sheet flow into the wetland.
- Electricity
  - The proposed development will require approximately 3639 kVA electrical capacity.

- Preliminary information suggests that the township will be supplied by Eskom from the existing 86 KV Dalkeith Substation from the 11kV Kromdraai feeder line which is adjacent to the property. The substation and line both have spare capacity.
- Internal services will consist of an 11KV underground cable supplying miniature substations.

- Roads
  - A Traffic Impact Assessment has been undertaken to better understand the traffic impact of the development as well as to identify the necessary road upgrades required by the proposed development. Based on the development size, the expected trip generation of the application is ±965 vehicle trips during the weekday morning (AM) peak hour and ±2,293 vehicle trips during the weekday afternoon (PM) peak hour (based on COTO TMH 17, the South African Trip Data Manual). In order to cater for this, construction of the following roads will be required:
    - Road A The construction of a new Class 5a (commercial local) road – 7.4m wide in a 20m road reserve.
    - Road B The construction of a new Class 4a (commercial collector) road – 7.4m wide in a 25m road reserve.
  - The following intersection improvements are required:
    - Intersection 4: Valley Road – Ibis Lane / Beyers Naude Drive- The construction of a second exclusive right-turn lane (90m) on the southern approach, and an additional through lane on the western and eastern approaches (90m). The additional through lane in a westbound direction will be constructed up to the planned marginal intersection (Intersection 9).
    - Intersection 7:Boland Road – Indaba Lane /Beyers Naude Drive - The implementation of traffic signals and the construction of exclusive turning lanes (60m) on the northern and southern approaches.
    - Intersection 8: Planned K56 / Beyers Naude Drive - The implementation of traffic signals and the construction of exclusive turning lanes (60m) on the northern and southern approaches.
    - Intersection 9: Road B / Beyers Naude Drive – The construction of a marginal intersection with an exclusive left-turn lane on the eastern approach.
    - Intersection 11: Road B / Road A - The construction of a two-lane roundabout (45m inscribed diameter).
  - Access to the application site will be obtained from Beyers Naude Drive in accordance with the Road Master Plan via the intersection with Valley Road – Ibis Lane and a new Class 5 road (i.e. Road A). Additional access is also proposed from Beyers Naude Drive via a proposed new marginal access (Class 4a road) with Beyers Naude Drive on the eastern boundary of the site (i.e. Road B) and from planned Route K56 in the south-west.
  - An internal road will also be put in place and will be 16m in width.

The proposed development occurs within 32m of a wetland. Further, a number of Roads and services (Road B and the sewer line) traverse the wetland. In addition, stormwater will be released from a single outlet located outside the 32m wetland buffer.

The wetland has been delineated and together with a 32m buffer, excluded from the development footprint. However due to the proximity to the development of Road B and the sewer line which both traverse the wetland, several activities are triggered in terms of Section 21 of the National Water Act (NWA) (Act No. 36 of 1998). These include:

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

Prism Environmental Management Services (Prism EMS) has been appointed to undertake the requisite Water Use Licence Application (WULA) process.

1.2 Project Location

The proposed development occurs on Portion 260 of the Farm Rietfontein 189 IQ. In addition, a number of services are required and will traverse nearby properties. **Table 1-1** provides an overview of the affected properties together the Surveyor General 21-digit diagram number and associated project components.

Table 1-1: Affected Properties and associated project components

21-digit code	Property Description	Services
T0IQ00000000018900255	Portion 255 of the Farm Rietfontein 189	Sewer (Proposal)
T0IQ00000000018900254	Portion 254 of the Farm Rietfontein 189	
T0IQ00000000018900253	Portion 253 of the Farm Rietfontein 189	
T0IQ00000000018900252	Portion 252 of the Farm Rietfontein 189	
T0IQ00000000018900251	Portion 251 of the Farm Rietfontein 189	
T0IQ00000000018900007	Portion 7 of the Farm Rietfontein 189	
T0IQ00000000018900260	Portion 260 of the Farm Rietfontein 189	Internal Stormwater and bioretention pond
		Internal sewer
		Internal water
T0IQ00000000018900189	Portion 189 of the Farm Rietfontein 189	Road A and B, water pipeline
T0IQ00000000018900188	Portion 188 of the Farm Rietfontein 189	Road A, Water Pipeline
T0IQ00000000018900222	Portion 222 of the Farm Rietfontein 189	Water pipeline
T0IQ00000000018900260	Portion 260 of the Farm Rietfontein 189	Road B
0IQ00000000018900646	Portion 646 of the Farm Rietfontein 189	Road B
T0IQ00000000018900631	Portion 631 of the Farm Rietfontein 189	Road B
T0IQ00000000018900258	Portion 258 of the Farm Rietfontein 189	Road B
T0IQ00000000018900257	Portion 257 of the Farm Rietfontein 189	Road B
T0IQ00000000018900253	Portion 253 of the Farm Rietfontein 189	Road B

21-digit code	Property Description	Services
T0IQ00000000018900248	Portion 248 of the Farm Rietfontein 189	Road B
T0IQ00000000018900250	Portion 250 of the Farm Rietfontein 189	Road B
T0IQ00000000018900254	Portion 254 of the Farm Rietfontein 189	Road B
T0IQ00000000018900255	Portion 255 of the Farm Rietfontein 189	Road B
T0IQ00000000018900183	Portion 183 of the Farm Rietfontein 189	Road B

The coordinates for the project are provided in **Table 1-2.**

Table 1-2.: Project Components

	Coordinates	
Centre Point of Mixed Use Development on Portion 260	26° 2'53.37"S	27°53'18.09"E
Start, Middle and End Point Coordinates of Stormwater pipeline and bioretention pond	26° 2'55.99"S	27°53'18.61"E
	26° 2'49.72"S	27°53'13.96"E
	26° 2'58.36"S	27°53'12.69"E
Start, Middle and End Point Coordinates of Sewer Line (Proposal)	26° 2'55.46"S	27°53'18.33"E
	26° 2'48.23"S	27°53'4.57"E
	26° 3'2.37"S	27°52'35.97"E
Start, Middle and End Point Coordinates of Road A and water line (please note that Road A has been previously authorised).	26° 3'5.81"S	27°53'24.82"E
	26° 3'1.93"S	27°53'22.45"E
	26° 2'57.71"S	27°53'19.66"E
Start, Middle and End Point Coordinates of Road B	26° 2'55.87"S	27°53'26.16"E
	26° 2'48.16"S	27°52'53.99"E
	26° 2'40.34"S	27°53'14.43"E

From a catchment perspective, the development occurs in Quaternary catchment area A21E, and is part of Limpopo Water Management Area (WMA 1). An overview of the location of the development is provided in Error! Reference source not found. and Error! Reference source not found..

It should be noted however that Road A and parts of Road B (from where it joins the K56) were assessed and approved as part of the upgrade of Beyers Naude Drive as they are associated roads (GAUT 002/16-17/E01222).

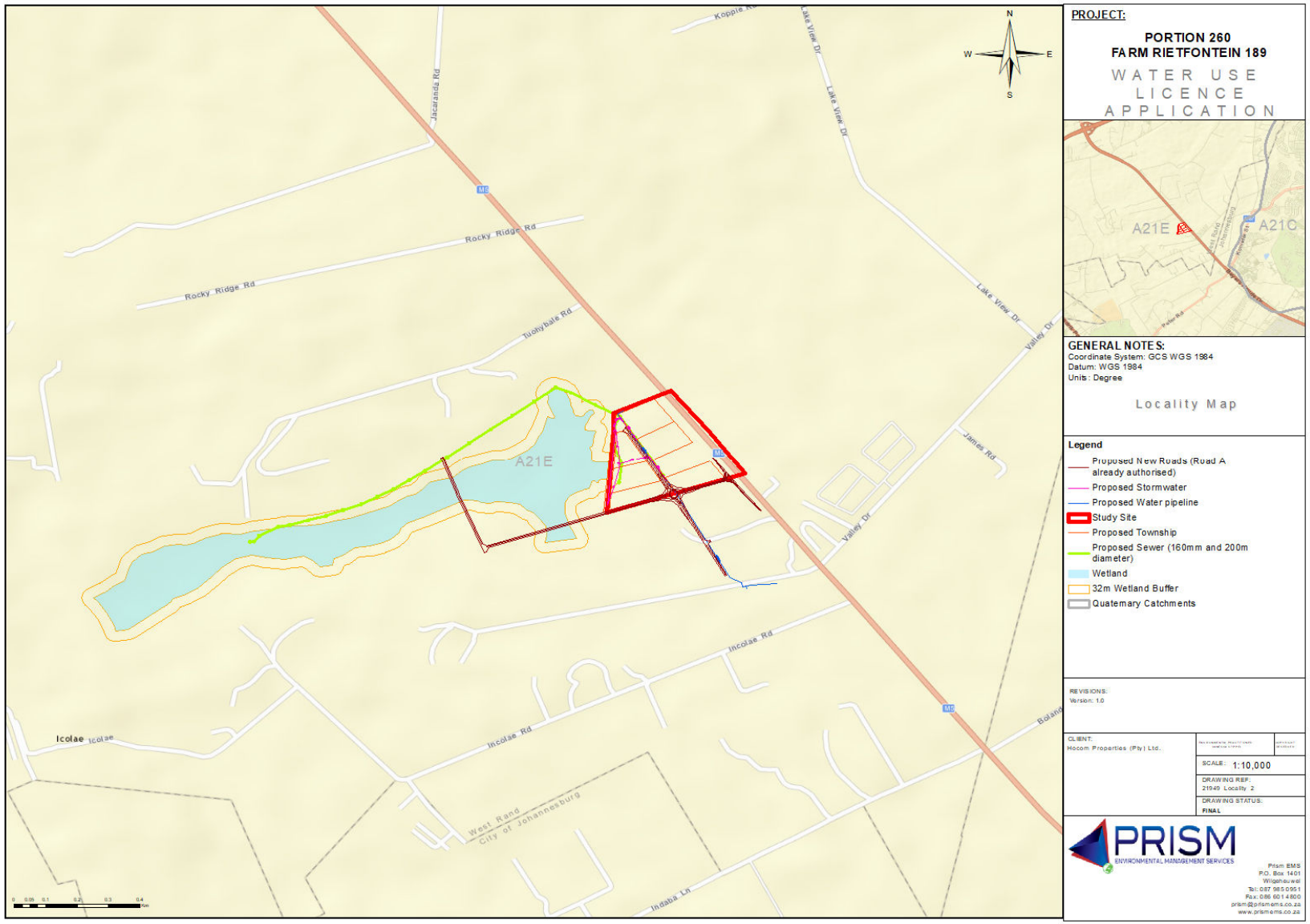


Figure 1-1: Locality Map

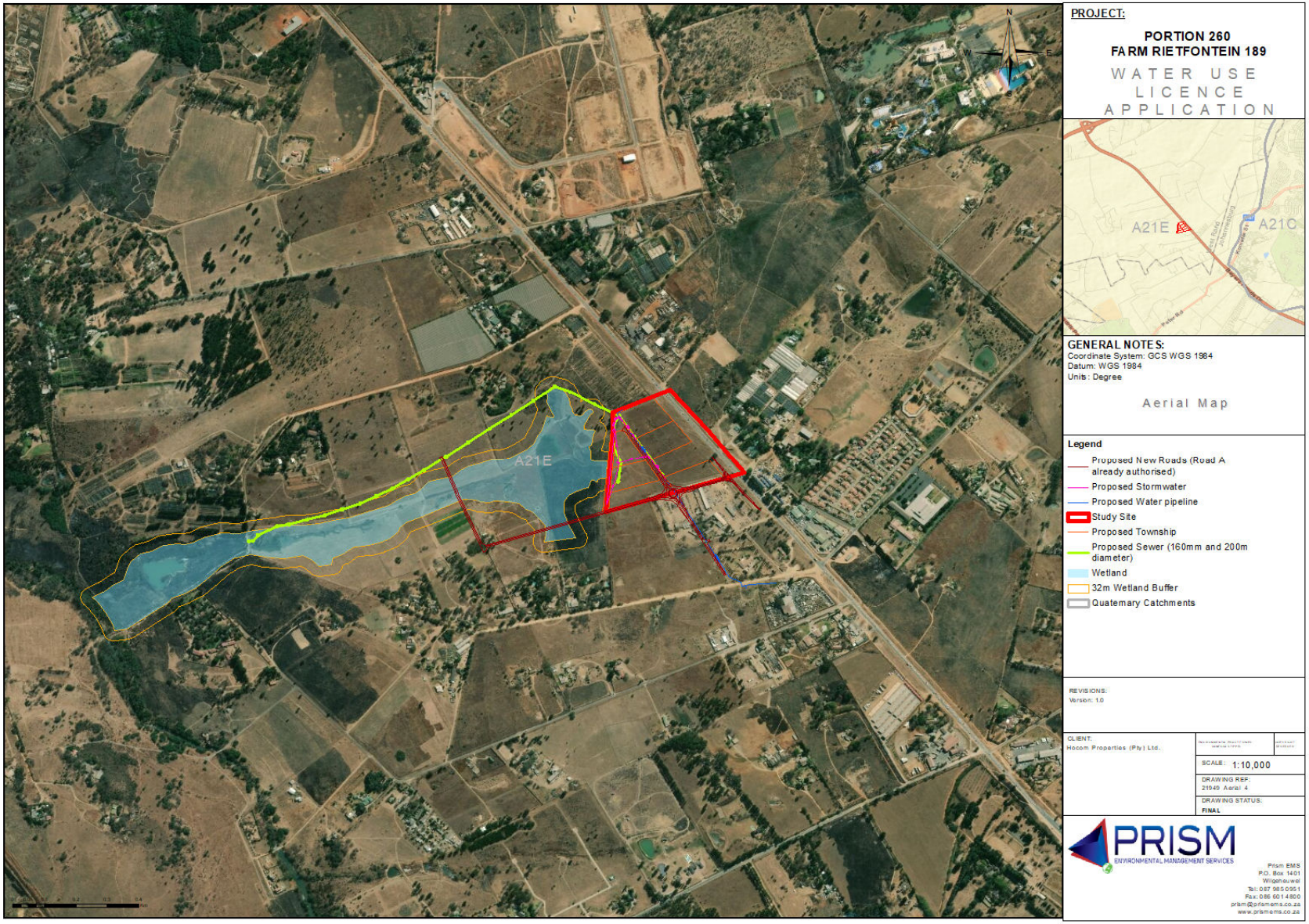


Figure 1-2: Aerial Locality Map

1.3 Contact Details

The applicant is the entity that will assume responsibilities as the holder of the WUL if granted. Details of the applicant is contained in Table 1-3.

Table 1-3.: Details of the Applicant.

Applicant:	Hocom Properties (Pty) Ltd
Contact Person:	Charl Fitzgerald

2 DETAILS OF ASSESSOR AND SPECIALISTS

Prism EMS have been appointed to undertake the required Water Use Authorisation Process in terms of the Section 21 of the National Water Act (Act No. 36 of 1998) (NWA) for the aforementioned project. Details of the Environmental Assessment Practitioner are provided in Table 2-1 and the relevant Curriculum Vitae are appended in Annexure 10.1.

Table 2-1.: Details of the Assessor

Assessor:	Vanessa Stippel
Company:	Prism Environmental Management Services
Qualifications:	MSc. Ecology, Environment and Conservation
Experience:	9 years
Affiliation/ Registration	Professional Member of Southern African Institute of Ecologists and Environmental Scientists SACNASP Pr.Sci.Nat. (116221) Registered EAP (2019/175)
Address:	PO Box 1401, Wilgeheuwel, 1736
Tel:	087 985 0951
Fax:	086 601 4800
Email:	vanessa@prismems.co.za

Designation	**Name**	**Qualification**	**Professional Registration**	**Specialist Assessment**
Prism EMS Team				
Contact Details	**Post:** PO Box 1401, Wilgeheuwel, Johannesburg, 1736		**Tel:** 087 985 0951 **Fax:** 086 601 4800 **Email:** prism@prismems.co.za www.prismems.co.za	
Project Director	De Wet Botha	MA. Environmental Management (PHED) 17 years' experience	South African Council for Natural Scientific Professions (SACNASP) registered Scientist | Pr.Sci.Nat. (119979) Registered Member of Environmental Assessment Practitioners Association of South Africa (EAPASA)(2019/1209) Member of the International Association for Impact Assessors (IAIAsa) (1653) Member of the Gauteng Wetland Forum Member of the South African Wetland Society	Project Management and Report Review
Aquatic Specialist	Prasheen Singh	MSc Aquatic Health (Cum Laude) 8 Years' Experience	Pr. Sci. Nat. (116822)	Monitoring and Rehabilitation Plan

3 REPORT OUTLINE AND REQUIREMENTS

On the 24 March 2017, the Regulations regarding the Procedural Requirements for Water Use License Applications and Appeals (R. 267 of 24 March 2017) were published and came into effect. These Regulations define the Water Use Licence Application Technical Report as follows:

"*Water use Licence Application Technical Report includes water use registration forms, public participation material and specialist studies*."

This report aims to provide all the necessary information related to the water uses detailed in the various water use licence forms. In addition, the appendices of this report include all the necessary additional information required for the processing of this application. A checklist has been provided as part of the Executive Summary and is aligned to the checklists contained in the R.267 of 24 March 2017.

