

MEMORANDUM

23 August 2016

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PROPOSED TOWNSHIP: • ALABAMA EXTENSION 6

- Spatial Planning
- Development Management
- Economic Development
- Admin & Finance

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MEMORANDUM

PROPOSED TOWNSHIP ESTABLISHMENT: ALABAMA EXTENSION 6

ON
A PORTION OF THE REMAINING EXTENT OF PORTION 1
OF THE FARM
TOWNLANDS OF KLERKSDORP NO. 424-IP

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION AND BACKGROUND

Maxim Planning Solutions (Pty) Ltd (2002/017393/07) was appointed by the City of Matlosana on 10 March 2016 to apply in terms of the provisions of Chapter IV of the Town Planning and Townships Ordinance, 1986 (Ordinance 15 of 1986) read together with the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) for the establishment of the proposed township Alabama Extension 6 on a portion of the Remaining Extent of Portion 1 of the farm Townlands of Klerksdorp No. 424-IP to provide for the following erven:

- Thirteen (13) erven zoned “Special” for the purposes of uses included in the Business 1 and Residential 2 (maximum density of 80 dwelling units per hectare) use zones and including a vehicle workshop, wholesale trade, light industry and service industry. (Coverage: 60%; Height: 3 storeys);
- Two (2) erven zoned “Public Open Space”; and
- Two (2) streets

The eradication of spatial inequality is a national priority in terms of South Africa’s National Development Plan. The Neighbourhood Development Programme, through its Urban Networks Strategy, supports this by providing technical assistance and grant funding to municipalities for capital projects that will leverage further public and private sector investment in strategic locations around the world.

The City of Matlosana signed a Funding Agreement with National Treasury’s Neighbourhood Development Programme Unit for the funding of the Matlosana Townships Regeneration Programme in KOSH.

On the basis of the municipal application, the NDP made an award to the municipality with a ring-fenced funding envelope consisting of a Technical Assistance funding envelope – the intention is that the municipality would commence a detailed planning process to test the feasibility of a number of projects culminating in the production of a detailed business plan in which the municipality makes an evidence-based case for which catalytic project should be considered for support through the NDPG Capital Grant. The TA grant from the NDP is intended to support the municipality to both strengthen its capacity to manage the grant as well as support it to source in specialist support for the feasibility and business planning stages as well as other long term budgeting and planning decision-making by the municipality.

Initially the NDPG for townships had a very specific focus on:

- (i) Assisting municipalities, through the TA funds, to do a credible medium to long term strategic and project planning for townships to improve the basis for public sector investment decisions and
- (ii) Using the CG funds to invest in catalytic projects that have the potential to create multi-functional public and private sector nodes or corridors in townships.

Between 2011 and 2012 the phase 1 of the initial approach was completed viz:

- Township Regeneration Strategy for the previously dormitory townships in the City of Matlosana i.e. Jouberton, Alabama, Kanana, Tigane and Khuma.
- Economic Analysis (market potential study)
- Public investment plan
- Pre-feasibility studies
- Detailed investigations
- Business case and business plan

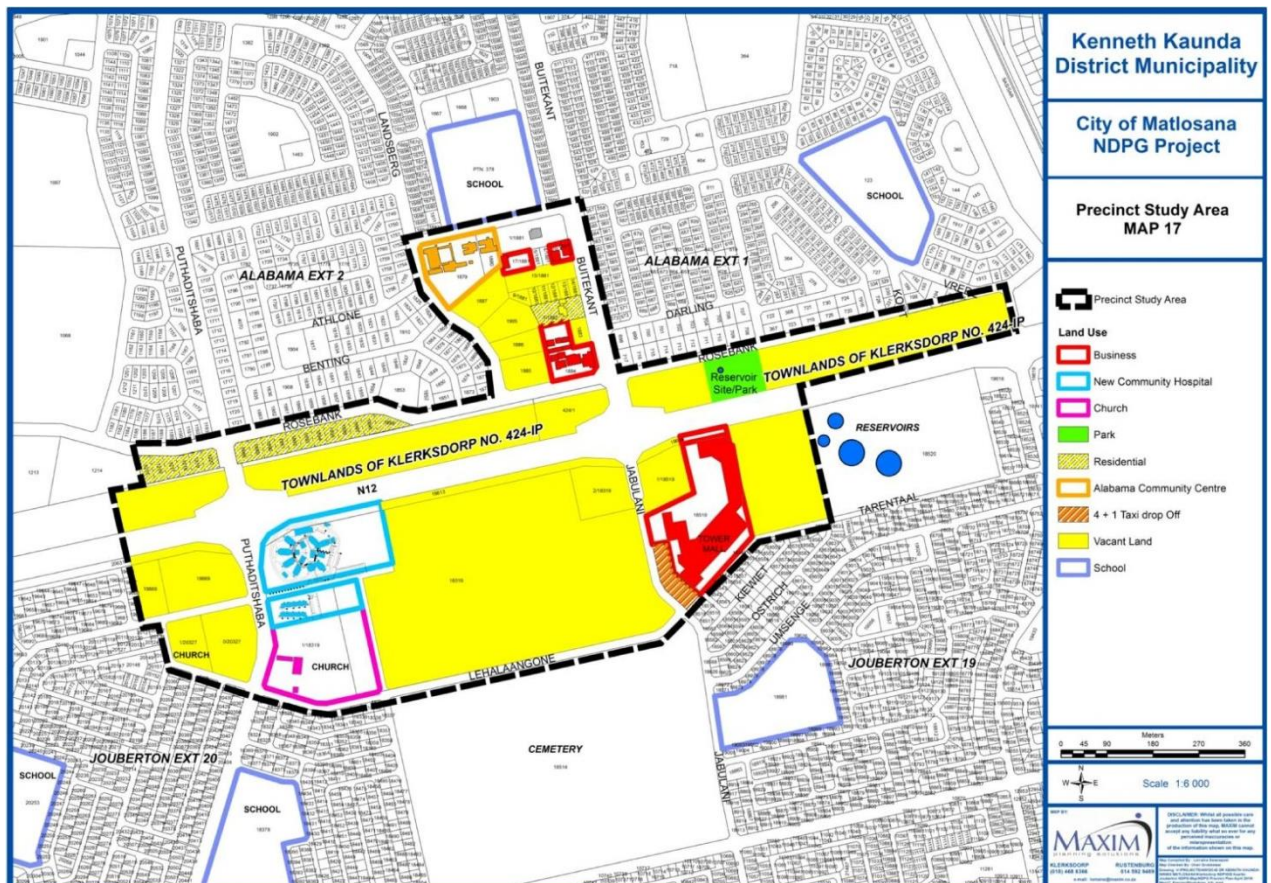
During 2013 the municipality was informed of the new approach of the NDPG namely:

- Work with the NDPG on the approach to pursuing more integrated, equitable spatial and economic development
- Focus on spatial urban form and spatial targeting using the Urban Network Strategy
- Accelerating catalytic interventions in prominent multi-functional primary urban hubs in a township area.

Based on this approach the municipality was advised that the NDPG project will mainly focus on the development of a prominent urban hub in the Jouberton / Alabama area adjacent to the N12, where the new Tower Mall is situated.

The detailed demarcation of the precinct area was informed by the following characteristics:

- Vacant land south of the N12 including land parcels already sold or allocated to private individuals / institutions as well as the Tower Mall and new community health centre.
- Vacant municipal land between Alabama and the N12
- Alabama business area and community centre between Buitekant Street and Landsbergis Street.



