PROPOSED NEW DEVELOPMENT ON PORTION 16 OF FARM 20 ATLANTIS

ERF CA20-16

CIVIL SERVICES REPORT

Rev 0

FEBRUARY 2024

CIVIL SERVICES REPORT

ERF CA20-16 ATLANTIS

TABLE OF CONTENTS

ITEM **PAGE**

CIVIL SERVICES REPORT

ERF CA20-16 ATLANTIS

1. INTRODUCTION

ACE Consulting were appointed to prepare a civil engineering services report for the proposed shopping centre on Erf CA20-16 Atlantis Cape Town. This report will focus on the Roads, Sewer, Water, Stormwater and Solid waste removal for the proposed development. A site inspection was conducted on 30 August 2023.

1.1 Site Location

Erf CA20-16 is located at 8 Saxonwold Road Witsand in Atlantis. The total area of the Erf is approximately 85,637 sqm. The locality sketch is included in Appendix A.

1.2 Topography

The contours reflected on the site plan indicate that the site gently falls to the southeast direction towards Saxonwold. Erf CA20-16 topographical levels are below the R304 road levels.

1.3 Current Erf utilisation

The above Erf is currently undeveloped.

2. PROPOSED DEVELOPMENT

The intention is to subdivide the Erf and construct a shopping centre on one of the subdivided portions. The Site Development Plan is included in Appendix B.

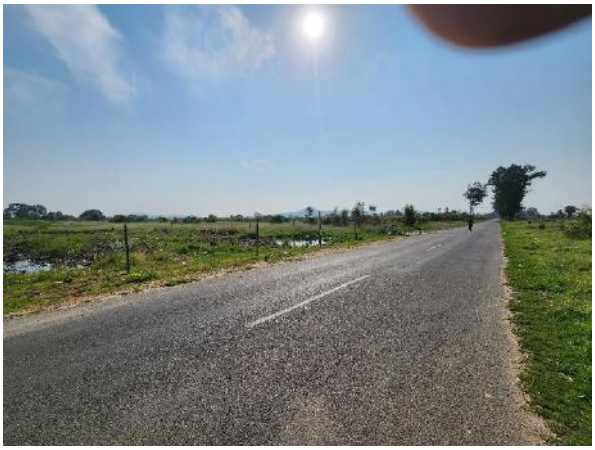
3. EXISTING SERVICES

There is existing municipal stormwater, sewer and potable water infrastructure in the roads surrounding the proposed development.
It is noted that the development cannot use some of these existing municipal services for reasons described further in the report.

3.1 Roads

The development is bound by R304 to the West and Saxonwold Road to the South. The R304 is a major arterial with a premix surface. The R304 has no roadside kerbs or formal sidewalks are on either side of the road.

The section of Saxonwold Road that goes past the Erf is tarred. The tarred surface is approximately 7m wide. It has no roadside kerbs or formalised sidewalks. The pictures below illustrate the above.

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Pic 1: R304 / Saxonwold intersection</td><td>Pic 2: R304 no kerbs or sidewalk</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Pic 3: Saxonwold Road – Site on Right</td><td>Pic 4: Saxonwold Road – Site on left</td></tr>
</table>

3.1.1 Saxonwold Road conditions

A visual inspection of Saxonwold road revealed that the road is showing signs of distress. These signs included undulations, rutting, potholes, edge breaks and surface cracks.

The layerworks appear to comprise a tarred surface placed on a laterite subbase.

***Pic 5*:** Saxonwold Road Distress - Potholes

***Pic 6*:** Saxonwold Road Layerworks Laterite

3.2 Potable water

GIS information obtained from the City of Cape Town shows that the closest Potable water main is a Ø110mm potable water pipeline in Ntaka Street within the Witsand residential area. However, this pipeline has insufficient flow capacity and pressure to service the proposed development on Erf CA20-16. Refer to Appendix C for a schematic of this pipeline.

A second possible potable water connection is to a Ø225mm potable water pipeline on Reygersdale Avenue, a distance of +/-1200m north of the site. The CoCT indicates that this pipeline has a peak pressure of 44m and sufficient flow capacity to service the development. Refer to Appendix C for a schematic of this pipeline.

A third possible potable water connection is to a Ø160mm potable water pipeline along the R304, a distance of +/-500m south of the site. This pipeline currently stops at the Engen Garage on Klein Dassenberg Road. The CoCT did not provide any pressure or capacity readings for this pipeline. Refer to Appendix C for a schematic of this pipeline.

3.3 Foul sewer

Erf CA20-16 is located to the east and below R304. GIS information from the City of Cape Town (CoCT) shows no formal municipal foul sewer reticulation network to the east of the R304. The on-site inspection did not reveal any foul sewer infrastructure close to the site.

A letter was submitted to the CoCT inquiring about the ability of the City to provide a sewerage sanitation service to the proposed development. Below is a summary of the comment with respect to the foul sewer reticulation network.

The existing foul sewer reticulation services the Witsand residential area located West of the R304. The foul sewer from this settlement is collected via a series of sewer pipes that lead to the Witsand Sewer pump station. The Sewer pump station is located at the intersection of (John Deyer St) and R304. The sewerage is then pumped to a Ø525 gravity municipal sewer line located Mission Expressway.

Correspondence from the CoCT indicates that the above sewer reticulation network within the Witsand residential area is under considerable strain, with the Witsand Sewer pump station experiencing operational constraints. Refer to Appendix D for the documentation received from the Water and Sanitation department.

3.3.1 Wastewater treatment works

The sewerage from the proposed development would be treated at the Wesfleur Residential Waste Water Treatment Works. The CoCT confirmed sufficient capacity at this facility to treat the sewage discharge from the development.

3.4 Stormwater

The on-site investigation showed that there is existing formalised underground stormwater infrastructure serving the Witsand residential area.
There is no formal stormwater infrastructure in Saxonwold Road.
Refer to CoCT correspondence in Appendix E.

4. GEOLOGY

No Geotechnical information was available at the time of compiling this report.

5. PROPOSED INFRASTRUCTURE

The section below provides an overview of the proposed infrastructure for the development.

5.1 Proposed Roads

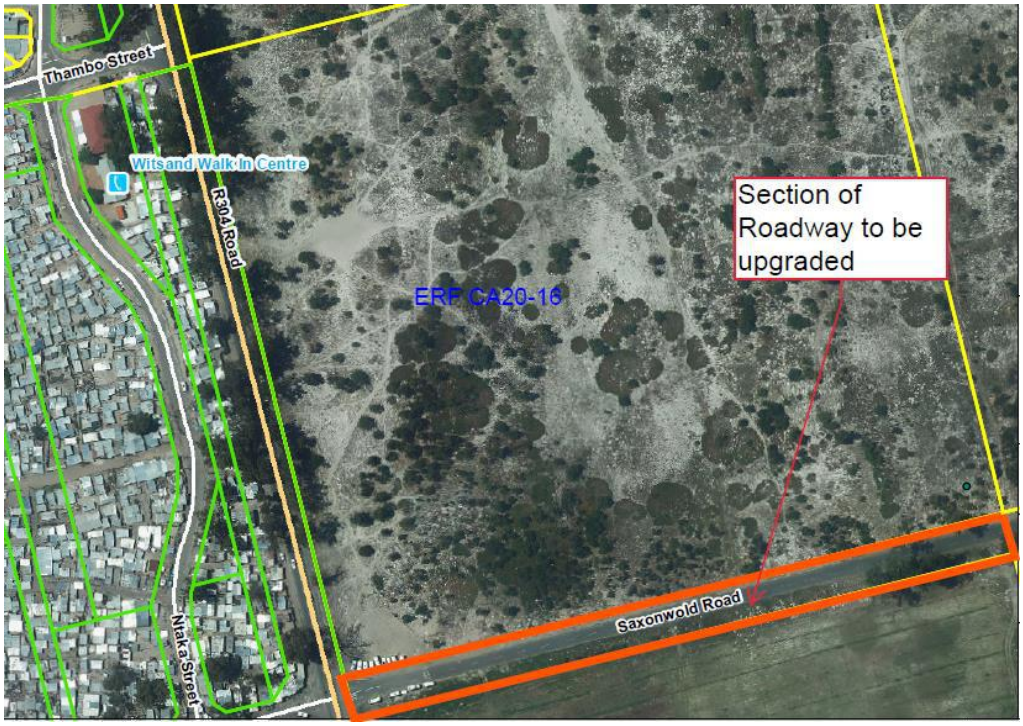
Below is an overview of the proposed external and internal roads servicing the development.

5.1.1 External access

Access to the proposed shopping centre will be off Saxonwold Road.
As noted, the existing road layerworks consist of a premix surface on top of the Laterite sub-base.

It is therefore proposed that the road layer works for the section of Saxonwold Road indicated in the snapshot below be upgraded to accommodate the anticipated increased traffic volumes.

The above-mentioned section of Saxonwold Road will have to be constructed to the City of Cape Town standards for this class of road. The works will include roadways, kerbing, sidewalks, associated stormwater and street lighting amongst others.



5.1.2 Internal Roads

The internal road network will consist of Circulatory roadways, a parking area and 7.5m wide aisles between the parking bays. The road layer works will be designed to suit the overall traffic and stormwater management approach selected for the development.