4 LEGAL FRAMEWORK

4.1 National Environmental Management Act (NEMA) (Act No 107 of 1998)

The NEMA is the umbrella framework for all environmental legislation primarily to assist with implementing the environmental rights of the Constitution. The NEMA provides fundamental principles required for environmental decision making and to achieve sustainable development. It also makes provision for duty of care to prevent, control and rehabilitate the effects of significant pollution and environmental degradation, and prosecute environmental crimes. These principles must be adhered to and taken into consideration during the impact assessment phase.

NEMA defines "environment" as –

"the surroundings within which humans exist and that are made up of –

(i) the land, water and atmosphere of the earth;

(ii) micro-organisms, plants and animal life;

(iii) any part or combination of (i) or (ii) and the interrelationship among and between them; and

(iv) the physical, chemical, aesthetic and cultural, properties and conditions of the foregoing that influence human health and well-being."

Section 24D and 24(2) of the NEMA makes provision for the publication of list and associated regulations containing activities identified that may not commence without obtaining prior environmental authorisation from the competent authority. These regulations are referred to as the EIA Regulations and are interpreted hand in hand with the various listed activities discussed further below.

4.1.1 Environmental Impact Assessment Regulations, 2014 (GN R 982 of 4 December 2014)

The EIA regulations were promulgated in terms of Section 24 of the NEMA, for the purpose of providing methodologies and specific requirements for the undertaking of an EIA. The Regulations stipulate that any proposed activity listed in the associated notices must undertake either a Basic Assessment (BA) or Scoping & Environmental Impact Report (S&EIR) in order to obtain an environmental authorisation (if granted by the competent authority) before the commencement of the specified listed activity. The EIA Regulations provide the minimum requirements for appointing an EAP and for undertaking the relevant Public Participation Process (PPP) as required. They also detail the contents of the impact assessment reports and all other aspects associated with BA and/or EIAs.

An Environmental Authorisation process is being undertaken together with the WULA. A copy of the Basic Assessment Report (BAR) is included in **Annexure** Error! Reference source not found..

4.2 National Water Act (NWA) (Act No. 36 of 1998)

The purpose of the NWA is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways which consider amongst other factors:

- Meeting the basic human needs of present and future generations;
- Promoting equitable access to water;
- Redressing the results of past racial and gender discrimination;
- Promoting the efficient, sustainable and beneficial use of water in the public interest;
- Facilitating social and economic development;
- Providing for growing demand for water use; protecting aquatic and associated ecosystems and their biological diversity;
- Reducing and preventing pollution and degradation of water resources;
- Meeting international obligations;
- Promoting dam safety; and
- Managing flooding and droughts.

Part 1 of Chapter 4 (Use of Water) of the NWA sets out general principles for regulating water use. In general, a water use must be licensed unless it is listed in Schedule I, is an Existing Lawful Use, is permissible under a General Authorisation, or if a responsible authority waives the need for a licence. The Minister may limit the amount of water which a responsible authority may allocate. In making regulations the Minister may differentiate between different water resources, classes of water resources.

Section 21 of the NWA lists water uses that must be licensed and includes:

- Section 21(a): taking water from a water resource
- Section 21(b): storing water
- Section 21(c): impeding or diverting the flow of water in a watercourse
- Section 21(d): engaging in a stream flow reduction activity contemplated in section 36

- Section 21(e): engaging in a controlled activity as identified in Section 37 (1) or declared under Section 38 (1).
- Section 21(f): discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall, or other conduit.
- Section 21(g): disposal of waste (i.e. effluent from sewage works) in a manner which may detrimentally impact on a water resource;
- Section 21(h): disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process.
- Section 21(i): altering the bed, banks, course or characteristics of a watercourse.
- Section 21(j): removing, discharging, or disposing of water found underground if it necessary for the efficient continuation of an activity or for the safety of people.
- Section 21(k): using water for recreational purposes.

Applicable definitions included in the NWA include watercourse which is defined as "*(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).* The Act also defines a wetland as "*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".*

The recently published General Authorisation in terms of Section 39 of the NWA for water uses as defined in Section 21(c) or Section 21(i) (GN 509 of 2016) also defines the regulated area of a watercourse as meaning: *(a) The outer edge of the 1 in 100 year flood line and /or delineated riparian habitat, whichever is the greatest distance, measured from the middle of the watercourse of a river, spring, natural channel, lake or dam; (b) In the absence of a determined 1 in 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 (c) A 500 m radius from the delineated boundary (extent) of any wetland or pan.*

Therefore, the following listed water uses that require a Water Use License according to Section 21 of the NWA are triggered for the proposed development:

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

It should be noted that on the 24 March 2017, the Regulations regarding the Procedural Requirements for Water Use License Applications and Appeals (R. 267 of 24 March 2017) were published and came into effect. These Regulations provide the requirements for the WULA process. This WULA has been compiled in line with these requirements.

5 WATER USES

5.1 Water Use Authorisation Process

The Water Use Authorisation process followed for the proposed development is indicated in Figure 5-1. The following sections provide an overview of the process as it has been undertaken.

5.1.1 Pre-Application Enquiry Meeting and Submission of Application (DW755)

A Pre-Application Enquiry will be submitted online on the EWULAAS System of the Department of Water and Sanitation (DWS).

5.1.2 Site Inspection and Confirmation of Information Requirements

As required by the Procedures, once the Department confirms a WUL process is required, it is necessary for a site visit with Departmental officials to take place. The site visit will be scheduled as soon as possible once feedback from the Department is received.

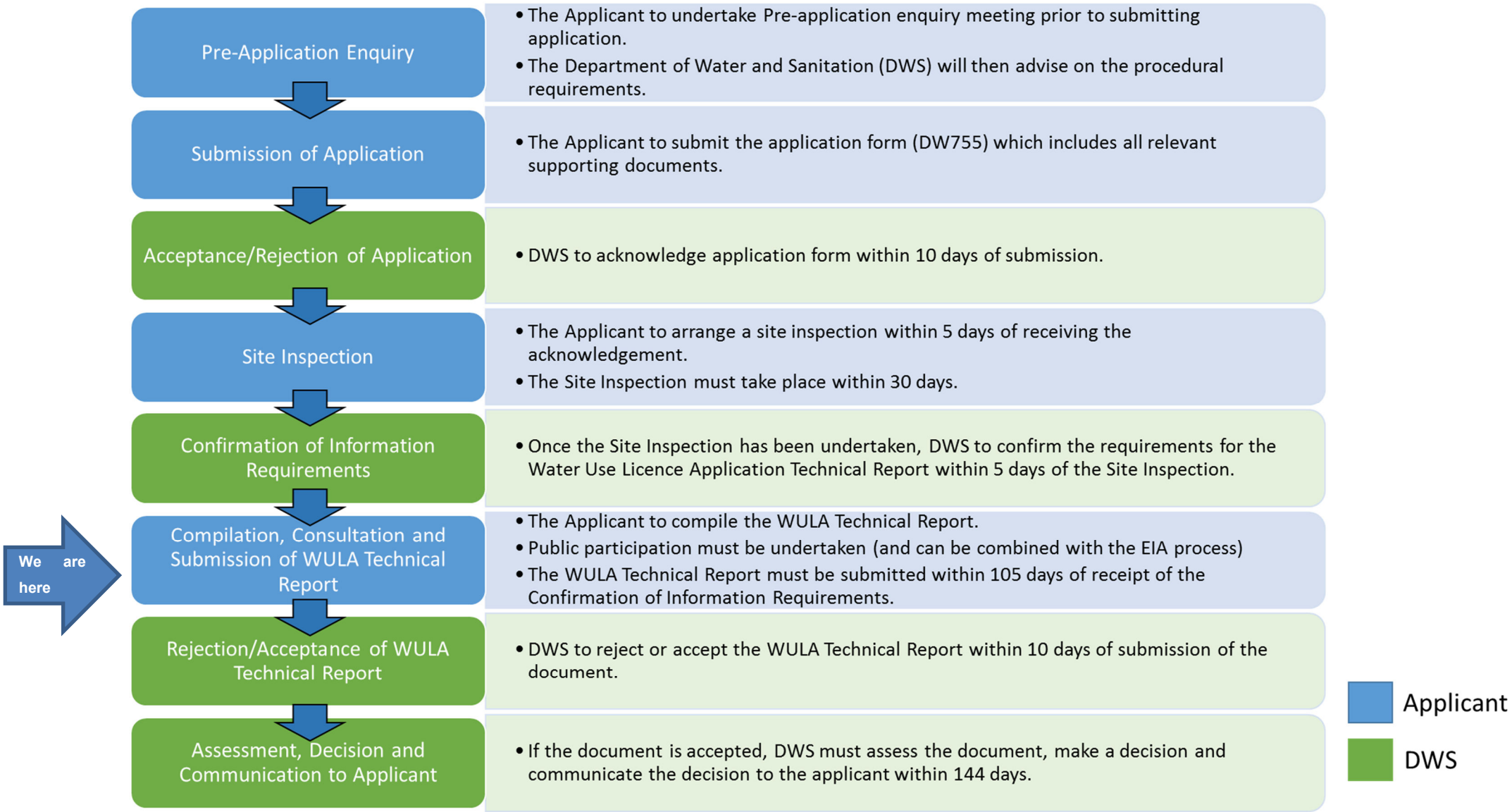


Figure 5-1: Water Use Authorisation Process

5.1.3 WULA Technical Report Compilation

Based on the Departments requirements, information gathering took place including desktop evaluation (via literature review, GIS, topographical maps etc.) as well as specialist studies conducted as part of the BAR. This information was used to compile the WULA Technical Report (this report) and associated WULA forms. The WULA Technical Report is currently available for public review as part of the review of the BAR. The WULA Technical Report will then be submitted to DWS. All WULA forms have been completed online as per the requirements of the new E-WULAAS System.

5.1.4 DWS Assessment

This Assessment and review step involves the assessment and review of the WULA by the designated official at the DWS Gauteng Regional Office. Should all necessary information be included, the WULA Technical Report will be accepted.

DWS will then undertake a technical evaluation and assessment of the application. If issuing a licence is recommended, a draft licence containing the required conditions will be compiled. The Regional Office official will then submit the application, together with their recommendation, the draft licence, and the supporting documentation, to the relevant delegated authority, who will decide on the application after the Water Use Authorisation Assessment Advisory Committee (WUAAC) has adjudicated on the application.

The decision and the licence, if granted, will be returned by the relevant delegated authority to the official at the DWS Regional Office, who will inform the applicant of the decision

5.2 Specialist Assessments

To ensure that there are no significant negative impacts to the water resources in the area, a number of specialist reports were undertaken included and have informed this report including:

- Wetland Assessment; and
- Stormwater Management Plan.

These studies provided a number of mitigation measures to minimize impacts to water resources which have been included in the project specific Environmental Management Programme (EMPr). In addition, a Monitoring and Rehabilitation Plan has been compiled and will be included as part of the WULA Technical Report submission.

5.3 Gaps and Assumptions

The impacts identified as part of the various specialist studies have heavily influenced the risk assessment included in the Technical Report. As such, it is important to note the assumptions and limitations identified by the various specialists (related to water uses):

- Wetland Assessment:
  - The study was limited to a snapshot view during a few site visits. The field investigations were undertaken during January 2020 to assess and confirm the delineated Wetland zones present on the survey area. The wetland's northern bank was surveyed less intensely and mostly based on desktop level delineations as this area will not be impacted by the developed. The eastern section adjacent to the proposed development was surveyed in detail. Weather conditions during the survey were favourable for recordings. The delineations were recorded by hand held GPS.
  - It must be noted that, during the process of converting spatial data to final output drawings, several steps are followed that may affect the accuracy of areas delineated. Due care has been taken to preserve accuracy. Printing or other forms of reproduction may also distort the scale indicated in maps. It is therefore suggested that the wetland areas identified in this report be pegged in the field in collaboration with the surveyor for precise boundaries.
  - It is unlikely that more surveys would alter the outcome of this study radically.

5.4 Description of Water Use Activities

The proposed development of Portion 260 of the Farm Rietfontein 189 IQ involves a mix use development which includes a broad range of uses including Business 1 and Commercial Uses. This aims to serve growing residential areas around the area. The following primary rights are being applied for:

- Erf 1 – 4 | Business 1 (As per Scheme: Shops, Office use, Dwelling Units, Residential Use, Hotel and Restaurant)
- Erf 5 | Commercial (As per Scheme: - Warehousing and Distribution)
- Erf 6-7 | Business 1 As per Scheme: Shops, Office use, Dwelling Units, Residential Use, Hotel and Restaurant)

Necessary roads and services required for the development will also be put in place. Table 5-1 provides an overview of the planned uses and developmental controls.

Table 5-1: Proposed Land Use

	Erf 1 -4	**Erf 5**	**Erf 6-7**
Use Zone	Business 1	Commercial	Business 1
Primary Rights	As per Scheme - Shops, Office use, Dwelling Units, Residential Use, Hotel and Restaurant	As per Scheme - Warehousing and Distribution	As per Scheme: Shops, Office use, Dwelling Units, Residential Use, Hotel and Restaurant
Uses with Special Consent	As per Scheme - Place of Instruction, Place of Amusement, Service Industry, Commercial Use, Public Garage, *Filling Station*,* Place of	As per Scheme	As per Scheme - Place of Instruction, Place of Amusement, Service Industry, Commercial Use, Public Garage, Filling Station, Place of

	Public Worship, Social Hall, Parking Garage and Special Use		Public Worship, Social Hall, Parking Garage and Special Use
Density	No density applicable	No density applicable	A maximum of 70 Dwelling units per hectare
Coverage	Shall not exceed 60%	Shall not exceed 60%	Shall not exceed 60%
Floor Area Ratio	Shall not exceed 0,8	Shall not exceed 0,8	Shall not exceed 0,8
Height	4 storeys	4 storeys	4 storeys

**Please note that should a filling station be required at a later stage, a separate application will be undertaken.*

The Outline Services Scheme Report and associated drawings are contained in **Annexure 10.13.** Figure 5-2 provides an overview of the proposed development layout.

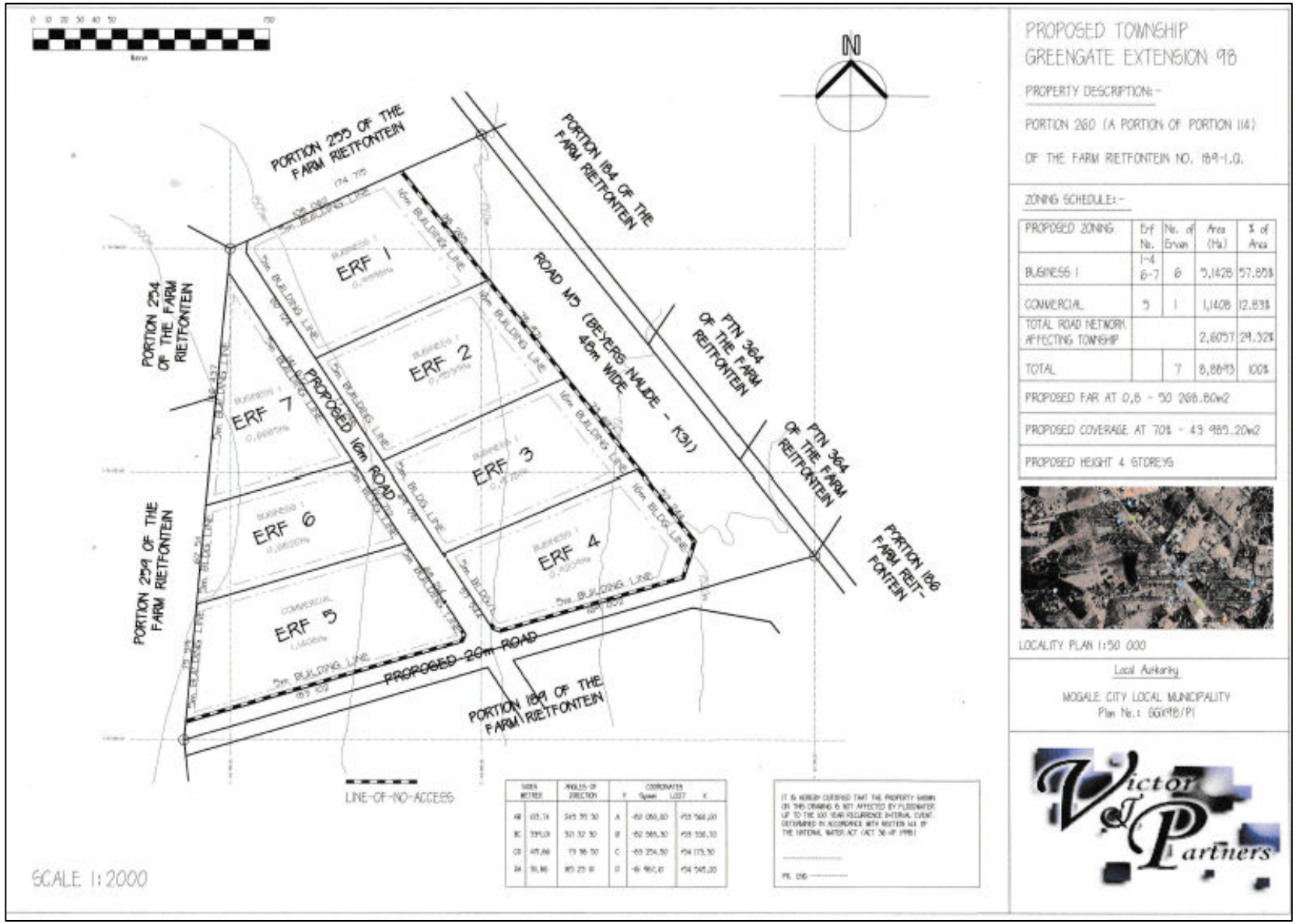


Figure 5-2: Layout

A number of services will be required in support of the development and are described in the subsections below.