Map 1: Precinct Study Area

The City of Matlosana agreed on a shared vision to create a prominent and functional urban hub for the Jouberton / Alabama area, with the following objectives:

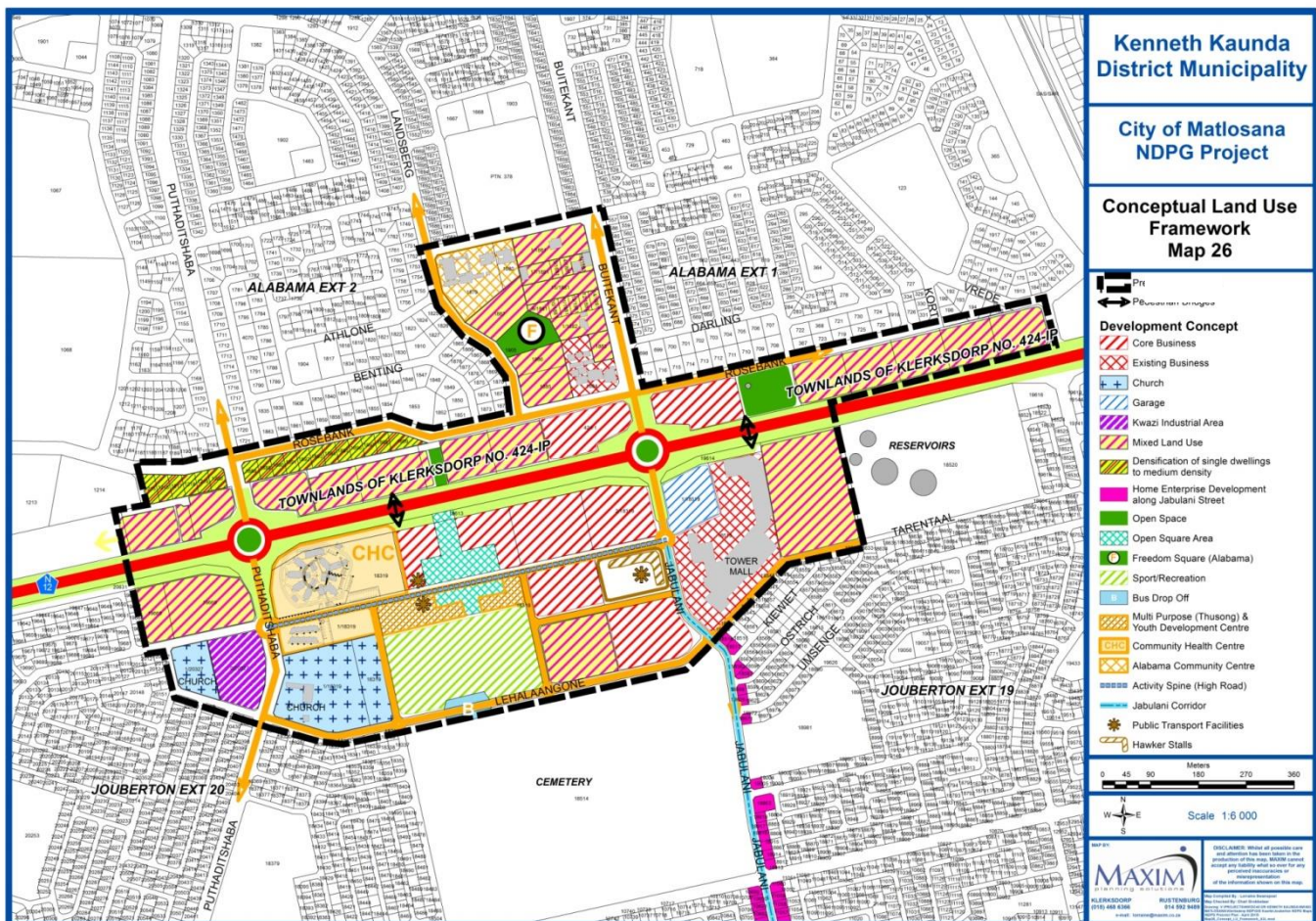
- Creation of a sense of place that will:
 - Provide a safe, convenient and secure public space network that will cater for safe and functional pedestrian movements
 - Improve the environmental quality (aesthetics)of the precinct area
 - Respond to the needs and aspirations of the community relating to their social and economic expectations

- Create the opportunities for mixed land use development that can include social amenities, business, commercial and medium density residential development
 - Development and stimulation of prominent public amenities and basic infrastructure that can serve as a catalyst for the stimulation of complementary public and private sector investment
 - The precinct study area can be subdivided into three (3) interdependent land use character zones

Following meetings with National Treasury during 2013 a report was submitted to National Treasury indicating the identification of Urban Network Elements. This report was accepted by National Treasury during February 2014.

Maxim Planning Solutions (Pty) Ltd subsequently compiled a final Precinct Plan in respect of the Jouberton / Alabama Hub during October 2015 and final approval was granted by the National Treasury during March 2016 to continue with the land-making process.

The conceptual land use framework that was adopted and that forms the basis of this application for township establishment, is reflected on **Map 2**.



Map 2: Alabama / Jouberton Precinct – Conceptual Land Use Framework

As integral part of the township establishment process, the following studies were commissioned by Maxim Planning Solutions (Pty) Ltd as part of the pre-planning activities:

- Contour survey of the development area conducted by TMK Professional Land Surveyors;
- Geotechnical investigation of the development area conducted by Geoset CC;
- Detail civil engineering services investigation conducted by Bigen Africa Services (Pty) Ltd;
- Detail electrical services investigation conducted by Bigen Africa Services (Pty) Ltd
- Traffic Impact Assessment conducted by Siyazi North West (Pty) Ltd;
- Heritage Resources Impact Assessment conducted by African Heritage Consultants CC (study currently still in process); and
- Environmental Impact Assessment conducted by AB Enviro-Consult

The results of the studies referred to above will be addressed in the respective sections of this Memorandum.

According to the North West Housing Development Plan, 2014 the housing demand for the Dr. Kenneth Kaunda District Municipality was determined as follows:

Table 1: Housing demand for Dr. Kenneth Kaunda District Municipality (2014)

Income Bracket	Housing Typology	Total demand (next 5 years)
R0 – R3 500	Subsidy	20 089
R800 – R3 500	CRU	2 232
R3 500 – R7 500	FLISP/GAP & Social	5 102
R7 500 – R15 000	FLISP/GAP & Affordable bonded	3 346
R15 000+	Bonded	4 034
TOTAL		34 803

Source: Demacon Ex. Quantec, 2011

Between 2013 and 2018 an estimated **34 803 new households** will seek accommodation in the target geographic market area, resulting in an annual growth in demand of approximately **6 961 units** (across the full housing spectrum, including informal and subsidy). Under present market conditions, the finance-linked and bonded segment (35.9%) will yield a take-up rate of 2 496 units per annum.

The proportional needs for Matlosana can be determined by using the following criteria:

- Population size (Matlosana – 57, 2% of district population)
- Backlog indicated in NW Housing Development Plan (64% of district backlog in Matlosana)

Table 2: 5 Year demand based on abovementioned criteria

Housing Typology	Total housing demand for Matlosana			
	Based on population	Based on backlog	Average	%
Subsidized Housing	11 571	12 856	12 213	58
CRU	1 286	1 428	1 357	6
FLISP/GAP Housing	2 939	3 265	3 102	15
FLISP/GAP/Affordable bonded	1 927	2 141	2 034	10
Bonded	2 324	2 581	2 452	11
TOTAL	20 047	22 271	21 258	100

Source: Own Calculations

According to the Matlosana Housing Sector Plan, 2014 that also aligns with the most recent SDF, 2015 the total housing needs in terms of the housing register of the municipality is for 45 500 units of which 18 500 units is for the Jouberton/Alabama area. The estimated housing and land needs are indicated in the following table for the Jouberton/Alabama areas.

Table 3: Expected Housing /Land Needs (5 years)

Expected additional households	1 219
Expected land needs based on 5 year growth	± 101 ha
Needs based on waiting list/register	
Stands	± 18 500 stands
Land Needs	± 1 541 ha
Total needs (Waiting list + 5 year expected growth)	
Stands	± 19 719 stands
Land Needs	± 437 ha

Source: Housing Sector Plan, 2014 and SDF, 2015

Market studies conducted by Demacon Market Studies indicated the following results relating to CRU (Community Residential Units) and GAP housing in Matlosana.

- CRU Market Study – 2011
The target market for CRU development in the Klerksdorp/Jouberton area was estimated at 15 846 units

Table 4: Target Market for CRU Development

Monthly Income Midpoint	Number of Households (2011)	Monthly Rent Payable by Households
R880	5 560	R264
R1 760	5 876	R528
R3 520	4 410	R1 056
TOTAL	15 846	

Source: Demacon, 2011

- Target Market for GAP Housing, 2012
Based on the market assessment 2 968 households within the Matlosana area fall within this market.