6. WATER SUPPLY

6.1 Water demand

The water demand for the development was calculated based on the Guidelines in the "Redbook". The table below provides a summary of the calculation. The development is categorised as **Business/Commercial**.

WATER DEMAND					
Land Use	**No of Units**	**AADD (kL/Unit/day)**	**Total AADD (kL/day)**	**Peak Factor**	**Peak Flow (l/sec)**
Retail Centre (7974Sqm)	1	100	79.74	3.6	3.33

6.2 Fire demand

Based on the Guidelines for Human Settlement Planning and Design (Red Book), the site has been categorised as Moderate Risk 1 for firefighting design purposes. This requires the firefighting reticulation mains to have enough capacity for a flow of 50 litres/ sec with a minimum pressure of 15 meters at the fire node.

6.3 Water connection

The following are the various options for potable water supply to the development.

6.3.1 Option A –Ntaka Street connection

This option would entail connecting to the Ø110mm potable water pipeline in Ntaka Street.

This option is not viable because of insufficient flow capacity and pressure in the existing reticulation network.

6.3.2 Option B - Reygersdale Avenue connection

Option B involves the provision of a bulk water pipeline linking the site to the Ø225mm potable water pipeline in Reygersdale Avenue. Refer to Appendix C for a schematic of this pipe route.

- The length of this pipeline is approximately 1200m.
- The design and sizing of this pipeline will have to consider the offtakes from future developments that this line will service.
- Detailed design and modelling of the future potable water requirements will be necessary.
- Engagement with CoCT officials to determine how the proposed pipeline could be incorporated into the water master planning for the area.
- The developer would incur the costs of the design and construction of the linking pipeline.
- The City could be approached to offset a portion of the Development Contribution against the cost of installing the linking pipeline.

6.3.3 Option C - Klein Dassenberg Road connection

This would involve the extension of the Ø160mm potable water pipeline that the CoCT information shows stopping at the Engen Garage on the corner of Klein Dassenberg Road and R304.

- The length of this pipeline is approximately 500m.
- An on-site test should be conducted to determine the pressure and capacity of the pipeline.
- The design of this pipeline will have to consider the offtakes from future developments that this line will service.
- Detailed design and modelling of the future potable water requirements will be necessary.
- Engagement with CoCT officials to determine how the proposed pipeline could be incorporated into the water master planning for the area.
- The developer would incur the costs of the design and construction of the pipeline.
- The City could be approached to offset a portion of the Development Contribution against the cost of installing this pipeline.

6.3.4 Option D – Boreholes

During the site inspection, we engaged with a staff member at a daycare centre located along Saxonwold Road, further down from Erf CA20-16. The staff member mentioned that the daycare centre uses water from a wellpoint. A number of Jojo tanks were observed on a number of the Erfs in the surrounding area.

The Atalantis area is known to have an underground water aquifer. It is, therefore, possible that a borehole drilled on the site could provide a certain volume of water that the development could use. The following should be taken into account when considering this option.

- A Geohydrological study will be required to determine the viability of a borehole for the site.
- A water use licence will be necessary to allow for the abstraction of the underground water.
- Treating the borehole water before using it in the shopping center might be necessary.
- The use of the borehole water could be limited to use as non-potable water. E.g. Used only for flushing of toilets.
- Treating the borehole water to Potable water quality would require the installation of a specialised water treatment package plant. The package plant would need to meet the relevant legislative requirements.

6.4 Internal Potable Water reticulation

The internal potable water reticulation design will depend on the water source.

6.4.1 Municipal water source

If the potable water is provided from the municipal network, the internal reticulation will consist of a Ø110mm uPVC Class 12 ring main to provide potable water.

6.4.2 Borehole water source

The reticulation system using a borehole as its primary water source will require storage tanks, water treatment plants, pumps and pipe reticulation. The design of this reticulation will comply with the relevant SANS and legislative requirements.

6.5 Firewater reticulation

Similarly, the design of the fire reticulation will depend on the water source.

6.5.1 Municipal water source

A separate fire water line will be provided to service the firefighting installations. The fire water line will be a Ø110mm uPVC Class 12 pipe.

6.5.2 Borehole water source

The reticulation system using a borehole as its primary water source will require storage tanks, water treatment plant, pumps and pipe reticulation. The design of this reticulation will comply with the relevant SANS and legislative requirements.

7. SEWER

7.1 Sewer demand

The table below summarises the foul sewer discharge from the development.

SEWER DEMAND						
Land Use	**No of Units**	**AADD (kL/Unit/day)**	**Total AADD (kL/day)**	**Total ADWF (kl/d)***	**PF**	**Peak Flow (Dry Weather) (l/sec)**
Retail Centre (7974Sqm)	1	100	79.74	71.76	2.5	2.08
* Based on 90% of Water Consumption as per CoCT tariff policy						

7.2 Sewer connection

The correspondence from the City indicates that the sewer reticulation network within the Witsand residential area is under considerable strain, with the Witsand Sewer pump station experiencing operational constraints.

7.2.1 Option A – Witsand upgrade gravity main and pump station

Refer to Appendix F for a schematic of this option. This would entail the following.

- Construction of a sewer pump station on Erf CA20-16 to pump the sewer from Erf CA20-16 to the sewer gravity reticulation network within the Witsand residential area.
- Construction of a sewer raising main from Erf CA20-16 to the gravity sewer reticulation network in Witsand.
- Upgrading a section of the gravity sewer reticulation network in Witsand.
- Reconnecting existing sewer house connections to the upgraded line

- Upgrading the existing Witsand sewer pump station.
- The pipeline length comprises approximately 250m of rising main and 900m of gravity lines to be upgraded.
- Engagement with CoCT officials to determine how this proposed option fits in the sewer master planning for the area.

This option is deemed unviable because of the extent of the upgrades required to the existing reticulation network and pump station.

7.2.2 Option B – R304 Gravity main and upgrade pump station

Refer to Appendix F for a schematic of Option B.

Option B would involve

- Construction of a sewer pump station on Erf CA20-16 to pump the sewer from Erf CA20-16 to R304 intersection.
- Construction of a sewer raising main from Erf CA20-16 to the R304 intersection.
- Construction of a gravity sewer line in R304 and Bloembosch Road reservations.
- Upgrading the existing Witsand sewer pump station.
- The pipeline's total length comprises approximately 200m of rising main and 1000m of gravity lines to be upgraded.
- The new sewer pipelines would need to be sized, considering the future erfs that could use these services.
- Engagement with CoCT officials to determine how this proposed option fits in the sewer master planning for the area.

This option is considered less favourable because of the need to upgrade the existing sewer pump station.

7.2.3 Option C – Reygersdal Avenue Pumped Line

This option necessitates the construction of a raising main from Erf CA20-16 to the gravity sewer main located on Reygersdal Avenue.

Refer to Appendix F for a schematic of Option C.

The work to realise Option C would involve

- Construction of a sewer pump station on Erf CA20-16 to pump the sewer from Erf CA20-16 to R304 intersection.
- Construction of a sewer raising main from Erf CA20-16 to Reygersdal Avenue.

- The total length of the raising main is 1300m.
- The new sewer pipelines would need to be sized considering the future erfs that could use these services.
- Engagement with CoCT officials to determine how this proposed option fits in the sewer master planning for the area.

This option's main advantage is bypassing the operationally constrained Witsand sewer pump.

7.2.4 Sewer treatment package plant

A sewer treatment package plant on site to deal with the sewerage flow from the development. The developer/package plant operator would need to obtain the necessary wastewater treatment licences and meet all the legislative requirements for wastewater treatment. Detailed construction and operation costs would be required to determine this option's viability.

7.2.5 Septic tank

The option of a septic tank was considered and eliminated because of the potential for pollution of the underground water Aquifer.

7.2.6 Conservancy tank

A conservancy tank could be utilised to manage the sewage discharge from the development. The following information would be required to determine the size of the conservancy tank.

1. The depth to the water table.
2. The possibility of separating black water (from toilet flushing) and grey water (e.g., wash hand basins).
3. Possibility of use of water-saving features, e.g. waterless urinals, in the development
4. The lifecycle cost of maintaining the conservancy tank.

8. STORMWATER

The site inspection revealed no formal stormwater infrastructure in the vicinity of the site. This was confirmed in correspondence received from CoCT. Refer to Appendix E for this correspondence.

The total combined size of the development is greater than 4000 sqm. As a result, it has to comply with the City of Cape Town stormwater management policy that requires developments greater than 4000m2 to consider and implement measures to control the rate and quality of storm runoff from the development.

A separate and detailed Local Storm Water Master Plan (LSWMP) report should be prepared for this development. The LSWMP will provide details of the stormwater reticulation layout and management of the stormwater.

9. SOLID WASTE REMOVAL

The City of Cape Town confirmed that it has adequate capacity to collect solid waste from the development. Refer to Appendix G for this correspondence.

10. CONCLUSION

The following is a summary of the key findings with respect to the various services.

10.1 Roads

- A section of Saxonwold Road will have to be constructed to the City of Cape Town standards for this class of road. The works will include roadways, kerbing, sidewalks, associated stormwater and street lighting amongst others. Refer to section 5.1.1 for the extent of these works.