5.4.1 Water

The area is currently supplied from the Honeydew Reservoirs (Johannesburg Water), through a bulk meter connection on the municipal boundary in Jubilee Street. An existing 110mm dia. municipal water pipeline is traversing the proposed development parallel to Beyers Naude Drive. This line will be abandoned and a new 160mm dia. municipal water pipeline will be installed in the new service road connecting to the existing 160mm dia. municipal water pipeline located in Valley Road. The average daily demand for the proposed township is 307.2 kl/day. Figure 5-4 provides an overview of the existing water services.

5.4.2 Sewer

No existing municipal sewer infrastructure is located adjacent to the proposed development. The nearest connection point is situated approximately 1.1 km west from the proposed township. In accordance with the information from an investigation conducted by Ilifa Africa Engineers in March 2017, this particular sewer infrastructure has sufficient capacity to accommodate the proposed township.

A new 160mm and 200mm dia. external sewer network will be constructed along the natural drainage course flowing in a westerly direction towards the existing municipal sewer network. The total Dry Weather Flow (DWF) for the proposed township is 230.4 kl/day.

Figure 5-3 shows the typical sewer bedding detail. Figure 5-5 provides an overview of the existing services in the area. Figure 5-6 shows the proposed sewer line. Please note that as part of the Environmental Authorisation process, an alternative sewer line was assessed. More information on this is provided in **Section 7.**

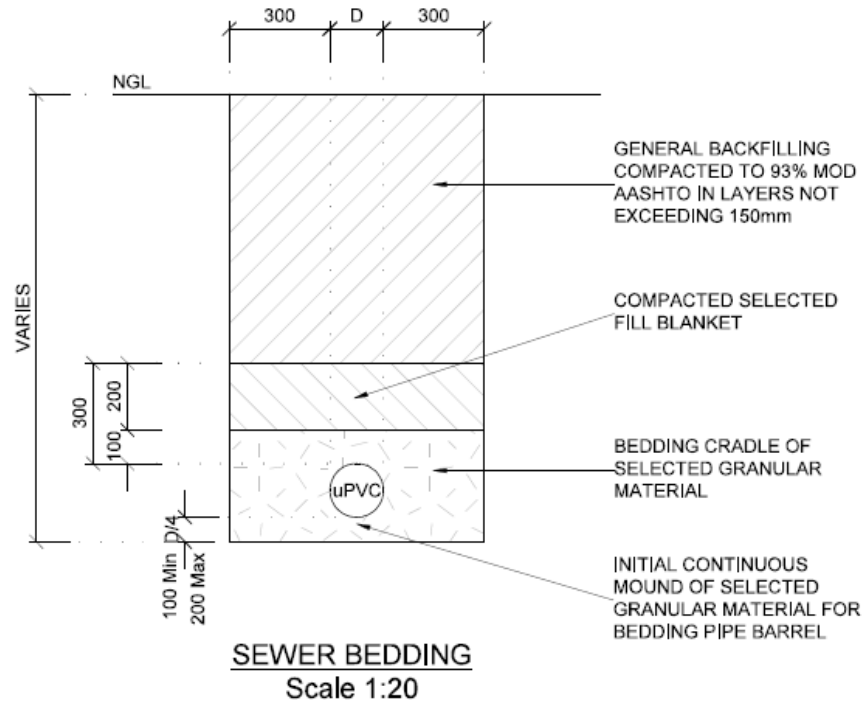


Figure 5-3: Sewer Bedding details

5.4.3 Stormwater Management

No existing municipal stormwater infrastructure is located within the vicinity of the proposed township. Stormwater attenuation will be provided for the 1:5 as well as the 1:25 year storm event such that the pre-development runoff is not exceeded. An industry guideline of 350 m³/ha, typically imposed by the Johannesburg Roads Agency (JRA), will be used for the sizing of the attenuation ponds. The following applies:

- The stormwater network will be designed in order to safely channel the runoff from a 1:10 year storm event, to the nearby natural drainage course.
- The internal roads will be provided with kerb inlets at strategic points to catch stormwater runoff from the development.
- The underground system will consist of “Interlocking Joint” concrete pipes with a minimum diameter of 450mm (up to 675mm diameter) and discharged in the bio-retention pond.
- The bio-retention pond will include an earth berm with crest protect with stone pitching and vegetation will be put in place to promote sheet flow into the wetland.

Figure 5-7 shows the stormwater layout.

5.4.4 Traffic

A Traffic Impact Assessment has been undertaken to better understand the traffic impact of the development as well as to identify the necessary road upgrades required by the proposed development. Based on the development size, the expected trip generation of the application is ±965 vehicle trips during the weekday morning (AM) peak hour and ±2,293 vehicle trips during the weekday afternoon (PM) peak

hour (based on COTO TMH 17, the South African Trip Data Manual). In order to cater for this, construction of the following roads will be required:

- Road A The construction of a new Class 5a (commercial local) road – 7.4m wide in a 20m road reserve.
- Road B The construction of a new Class 4a (commercial collector) road – 7.4m wide in a 25m road reserve.

The following intersection improvements are also required:

- Intersection 4: Valley Road – Ibis Lane / Beyers Naude Drive- The construction of a second exclusive right-turn lane (90m) on the southern approach, and an additional through lane on the western and eastern approaches (90m). The additional through lane in a westbound direction will be constructed up to the planned marginal intersection (Intersection 9).
- Intersection 7:Boland Road – Indaba Lane /Beyers Naude Drive - The implementation of traffic signals and the construction of exclusive turning lanes (60m) on the northern and southern approaches.
- Intersection 8: Planned K56 / Beyers Naude Drive - The implementation of traffic signals and the construction of exclusive turning lanes (60m) on the northern and southern approaches.
- Intersection 9: Road B / Beyers Naude Drive – The construction of a marginal intersection with an exclusive left-turn lane on the eastern approach.
- Intersection 11: Road B / Road A - The construction of a two-lane roundabout (45m inscribed diameter).
- Access to the application site will be obtained from Beyers Naude Drive in accordance with the Road Master Plan via the intersection with Valley Road – Ibis Lane and a new Class 5 road (i.e. Road A). Additional access is also proposed from Beyers Naude Drive via a proposed new marginal access (Class 4a road) with Beyers Naude Drive on the eastern boundary of the site (i.e. Road B) and from planned Route K56 in the south-west.
- An internal road will also be put in place and will be 16m in width.

Figure 5-8 show the access arrangements and Road A and B. Figure 5-9 provides the typical river crossing detail for the two wetland crossings.