Table 5: Target Market for GAP Housing

Household Income	(R7 500-R10 000)	(R10 000-R12 500)	(R12 000-R15 000)
Number of Households	4 242	1 513	2 562

Source: Demacon, 2012

- Current projects
 - Alabama Extension 4 – 951 residential stands
 - Alabama Extension 5 – 2255 residential stands
Total: 3206 residential stands
 - Matlosana Estates (N12 West)
 - 3386 residential stands
 - 240 semi detached stands – can accommodate 480 s/d houses
 - Medium to higher density residential that can accommodate 6355 units
Total: 10 221 residential stands

In terms of the total needs in the Klerksdorp/Jouberton/Alabama area, Alabama Extensions 4 & 5 as well as Matlosana Estates can only accommodate \pm 73% of the total needs. (\pm 13 427 stands of a total need of 18 500)

1.2 APPLICATION

Maxim Planning Solutions (Pty) Ltd is hereby applying on behalf of the City of Matlosana for the establishment of the proposed township Alabama Extension 6 on a portion of the Remaining Extent of Portion 1 of the farm Townlands of Klerksdorp No. 424-IP in terms of the provisions of Chapter IV of the Town Planning and Townships Ordinance, 1986 (Ordinance 15 of 1986) read together with the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013).

1.3 PUBLIC PARTICIPATION

The application in respect of the establishment of the proposed township Alabama Extension 6 will be advertised in accordance with Section 108(1)(a) of the Town Planning and Townships Ordinance, 1986 (Ordinance 15 of 1986) in the Klerksdorp Rekord on 19 and 26 August 2016 as well as in the North West Provincial Gazette on 23 and 30 August 2016. Objectors will be afforded a period of 28 days from 23 August 2016 to submit objections or comments in respect of the proposed township areas to the Acting Municipal Manager.

The application will also, in accordance with the prescriptions of Section 108(1)(b) of the Town Planning and Townships Ordinance, 1986 (Ordinance 15 of 1986) be referred to the following external organizations / departments for comments or objections:

- ✧ Department of Public Works and Roads
- ✧ Telkom SA Limited
- ✧ Eskom
- ✧ Dr. Kenneth Kaunda District Municipality
- ✧ Department of Minerals Resources
- ✧ Department of Agriculture, Forestry & Fisheries
- ✧ Department of Water and Sanitation
- ✧ Department of Local Government and Human Settlements
- ✧ Department of Education
- ✧ Department of Health
- ✧ South African Post Office
- ✧ Transnet Freight Rail
- ✧ South African Heritage Resources Agency (SAHRA)
- ✧ South African National Roads Agency Limited (SANRAL)
- ✧ Midvaal Water Company

The fore-mentioned organizations / departments will be afforded a period of 60 days to comment in this matter in accordance with the prescriptions of Section 108 (1) of the Town Planning and Townships Ordinance, 1986 (Ordinance 15 of 1986).

1.4 STUDY AREA DELINEATION

The proposed development area comprises a portion of the Remaining Extent of Portion 1 of the farm Townlands of Klerksdorp No. 424-IP as described in detail in section 2.1. Cognisance should be taken of the fact that the NDP project also includes the development of certain erven in the adjacent township area of Jouberton Extension 19. The erven identified to form part of the NDP project (i.e. 18319, 18514, 18520 & 19613 and a portion of Lehalaangone Street, Jouberton Extension 19) are currently the subject of an application in terms of Section 89(1) read with Section 106 of the Town Planning

and Townships Ordinance, 1986 (Ordinance 15 of 1986) for the re-layout of the concerned erven into:

- Two (2) erven zoned “Institutional”;
- Five (5) erven zoned “Municipal”;
- One (1) erf zoned partially “Institutional” and partially “Public Open Space”;
- Eight (8) erven zoned “Special” for the purposes of uses included in the Business 1 and Residential 2 (maximum density of 80 dwelling units per hectare) use zones and including a vehicle workshop, wholesale trade, light industry and service industry;
- One (1) erf zoned “Public Open Space”; and
- Five (5) streets

This application was submitted to the Department of Local Government and Human Settlements and is currently pending approval by the fore-mentioned Department.

1.5 **REPORT OUTLINE**

The remainder of the report is structured in terms of the following main headings:

- Chapter 2: Particulars of the development area
- Chapter 3: Physical aspects
- Chapter 4: Proposed development
- Chapter 5: Provision of Engineering Services
- Chapter 6: Conclusion

In considering the contents of the remainder of the sections of this report, it is prudent to note that the establishment of the proposed township Alabama Extension 6 forms an integral part of the NDP project to be implemented in the Jouberton/Alabama urban areas and as such, some of the pre-planning studies conducted and referenced in this memorandum will refer to both the Jouberton Extension 19 and Alabama Extension 6 combined. This will specifically apply to the information provided in respect of the servicing of the proposed township area as the servicing of this area will also include providing services to the component of the NDP project located within the adjacent township area of Jouberton Extension 19.

CHAPTER 2: PARTICULARS OF THE DEVELOPMENT AREA

2.1 LOCALITY

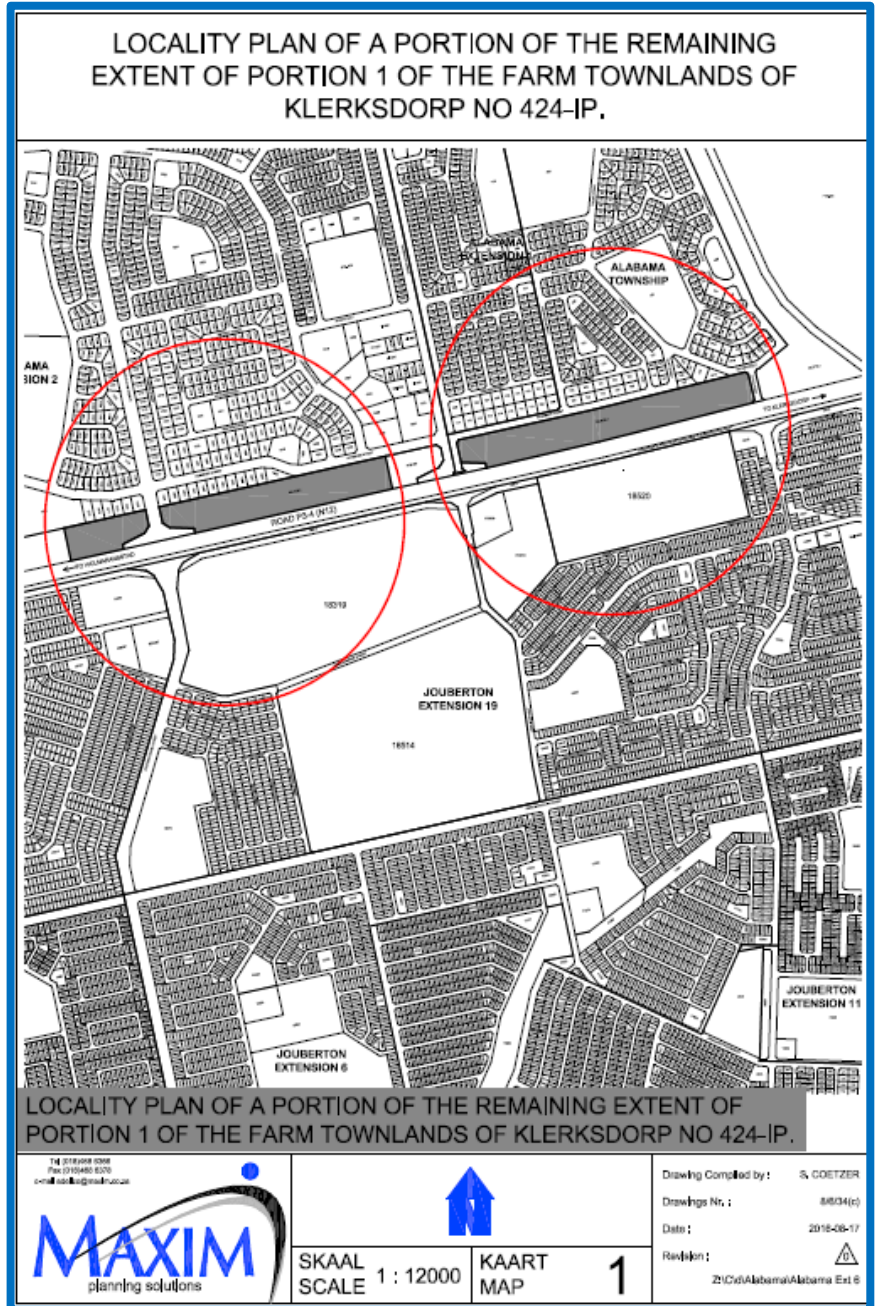
The area included in the Precinct Plan comprising the Jouberton / Alabama Hub is situated in the western urban area of Matlosana, ±8 km west of the Klerksdorp CBD and adjacent to the N12 between Jouberton and Alabama. The urban hub is situated in the areas adjacent to the intersection of the N12 (Primary corridor) and Jabulani - / Buitekant Streets (Secondary corridor). The precinct area is situated within an accessibility zone described by a 400 meter radius (5 minutes walking distance) and 800 meter radius (10 minutes walking distance) that will form the outer boundary of the precinct area, as reflected on **Figure 1**. This area will include the Tower Mall shopping centre, vacant land and the Alabama Community Node.