10.2 Water supply

- The development has three options for potable water supply—two of these link into the existing municipal network. Option B links to the potable water main in Reygersdale Avenue, 1200m away. Option C links into the potable water main at Klein Dassenberg Road, 500m away. Refer to Appendix C for a schematic of these connection points.
- The third option is the construction of a borehole.
- Implementation of the above options requires further investigations as outlined in the recommendations below.

10.3 Firewater supply

- The design of the fire water reticulation network depends on the water source.

10.4 Foul sewer discharge

- The sewer reticulation network in the Witsand residential area and the Witsand Sewer pump stations are experiencing operational difficulties.
- The development has three options for the discharge of foul sewer. Namely:
  - Option C – Construction of a raising main from Erf CA20-16 to the gravity sewer main in Reygersdal Avenue. This option avoids utilising the Witsand sewer pump station, which requires an upgrade.
  - Provide a sewer package plant for the development. Detailed construction and operation costs need to be determined to establish the viability of this option.
  - Construction of a Conservancy tank

10.5 Stormwater

- There is no existing stormwater infrastructure in the immediate vicinity of the site.
- All stormwater runoff will need to be managed on-site.
- This is best addressed in a comprehensive stormwater management plan for the site.

10.6 Solid waste

- The CoCT indicated that they have adequate capacity to collect and manage the solid waste from the development.

11. RECOMMENDATION

11.1 Water supply

- Conduct an on-site investigation to determine the capacity and pressure for Option C – Klein Dassenberg Road connection.
- Depending on the findings above, engage the CoCT regarding extending the potable water line as indicated for Option C.
- Prepare a high-level construction cost estimate for Option C.
- Undertake geohydrological investigations to determine the viability of a borehole.

11.2 Foul sewer discharge

- Evaluate Option C - Pumped main to Reygersdal Avenue in detail. Undertake a conceptual design of this raising main and connection to the gravity line in

Reygersdal Avenue. Engage with the relevant CoCT officials during this process.

- Obtain the estimated cost of installing a sewer treatment package plant, including the running costs.
- Explore the use of a Conservancy tank.
- The sewer treatment package plant and conservancy tank design will require rationalising and separating Grey water from Blackwater. This needs to be workshopped with the architect.

11.3 Stormwater management

- Prepare a detailed stormwater management plan for the development.

Prepared by: ACE CONSULTING ENGINEERS

Signature: 

Name: Emmanuel Akampurira Pr Eng

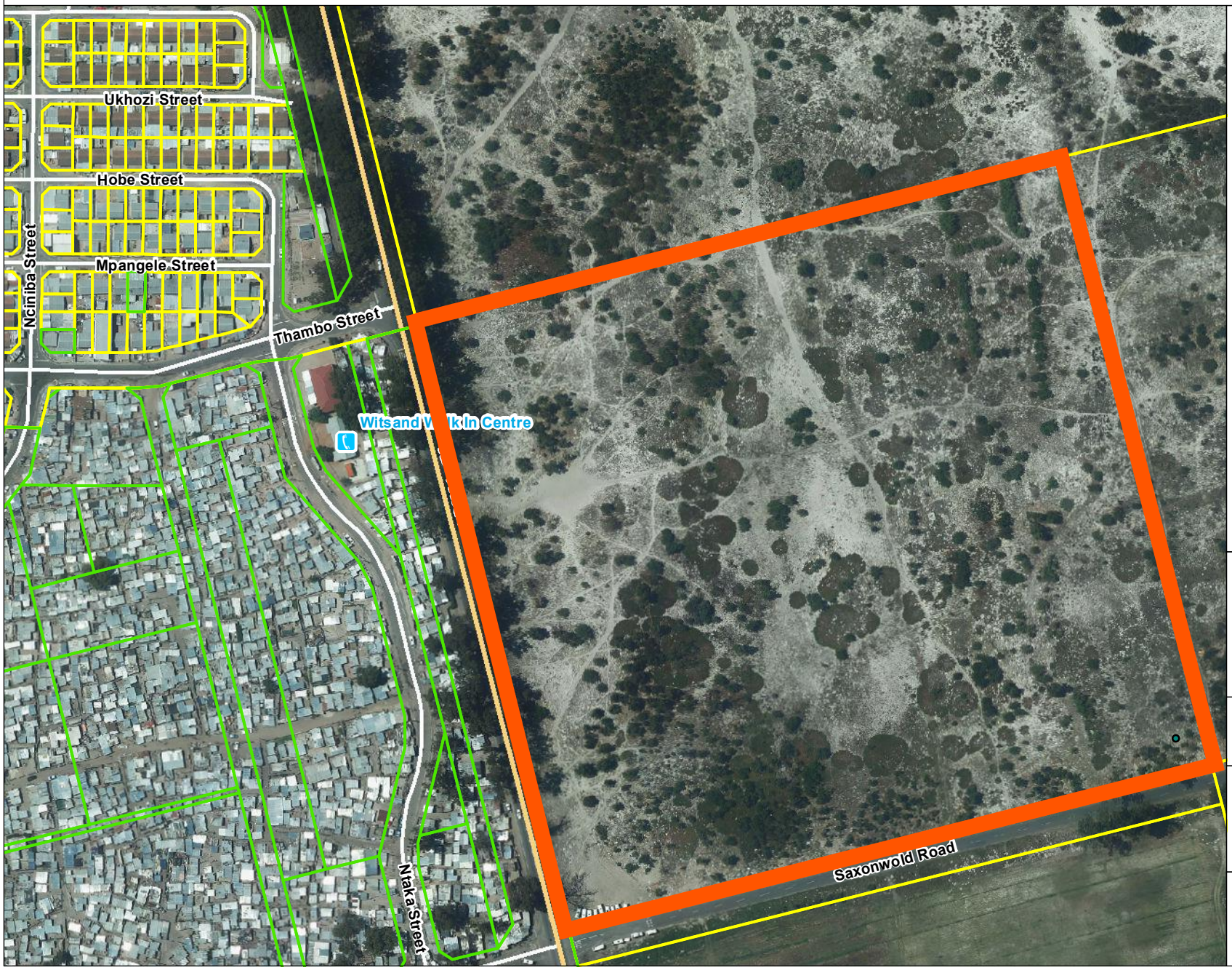
Designation Civil Engineer

Date: 05 February 2024

APPENDIX

APPENDIX A
SITE LOCALITY SKETCH

Title



Legend

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Meters

1:3 000

Projection: Web Mercator Auxiliary Sphere (WMAS), Central Meridian 19° East
Spheroid: WGS_1984

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Date: 2023-08-28

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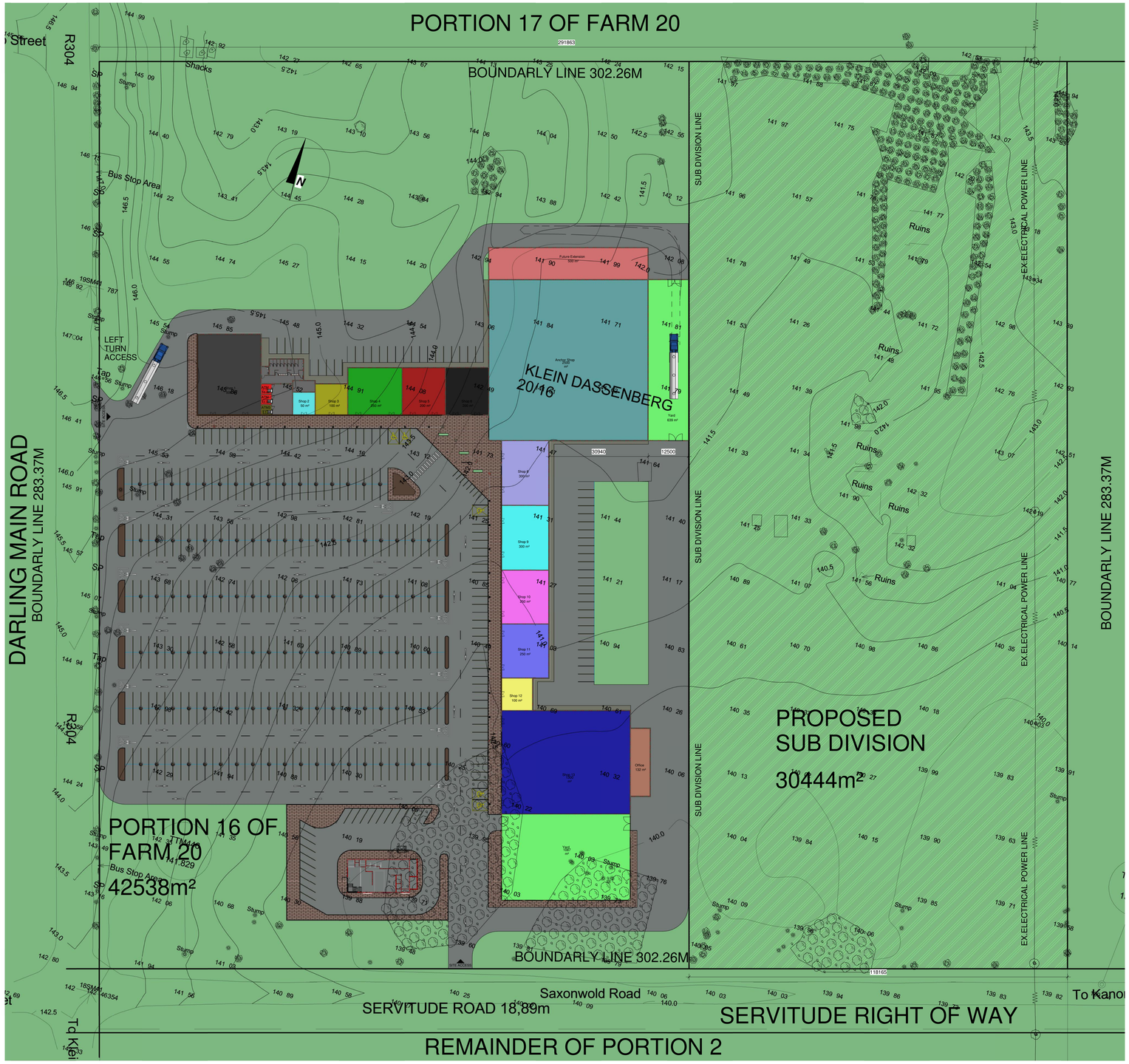
APPENDIX B
SITE DEVELOPMENT PLAN