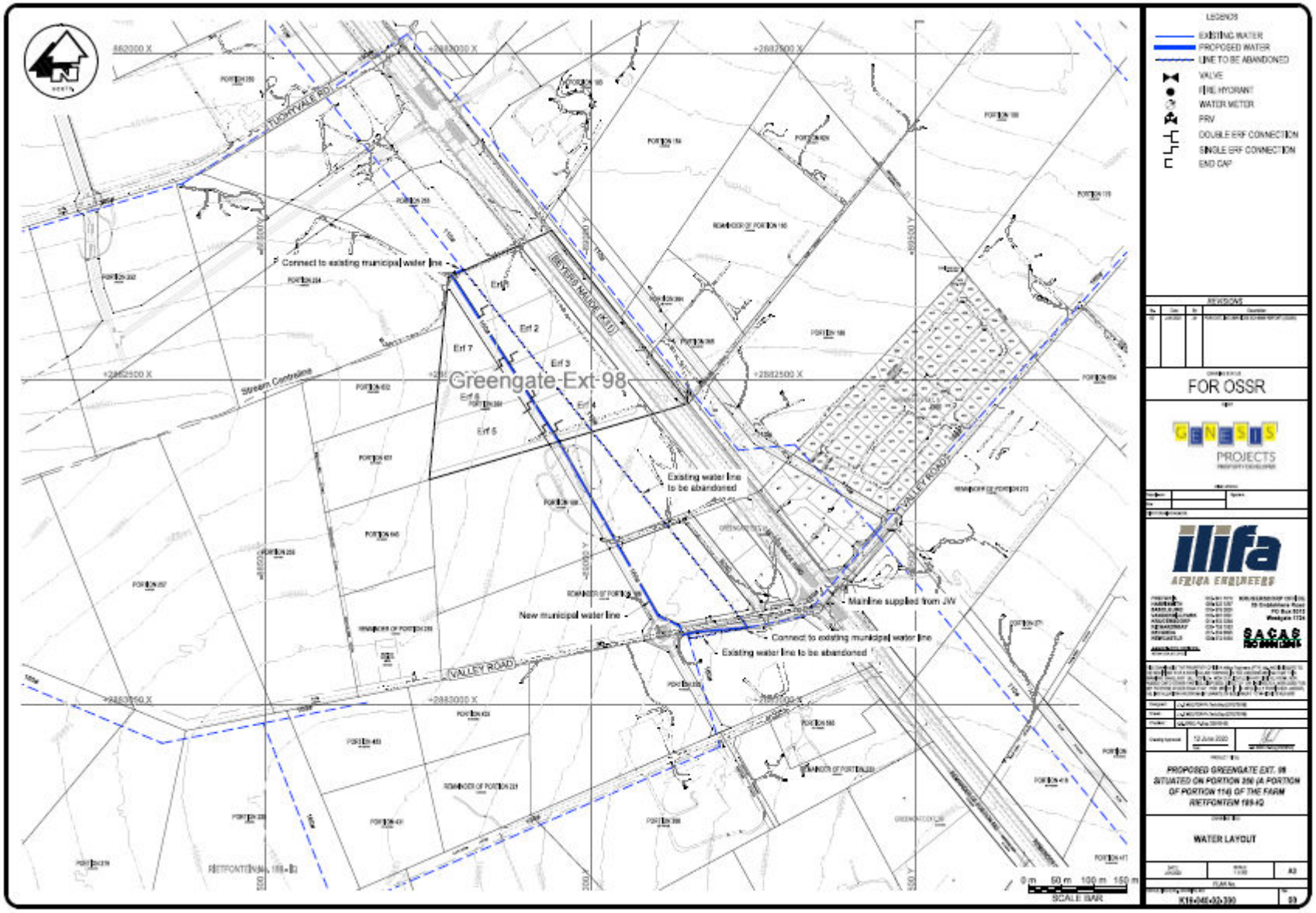


Figure 5-4: Proposed Water Line and connection to existing line

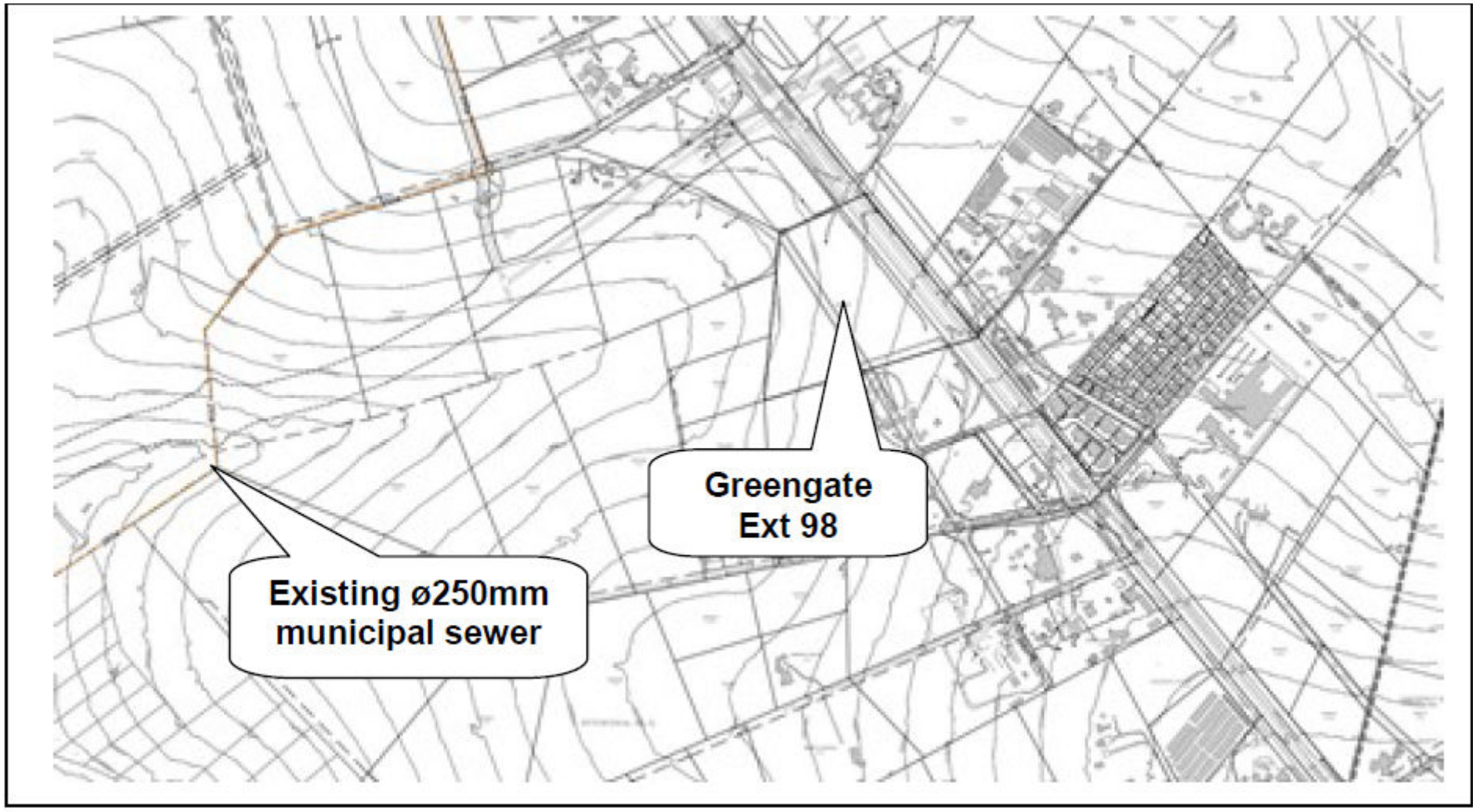


Figure 5-5: Existing Sewer Services

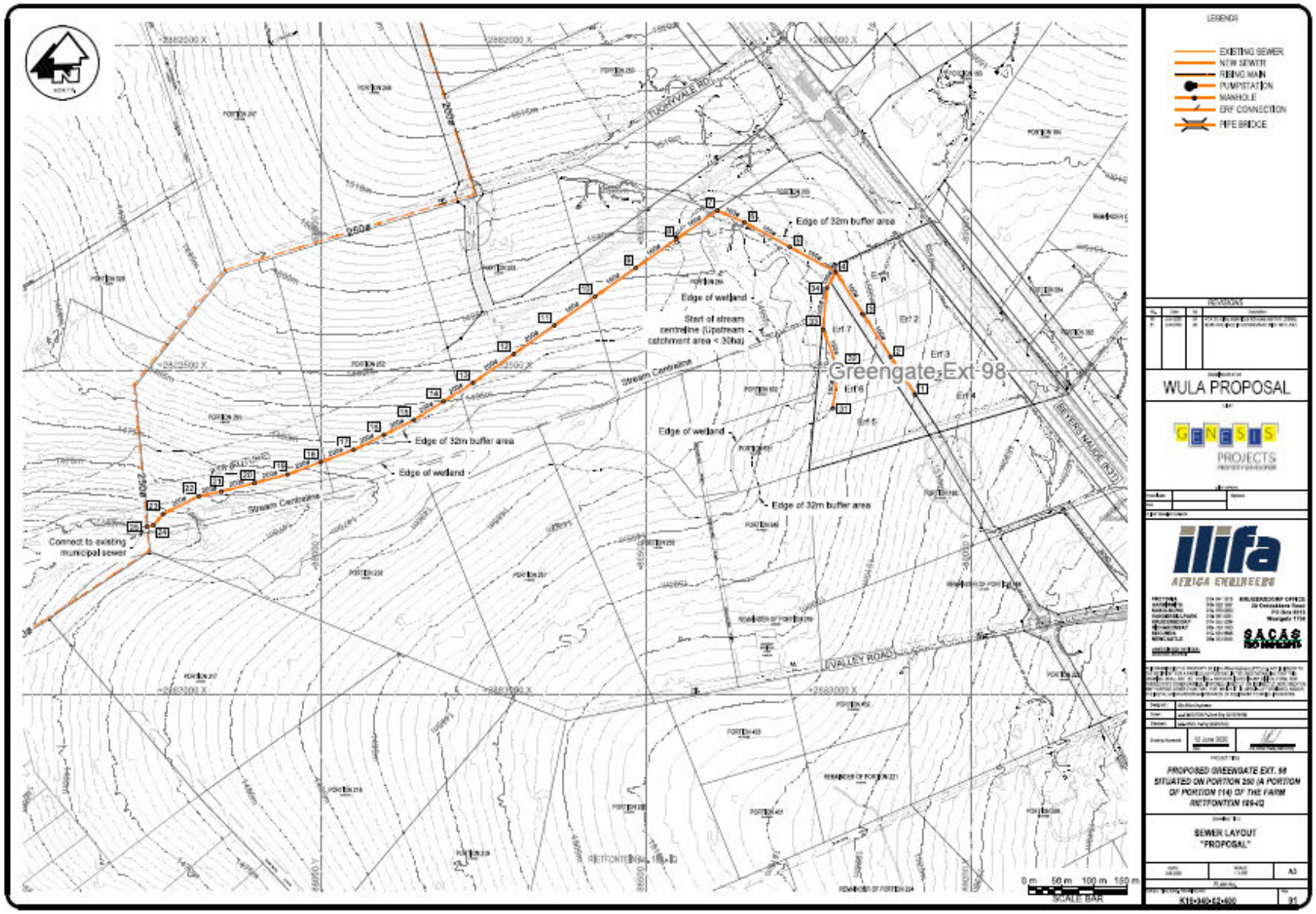


Figure 5-6: Proposed Sewer Line

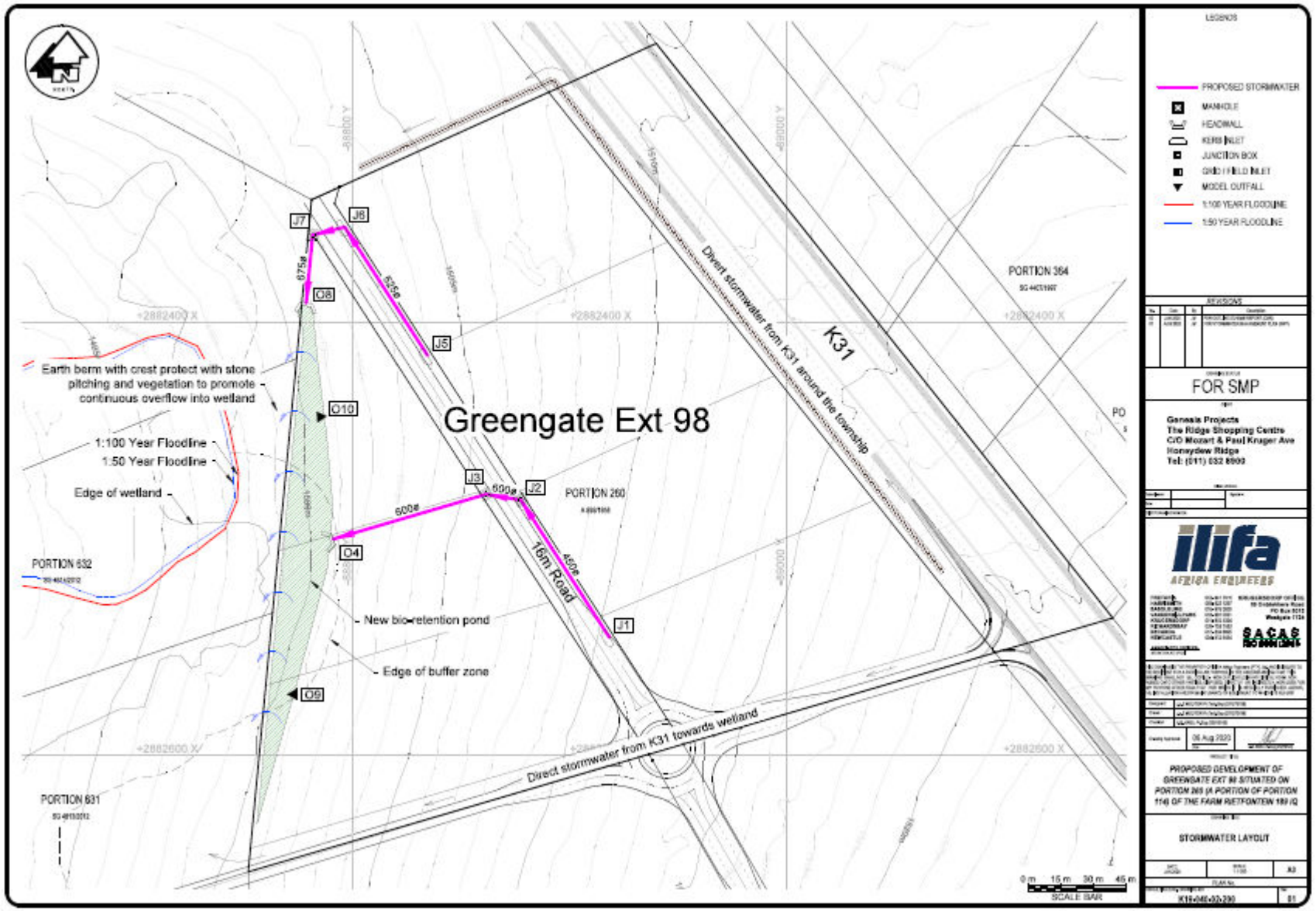


Figure 5-7: Stormwater

Figure 5-8: Access Arrangements

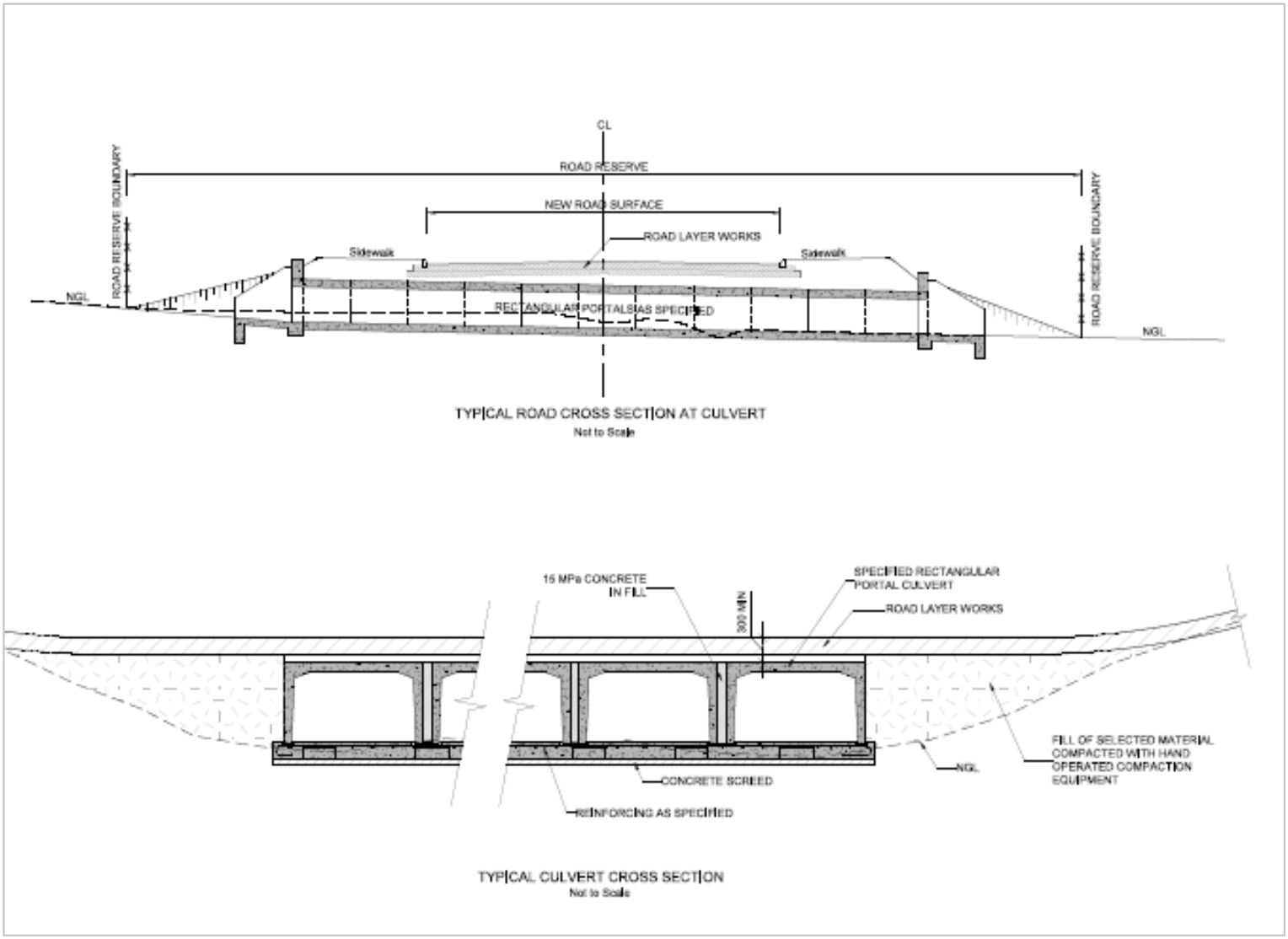


Figure 5-9: Typical wetland crossing

5.5 Water Uses

According to Section 22 of the NWA a person may only use water under the following circumstances:

- Without a license –
    - If that water use is permissible under Schedule 1;
    - If that water use is permissible as a continuation of an Existing Lawful Use; or
    - If that water use is permissible in terms of a General Authorisation issued under Section 39;
- If the water use is authorised by a license under this Act; or
- If the responsible authority has dispensed with a license requirement under Section 22(3) of the Act.

In the case of this project a licence is required to undertake the water uses that are associated with the project, based on the likely risk, nature, and extent of potential impacts of the proposed project on the affected water resources.

5.5.1 Existing Lawful Water Uses

The applicant, the Hocom Properties (Pty) Ltd., does not have any Water Use Licenses awarded to them for the development of the Portion 260 of the Farm Rietfontein 189 IQ (or associated services related to the Development).

5.5.2 Relevant Exemptions

There are no relevant exemptions applicable.

5.5.3 Generally Authorized Water Uses

In terms of Section 22(1) of the NWA a person may use water without a license if that water use is permissible in terms of a General Authorisation (GA) issued under Section 39 of the Act. An assessment was done of the General Authorisations under the NWA and the following GAs are in place:

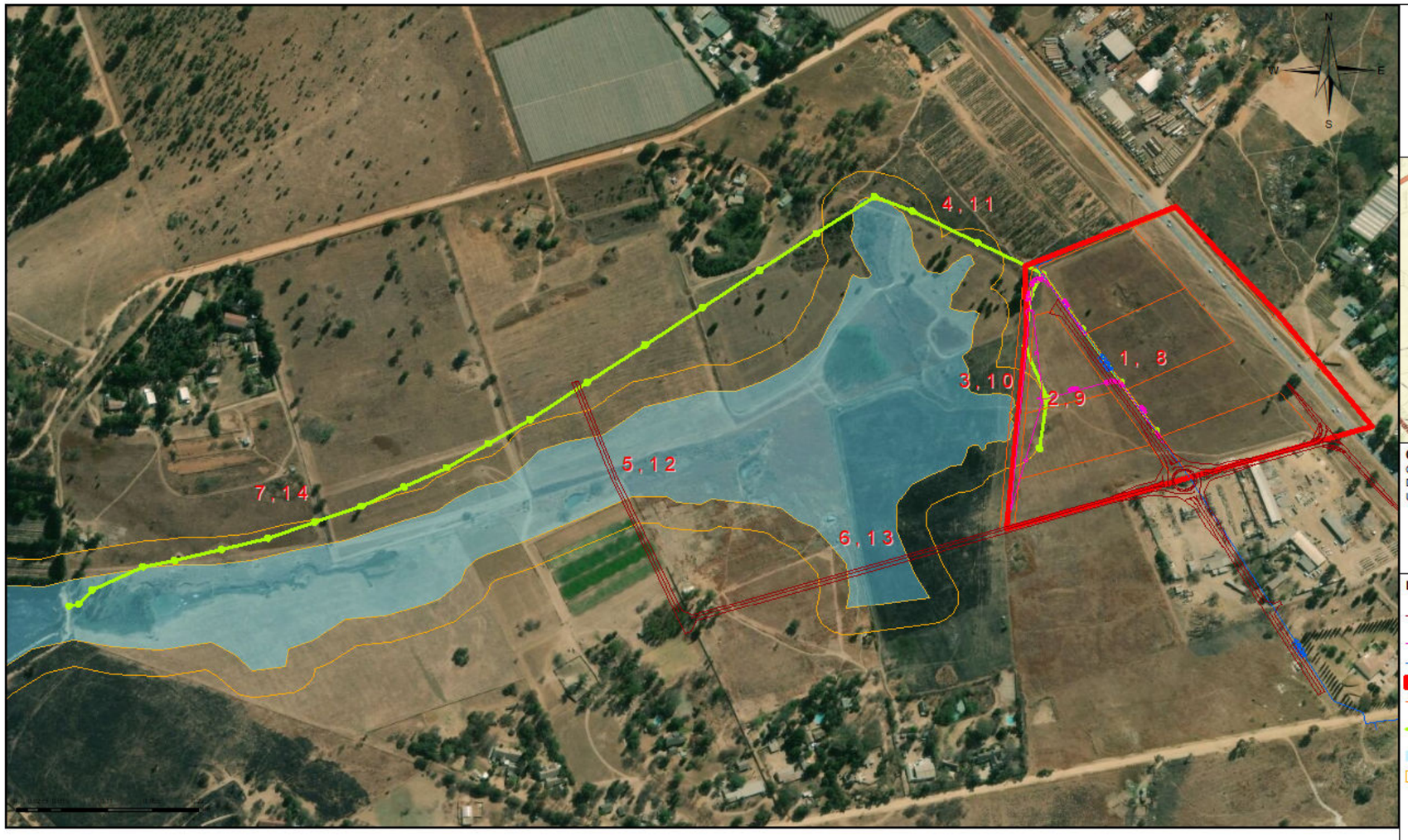
- General Authorisation in terms of Section 39 of the National Water Act (Act No 36 of 1998) for water uses as defined in Section 21 (c) or Section 21 (i) (GN 509 of 2016).
    - Due to the fact that the project involves a sewer pipeline as well as internal sewer reticulation within the wetland and within 500m of the wetland, respectively, the GA does not apply.
- General Authorisation in terms of Section 39 of the National Water Act, 1998 (Act No 36 of 1998) in terms of Section 21 (c) and (i) for the purpose of rehabilitating a wetland for conservation purposes (GN 1198 of 18 December 2009):
    - This is only applicable to organs of state undertaking wetland rehabilitation. Further, the GA notes that the GA does not apply if the water user must make additional activities in terms of Section 21 of the Act. As such, this GA is not applicable.

Thus, whilst a number of general authorisations exist for the activities identified above, they are not applicable due to the proximity of the project to wetlands on site and the fact the development includes

sewer services. Therefore, all water uses will be applied for under Section 21 of the National Water Act below.

5.5.4 Description of New Water Use

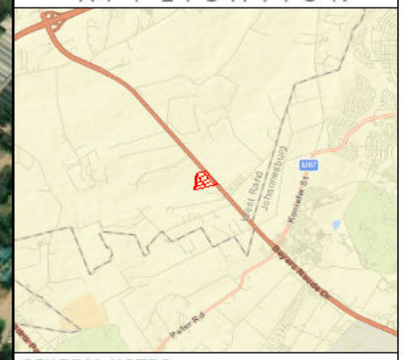
In order to ensure ease of understanding, an overview of all water uses is provided in Figure 5-10. This table correlates to the Water Use License Application Forms that will be submitted to DWS as part of the Final Technical Report. Please note that the only the starting point coordinates are shown on the maps.



PROJECT:

PORTION 260
FARM RIETFONTEIN 189

WATER USE LICENCE APPLICATION



GENERAL NOTES:
Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

Water Uses Map

Legend
- Proposed New Roads (Road A already authorised)
- Proposed Stormwater
- Proposed Water pipeline
- Study Site
- Proposed Township
- Proposed Sewer (160mm and 200m diameter)
- Wetland
- 32m Wetland Buffer

REVISIONS:
Version: 1.0

CLIENT:
Hocom Properties (Pty) Ltd.