Figure 1: Precinct Area

The land to which this application for township establishment relates, comprises three portions of the Remaining Extent of Portion 1 of the farm Townlands of Klerksdorp No. 424-IP and is located as follows:

- A portion located directly adjacent and to the north of the N12, west of Omar Khayam Avenue in the township area of Alabama Extension 2 and bordered to the north by residential erven in the existing township area of Alabama Extension 2.
- A portion located directly adjacent and to the north of the N12, bordered to the west by Omar Khayam Avenue and bordered to the north by erven in the township area of Alabama Extension 2 and Rosebank Street respectively.
- A portion located directly adjacent and to the north of the N12, bordered to the west by Buitekant Street, bordered to the north by Rosebank Street bordered to the east by Libanon Street.



Map 3: Locality of a portion of the Remaining Extent of Portion 1 of the farm Townlands of Klerksdorp No. 424-IP

The proposed township area detailed above is all located within the area of jurisdiction of the City of Matlosana which in turn falls within the area of jurisdiction of the Dr. Kenneth Kaunda District Municipality.

2.2 SG DIAGRAM

The Remaining Extent of Portion 1 of the farm Townlands of Klerksdorp No. 424-IP is reflected on SG Diagram A5805/1905 (attached as **Annexure D** to the application for township establishment).

2.3 OWNER

The Remaining Extent of Portion 1 of the farm Townlands of Klerksdorp No. 424-IP is currently registered in the name of the City of Matlosana by virtue of Crown Grant G201/1906 as indicated on the following Aktex Deeds Office Enquiry (Crown Grant G201/1906 attached as **Annexure F** to the application for township establishment).

Property Enquiry Details



Property enquiry results for "ip, 424, 1" in the Deeds Registry at "PRETORIA"

Property detail:

Deeds registry	PRETORIA
Property type	FARM
Farm name	TOWNLANDS OF KLERKSDORP
Farm number	424
Portion	1 (REMAINING EXTENT)
Province	NORTH-WEST
Registration division/Administrative district	IP
Local authority	CITY OF MATLOSANA
Previous description	-
Diagram deed number	G201/1906
Extent	5963.5101 H
LPI Code	T0IP00000000042400001

Title Deeds detail:

Document	Registration date	Purchase date	Amount	Image Scanned reference	Document copy?
G201/1906	19060503	-	SECT 14	20160411 13:49:22	Yes

Owners detail:

Document	Full name	Identity Number	Share	Person Enquiry?
----------	-----------	-----------------	-------	-----------------

G201/1906	CITY OF MATLOSANA	-	-	Yes
T118231/2007	CITY OF MATLOSANA	-	-	Yes

Endorsements / Encumbrances:

Endorsement / Encumbrance	Holder	Amount	Microfilm reference	Document copy?
C287/1962-201/906G	-	-	-	Not available
I-17577/1997C-G201/0	6	-	-	Not available
I-4353/1988C	FREE TRADING AREA	-	-	Not available
I-4737/81LG-27/10/81	-	-	-	Not available
I-548/983LG-17/1/983	-	-	-	Not available
I-564/1984C-K80/1918	S	-	-	Not available
I-9608/1988LG-21/10/	88	-	-	Not available
K1098/1969S	-	-	19860101 02:53:07	Yes
K1159/1985S	-	-	20110826 00:00:00	Yes
K1176/2002RM	COROBRIK PTY LTD	-	20020101 05:31:27	Yes
K134/1983L	-	-	-	Not available
K1343/1981S	-	-	19920101 04:20:27	Yes
K1344/1981S	-	-	19920101 04:20:27	Yes
K1455/1989S	ROETEBEPALING VAN K1343/81S	-	19890101 06:31:25	Yes
K1760/1980L	ZANDPAN CONCESSION STORE PTY LTD	-	-	Not available
K2128/1977S	-	-	19900101 15:00:17	Yes
K2130/1975L	CITY OF MATLOSANA	-	-	Not available
K2550/1981L	-	-	20080808 10:47:26	Yes
K2653/1992RM	TONGAAT-HULETT GROUP LTD	-	20020101 05:31:27	Yes
K3333/1977S	-	-	19920101 04:20:27	Yes

K36/1985S	-	-	1985 0138 2174	Yes
K380/1980L	HACK HARRY	-	-	Not available
K407/1980S	-	-	19920101 04:20:27	Yes
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K4026/2012L	ARROWHEAD PROP PTY LTD	-	20121005 12:14:24	Yes
K4417/2007S	-	-	-	Not available
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K4758/2000L	SHOPRITE CHECKERS PTY LTD	-	-	Not available
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K5018/1998S	-	-	19980101 15:05:30	Yes
K6403/1999RM	BUFFELSFONTEIN GOLD MINES LTD	-	20000101 00:53:03	Yes
K6599/2002S	-	-	20020101 18:40:07	Yes
K6549/2007L	MUNICIPAL EMPLOYEES PENSION FUND	-	-	Not available
K6773/2015S	-	-	20151203 11:19:30	Yes
K714/2002RM	BUFFELSFONTEIN GOLD MINES LTD	-	20020101 04:32:34	Yes
K823/1975L	HACK HARRY	-	-	Not available
K857/1982S	-	-	-	Not available
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VA1745/2001	AVMIN LTD	-	20010101 04:39:02	Yes
VA5989/2007	CITY OF MATLOSANA	-	-	Not available
VA8868/2007	SHOPRITE CHECKERS PTY LTD	-	20080808 10:49:24	Yes
VA8864/2007	-	-	20080808 10:44:31	Yes
VA8865/2007	-	-	20080808 10:45:34	Yes
VA8866/2007	SHOPRITE CHECKERS PTY LTD	-	20080808	Yes

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History:

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K1295/2001RM	-	-	20020101 04:32:34	Yes
K2549/1981L	-	-	20080808 10:44:59	Yes
G201/1906	MUN KLERKSDORP	-	20160411 13:49:22	Yes
G201/1906	MUN KLERKSDORP T21271/1995 0320 END16	END16	20160411 13:49:22	Yes
G201/1906	P O VAN KLERKSDORP T58751/96 END16	END16	20160411 13:49:22	Yes
G201/1906	STADSRAAD VAN KLERKSDORP	END	20160411 13:49:22	Yes
G201/1906	CITY COUNCIL OF KLERKSDORP	SECT 14	20160411 13:49:22	Yes
G201/1906	CITY OF MATLOSANA	SECT 14	20160411 13:49:22	Yes
G201/1906	STADSRAAD VAN KLERKSDORP	SECT 16	20160411 13:49:22	Yes
G201/1906	KLERKSDORP STADSRAAD	SECT 16	20160411 13:49:22	Yes

2.4 AREA

The proposed township will comprise a total area of 12,1996 hectares. The erven in the proposed township area will comprise the following approximate areas:

- Erf 7321, Alabama Extension 6: 8 891m²
- Erf 7322, Alabama Extension 6: 5 310m²

- Erf 7323, Alabama Extension 6: 7 477m²
- Erf 7324, Alabama Extension 6: 6 213m²
- Erf 7325, Alabama Extension 6: 9 099m²
- Erf 7326, Alabama Extension 6: 7 213m²
- Erf 7327, Alabama Extension 6: 10 734m²
- Erf 7328, Alabama Extension 6: 11 147m²
- Erf 7329, Alabama Extension 6: 7 500m²
- Erf 7330, Alabama Extension 6: 7 405m²
- Erf 7331, Alabama Extension 6: 7 426m²
- Erf 7332, Alabama Extension 6: 7 447m²
- Erf 7333, Alabama Extension 6: 7 939m²
- Erf 7334, Alabama Extension 6: 2 821m²
- Erf 7335, Alabama Extension 6: 10 125m²
- Streets : 5 249m²