1 Site Plan
scale 1 : 500

2 Locality Plan
scale 1 : 1500

- Anchor Shop
- ATM
- ATM3
- Future Extension
- Office
- Shop 1
- Shop 2
- Shop 3
- Shop 4
- Shop 5
- Shop 6
- Shop 8
- Shop 9
- Shop 10
- Shop 11
- Shop 12
- Shop 13
- Yard

Stand Number	Portin 16 of Farm 20
Township	Cape Farms
Farm	FARM KLEIN DASSENBER-ATLANTIS
Zoning	Business
Local Authority	Cape Town
Province	Western Cape
Site Plan	85683 m²

CONTROL	ALLOWED	PROVIDED
Height		
Coverage		9%
FAR		

OCCUPANCY CLASSIFICATION F1	
GROUND FLOOR PLAN	6816m²
COVERED WALKWAYS	1158m²
YARD	1087m²
TOTAL COVERED AREA	7974m²
STORMWATER STORMWATER TO ENGINEERS DETAIL	

SHOP NO.	TYPE	NATIONA	NON NATIONAL	RENTABLE (GLA)
1	SHOP1			500m²
2	SHOP 2			50m²
3	SHOP3			100m²
4	SHOP 4			250m²
5	SHOP 5			200m²
6	SHOP 6			200m²
7	SHOP 7			2500m²
8	SHOP 8			300m²
9	SHOP 9			300m²
10	SHOP 10			250m²
11	SHOP 11			250m²
12	SHOP 12			100m²
13	SHOP 13			1300m²
14	Drive Thru			250m²
	ATM 1			10m²
	ATM 2			10m²
	ATM 3			10m²
	TOTAL GLA	m²	6580m²	6580

PARKING SCHEDULE

	RATIO	AREA m²	REQUIRED	PROVIDED
		6580		
6 BAYS PER 100m² OF GLA			395	600
DISABLED PARKING PROVIDED AT A RATIO OF 1 FOR EVERY 25 PARKING BAYS				5
TOTAL				605

Revision Schedule

No	Date	Description	Issued by

NOTES:

AREA SCHEDULE

DO NOT SCALE THIS DRAWING - USE FIGURED DIMENSIONS ONLY.

ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO WORK COMMENCING.

ANY DISCREPANCIES ON THE DRAWINGS MUST BE BROUGHT TO THE ATTENTION OF FNB ARCHITECTS, DESIGN TEAM AND INFRASTRUCTURE MANAGERS AND RECORDED IN THE SITE MINUTES THEREOF.

SIGNATURE APPROVED BY CLIENT:

A Broz Fernandez ST1356

DESIGN ORIENTATED TEAM
10 QUINTONDALE ROAD
CHELTONDALE
JOHANNESBURG

EMAIL: dot@dot1.co.za
TEL: 011-640-5712
FAX: 086 242 4943

Project Title

Proposed New Developmet on Portion 16 of Farm 20
THE FARM KLEIN DASSENBER-ATLANTIS

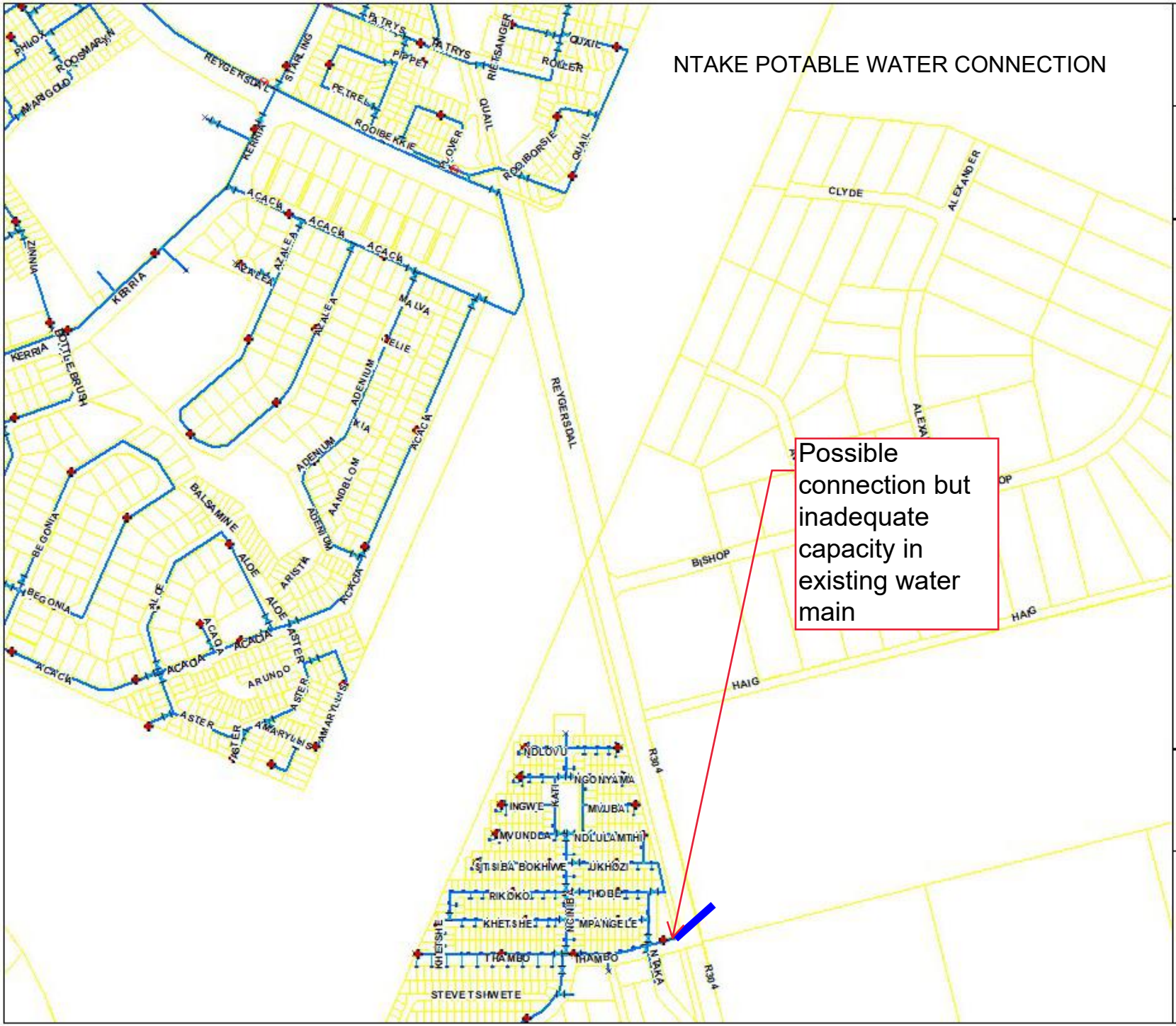
Drawing Title

Site Plan

SIGNATURES					
Head of Architecture	IT	Quality	Security	Cash	Executive

Date:	Project No:	Drawn By:	Checked:
2023/05/18 09:05:19	36	NGN	JM
Dwg No.	Assembly URL:		Revison
PL001			

APPENDIX C
POTABLE WATER CONNECTION



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Water and Sanitation Department

LEGEND

Water Services

- Fire Hydrant
- Divisional (DV)
- Isolation
- Cross
- Endcap
- Tee
- Consumer
- Water Leading
- Reticulation Mains

Base Data

- Land Parcels
- Region3

Option A - Ntake Street Connection

1:5 000

Date: 2024/01/29

Projection: Transverse Mercator
Central Meridian: 19° East
Ellipsoid: WGS84
Datum: Hartebeesthoek94