SCALE: 1:5,000
DRAWING REF: 21949 Water Uses 3
DRAWING STATUS: FINAL

PRISM ENVIRONMENTAL MANAGEMENT SERVICES

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Wilgeheuwel
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Fax: 086 601 4800
prism@prismems.co.za
www.prismems.co.za

1, 8	Section 21(c) and (i) Development within 500m of a wetland	26° 2'52.91"S 27°53'17.71"E
2, 9	Section 21(c) and (i) Sewer Pipeline Crossing 1 (within 32m buffer)	26° 2'55.02"S 27°53'14.01"E
3, 10	Section 21(c) and (i) Stormwater bioretention pond and release	26° 2'54.78"S 27°53'13.18"E
4, 11	Section 21(c) and (i) Sewer Pipeline Crossing 2 (within 32m buffer)	26° 2'48.61"S 27°53'12.40"E
5, 12	Section 21(c) and (i) Road B Wetland Crossing 1	26° 2'54.66"S 27°52'56.33"E
6, 13	Section 21(c) and (i) Road B Wetland Crossing 2	26° 3'1.49"S 27°53'5.23"E
7, 14	Section 21(c) and (i) Sewer Pipeline Crossing 3 (within wetland and buffer)	26° 2'58.76"S 27°52'46.52"E

Figure 5-10: Water Uses

Table 5-2: Details of the water uses being applied for

Form Ref (Related to Online System*)	Property Details	Water Use	Description of Water Use	Dimensions (m / m³)/Details	Purpose	Co-ordinates		QC
						Start	End	
1,8	Portion 260 of the Farm Rietfontein 189 IQ	Section 21 (c) and (i)	Development within 500m of a wetland	The proposed development involves a mixed use township which includes the following: • Erf 1 – 4 | Business 1 (As per Scheme: Shops, Office use, Dwelling Units, Residential Use, Hotel and Restaurant) • Erf 5 | Commercial (As per Scheme: - Warehousing and Distribution) • Erf 6-7 | Business 1 As per Scheme: Shops, Office use, Dwelling Units, Residential Use, Hotel and Restaurant) Internal roads, stormwater, water and sewer will also be put in place.	The purpose of the development is to create a Mixed-use Business 1 and Commercial township together with the necessary internal services.	26° 2'52.91"S 27°53'17.71"E		A21E
2,9	Portion 260 of the Farm Rietfontein 189 IQ		Sewer Pipeline Crossing 1 (within 32m buffer)	A 160mm and 200mm diameter pipeline will be put in place to connect to the existing sewer which is approximately 1.1km away. A small section within the development (160mm diameter) encroaches on the 32m wetland buffer. This section is approximately 22m. The full line is approximately 1.3km long.	To properly manage sewer generated from the development.	26° 2'55.02"S 27°53'14.01"E	26° 2'55.73"S 27°53'13.91"E	
3,10	Portion 254 of the Farm Rietfontein 189 IQ		Stormwater bioretention pond and release	• Stormwater attenuation will be provided for the 1:5 as well as the 1:25 year storm event such that the pre-development runoff is not exceeded. An industry guideline of 350 m³/ha will be used for the sizing of the attenuation ponds. • The stormwater network will be designed in order to safely channel the runoff from a 1:10 year storm event, to the nearby natural drainage course. • The internal roads will be provided with kerb inlets at strategic points to catch stormwater runoff from the development. • The underground system will consist of "Interlocking Joint" concrete pipes with a minimum diameter of 450mm (up to 675mm diameter) and discharged in the bio-retention pond. • The bio-retention pond will include an earth berm with crest protect with stone pitching and vegetation will be put in place to promote sheet flow into the wetland.	To properly manage and release stormwater	26° 2'54.78"S 27°53'13.18"E		
4,11	Portion 254 of the Farm Rietfontein 189 IQ Portion 255 of the Farm Rietfontein 189 IQ		Sewer Pipeline Crossing 2 (within 32m buffer)	A 160mm and 200mm diameter pipeline will be put in place to connect to the existing sewer which is approximately 1.1km away. A section of the 160mm diameter pipeline encroaches on the 32m wetland buffer just outside the development. This section is approximately 225m. The full line is approximately 1.3km long.	To properly manage sewer generated from the development.	26° 2'48.61"S 27°53'12.40"E	26° 2'47.64"S 27°53'5.40"E	
5,12	Portion 258 of the Farm Rietfontein 189 Portion 257 of the Farm Rietfontein 189		Road B – Wetland Crossing 1	Wetland crossings will involve a number of box culverts (each approximately 1500 x900 mm). The Road B will be 7.4m wide and will occur in a 25m	To allow the necessary access as required by the traffic impact assessment.	26° 2'54.66"S 27°52'56.33"E	26° 2'59.12"S 27°52'58.24"E	

Form Ref (Related to Online System*)	Property Details	Water Use	Description of Water Use	Dimensions (m / m^3)/Details	Purpose	Co-ordinates		QC
						Start	End	
	Portion 253 of the Farm Rietfontein 189			road reserve. The approximately length of the crossing is 80m.				
6,13	Portion 258 of the Farm Rietfontein 189 Portion 646 of the Farm Rietfontein 189 Portion 631 of the Farm Rietfontein 189		Road B – Wetland Crossing 2	Wetland crossings will involve a number of box culverts (each approximately 1500 x900 mm). The Road B will be 7.4m wide and will occur in a 25m road reserve. The	To allow the necessary access as required by the traffic impact assessment.	26° 3'1.49"S 27°53'5.23"E	26° 3'0.22"S 27°53'9.85"E	
7, 14	Portion 252 of the Farm Rietfontein 189 Portion 251 of the Farm Rietfontein 189 Portion 7 of the Farm Rietfontein 189		Sewer Pipeline Crossing 3 (within wetland 32m buffer)	A 160mm and 200mm diameter pipeline will be put in place to connect to the existing sewer which is approximately 1.1km away. A section of the 200mm diameter pipeline encroaches on the 32m wetland buffer and then the wetland near the connection to the existing sewer line (which occurs within the wetland). This section is approximately 329m. The full line is approximately 1.3km long.	To properly manage sewer generated from the development.	26° 2'58.76"S 27°52'46.52"E	26° 3'2.37"S 27°52'35.97"E	

*Please note as per the requirements of the online system, a separate activity number is provided for Section 21 (c) and (i) activities.

6 PROFILE OF THE RECEIVING ENVIRONMENT

6.1 Local Climate

6.1.1 Temperature

The climatological data for Portion 260 of the Farm Rietfontein 189 IQ is provided below. In terms of temperature, average temperatures for the period 2010 to 2020 ranged between 20°C and 29°C in summer and between 9°C and 17°C in winter (www.worldweatheronline.co.za) (Figure 6-1).

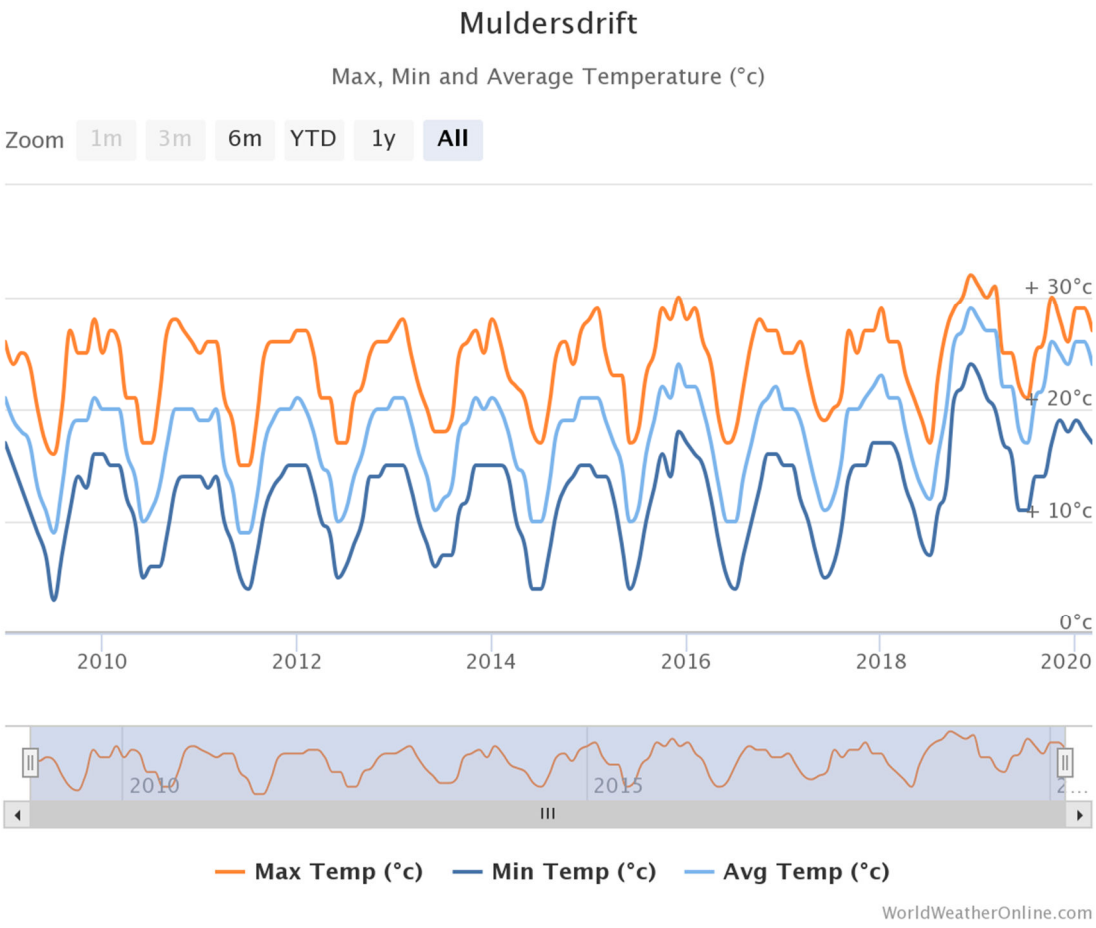

Figure 6-1: Minimum, Maximum and Average Temperatures for Witpoortjie, Gauteng (www.worldweatheronline.co.za).

6.1.2 Rainfall

The average rainfall amount in the area ranged from between 293 mm and less than 10mm (Figure 6-2).

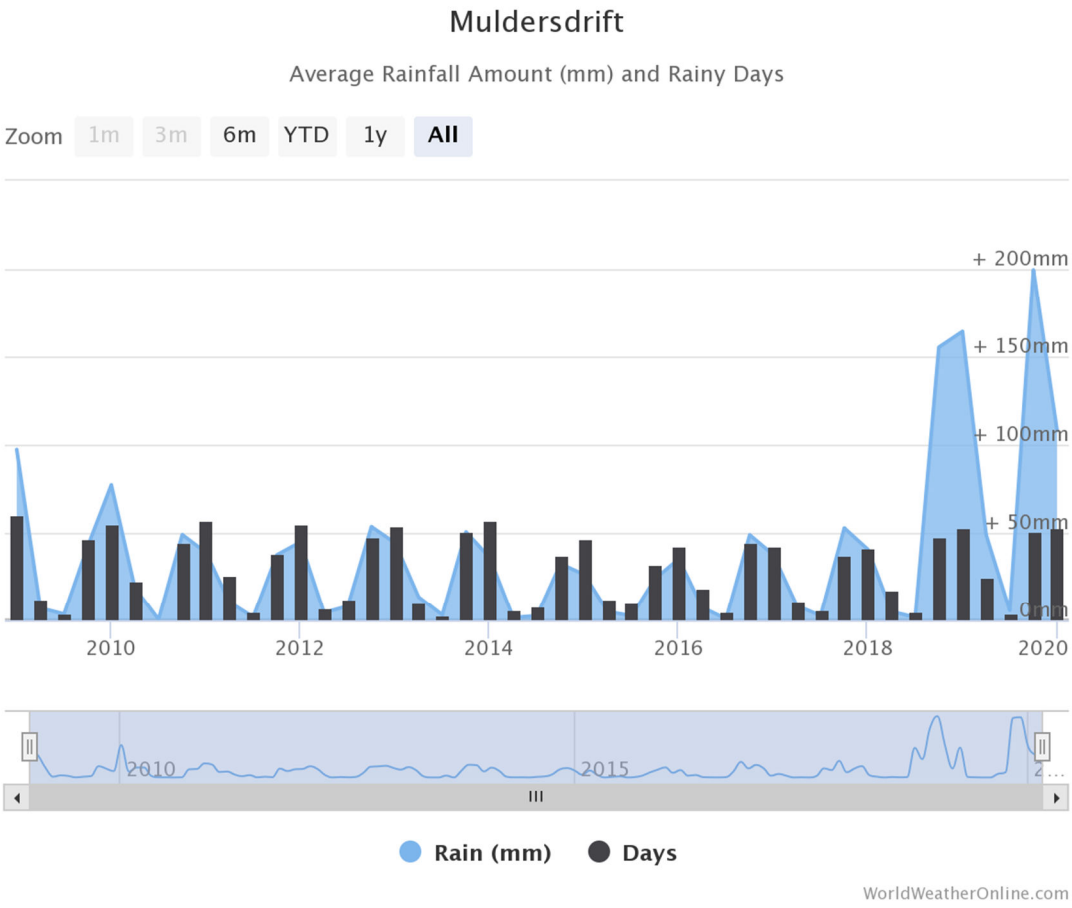

Figure 6-2: Rain amount and rain days for Witpoortjie, Gauteng (www.worldweatheronline.co.za).

6.2 Surface Water

Information on the status of the surface water environment is provided in the subsections that follow. Where applicable, information has been sourced from the Wetland Assessment undertaken by Prism EMS in 2020 (**Annexure 10.3).**

6.2.1 Desktop Assessment

As part of the Wetland Assessment, a desktop assessment was undertaken. The Department of Water and Sanitation (DWS) database was also consulted to obtain historical data for the study area. The National Wetland Map version 5 (NWM5) as presented by South African National Biodiversity Institute (SANBI) was also scrutinised (Van Deventer *et al*, 2019).

During the desktop investigation, one (1) possible area where wetlands could occur was identified on or in close proximity to the study site that would be affected by the proposed development activities. The National Wetland Map version 5 (NWM5) as presented by SANBI was also scrutinised and one wetland area were identified (refer to Figure 6-3**Error! Reference source not found.**) on or in close proximity to the study site that could be affected by the proposed activities. The wetland as indicated by the NWM5 wetland layers were further investigated on site.

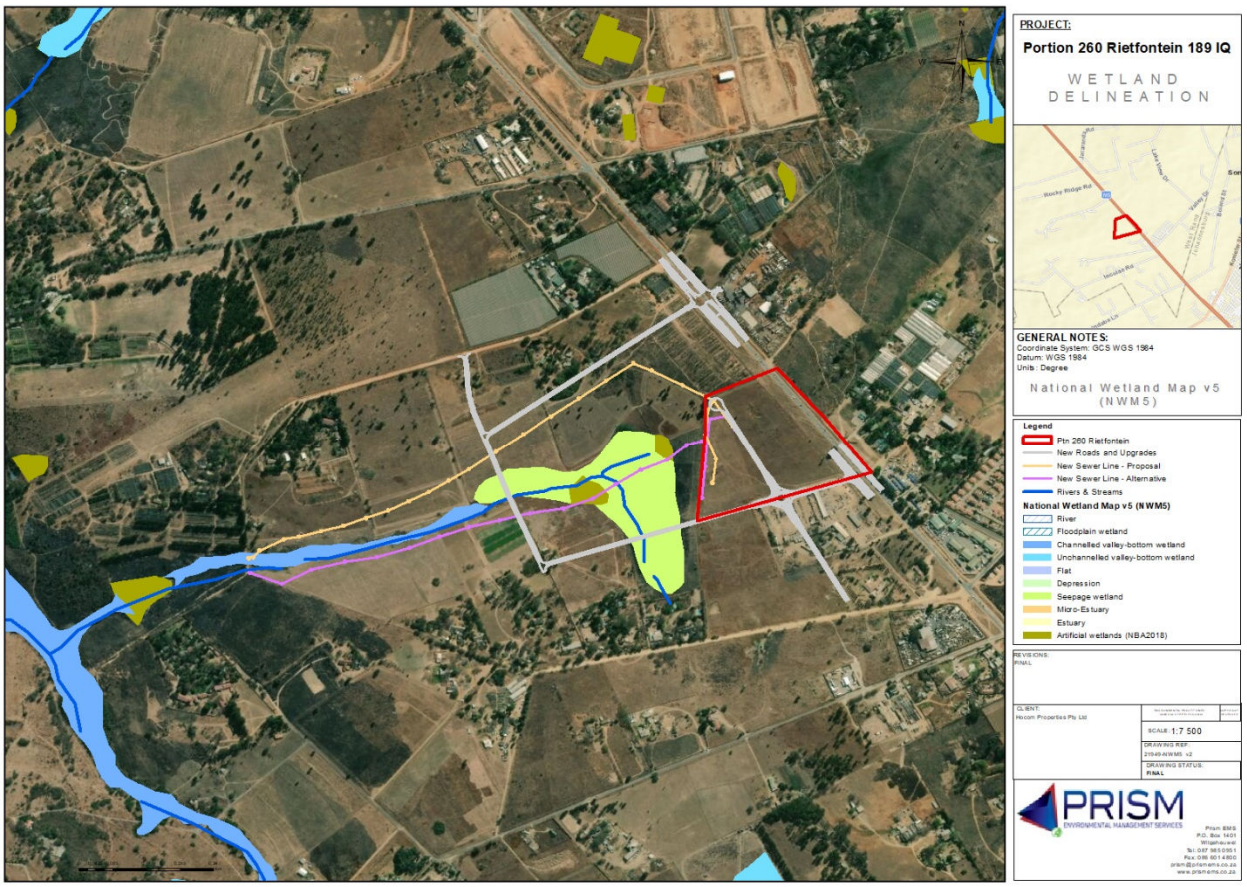

Figure 6-3: National Wetland Map version 5 (NWM5) (Van Deventer *et al.,* 2019) (From Prism EMS, 2020)

6.2.2 Field Investigation

The Wetland Assessment also included field investigations. These were undertaken during January 2020 to assess and confirm the delineated Wetland zones present on the survey area. The field investigations concluded that one natural wetland unit could be recorded as per the DWAF, 2005 guidelines (Figure 6-4) (GG98_UCVB was found on the valley floor at the head of the catchment, draining towards the West).