2.5 EXISTING LAND USE AND ZONING

The proposed development area is currently predominantly vacant with the exception of the following:

- **Municipal reservoir and telecommunication infrastructure located within that part of the township area east of Buitekant Street (Plate 1)**
- **Walkway of pedestrian bridge across the N12 located within that part of the township area east of Buitekant Street (Plate 2)**

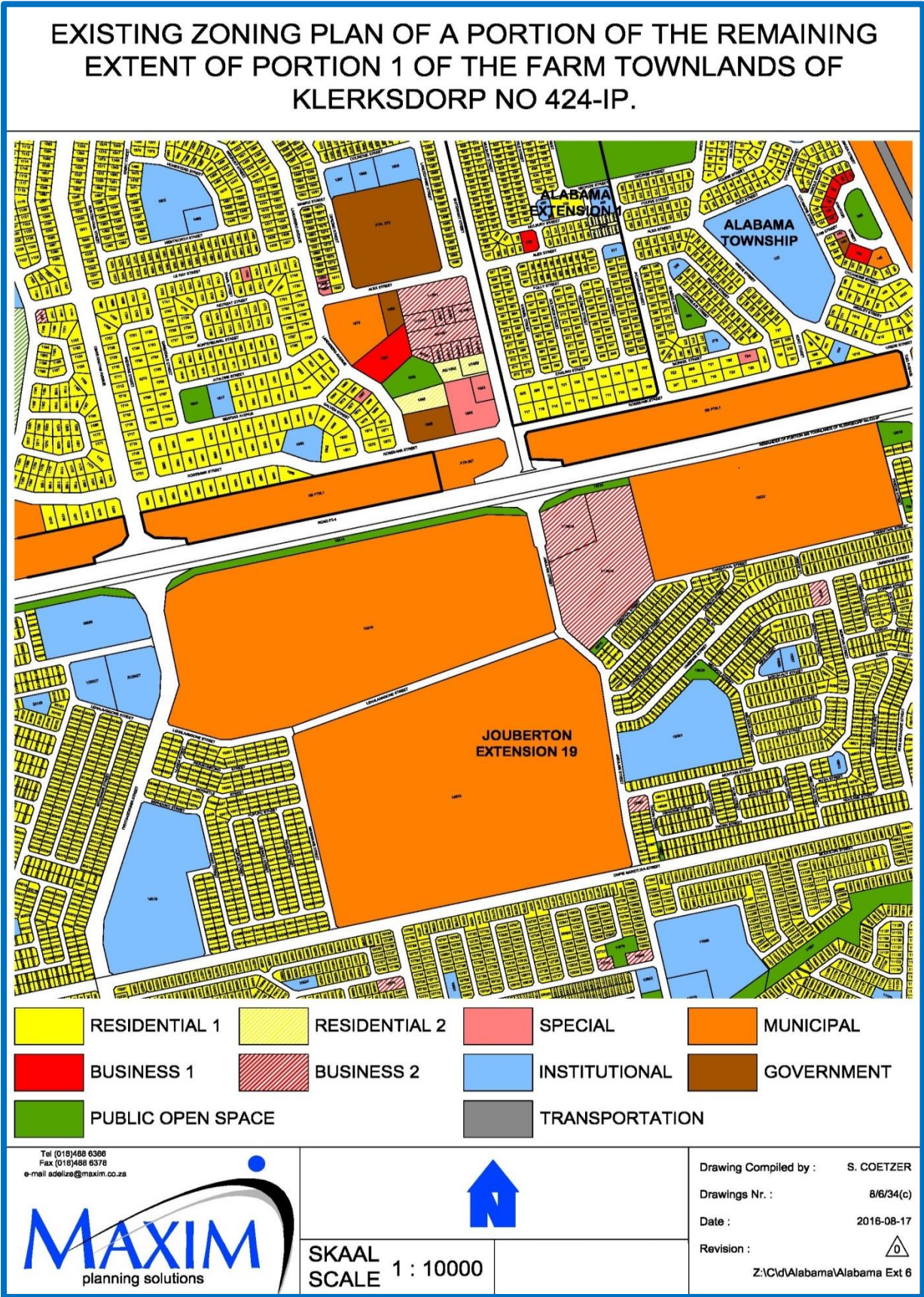


The locality of the municipal reservoir, telecommunication masts and infrastructure as well as the pedestrian walkway across the N12 is also indicated on the following Google Earth image:



Plate 3: View of existing infrastructure on development area

In terms of the Klerksdorp Land Use Management Scheme, 2005 the subject property is currently zoned “Municipal” (refer zoning map on following page).



Map 4: Existing zoning plan of a portion of the Remaining Extent of Portion 1 of the farm Townlands of Klerksdorp No. 424-IP

2.6 MINERAL RIGHTS

According to Crown Grant No. G201/1906, the rights to minerals in respect of the Remaining Extent of Portion 1 of the farm Townlands of Klerksdorp No. 424-IP have been reserved in favour of the following organizations:

- ✧ Avgold Limited by virtue of Certificate of Mineral Rights K1295/2001RM.
- ✧ Tongaat-Hulett Group Ltd by virtue of Certificate of Mineral Rights K2653/1992RM.
- ✧ Buffelsfontein Gold Mines Ltd by virtue of Notarial Deed of Cession of Mineral Rights K6403/1999.

The fore-mentioned rights to minerals apply to other areas of the Remainder of Portion 1 of the farm Townlands of Klerksdorp No. 424-IP and do not as such affect the proposed township area.

The above-mentioned reservation of rights to minerals is however subject to the provisions of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) that came into force on 01 May 2004. The application for township establishment will subsequently also be referred to the Department of Mineral Resources for its consent in respect of the proposed township.

2.7 RESTRICTIVE TITLE CONDITIONS

According to Crown Grant No. G201/1906, the Remaining Extent of Portion 1 of the farm Townlands of Klerksdorp No. 424-IP is subject to the following title conditions, which will be dealt with as indicated:

- (i) “A. *This Grant shall be subject to all conditions and stipulations contained in the Town Lands Ordinance 1904 and in any amendment thereof; and in certain Deed of Agreement entered into at Pretoria on the 15th day of July 1887 between the Government of the late South African Republic and B.H. Swart and J.J. Roos in their capacity as the representatives of the original owners of the land comprising the Town and Townlands of Klerksdorp, which Agreement is registered in the Deeds Office under No. 269 of 1887; and shall also be subject to all rights and servitudes which now affect or at any time hereafter may be found to affect the title to the land hereby transferred or to be binding on the Government in respect of the said land as at the date hereof*”.

This condition has lapsed through repeal by virtue of the Pre-Union Statute Law Revision Act, 1967 (Act 36 of 1967).

- (ii) “B. *The land hereby transferred shall be subject to the following servitudes for Railway purposes in favour of the High Commissioner for South Africa and Governor of the Transvaal and Orange River Colony, namely:-*
- (a) *A servitude of use (usus) over certain two plots of ground each in extent seventy four decimal three six (74,36) square roods marked VII and sixty nine decimal four four (69,44) square roods marked VIII, respectively, and described on the diagram above mentioned, for the purpose of erecting and using pumping stations on the said lots of ground for supplying Klerksdorp Railway Station with water.*
 - (b) *A servitude which shall consist in the right (and all accessory rights necessary to its proper exercise) to lay construct use and maintain a line of pipes between the said pumping stations and the said railway station as shown marked P.L. on the diagram above mentioned; provided always that the said line of pipes shall be laid one and one half (1½) feet below the surface in such a manner as not to interfere with the traffic and provided further that the said Council of the Municipality of Klerksdorp shall have the right at any time to make at its own cost and charge such alterations to the said line of pipes as may from time to time be necessary for the purposes of street construction or the construction of drains, sewers or other Municipal works, subject to the express condition that during the period of such alterations the said Municipality shall supply to the Central South African Railways Administration free of cost all the water which the said Administration may require for Railway purposes at Klerksdorp aforesaid”.*

This condition does not affect the proposed township area due to the geographic location of the development area in relation to the Klerksdorp Railway Station.

- (iii) “C. *This Grant is made on the conditions that all roads already made over this land by lawful authority shall remain free and unobstructed; that the land shall be subject to an outspan and to grazing for the cattle of travellers; that the said land shall be further subject to such stipulations as have been established or may hereafter be established by the Legislature; and, finally, that the owner shall be liable to the prompt payment of an annual tax of one shilling and six pence (1/6) sterling per one hundred morgen.”*

As this condition relates to a servitude of outspan, this condition has since lapsed.