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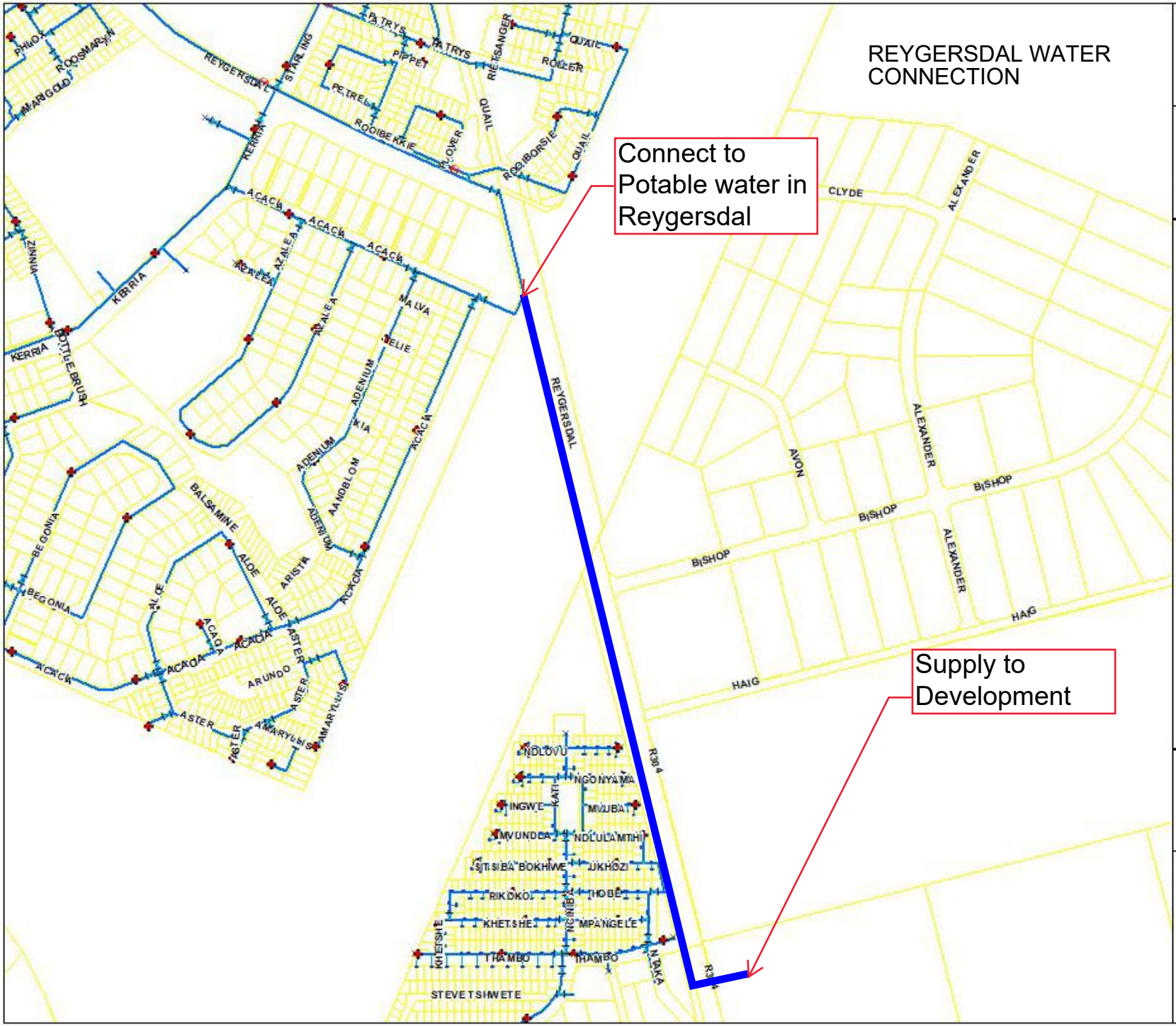

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Water and Sanitation Department

LEGEND

Water Services

- Fire Hydrant
- Divisional (DV)
- Isolation
- Cross
- Endcap
- Tee
- Consumer
- Water Leading
- Reticulation Mains

Base Data

- Land Parcels
- Region3

Option B - Reygersdal Avenue Connection

1:5 000

Date: 2024/01/29

Projection: Transverse Mercator
Central Meridian: 19° East
Ellipsoid: WGS84
Datum: Hartebeesthoek94

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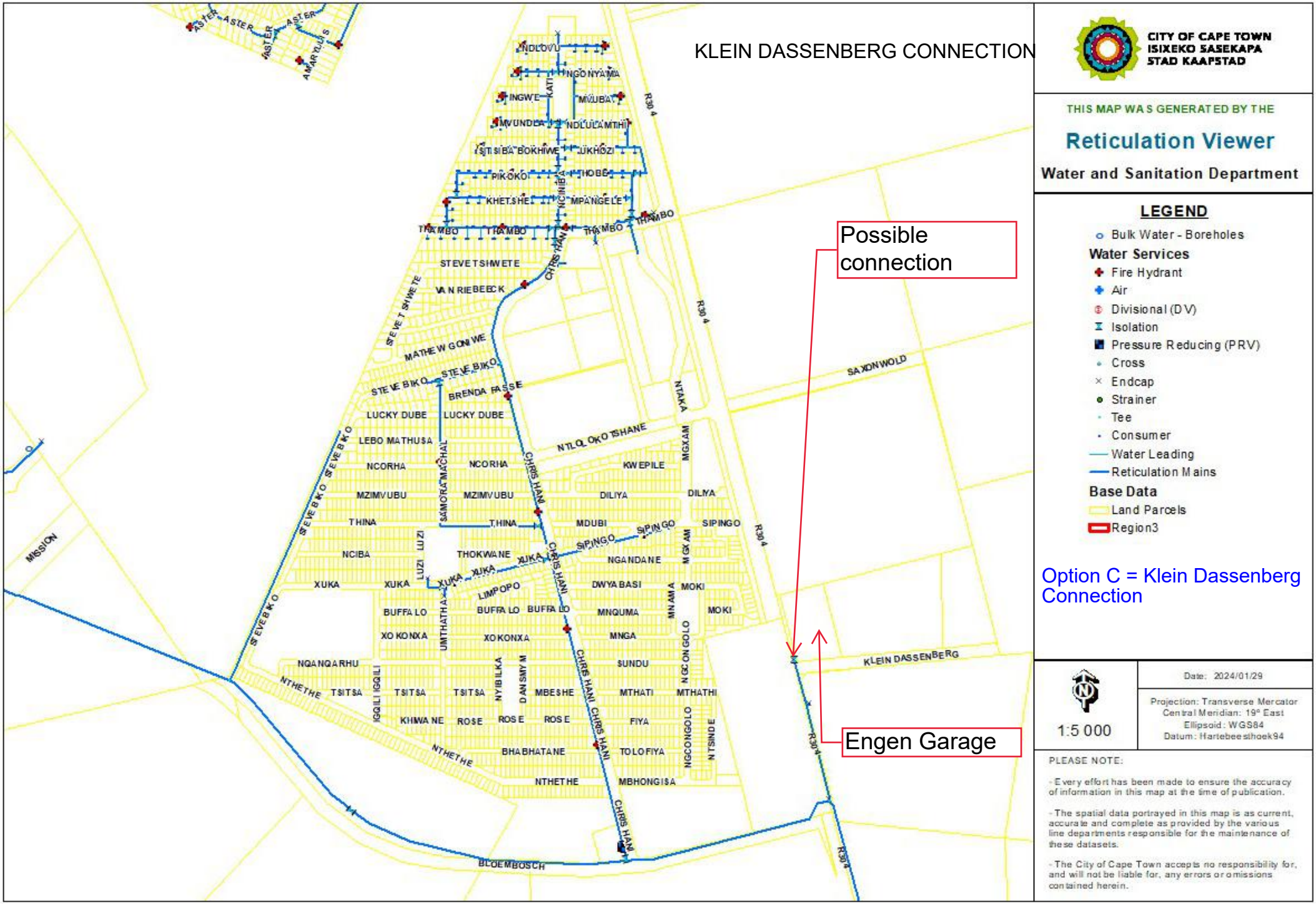

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

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Reticulation Viewer

Water and Sanitation Department

LEGEND

- Bulk Water - Boreholes

Water Services

- Fire Hydrant
- Air
- Divisional (DV)
- Isolation
- Pressure Reducing (PRV)
- Cross
- Endcap
- Strainer
- Tee
- Consumer
- Water Leading
- Reticulation Mains

Base Data

- Land Parcels
- Region3

Option C = Klein Dassenberg Connection

1:5 000

Date: 2024/01/29

Projection: Transverse Mercator
Central Meridian: 19° East
Ellipsoid: WGS84
Datum: Hartebeesthoek94

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APPENDIX D
WATER AND SANITATION RESPONSE

CITY OF CAPE TOWN
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Making progress possible. Together.

Water & Sanitation Head Office
Cnr Voortrekker & Mike Pienaar Blvd
Bellville 7530
Tel: **+27 021 400 52500**
Fax: **+27 21 970 3140**
E-mail: water.info@capetown.gov.za
Evaluator: T.MCINGA

Water & Sanitation Head Office
Cnr Voortrekker & Mike Pienaar Blvd
Bellville 7530
Umnxeba: **+27 021 400 52500**
Ifeksi: **+27 21 970 3140**

Water en Sanitasie Hoof Kantoor
H/V Voortrekker & Mike Pienaar Blvd
Bellville 7530
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20231004 – X

24 November 2023

Emmanuel Akampurira
SKYSOL Consulting Engineers
emmanuel@aceconsulting.co.za
(021) 825 0230

BULK INFRASTRUCTURE SUPPLY CAPACITY FOR WATER AND SEWAGE SERVICES: ERF CA20-16_ 08 SAXONWOLD ATLANTIS

Background

Skysol consulting Engineers is currently appointed by their client for the provision of professional services. Provision was made for potential future development and was taken into account in the W&S draft Master Plan (2023).