The wetland recorded was assessed and the following results were attained:

- The wetland attained a moderate overall PES (Present Ecological State) as the wetland was found to moderately modified. A moderate change in ecosystem processes and loss of natural habitats has taken place but the natural habitat remains predominantly intact. This wetland system is impacted by historical activities both in the catchment as well as directly on the wetland system where the impacts are continues. It forms part of a larger wetland system. The trajectory of change for the wetland ecological status is predicted that conditions are likely to deteriorate slightly over the next 5 years without major intervention.
- The wetland attained a Moderate Ecological Importance and Sensitivity (EIS) score. The wetland is considered ecologically important and sensitive on a local scale. The biodiversity of this wetland is generally not sensitive to flow and habitat modifications. It plays a small role in moderating the quantity and quality of water of major rivers. The system drains into further downstream wetland and

streams before reaching major rivers. The Ecological Importance and Sensitivity (EIS) for this system is thus considered to be Moderate.

- The wetland Recommended Ecological Classification (REC) classification was rated as Category C. The wetland will be impacted to some extent by the proposed development activities. This impact will be localised and at the transitional point leading from the development and infrastructure installations into the wetland and buffer area. It will in all likelihood regress slightly in terms of its current Ecological Category if not managed in specific during the construction period. Stormwater management for the site is required in specific the construction phase. This will mitigate the impact on the wetlands. Rehabilitation of the impacts and maintenance of the system will further mitigate the impacts and could improve the sustainability of the system.
- The specialist found that the construction activities will in all likelihood impact slightly on the wetland system but can be mitigated to satisfactory standards if all mitigatory actions are implemented with due care. It is key to preserve water quality and supply to the downstream aquatic resources.
- Further, the rehabilitation of the wetland is vital to recover some ecological function. The wetland drivers must be enhanced as part of the rehabilitation of the affected areas. In respect of the construction phase, it is important to ensure that the required erosion protection measures linked to the wetland intersection sections be carefully designed and installed.
- The specialist therefore concluded that the project can be supported, should all the mitigation measures be implemented and monitored against to ensure compliance and protection of the aquatic resource.

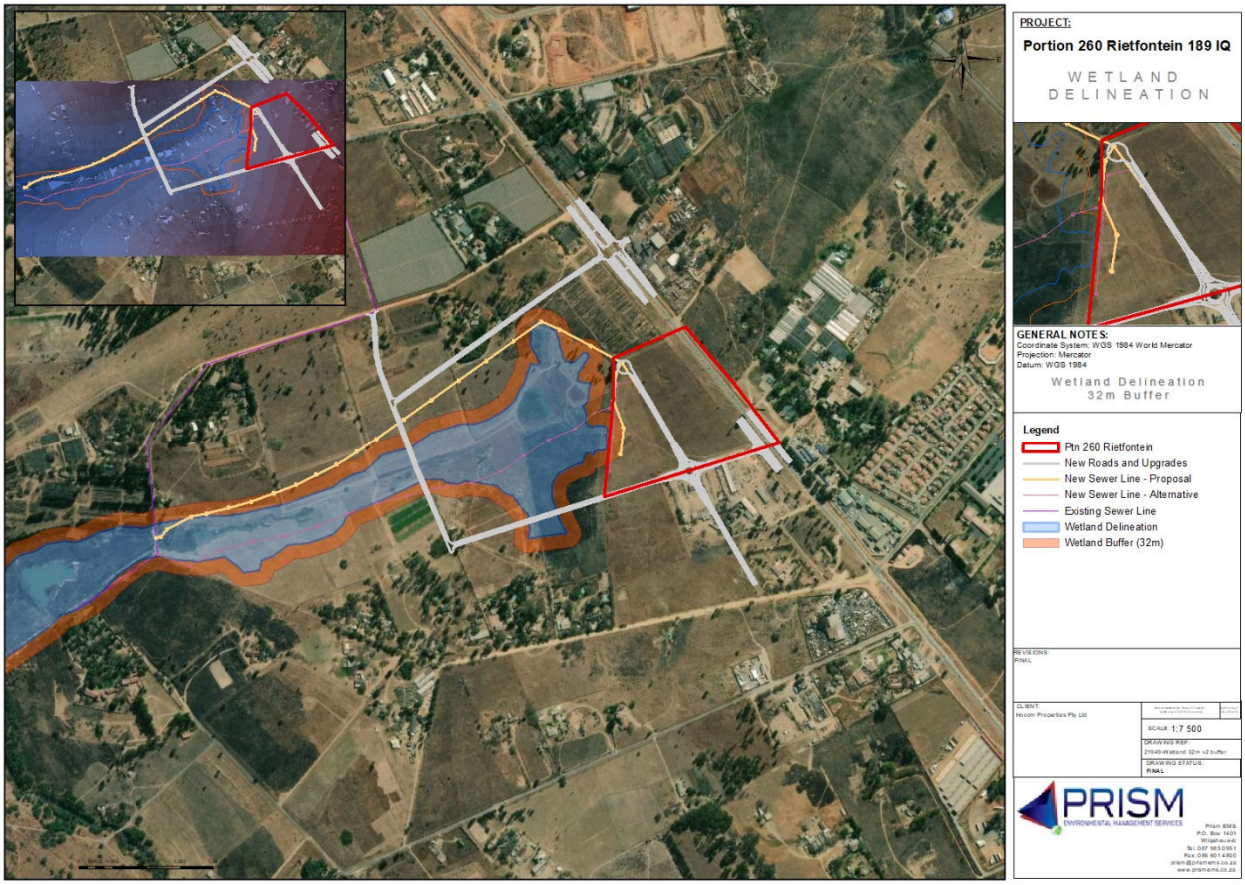

Figure 6-4: Wetland and Wetland Buffer Zones (Prism EMS, 2020)

6.3 Socio-Economic Environment

The proposed development occurs within the Mogale City Local Municipality (MCLM) in Gauteng. A summary of the socio-economic environment for the MCLM (obtained from StatsSA) is included below.

6.3.1 MCLM Socio-Economic Environment

According to Census 2011, Mogale City Local Municipality has a total population of 820 995 of people, of which 75,6% are black African, 21,0% are white, 0,8% are coloured, and 2,2% are Indian/Asian. Of those aged 20 years and older, 4,0% have completed primary school, 35,0% have some secondary education, 32,6% have completed matric, and 14,2% have some form of higher education (Figure 6-5).

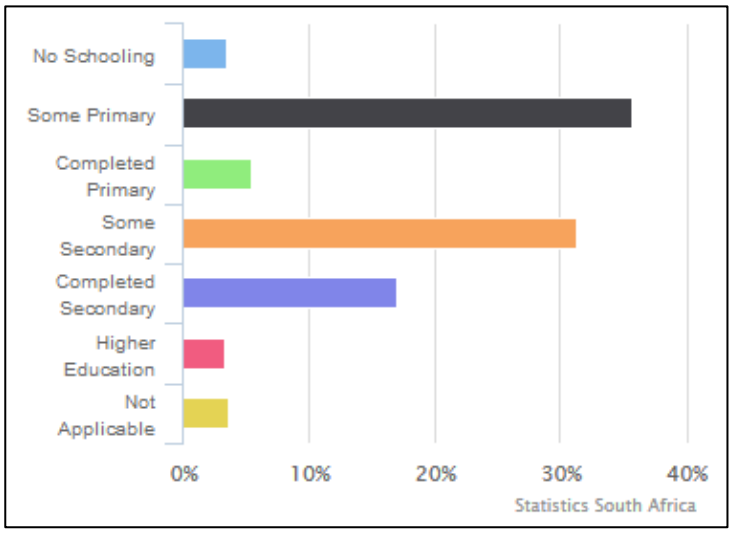

Figure 6-5: Highest level of Education in Mogale City (Statistics SA, accessed 2020)

In terms of household number and size, there are 117 373 households in the municipality with an average of 2,9 persons per household. A total of 54,8% households have access to piped water in their dwelling, 32,5% have water in their yard, and only 2,9% households do not have access to piped water. More than 15% of households have no income (Figure 6-6).

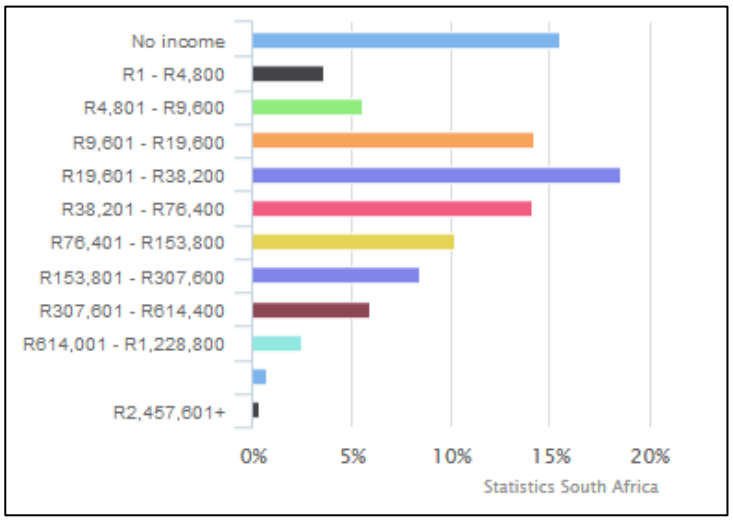

Figure 6-6: Average Household Income (Statistics SA, accessed 2020)

In addition, according to Census 2011 data, 134 635 people are economically active (employed or unemployed but looking for work), and of these, 24,6% are unemployed. Of the 60 706 economically active youth (15–34 years) in the area, 32,3% are unemployed (Figure 6-7).

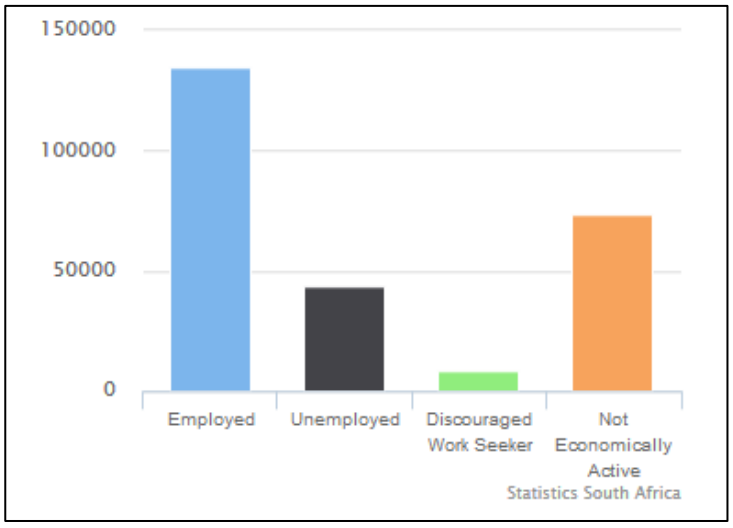

Figure 6-7: Employment for those aged 15-64 (Statistics SA, accessed 2020)

6.3.2 Planning Documents

In addition to the above, the following planning documents and frameworks apply to the area and are discussed in more detail in the following subsections:

6.3.2.1 Muldersdrift Precinct Plan

Muldersdrift lies to the north of Krugersdorp. It is traversed by the R28/ N14 running from north-east to south-west. To the east it is bounded by urban development in the City of Johannesburg, while the Cradle of Humankind World Heritage site lies to the west. Muldersdrift falls within Mogale City Local Municipality who have developed a precinct plan for the area. The objectives of the plan are as follows:

- To unravel spatially the sustained resources and latent potential that the Muldersdrift Development Zone has;
- To outline a set of applicable guidelines and interventions to enable the sustainable development of the Muldersdrift Development Zone as a whole;
- To expedite land development in an integrated and sustainable manner;
- To outline the Infrastructure Development Framework;
- To outline the Environmental Management framework;
- Draft guidelines and design criteria (building typologies, heights, densities, public-private interfaces, design of public spaces) to manage development of the node and;
- Define strategies for improvement of environmental quality and enhanced sustainability.

The proposed development is a mixed-use development which includes Business 1 and Commercial uses. This is in line with the Muldersdrift Precinct Plan (Mogale City Local Municipality, 2011) as it falls within the

mixed use zone area. The mixed land use district will invest in and strengthen existing communities and achieve more balanced regional development and facilitate the provision of a variety of transportation choices.

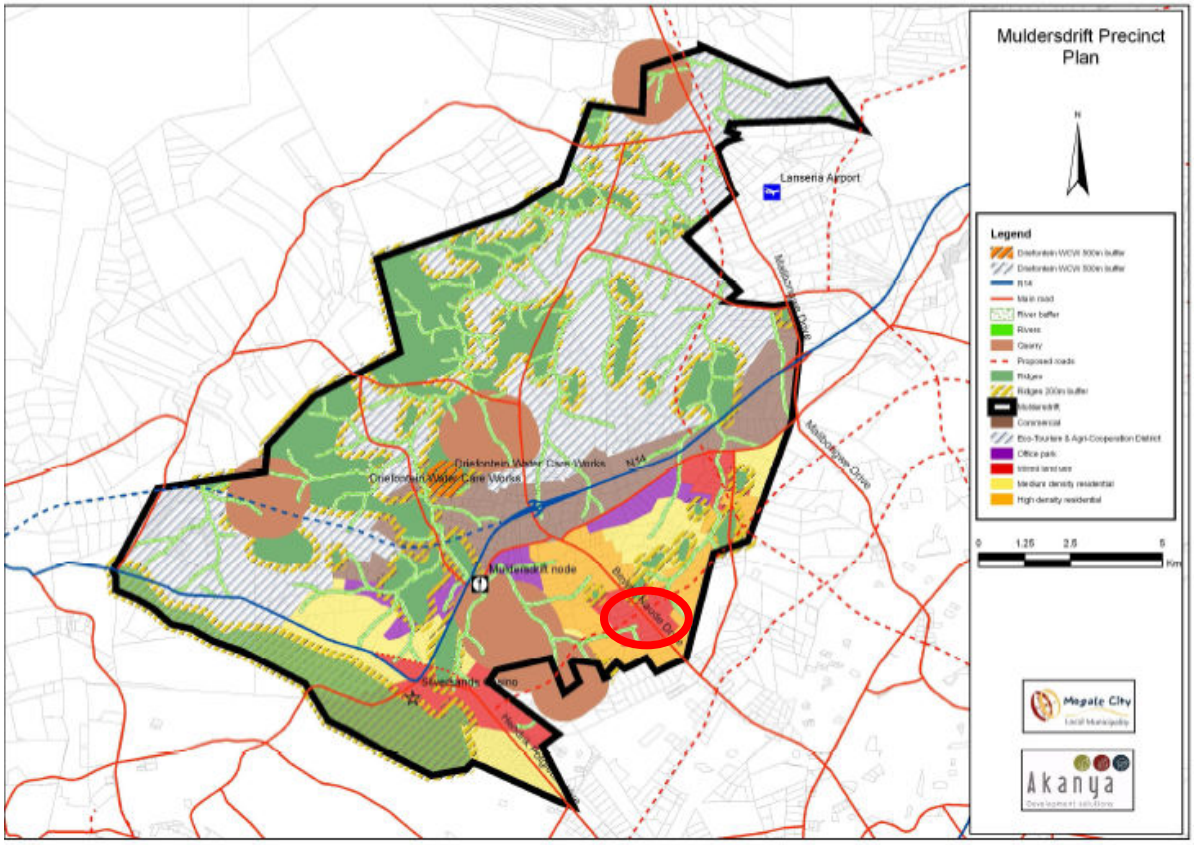

Figure 6-8: Muldersdrift Precinct Plan (Mogale City Local Municipality, 2011) (circled in red)

7 ALTERNATIVES ASSESSED AS PART OF THE BAR

As part of the development planning process for the proposed development, several technical assessments have been undertaken including the following:

- Geotechnical Study;
- Outline Scheme Report
- Traffic Impact Assessment; and
- Stormwater Management Plan.

Discussions with the technical team as well as the wetland specialist where then undertaken to determine the requirements of the development and to ensure that the concept of sustainability was taken into account. As part of these discussions, two sewer pipeline routes were developed as follows:

- Proposed sewer line (Proposal); and
- Alternative sewer line (Alternative 1).

7.1.1 Proposal

The proposal involves the development of approximately 1.3km of 160mm and 200mm diameter pipeline which travels within the property and crosses the buffer slightly before exiting the property to the north, and then crossing the wetland and wetland buffer before entering the wetland area to connect to the existing line (Figure 7-1 and Figure 7-2).

In contrast with the alterative, the proposal limits the impact to the wetland as for most of its length it occurs outside the delineated wetland. This reduces impacts to wetland interflows. It also reduces potential water quality issues. Lastly, the proposal does not encroach on the ESA whilst the alternative does. The proposal therefore reduces the impact to the ESA area.