- (iv) “8. *The within property is subject to a servitude of aqueduct in favour of the Klerksdorp Irrigation Board as will more fully appear from Notl. Deeds Nos. 80 and 81/1918S registered this day. Deeds Office. 23.3.1918.”*

This servitude does not affect the proposed township area due to the location thereof in relation to the proposed development area.

- (v) *“10. The within property is subject to a right of aqueductus or pipe-line in favour of the two portions of Portion 20 of the Townlands of Klerksdorp as will more fully appear from Not. Deed No. 886/1919S registered this day. Deeds Office 6.11.1919.”*

This servitude does not affect the proposed township area due to the location thereof in relation to the proposed development area.

- (vi) *“78. By Notarial Deed No. 690/1940S – the right has been granted to the Electricity Supply Commission to convey electricity over the Remaining Extent of the property hereby conveyed, together with ancillary rights, and subject to conditions, as will more fully appear on reference to said Notarial Deed and diagram, gross whereof is hereunto annexed.”*

This servitude does not affect the proposed township area due to the location thereof.

- (vii) *“117 All rights to gold and other precious metals, base metals and minerals or metals associated with gold and mined incidentally to the mining of gold in, on and under portion of the within property, meas. 69.444 morgen ceded to New Klerksdorp Gold Estates Limited, by Deed of Cession No. 509/53 R.M. dated 29/9/1953.”*

This condition relates to the reservation of rights to minerals and does not affect the proposed township area due to the location of the mining area afore-mentioned.

- (viii) *“119. All rights to precious metals and minerals as defined in Act 35/1908 (Tvl) together with other precious and base minerals on portion of the within property measuring 4019,0850 morgen ceded to Middle Witwatersrand (Western Areas) Ltd. by Deed of Cession No. 367/54 R.M. dated 24/6/54.”*

This condition relates to the reservation of rights to minerals and does not affect the proposed township area due to the location of the mining area afore-mentioned.

- (ix) *“130. By Notarial Deed No. 65/57 R.M. dated 9th November 1956 para. (1) of Notarial Deed of Cession of Mineral Rights No. 367/54 R.M. has been amended and Portion of Portion 22 of the farm Townlands of Klerksdorp No. 44 in extent 8.4996 morgen held under Crown Grant 74/1932 has been*

included under para (1) as will more fully appear on reference to the said Notarial Deed.”

This condition relates to the reservation of rights to minerals and does not affect the proposed township area due to the location of the mining area afore-mentioned.

- (x) *“144. By Notarial Deed No. 556/1960S dated 29/11/1958 The Western Transvaal Regional Water Company (Proprietary) Limited has been granted a right in perpetuity to convey and transmit water by means of pipelines over the remainder of the within property with ancillary rights, as will more fully appear from reference to the said Notarial Deed, a copy whereof is hereunto annexed.”*

This servitude does not affect the proposed township area due to the location thereof in relation to the proposed township area.

- (xi) *“152. By virtue of Notarial Deed No. 45/62S dated 8/11/1962 (i) clause 10 of the Notarial Deed No. 689/1940S has been cancelled and substituted by a new clause and (ii) the right has been granted to Electricity Supply Commission to convey electricity over the Remainder of the property held hereunder together with ancillary rights as will more fully appear from said Notarial Deed.”*

This servitude does not affect the proposed township area due to the location thereof in relation to the proposed development area.

- (xii) *“171. By Notarial Deed of Servitude No. 1170/1967S dated 9th May 1967.*
- (i) *Clause 10 of Notarial Deed of Servitude No. 45/1962S, has been cancelled and substituted by a new clause; and*
- (ii) *The right has been granted to the Electricity Supply Commission to convey electricity over the Remainder of the property held hereunder measuring 9667,4461 morgen, together with ancillary rights as will more fully appear from the said Notarial Deed.”*

This servitude does not affect the proposed township area due to the location thereof in relation to the proposed development area.

- (xiii) *“179. Kragtens Notariële Akte No. 1098/69S gedateer 4/7/69 in Not. Akte Nr. 80/1918S nou gedeeltelik gekanselleer en vervang deur hierdie Not. Akte waarkragtens ‘n serwituut van pyplyn 10 Kaapse vt. wyd geskep is soos aangetoon op kaart LG No. A3466/1968 geheg aan gesegde Not. Akte.”*

This servitude does not affect the proposed township area due to the location thereof in relation to the proposed development area.

- (xiv) *“Kragtens Notariele Akte K1159/85 is die reg aan Eskom verleen om elektrisiteit oor die hierinvermelde eiendom te vervoer, tesame met bykomende regte, en onderworpe aan voorwaardes, soos meer volledig sal blyk uit gesegde Akte van kaart, afskrifte waarvan hieraan geheg is.”*

The locality of this powerline servitude in favour of Eskom is known and does not affect the proposed township area due to the location thereof in relation to the proposed development area.

- (xv) *“By Notarial Deed No. 689/1940S the right has been granted to the Electricity Supply Commission to convey electricity over the Remaining Extent of the property hereby conveyed, together with ancillary rights, and subject to conditions, as will more fully appear on reference to said Notarial Deed and diagram, grosse whereof is hereunto annexed”*

The locality of this powerline servitude in favour of Eskom is known and does not affect the proposed township area due to the location thereof in relation to the proposed development area.

- (xvi) *“Kragtens Notariele Akte van Wysiging van Serwituut en Serwituut No. K3333/77S gedateer 3/8/77 is:*

- (i) *Klousule 10 op bladsy 7 van die Notariele Akte 689/40S gewysig deurdat 'n gedeelte van die serwituut aangedui deur die figuur AB op kaart L.G. No. A9512/74 daarby aangeheg, gekanselleer word; en*
- (ii) *'n Ewigdurende reg word hiermee aan Evkom verleen om elektrisiteit te lei oor die eiendom deur middel van transmissielyn met bykomende regte soos meer ten volle sal blyk uit gesegde Notariele Akte en aangedui deur die letters ABC op Kaart L.G. Nr. A7513/74 daarby aangeheg.”*

This servitude does not affect the proposed township areas due to the location thereof.

- (xvii) *“Kragtens Notariele Akte K407/1980 is die reg aan Eskom verleen om elektrisiteit oor die hierinvermelde eiendom te vervoer, tesame met bykomende regte, en onderworpe aan voorwaardes, soos meer volledig sal blyk uit gesegde Akte van kaart.”*

As the proposed township area is not subject to any existing powerlines of Eskom, it was deduced that this servitude similarly does not affect the proposed township area.

- (xviii) *“Kragtens Notariele Akte K1343/1981 is die reg aan Evkom verleen om elektrisiteit oor die hierinvermelde eiendom te vervoer, tesame met bykomende regte, en onderworpe aan voorwaardes soos meer volledig sal blyk uit gesegde Akte and kaart.”*

As the proposed township area is not subject to any existing powerlines of Eskom, it was deduced that this servitude similarly does not affect the proposed township area.

- (xix) *“Kragtens Notariele Akte K1344/1981 is die reg aan Evkom verleen om elektrisiteit oor die hierinvermelde eiendom te vervoer, tesame met bykomende regte en onderworpe aan voorwaardes, soos meer volledig sal blyk uit gesegde Akte en kaart.”*

As the proposed township area is not subject to any existing powerlines of Eskom, it was deduced that this servitude similarly does not affect the proposed township area.

- (xx) *“Kragtens Notariele Akte van kansellasië K2364/95S gedateer 8/3/95 word K689/40S gekanselleer in sover aangedui deur die lyn ABCD op LG A9350/91 soos meer volledig sal blyk uit bogemelde Notariele Akte.”*

This servitude does not affect the proposed township area due to the fact that the servitude referred to in the concerned Notarial Deed of Cancellation of Servitude, is located north of the proposed township area and does not affect the proposed township area due to the location thereof.