This letter provides an overview of the existing water and sewer infrastructure near the development. The information provided is based on City of Cape Town master plan model as well as comments from relevant branches of the department.

Table 1: Estimated Water Demand and Sewer Flow for the Proposed Development

Description	Potable Water Demand*				Sewer Flow**	
	Quantity (Units/Area/ No. people)	Total AADD (kℓ/d)	Peak Flow (ℓ/s) 3.6	Fire Flow (ℓ/s)	Total ADWF (kℓ/d)	Peak Flow (Dry weather) (ℓ/s) (PF=2.5)
Retail Centre Bus/Com(UH7)	7974 m²	79.74	3.33	50	71.76	2.08

Notes:

* Water : Based on AADD of 100 Kilo litres/day/100sqm

** Sewer (Unit Hydrograph profile): Based on 90% Sewer according to CoCT design criteria

Water Reticulation

Distribution zone

The nearest water network is existing Witzand PRV zone. There is an existing water network near proposed development. This network however was only designed to supply this low income residential area and the network is under strain due to the growing informality in the area.

Present situation

Along Ntaka Street, there is an existing 110mmDN uPVC water main, which has relatively low peak, static pressure and flow rate under peak condition. The pressure can be verified on site.

There is insufficient network supply capacity to serve the development as per the demand calculations reflected in the table above.

There Is potential to supply this site from further north (550m) in Reygersdal Avenue were our records indicate a 225 mm main. This network is part the Atlantis PRV 1 zone. The expected peak pressure is 44m and the main has sufficient flow capacity for the development.

Alternatively the bulk supply along Bloembosch Street will have to be upgraded. The final decision on where to connect and/or upgrade must be done in discussed with the reticulation operations officials. The upgrade of the supply along Bloembosch was identified in the 2015 Master plan.

Please See Figure 1 attached for existing water network layout.

Bulk Water

No infrastructure under the control of the City of Cape Town's Bulk Water Branch exists in the immediate vicinity of the proposed development shown in the application.

The City of Cape Town's bulk supply system has sufficient water resource, treatment, bulk storage and conveyance capacity to supply the estimated average daily demand of 79.74 kl/day of the proposed development.

Sewer Reticulation

Drainage area

There is limited sewer infrastructure in the surrounds. There is however a sewer network in the adjacent Witzand Residential area. This network is currently taking strain due to the additional load from informal structures in the area with repeated blocking from foreign objects. The sewer network drains to existing Witzands Pump Station that then pumps to Wesfleur Residential WwTW.

Present situation

The nearest sewer network to proposed development is the existing 150 mm Ø sewer line that runs along Saxonworld road. There is operational capacity constraints at the Witzand pump station and currently a mobile pump unit is being used to prevent spills at the pump station.

The gravity main from Saxonwold Road and Witzand pump station is constantly experiencing operational problems. The additional sewer flow will exacerbate the problem. Engagement with the reticulation operational staff will be required to discuss options. The gravity main and pump station may have to be upgraded. . If the operational challenges cannot be overcome an alternative sewer link will be required.

Please See Figure 2 attached for existing sewer network layout.

Wastewater

The anticipated wastewater flow from this proposed development has been calculated to be 71.76 Kl/day. This proposed development is situated within the catchment of the Wesfleur Residential WwTW, which has sufficient unallocated spare capacity to treat the anticipated wastewater from this development.

Conclusion

There is insufficient capacity in the existing water network to accommodate the proposed development. Operational capacity constraints at the Witzands Pump station and upstream gravity main were reported and therefore capacity limitations need to be addressed before any discharged from this development.

Conditions

For the development to proceed the following conditions must be met:

1. Development contributions may be payable as per the DC policy.
2. The water supply to the site will have to be upgraded, to achieve sufficient head and flow.
3. The local sewer network and Witzand Pump Station is experiencing operational challenges and will have to be addressed.

Additional Technical Requirements

4. The water and sewer capacities allocated according to this document shall not be reserved if not taken up before the lesser of 5 years or the approved development period.
5. Water and Sanitation municipal service designs to be designed according to Departmental Service Standards and be approved prior to construction. These standards can be obtained on the City of Cape Town Website.
6. The applicant must advise this Directorate when all conditions have been complied with, in order to have the work inspected.
7. The owner is responsible for application for the new water metered connection at the standard tariff to the Reticulation District Head. If an existing water meter is not accessible, this will include for the repositioning of the meter.

General/ Disclaimer

Information provided is based on best available data. The infrastructure as-built information referred to and used in the hydraulic models are based on the GIS asset records, while modelled pressures, flows, velocities, capacities and volumes are based on hydraulic models of current land use and demands. Hydraulic information provided is theoretical and not measured.

Yours Faithfully

On behalf of

Zolile Basholo
DIRECTOR: TECHNICAL SERVICES, WATER AND SANITATION DIRECTORATE

Table 2: For Internal use only

BRANCH	CONTACT PERSON	INPUT PROVIDED
Master Planning	Thandolwethu Mcinga Shamile Manie	6/11/2023 24/11/2023
Bulk Water	Nikelwa Silimela	Awaiting comments
Reticulation	Mark Brodovcky	Awaiting comments
Wastewater Treatment	Sven Sotemann	Awaiting comments

APPENDIX E
STORMWATER RESPONSE

Emmanuel Akampurira

From: Shamiel Thomas <Shamiel.Thomas@capetown.gov.za>
Sent: Thursday, 11 January 2024 10:46
To: Emmanuel Akampurira; Ben De Wet
Cc: Jaco Roux
Subject: RE: ERF CA20-16 – ADDRESS 8 SAXONWOLD ATLANTIS - STORMWATER INQUIRY

Good Day Emmanuel

There is no formal bulk stormwater system serving the farm areas, therefore it is recommended that the stomrwater runoff be managed on the property, but you should contact the CSRM Department, Ben de Wet, to ensure that any master-planning in the area takes the proposed development into account.

Feel free to contact me should you require additional information.

Regards

Shamiel Thomas

Principal Professional Officer: Roads, Infrastructure and Management,
Urban Mobility Directorate

T: 021 444 5770 | **C:** 082 467 8609

From: Louise du Toit <Louise.duToit@capetown.gov.za>
Sent: Thursday, 11 January 2024 08:48
To: Shamiel Thomas <Shamiel.Thomas@capetown.gov.za>
Cc: Jaco Roux <Jakobus.Roux@capetown.gov.za>; Emmanuel Akampurira <Emmanuel@aceconsulting.co.za>
Subject: FW: ERF CA20-16 – ADDRESS 8 SAXONWOLD ATLANTIS - STORMWATER INQUIRY

Good day Emmanuel

I am forwarding your email to Shamiel Thomas and Jaco Roux as Atlantis falls in their district area.