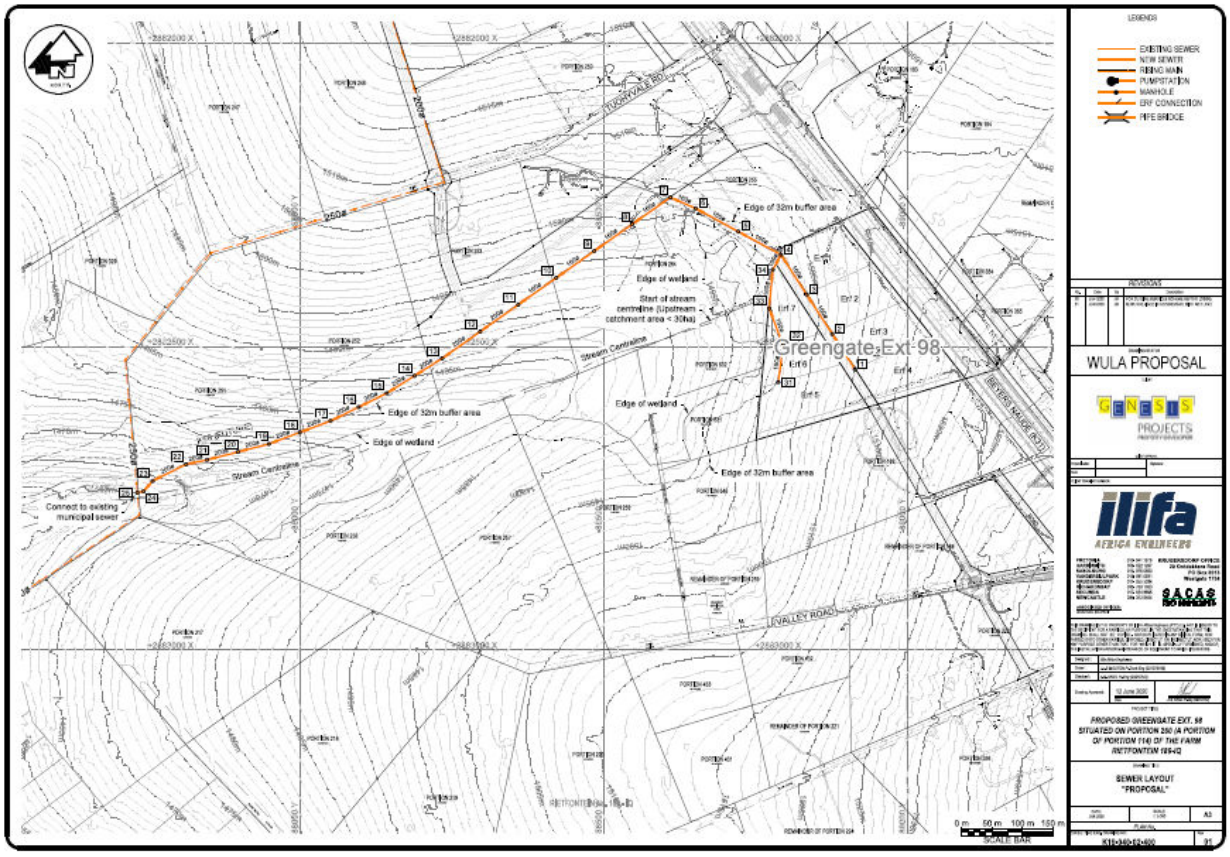

Figure 7-1: Proposal

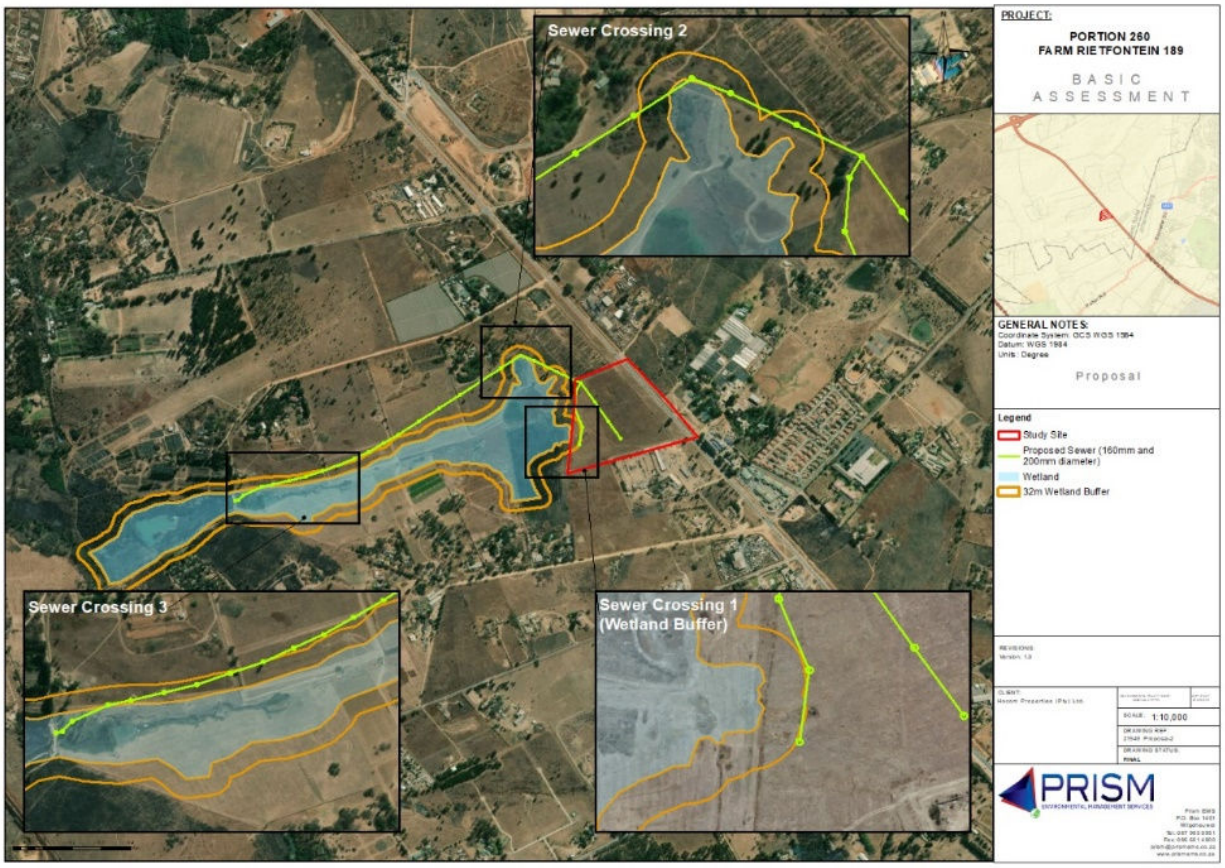

Figure 7-2: Proposal showing locations of the pipeline within wetland and wetland buffer

7.1.2 Alternative

In contract, with Alternative 1, the 160mm diameter line is shorter (only 1.1km) but almost completely traverses the wetland and thus has a much larger and direct impact due to modified flow and loss of wetland vegetation (Figure 7-3 and 5).

The alternative is not preferred as the sewer pipeline traverses a large portion of the wetland and therefore has a greater impact on interflows. It also increases the potential for spills within the wetland habitat. Lastly, it results in a greater area of wetland habitat being cleared for the construction of the sewer line. From an environmental perspective, this alternative is therefore not recommended.

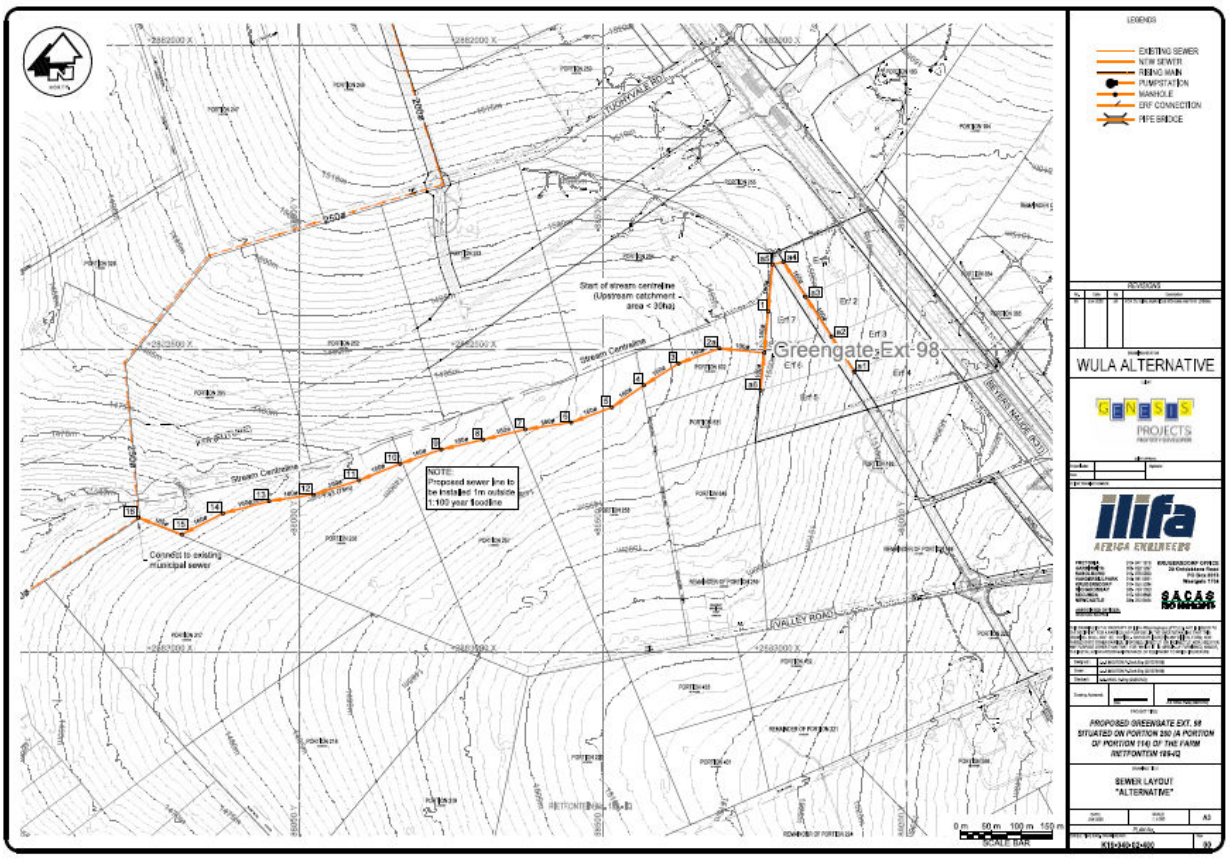

Figure 7-3: Alternative

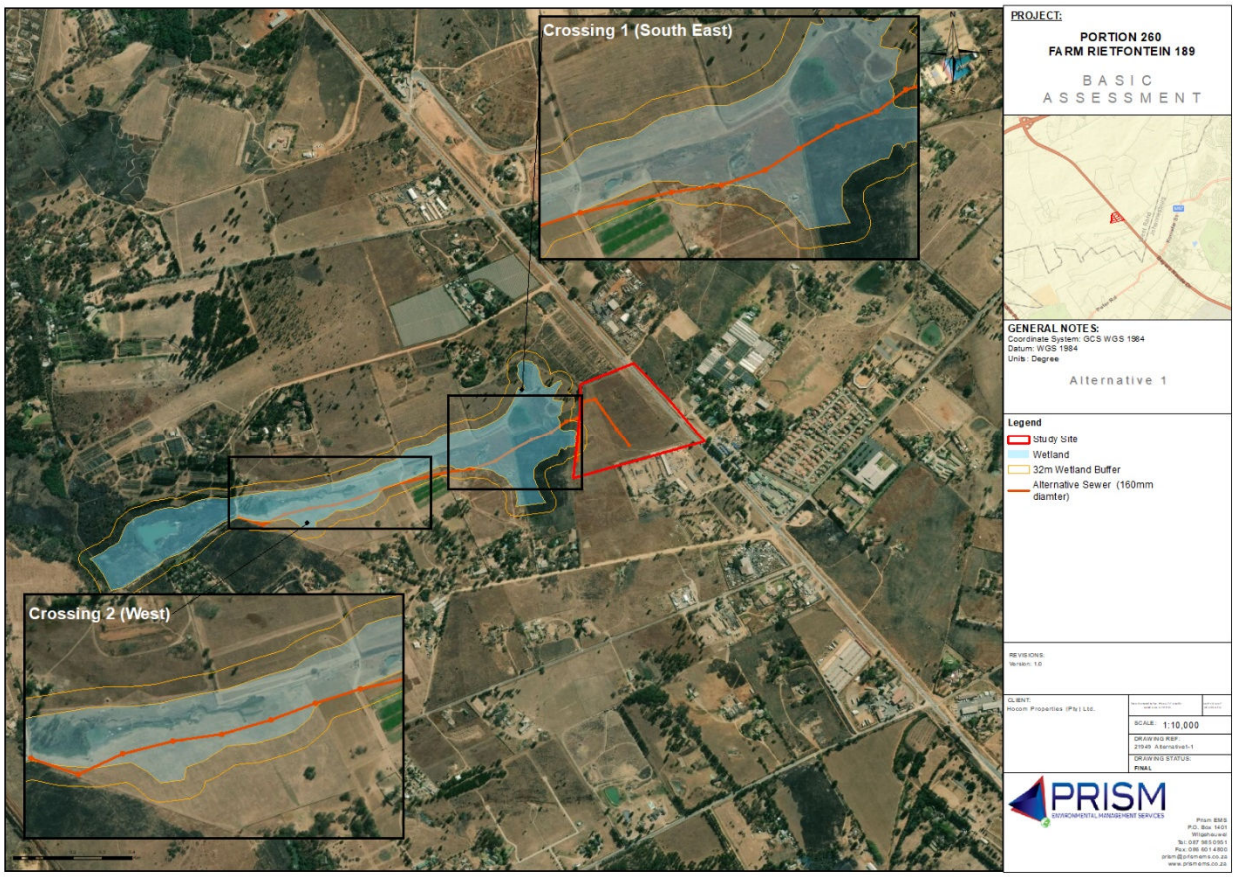

Figure 7-4: Alternative 1 showing locations of the pipeline within the wetland and wetland buffer

7.1.3 Environmental Impact Statement

The proposed development of Portion 260 of the Farm Rietfontein 189 IQ involves a mix use development which includes a broad range of uses including Business 1 and Commercial Uses. This aims to serve growing residential areas around the area. The following primary rights are being applied for:

- Erf 1 – 4 | Business 1 (As per Scheme: Shops, Office use, Dwelling Units, Residential Use, Hotel and Restaurant)
- Erf 5 | Commercial (As per Scheme: - Warehousing and Distribution)
- Erf 6-7 | Business 1 As per Scheme: Shops, Office use, Dwelling Units, Residential Use, Hotel and Restaurant)

Necessary roads and services required for the development will also be put in place including:

- Water
  - An existing 110mm dia. municipal water pipeline traverses the proposed development parallel to Beyers Naude Drive. A new 160mm dia. municipal water pipeline will be installed in the internal service road and will connect to this existing line.
  - The average daily demand for the proposed township is 307.2 kl/day.
- Sewer
  - No existing municipal sewer infrastructure is located adjacent to the proposed development. The nearest connection point is situated approximately 1.3 km west from the proposed

township. A new 160mm and 200mm dia. external sewer network will be constructed to connect to this existing line.

- Dry Weather Flow (DWF) for the proposed township is 230.4 kl/day

- Stormwater
  - Stormwater attenuation will be provided for the 1:5 as well as the 1:25 year storm event such that the pre-development runoff is not exceeded. An industry guideline of 350 m³/ha will be used for the sizing of the attenuation ponds.
  - The stormwater network will be designed in order to safely channel the runoff from a 1:10 year storm event, to the nearby natural drainage course.
  - The internal roads will be provided with kerb inlets at strategic points to catch stormwater runoff from the development.
  - The underground system will consist of “Interlocking Joint” concrete pipes with a minimum diameter of 450mm and discharged in the natural drainage course.
- Electricity
  - The proposed development will require approximately 3639 kVA electrical capacity.
  - Preliminary information suggests that the township will be supplied by Eskom from the existing 86 KV Dalkeith Substation from the 11kV Kromdraai feeder line which is adjacent to the property. The substation and line both have spare capacity.
  - Internal services will consist of an 11KV underground cable supplying miniature substations.
- Roads and access
  - A Traffic Impact Assessment has been undertaken to better understand the traffic impact of the development as well as to identify the necessary road upgrades required by the proposed development. Based on the outcomes of the study, the following roads will be required:
    - Road A The construction of a new Class 5a (commercial local) road – 7.4m wide in a 20m road reserve.
    - Road B The construction of a new Class 4a (commercial collector) road – 7.4m wide in a 25m road reserve.
  - In addition, the following intersection improvements are required:
    - Intersection 4: Valley Road – Ibis Lane / Beyers Naude Drive
    - Intersection 7:Boland Road – Indaba Lane /Beyers Naude Drive
    - Intersection 8: Planned K56 / Beyers Naude Drive
    - Intersection 9: Road B / Beyers Naude Drive
    - Intersection 11: Road B / Road A

The proposal involves the development of approximately 1.3km of 160mm and 200mm diameter pipeline which travels within the property and crosses the buffer slightly before exiting the property to the north, and then crossing the wetland and wetland buffer before entering the wetland area to connect to the existing line In contrast with the alterative, the proposal limits the impact to the wetland as for most of its length it occurs outside the delineated wetland. This reduces impacts to wetland interflows. It also reduces potential water quality issues. Lastly, the proposal does not encroach on the ESA whilst the alternative does. The proposal therefore reduces the impact to the ESA area.

Based on the findings of the specialist studies and impact assessment and taking into account the successful implementation of the EMPr, it is felt that **the Proposal** should be authorised. The reasons for this opinion are discussed in more detail in the following subjections:

7.1.3.1 Need for the Project

The proposed development is a mixed-use development which includes Business 1 and Commercial uses. This is in line with the Muldersdrift Precinct Plan (Mogale City Local Municipality, 2011) as it falls within the mixed use zone area. The mixed land use district will invest in and strengthen existing communities and achieve more balanced regional development and facilitate the provision of a variety of transportation choices.

The development is located adjacent to Beyers Naude Drive which is a major arterial and will allow access to necessary transportation to and from work for employees. This is in line with the Transit Oriented Development (TOD) Principles. This is especially pertinent in that there are current and future residential components planned in the area and thus there will be a demand for business orientated land uses that can provide for the needs of these communities. For this reason, abundant office space is required for in the proposed township.

In addition, from a town planning point of view and in terms of good urban design it is desirable to have mixture of use along Beyers Naude Drive not only to buffer the existing agricultural holdings and farm portions but to support other residential neighbourhoods both existing and upcoming also to grow certain areas where the need for alternative land use is wanted. The site is also currently vacant and degraded and thus development in line with the Local Municipalities plans for the area will be beneficial and allow the full potential of the area to be met.

Lastly the proposed development will provide numerous economic benefits. Firstly, during construction, there will be a direct CAPEX of R15 million. Secondly, 150 construction related employment opportunities will be created. During operation, 100 permanent positions will be created. This will also have a number of economic multiplier effects for the local economy.

7.1.3.2 Sensitivity

The Wetland Assessment noted that the development site is not directly affected by the wetland (GG98_UCVB – Unchanneled Valley Bottom Wetland), but the wetland buffer encroaches slightly onto the development site on the western boundary. Furthermore, the infrastructure installations and connections to the external services will impact on this wetland. In terms of the status of the wetland, the study noted that the wetland had a moderate Present Ecological State (PES) as the wetland was found to moderately modified. The Ecological Importance and Sensitivity (EIS) also fell in the moderate range and has some functionality in respect of bio-diversity conservation. The Recommended Ecological Category (REC) for the wetlands were categorised as moderate. The wetland will be impacted to some extent by the proposed development activities. This impact will be localised and at the transitional point leading from the development and infrastructure installations into the wetland and buffer area. It will in all likelihood regress

slightly in terms of its current Ecological Category if not managed in specific during the construction period. Stormwater management for the site is required in specific the construction phase. This will mitigate the impact on the wetlands. Rehabilitation of the impacts and maintenance of the system will further mitigate the impacts and could improve the sustainability of the system.

7.1.3.3 Impact Assessment

A detailed impact assessment has been undertaken and assessed the types of impact, duration of impacts, likelihood of potential impacts as well as the overall significance of the impact occurring (Annexure I of the BAR). Most impacts have a low significance once mitigation measures were applied. A summary of impacts related to the water uses are noted below.

- The proposed development occurs within close proximity to a wetland (although only the wetland buffer occurs within the main development footprint. Service infrastructure however will cross the wetland and associated 32m buffer. In terms of impacts, with the proposal, during construction, impacts to water quality, flow, habitat, biota and geomorphology were assessed to be of a low to low-medium significance prior to mitigation and a low significance, with the implementation of necessary mitigation measures including strict adherence to the delineated wetland and buffer other than authorised activities as well as the rehabilitation of the wetland as recommended by the Wetland Specialist. During operation, the impacts were assessed to be of low significance and the implementation of a proper stormwater management plan will ensure reduced impacts. In all cases, the proposal reduces the impact to the wetland as it limits the length of the sewer line within the wetland buffer.
- Potential impacts related to pollution incidents, health and safety, storage of hydrocarbons and fire may occur during construction and operation but can be mitigated through the implementation of the site specific EMPr and will thus have a low significance.
- During construction and operation, a number of **positive** economic impacts will occur relating to an increase in economy and increased employment. These have a medium level of significance after mitigation.

Based on the impact assessment undertaken as well as the findings of the specialist studies and the need for the project, it is the opinion of the EAP, that the impacts related to the proposed development can be satisfactorily mitigated and that **the Proposal be approved**.

In addition, to the above impact statement, a risk matrix in terms of the GN 509 of 2016 has been compiled to better understand the risks associated with the proposed development. However as discussed previously, due to the fact that sewer activities are included the GA is not applicable. Activities related to the mixed-use development are rated as low however those related to the development of the road and sewer within the wetland have a moderate risk. A summary is provided in Table 7-1 below and the full risk assessment in **Annexure 10.17.**

Table 7-1: Risk Matrix summary

No.	Section 21 water uses	Phases	Activity	Aspect	Impact		Significance	Risk Rating	Confidence level	PES of Watercourse	EIS of Watercourse
1	(c) and (i)	Construction	Construction of Mixed Use Development and internal services within 500m of a wetland	Clearing of vegetation and general construction works within 500m of a wetland	Loss of biodiversity and habitat		**52**	**L**	**70**	C - Moderately modified	Moderate
					Siltation		**55.25**	**L**	**70**	C - Moderately modified	Moderate
					Erosion		**42.25**	**L**	**70**	C - Moderately modified	Moderate
					Increased turbidity		**45.5**	**L**	**70**	C - Moderately modified	Moderate
					Flow modification		**55.25**	**L**	**70**	C - Moderately modified	Moderate
					Geology and Soils, impact on topography and loss of top soil.		**55.25**	**L**	**70**	C - Moderately modified	Moderate
2	(c) and (i)	Construction	Construction vehiclesand equipment on site.	Waste water discharge from hydrocarbon spills within 500m of a wetland	Water quality issues		**45.5**	**L**	**70**	C - Moderately modified	Moderate
3	(c) and (i)	Construction	Concrete mixing	Waste water discharge from concrete mixing within 500m of a watercourse	Water quality issues		**45.5**	**L**	**70**	C - Moderately modified	Moderate
4	(c) and (i)	Construction	Construction vehicles and equipment on site for the construction of Road and Services	Waste water discharge from hydrocarbon spills within wetland	Water quality issues		**150**	**M**	**70**	C - Moderately modified	Moderate

No.	Section 21 water uses	Phases	Activity	Aspect	Impact		Significance	Risk Rating	Confidence level	PES of Watercourse	EIS of Watercourse
5	(c) and (i)	Construction	Concrete mixing for road and sewer line	Waste water discharge from concrete mixing within wetland	Water quality issues		**150**	**M**	**70**	C - Moderately modified	Moderate
6	(c) and (i)	Construction	Construction of Road crossing and sewer line within the wetland	Clearing of vegetation, excavations and general construction works within wetland	Loss of biodiversity and habitat		**150**	**M**	**70**	C - Moderately modified	Moderate
					Siltation		**150**	**M**	**70**	C - Moderately modified	Moderate
					Erosion		**150**	**M**	**70**	C - Moderately modified	Moderate
					Increased turbidity		**150**	**M**	**70**	C - Moderately modified	Moderate
					Flow modification		**150**	**M**	**70**	C - Moderately modified	Moderate
					Geology and Soils, impact on topography and loss of top soil.		**150**	**M**	**70**	C - Moderately modified	Moderate
7	(c) and (i)	Operation	Routine maintenance of development as and when required.	Maintenance of mixed use development, stormwater attenuation and associated services	Siltation		**24**	**L**	**70**	C - Moderately modified	Moderate
					Erosion		**24**	**L**	**70**	C - Moderately modified	Moderate
					Increased turbidity		**24**	**L**	**70**	C - Moderately modified	Moderate
					Flow modification		**24**	**L**	**70**	C - Moderately modified	Moderate
8	(c) and (i)	Operation	Management of stormwater within Mixed Use Development	Increased stormwater due to development	Siltation		**42.75**	**L**	**70**	C - Moderately modified	Moderate
					Change to hydrological regime and increased potential for erosion		**45**	**L**	**70**	C - Moderately modified	Moderate

No.	Section 21 water uses	Phases	Activity	Aspect	Impact		Significance	Risk Rating	Confidence level	PES of Watercourse	EIS of Watercourse
					Increased turbidity		40.5	L	70	C - Moderately modified	Moderate
					Flow modification		45	L	70	C - Moderately modified	Moderate
					Diversion and increased velocity of surface water		45	L	70	C - Moderately modified	Moderate
9	(c) and (i)	Operation	Management of Road A and B Stormwater	Increased stormwater due to roads	Siltation		104	M	70	C - Moderately modified	Moderate
					Change to hydrological regime and increased potential for erosion		104	M	70	C - Moderately modified	Moderate
					Increased turbidity		104	M	70	C - Moderately modified	Moderate
					Flow modification		104	M	70	C - Moderately modified	Moderate
					Diversion and increased velocity of surface water		104	M	70	C - Moderately modified	Moderate
				)							
10	(c) and (i)	Operation	Maintenance of sewer line	General maintenance works within wetland (including potential spills)	Siltation		104	M	70	C - Moderately modified	Moderate
					Change to hydrological regime and increased potential for erosion		104	M	70	C - Moderately modified	Moderate
					Increased turbidity		104	M	70	C - Moderately modified	Moderate
					Flow modification		104	M	70	C - Moderately modified	Moderate
11	(c) and (i)	Operation	Maintenance of Road	General maintenance	Siltation		104	M	70	C - Moderately modified	Moderate

No.	Section 21 water uses	Phases	Activity	Aspect	Impact		Significance	Risk Rating	Confidence level	PES of Watercourse	EIS of Watercourse
				works within wetland	Change to hydrological regime and increased potential for erosion		**104**	**M**	**70**	C - Moderately modified	Moderate
					Increased turbidity		**104**	**M**	**70**	C - Moderately modified	Moderate
					Flow modification		**104**	**M**	**70**	C - Moderately modified	Moderate

8 PUBLIC PARTICIPATION

Public Participation has been conducted in line with the Regulations regarding the Procedural Requirements for Water Use License Applications and Appeals (R. 267 of 24 March 2017). All public participation has been integrated with the Basic Assessment Report. A public participation report has been compiled and is included in **Annexure 10.7.**

9 CONCLUSION

The proposed development of Portion 260 of the Farm Rietfontein 189 IQ involves a mix use development which includes a broad range of uses including Business 1 and Commercial Uses. This aims to serve growing residential areas around the area. The following primary rights are being applied for:

- Erf 1 – 4 | Business 1 (As per Scheme: Shops, Office use, Dwelling Units, Residential Use, Hotel and Restaurant)
- Erf 5 | Commercial (As per Scheme: - Warehousing and Distribution)
- Erf 6-7 | Business 1 As per Scheme: Shops, Office use, Dwelling Units, Residential Use, Hotel and Restaurant)

Necessary roads and services required for the development will also be put in place. These include:

Based on the socio-economic information available, the proposed development will have a significant economic (and social) benefit:

- The proposed development is a mixed-use development which includes Business 1 and Commercial uses. This is in line with the Muldersdrift Precinct Plan (Mogale City Local Municipality, 2011) as it falls within the mixed use zone area. The mixed land use district will invest in and strengthen existing communities and achieve more balanced regional development and facilitate the provision of a variety of transportation choices.
- The development is located adjacent to Beyers Naude Drive which is a major arterial and will allow access to necessary transportation to and from work for employees. This is in line with the Transit Oriented Development (TOD) Principles. This is especially pertinent in that there are current and future residential components planned in the area and thus there will be a demand for business orientated land uses that can provide for the needs of these communities. For this reason, abundant office space is required for in the proposed township.
- In addition, from a town planning point of view and in terms of good urban design it is desirable to have mixture of use along Beyers Naude Drive not only to buffer the existing agricultural holdings and farm portions but to support other residential neighbourhoods both existing and upcoming also to grow certain areas where the need for alternative land use is wanted. The site is also currently vacant and degraded and thus development in line with the Local Municipalities plans for the area will be beneficial and allow the full potential of the area to be met.
- Lastly the proposed development will provide numerous economic benefits. Firstly, during construction, there will be a direct CAPEX of R15 million. Secondly, 150 construction related employment opportunities will be created. During operation, 100 permanent positions will be created. This will also have a number of economic multiplier effects for the local economy.

In addition, to ensure that there are no significant negative impacts to the water resources in the area, a number of specialist reports were undertaken including a Wetland Assessment.

This study provided a number of mitigation measures to minimize impacts to water resources which have been included in the project specific Environmental Management Programme (EMPr). In addition, a Monitoring and Rehabilitation Plan has been compiled and will be included as part of the WULA Technical Report submission.

Based on the mitigation measures included in the EMPr, Monitoring Plan and Rehabilitation Plan, it is the recommendation of the EAP that the WUL for the proposed development be authorised. The following recommendations accompany this recommendation:

- Monitoring should be undertaken as per the requirements of the Monitoring Plan and should include the following:
  - Wetland Assessment:
    - 1 Post construction assessment
  - ECO Site Inspections
    - Preconstruction Phase – Once
    - Construction Phase – Weekly inspections and monthly reporting
    - Post construction - Once
  - Water Use Licence Compliance Audits
    - As per the WUL Requirements (recommended annual)
  - Rehabilitation Audit
    - 1 audit to be undertaken during each phase (pre-construction, construction and post construction).
- Rehabilitation of impacted areas must be undertaken as per the requirements of the Rehabilitation Plan. In particular, the following should be undertaken:
  - Rehabilitation must be carefully sited to minimize the footprint and ultimately the loss of the natural habitat within the wetland and riparian areas during the construction phase;
  - The buffer zones/flood line areas must be demarcated and strictly adhered to;
  - Re-vegetation of disturbed areas must be undertaken with site-specific indigenous species and in accordance with the instructions issued by the ECO;
  - Trenches must be backfilled and re-vegetated as described in this Rehabilitation Plan.
  - Stormwater should not discharge perpendicularly to the aquatic resource, but rather as parallel as possible to reduce impacts to the stream flow and the opposite bank.
  - Additionally, breakers should be incorporated at the discharge points to reduce the velocity of stormwater entering the aquatic resource.
  - This Rehabilitation Plan has included the planting of indigenous vegetation that would function ecologically and in attenuating stormwater flow.

  - Consultation with Mr. De Wet Botha from Prism EMS along with other relevant experts regarding the proper disposal methods or use of the removed sediment is imperative; and
  - The environmental impacts of the construction must be closely monitored in terms of both the upstream and downstream environment with regards to sediments loads & plumes, water flows and pollution build up (plastics, polystyrene, etc.
- Construction must be undertaken in line with the requirements of the WUL, EA and EMPr.
- The Licensee must conduct an annual internal audit on compliance with the conditions of license. A report on the audit shall be submitted to the Provincial Head within one month of the finalization of the audit.
- The Licensee must appoint an independent external auditor to conduct an annual audit on compliance with the conditions of this license. The first audit must be conducted within 6 (six) months from the date of commencement of construction activities on site. The report on the audit shall be submitted to the Provincial Head within one month of finalization of the report.
- The Licensee shall notify the Department of the commencement of activities.
- Any incident that causes or may cause water pollution must be reported to the Provincial Head or his/her designated representative within 24 hours.

10 ANNEXURES

10.1 Curriculum Vitae of Assessor and Specialists

To prevent duplication, please refer to Appendix I of the Basic Assessment Report

10.2 Procedural Requirements

10.2.1 Pre-Application Enquiry

10.2.2 Confirmation of WUL Process

No correspondence has been received as of yet due to issues with the EWULAAS website followed by the lockdown period.

10.2.3 Email Confirmation – Site Visit and Information Requirements

No correspondence has been received as of yet due to issues with the EWULAAS website followed by the lockdown period. No Site visit has taken place as of yet.

10.3 Specialist Studies

10.3.1 Wetland Assessment

To prevent duplication, please refer to Appendix G of the Basic Assessment Report

10.3.2 Geotechnical Assessment

To prevent duplication, please refer to Appendix G of the Basic Assessment Report

10.3.3 Traffic Impact Assessment

To prevent duplication, please refer to Appendix G of the Basic Assessment Report

10.4 Mapping

10.5 Masterplan

10.6 Site Photographs

To prevent duplication, please refer to Appendix B of the Basic Assessment Report

10.7 Public Participation Report

10.8 Environmental Management Programme

To prevent duplication, please refer to Appendix H of the Basic Assessment Report

10.9 Rehabilitation Plan

10.10 Monitoring Plan

10.11 Construction Methodology/Method Statement

10.12 Construction Management Plan

10.13 Civil Reports and Designs

10.14 Section 27 Motivation

10.15 Stormwater Report

10.16 Basic Assessment Report

The WULA technical report forms part of the Basic Assessment Report which is made available for public review. The Basic Assessment Report is therefore not included here to prevent duplication.

10.17 Risk Matrix