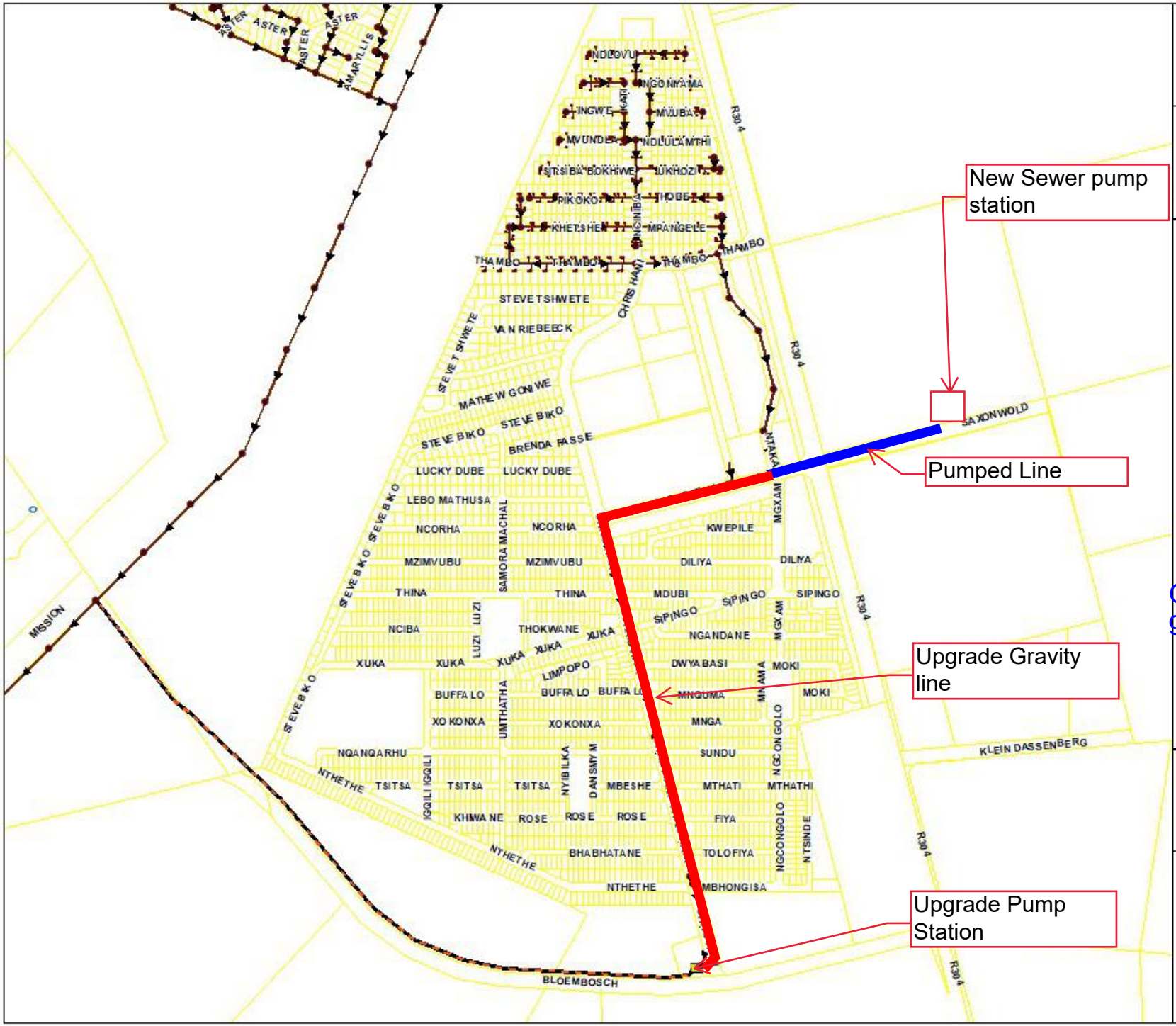
Regards

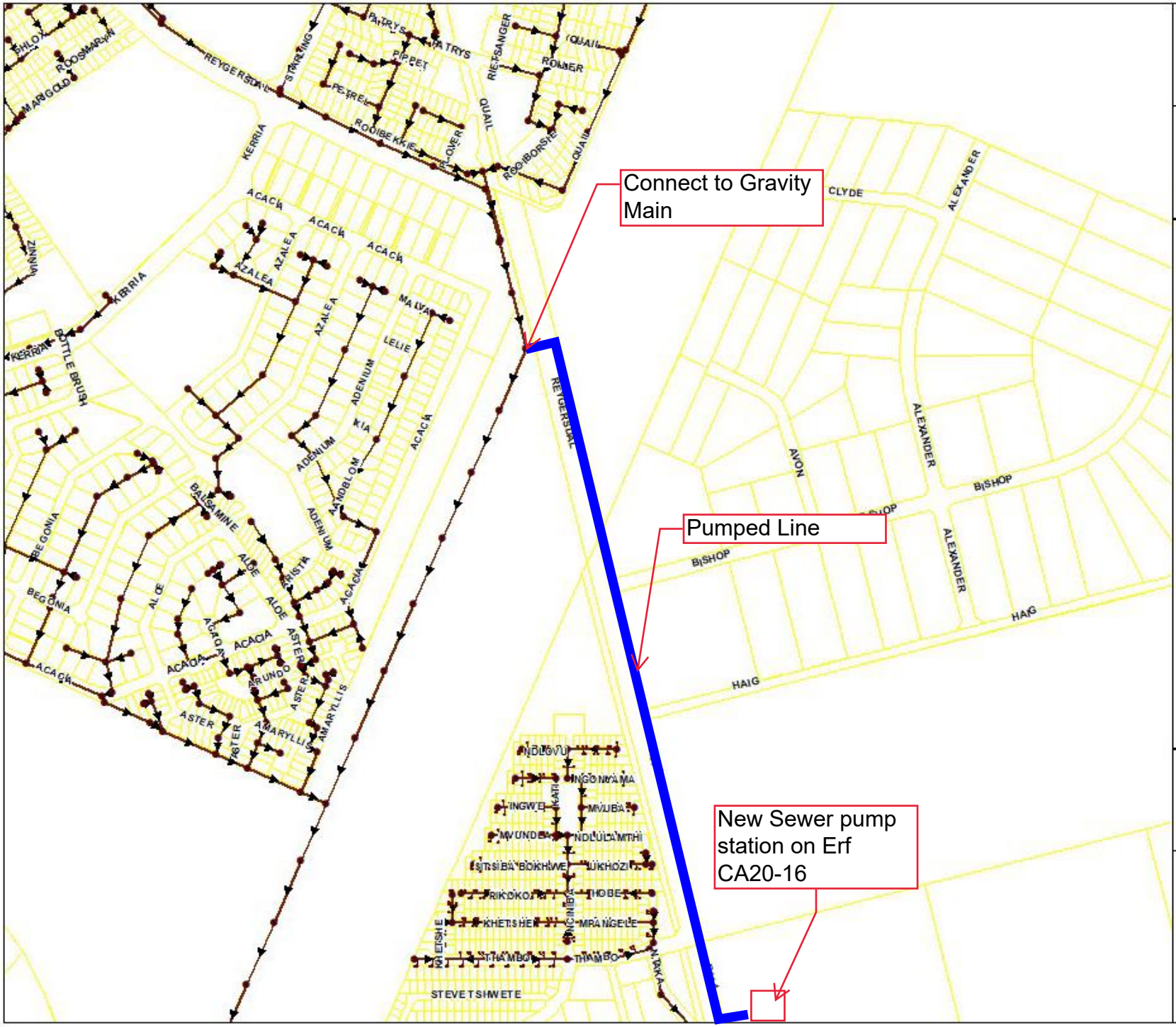
Louise du Toit Pr.Eng
Principal Professional Officer: Development Facilitation, Design and Project Management (District 3)
Roads Infrastructure Management, Urban Mobility Directorate

Tel: 021 444 7118 | **Mobile**: 082 577 7578

From: Emmanuel Akampurira <Emmanuel@aceconsulting.co.za>
Sent: Monday, 08 January 2024 15:47
To: Louise du Toit <Louise.duToit@capetown.gov.za>
Subject: Fw: ERF CA20-16 – ADDRESS 8 SAXONWOLD ATLANTIS - STORMWATER INQUIRY

APPENDIX F
FOUL SEWER CONNECTION


New Sewer pump station
Pumped Line
Upgrade Gravity line
Upgrade Pump Station
Option A – Witsand upgrade gravity main & pump station
CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD
THIS MAP WAS GENERATED BY THE
Reticulation Viewer
Water and Sanitation Department
LEGEND
Bulk Water - Boreholes
Sewer Services
Sewer Manholes
Sewer Pump Station
Sewer Connection Point
Sewer Connection Line
Gravity Mains
Sewer Pressurised Mains
Base Data
Land Parcels
Region3
1:5 000
Date: 2024/01/29
Projection: Transverse Mercator
Central Meridian: 19° East
Ellipsoid: WGS84
Datum: Hartebeesthoek94
PLEASE NOTE:
- Every effort has been made to ensure the accuracy of information in this map at the time of publication.
- The spatial data portrayed in this map is as current, accurate and complete as provided by the various line departments responsible for the maintenance of these datasets.
- The City of Cape Town accepts no responsibility for, and will not be liable for, any errors or omissions contained herein.
R304
KLEIN DASSENBERG
BLOEMBOSCH
SAXONWOLD
MISSION



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

THIS MAP WAS GENERATED BY THE

Reticulation Viewer

Water and Sanitation Department

LEGEND

Sewer Services

- Sewer Manholes
- Sewer Connection Point
- Sewer Connection Line
- Gravity Mains

Base Data

- Land Parcels
- Region3

Option C – Reygersdal Avenue Pumped Line

1:5 000

Date: 2024/01/29

Projection: Transverse Mercator
Central Meridian: 19° East
Ellipsoid: WGS84
Datum: Hartebeesthoek94

PLEASE NOTE:

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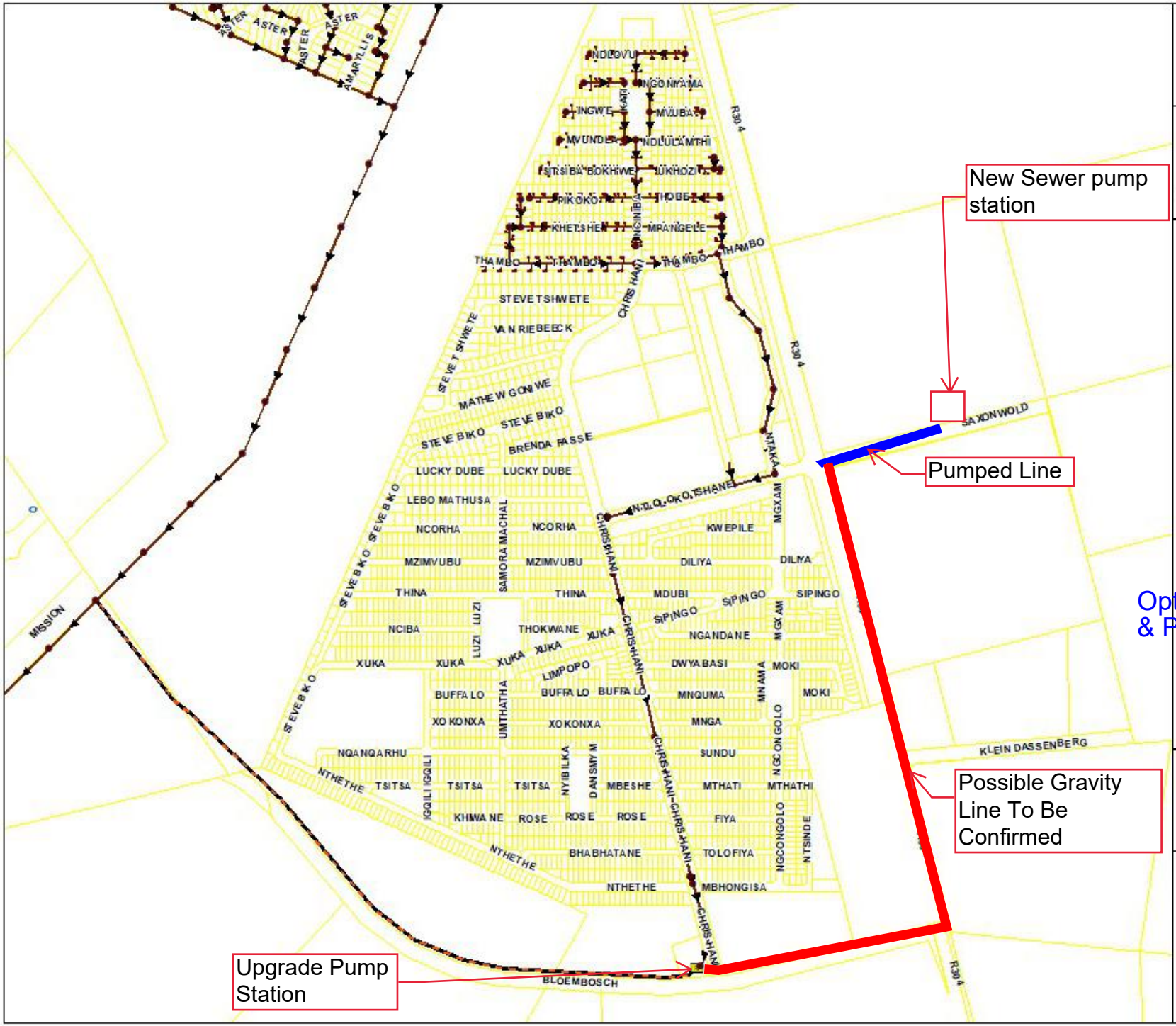

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

THIS MAP WAS GENERATED BY THE

Reticulation Viewer

Water and Sanitation Department

LEGEND

- Bulk Water - Boreholes

Sewer Services

- Sewer Manholes
- Sewer Pump Station
- Sewer Connection Point
- Sewer Connection Line
- Gravity Mains
- Sewer Pressurised Mains

Base Data

- Land Parcels
- Region3

1:5 000

Date: 2024/01/29

Projection: Transverse Mercator
Central Meridian: 19° East
Ellipsoid: WGS84
Datum: Hartebeesthoek94

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APPENDIX G
SOLID WASTE

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

WASTE SERVICES: COLLECTIONS DEPARTMENT:
RESEARCH AND DEVELOPMENT

Gévarnia Petersen
Senior Clerk

T: +27 21 400 5239
E: SWMLUM@capetown.gov.za

Reference Number:

Date:	**07 OCTOBER 2023**
Subject:	**PROPOSED SHOPPING CENTRE – 8 SAXONWOLD ATLANTIS**
Attention:	**EMMANUEL AKAMPURIRA**

The council wishes to ensure that all new developments, require planning permission, contain suitable accommodation for the storage and disposal of waste to a licenced landfill site.

Council reserves the right to service all residential properties that falls within its boundaries for refuse removal services. In terms of the Waste Management Tariff Policy, Section 18.2.1 all residential properties are compelled to use council refuse removal services and may not use private contractors directly. Please refer to the attached Waste management tariff policy for more information. **Non-residential properties may opt to use either Council services or a private contractor directly.**

ENVIRONMENTAL IMPACT ASSESSMENTS (EIA) – PROPOSED SHOPPING CENTRE 8 SAXONWOLD ATLANTIS

WITH REFERENCE TO YOUR EMAIL 15 SEPTEMBER 2023 FROM EMMANUEL AKAMPURIRA, PLEASE SEE COMMENTS HEREUNDER:

In connection with the above proposal / development, I confirm that Waste Services (Collections) as the Service Provider in the Atlantis Area has **NO OBJECTION** to the Proposed Shopping Centre and has sufficient unallocated capacity to accept and collect and dispose of all types of waste to a designated licence landfill site. A good waste management system must be in place to handle all waste generated by the activities and to mitigate against negative impact on the environment. The generation of construction waste and waste during the operation phases should be recycled on site or re used to fill up other sites and clean builder's rubble can be disposed of at the nearest licenced under the guidance of the City of cape Town. Please refer to the attached disposal tariff list for more information. The waste generated by the construction personnel e.g. lunch remains and packaging etc. must be placed in approved refuse bins on site during the construction phases. The proposed development will not have any implications on the infrastructure of the area provided that the contractors identify a permitted refuse disposal site for various categories of waste, provided that a refuse room is included in the planning stages of the development for the storage of waste to the satisfaction of the Director: Solid Waste Management.

A. STANDARD BUILDING REGULATIONS: CONDITIONS FOR REMOVAL / COLLECTION OF REFUSE
Applicable to sectional title or cluster development, secured complexes, flat complex, shopping mall/centre (retail) or office complexes, factories and warehousing.
U1- PROVISION OF AREAS
Any building, excluding a dwelling house, in which refuse will be generated, shall be provided with an adequate centralised refuse room (which comply with the attached standards and guidelines for refuse storage areas). That the refuse room be provided in a position nearest to an access road (public road) and be accessible for the Council's refuse collection vehicles at all times as this vehicle and/ its crew members (Council staff) will not enter onto private property. Premises such as Places of Worship (churches, mosques and temples) and vacant land units do not require a refuse room however if the complex is large with function halls and large volumes of waste is generated or the vacant land is ear marked for (depending on the land use/zoning status) then a refuse room may be considered at the discretion of the Director: Solid Waste Management.
Should there be an existing refuse area in use to accommodate the changes, alterations or additions to the building for the storage of bins, then this area should be utilised for any for any additional bins required for this development, or provision should be made for added space.
U2 – ACCESS TO AREA

Council's refuse collection vehicles or its staff will not enter private property, therefore the removal of domestic solid waste is effected from the kerbside of a public street. The location of any area contemplated in regulation U1 shall be of such access thereto from any street for the purpose of removing the refuse is of the satisfaction of the local authority.

B. HAZARDOUS BIOLOGICAL OR CHEMICAL WASTE

No hazardous, chemical or medical waste enters the general waste stream. Solid waste (collections) does not remove hazardous, chemical or medical waste. A private specialised waste company must be engaged for this purpose. These types of waste must be disposed of by a private specialised waste company in accordance with the minimum requirements for the handling classification and disposal of Hazardous waste (DWAR 1998) with the approval by the department of Health. The installation of cellular communications base stations does not require a refuse removal service and does not pose a health risk to the environment.

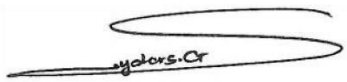
C. MINIMUM REQUIREMENTS FOR SINGLE RESIDENTIAL/RURAL UNITS – ACCESS FROM PUBLIC ROADS

1) **Council departmental or contracted waste collection teams will not enter private property;** therefore the removal of domestic solid waste (general waste) is effected from the kerbside of a public street. Residential units located near mountain areas or areas frequented by baboons will be issued with baboon proof bins for the storage of waste at an additional cost as determined by the Solid Waste Management. The owner/s will have to place the refuse bins on the side walk (kerbside) of a public street on the scheduled day of refuse collection. In some instances a hardened washable surface, in the road reserve, must be provided for bins depending on the number of units situated in a cull-de-sacks that exceeds 20 metres and that does not have direct access for reuse collection vehicles or flat units that have no ground floor storage facilities for the tenants located on an upper level in the building. **Please refer to the attached minimum requirements for vehicular access.**
2) Where the internal roads are developed as private roads and the development is designed for the purpose as private residential town house complexes, a refuse room with an embayment for refuse vehicles will have to be provided. **Please refer to the attached requirements for refuse storage areas.**
3) Applications by the owner/s to operate …… from residential existing dwelling units must make sure of all Solid Waste Services. The owner/tenant are required to place the refuse bin/s on the Kerbside (Sidewalk) of a Public Street on the Scheduled Day of Refuse Collection.
4) Should the owner/s make alterations or additions to the Residential Property or Subdivide the Property into 2 or more portions for residential purposes and require Additional Refuse Containers / Bins, the owner/s must liaise with the Corporate Call Centre for Solid Waste Management Enquiries on 086 010 3089 to make the necessary arrangements and place the container/s nearest to an Access Road (Public Road) on the Scheduled Day of Collection.

D. SUBDIVISION CONDITION COMPLIANCE ITO SECTION 31:

Solid Waste Conditions must be clearly stated with the Attached "Annexure A" forms to avoid delays with the clearances given by Solid Waste Management.

Yours Faithfully,



Gévarnia Petersen:
For the Director: Waste Services