- (xxi) *“Kragtens Notariele Akte No. K4417/07S gedateer 29 Januarie 2007 is die hierinvermelde eiendom onderhewig aan ‘n reg van weg servituut ten gunste van die algemene publiek soos meer ten volle aangedui deur die figuur ABCDEFGHJKLM op Landmeterskaart L.G. 9289/2004 oor Gedeelte 1 van die plaas Townland van Klerksdorp No. 424 Reg. Afd. I.P Provinsie Noordwes gegee deur City of Matlosana soo smeer volledig sal blyk uit gemelde Notariële Akte waarvan ‘n afskrif hieraan geheg is”.*

This locality of this servitude is known and it does not affect the proposed township area due to the locality thereof in relation to the township area.

2.8 SERVITUDES

Based on an in-depth analysis of Crown Grant No. G201/1906 as well as the Surveyor-General diagram of the Remaining Extent of Portion 1 of the farm Townlands of Klerksdorp No. 424-IP (SG No. A5805/1905), it was established that the proposed township area is not subject to any existing servitudes.

The proposed development area is however subject to an existing powerline of the City of Matlosana that originates from the township area of Jouberton Extension 19. This powerline affects the western portion of the development area and will be located 2,5 metres from the western erf boundary of the proposed Erf 7322. To protect this servitude, it is proposed that the erf be made subject to a 5m servitude in favour of the City of Matlosana (2,5m from the centre line of the powerline).



Plate 4: View of powerline traversing the proposed Erf 7321

CHAPTER 3: PHYSICAL ASPECTS

3.1 TOPOGRAPHY

As part of the pre-planning studies that were conducted in respect of the development area, a topographical survey was conducted by TMK Professional Land Surveyors (refer

contour data reflected on layout plan - **Annexure B** to the application for township establishment).

The study area is located on a shallow slope and drains from the existing water reservoir in an easterly and westerly direction respectively. The site is located at an elevation ranging between 1347,5m and 1367,5m above mean sea level. The western area drains towards the Jag Spruit whereas the eastern portion drains towards the Schoonspruit.

Plate 4 provides a view of the eastern portion of the development area as captured from Buitekant Street whereas Plate 5 is a view of the development area in a westerly direction as captured from Buitekant Street.



Plate 5: View of development area in an easterly direction as viewed from Buitekant Street



Plate 6: View of development area in a westerly direction as viewed from Buitekant Street

3.2 CLIMATE

The region is characterized by summer rainfall with thunderstorms, with annual low rainfall figures of 625 mm (Potchefstroom) and 546 mm (Wolmaransstad), recorded at the closest weather station to the site. Winters are dry with frost common. The warmest months are normally December and January and the coldest months are June and July.

An analysis of the data confirms a Weinert's N-Value in the order of 4.8 for Klerksdorp. The mechanical disintegration of rocks will therefore not be dominant over chemical decomposition, and shallow soil horizons will be expected in areas of poor drainage, underlain by igneous rocks.

Storm water drainage and road pavement design must incorporate the climatic extremes above.

3.3 FRESHWATER SYSTEM

The proposed development area is located within the Middle Vaal Water Management Area. Plate flow is the dominant drainage pattern on site, and no drainage channels intersect the site.

The site is located on a moderate to shallow slope from the central portion of the site. Drainage occurs in an easterly and westerly direction from the reservoir site and water from the western run-off joins the Jag Spruit whereas run-off water draining in an easterly direction eventually joins the Schoonspruit, a tributary to the Vaal River.

Special care must be taken to ensure adequate surface drainage to prevent the accumulation of water next to structures.

Storm water diversion measures such as ponding pools are recommended to control peak flows during thunderstorms.

All embankments must be adequately compacted and planted with grass to stop any excessive erosion and scouring of the landscape.

3.4 WETLANDS AND PANS

The proposed development area is not subject to any wetlands or pans and the development area is not subject to the 1:100 year floodline of any river or stream.

3.5 VEGETATION

The area is typically characterized by Dry Cymbopogon Themeda *thornveld true grassveld veld type* (Acocks, 1988) (refer **Plates 5 and 6** on page 25).

3.6 GROUNDWATER

No seepage or the presence of perennial fluctuations of ground water was encountered on site, but a season perched water table may exist. The permanent or perched water table on site is expected deeper than 1,5m below ground surface. A ferruginised profile indicates that some perennial water level fluctuations may occur.

Ground water in the form of seepage was not intersected in any test pit during the investigation, but some problems are foreseen and normal water tightening techniques such as damp course on foundation levels are required.

The expected high permeability of the silty sand may lead to leachate from sanitation

systems to reach the ground water, and with the relative shallow residual rock, a closed water borne sewage system is recommended.

3.7 GEOLOGY (Extract from Geotechnical Report compiled by Geoset attached as **Annexure G** to the application for township establishment)

The site is mostly underlain by breccia, conglomerate, greywacke, shale, limestone & tuff the Kameeldoorns Formation and amygdaloidal lava, agglomerate & tuff of the Rietgat formation, both of the Platberg Group, Ventersdorp Supergroup.

Surficial deposits include the colluvium and hillwash covering the lithology.

No dolomite occurs in the area and no stability investigation is required.

3.7.1 SITE EVALUATION

- No seepage or the presence of perennial fluctuations of ground water was encountered on site, but a seasonal perched water table may exist.
- Special care must be taken to ensure adequate surface drainage to prevent the accumulation of water next to structures.
- The site contains slightly compressible and collapsible sandy soil, and slightly to moderately compressible and expansive soil, and foundations may need special treatment to withstand movement associated with the variable moisture content of the soil. It is however of limited thickness and only required when substantive layers are encountered during construction.
- Potentially medium expansive clay was found representing the hillwash, and special remedial measures will be required before development can take place within these areas, if it is found to represent layers with a substantial thickness during construction.
- Some problems regarding excavatability can be expected on the site.
- A large area in the central portion consist of a partially backfilled quarry and this must be rehabilitated by backfilling and recompacting with an engineered special layered designed backfilling to engineer's specification.
- These quarried areas can also be excavated and used as basement or parking areas should this be required during the construction of high rise buildings or malls.
- Retaining walls as well as slope stabilization measures are recommended on all constructed embankments exceeding 1,5m.
- Storm water diversion measures such as ponding pools are recommended to control peak flows during thunderstorms. All embankments must be adequately compacted and planted with grass to stop any excessive erosion and scouring of the landscape.

3.7.2 SITE ZONATION

In terms of the results of the geotechnical investigation, the development area was divided into the following geotechnical zones which are described in detail in this section and also depicted on **Figure 2**:

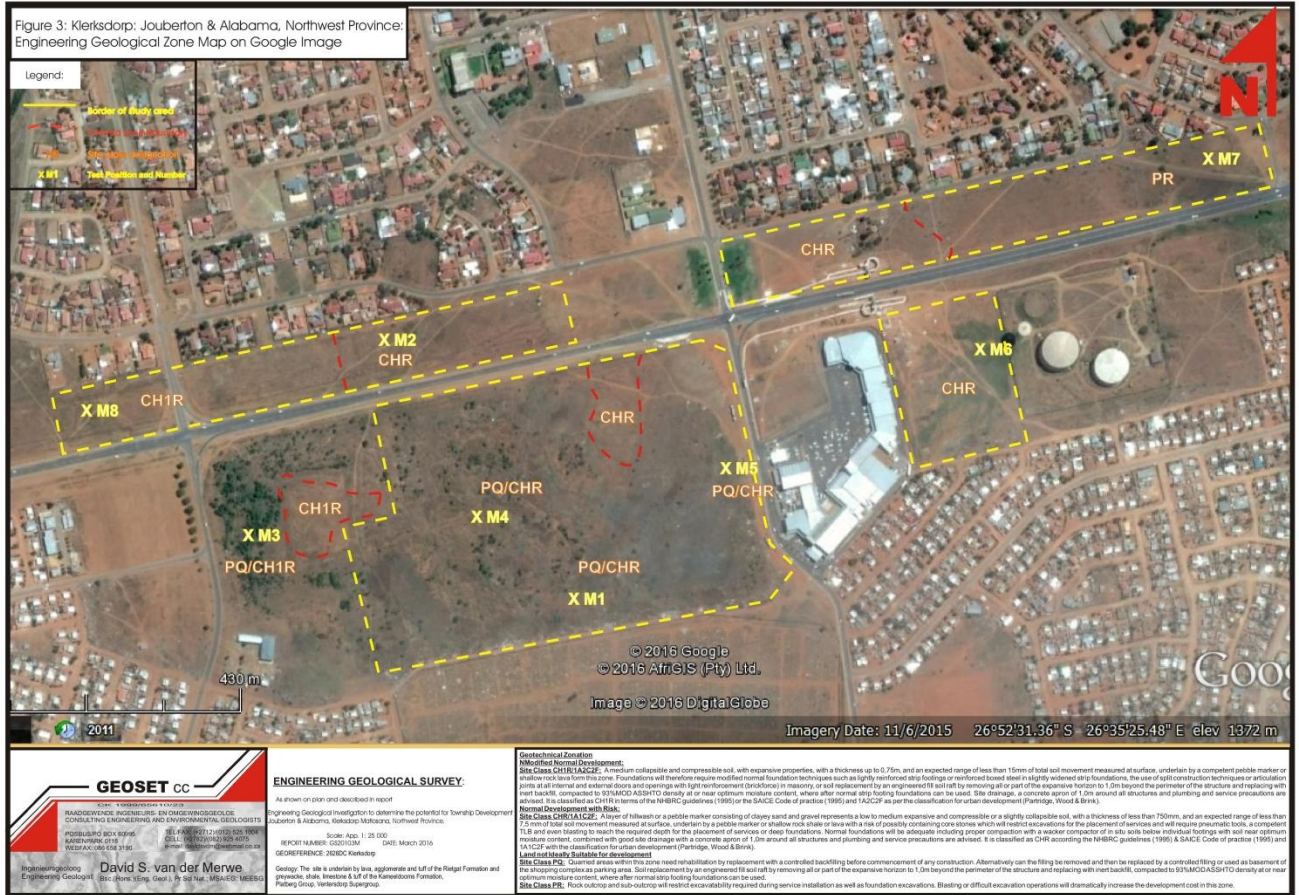


Figure 2: Engineering Geological Zonation

Modified Normal Development: Site Class CH1R/1A2C2F:

A medium collapsible and compressible soil, with expansive properties, with a thickness up to 0,75m, and an expected range of less than 15mm of total soil movement measured at surface, underlain by a competent pebble marker or shallow rock lava form this zone. Foundations will therefore require modified normal foundation techniques such as lightly reinforced strip footings or reinforced boxed steel in slightly widened strip foundations, the use of split construction techniques or articulation joints at all internal and external doors and openings with light reinforcement (brickforce) in masonry, or soil replacement by an engineered fill soil raft by removing all or part of the expansive horizon to 1,0m beyond the perimeter of the structure and replacing with inert backfill, compacted to 93%MOD ASSHTO density at or near optimum moisture content, where after normal strip footing foundations can be used. Site drainage, a concrete apron of 1,0m around all

structures and plumbing and service precautions are advised. It is classified as CH1R in terms of the NHBRC guidelines (1995) or the SAICE Code of practice (1995) and 1A2C2F as per the classification for urban development (Partridge, Wood & Brink).

Normal Development with Risk:

Site Class CHR/1A1C2F:

A layer of hillwash or a pebble marker consisting of clayey sand and gravel represents a low to medium expansive and compressible or a slightly collapsible soil, with a thickness of less than 750mm, and an expected range of less than 7,5 mm of total soil movement measured at surface, underlain by a pebble marker or shallow rock shale or lava with a risk of possibly containing core stones which will restrict excavations for the placement of services and will require pneumatic tools, a competent TLB and even blasting to reach the required depth for the placement of services or deep foundations. Normal foundations will be adequate including proper compaction with a wacker compactor of in situ soils below individual footings with soil near optimum moisture content, combined with good site drainage with a concrete apron of 1,0m around all structures and plumbing and service precautions are advised. It is classified as CHR according the NHBRC guidelines (1995) & SAICE Code of practice (1995) and 1A1C2F with the classification for urban development (Partridge, Wood & Brink).

Land not Ideally Suitable for development

Site Class PQ:

Quarried areas within this zone need rehabilitation by replacement with a controlled backfilling before commencement of any construction. Alternatively can the filling be removed and then be replaced by a controlled filling or used as basement of the shopping complex as parking area. Soil replacement by an engineered fill soil raft by removing all or part of the expansive horizon to 1,0m beyond the perimeter of the structure and replacing with inert backfill, compacted to 93%MOD ASSHTO density at or near optimum moisture content, where after normal strip footing foundations can be used.

Site Class PR:

Rock outcrop and sub-outcrop will restrict excavatability required during service installation as well as foundation excavations. Blasting or difficult excavation operations will dramatically increase the development cost in this zone.

The comprehensive Geotechnical Report is attached as **Annexure G** to the application for township establishment.

3.7.3 FOUNDATION SOLUTIONS

- ***Consolidation or collapse settlement***
Site Class C (Estimated total Settlement of less than 5mm):

Normal Construction:

Minor collapse settlement requires normal construction (strip footing and slab on the ground) with compaction in foundation trenches and good site drainage.

Site Class C1 (Estimated total Settlement of between 5 and 10mm):Modified normal construction:

Reinforced strip footing and slab on the ground.

Articulation joints at some internal and all external doors and openings.

Light reinforcement in masonry.

Site drainage and service/plumbing precautions recommended.

Foundation pressure not to exceed 50 kPa (single storey buildings).

Compaction of in situ soils below individual footings:

Remove in situ material below foundations to a depth and width of 1,5 times the foundation width or to a competent horizon and replace with material compacted to 93% MOD AASHTO density at -1% to +2% of optimum moisture content.

Normal construction with light reinforcement in strip foundation and masonry.

Deep strip foundations:

Normal construction with drainage precaution.

Founding on a competent horizon below problem horizon.

Soil Raft:

Remove in situ material to 1,0m beyond perimeter of building to a depth and width of 1,5 times the widest foundation or to a competent horizon and replace with material compacted to 93% MOD AASHTO density at -1% to +2% of optimum moisture content.

Normal construction with lightly reinforced strip footings and masonry.

- ***Expansive soil***

Site Class H (Estimated total heave of less than 7.5mm):

Soil tested as medium expansive with a clay layer thickness of up to 0,3m from surface

Normal construction:

Minor heave requires normal construction (strip footing and slab on the ground) with site drainage and service/plumbing precautions recommended.

Site Class H1 (Estimated total heave of between 7.5 and 15mm):

Tested as medium expansive with a clay layer thickness of between 0,45 to 0,85m from surface,
or a highly expansive clay layer of between 0,3 and 0,4m in thickness from surface
or a clay layer with a very high expansive potential of up to 0.3m.

Modified normal:

Lightly reinforced strip footings.

Articulation joints at all internal/external doors and openings

Light reinforcement in masonry.

Site drainage and plumbing/service precautions.

Or soil raft:

Remove all or part of expansive horizon to 1,0m beyond the perimeter of the construction and replace with inert backfill compacted to 93% MOD AASHTO density at -1% to 2% of optimum moisture content.

Normal construction with lightly reinforced strip footings and masonry.

Site drainage and plumbing/service precautions.

3.7.4 CONCLUSION

- The site is underlain by breccia, conglomerate, greywacke, shale, limestone & tuff the Kameeldoorns Formation and amygdaloidal lava, agglomerate & tuff of the Rietgat formation, of the Platberg Group, Ventersdorp Supergroup.
- Some problems are foreseen regarding the excavatability to 1,5m depth on site. **Excavatability** on large areas on site is restricted and will increase the development cost.
- A large area in the center portion consist of a partially backfilled quarry and this must be rehabilitated by backfilling and recompacting with an engineered special layered designed backfilling to engineer's specification.
- Zoning of the site revealed zones with constraints regarding the potential **expansiveness** and the **compressibility** and **collapse potential** of the soil.
- **Standard and modified normal construction** techniques will be sufficient to enable proper development for the majority of the site. This includes the use of standard **compaction techniques with drainage provision** as described.
- These proposed mitigation measures will be sufficient to successfully address the anticipated geotechnical problems and to ensure the sustainable development as planned
- This investigation was done to reveal the geotechnical properties on site with the techniques as described to form our opinion. Although every possible factor during the investigation was dealt with, it is possible to encounter variable local conditions.

This will require the inspection of foundations by a competent person of all excavations to verify expected problems.

3.8 ENVIRONMENTAL IMPACT ASSESSMENT

AB Enviro-Consult was appointed to conduct an Environmental Impact Assessment in terms of sections 24 and 24(D) of the National Environmental Management Act, 1998 (Act 107 of 1998). The activity is listed in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014. The proposed development triggers the following regulations:

Table 6: Listing details in terms of the National Environmental Management Act, 1998

Number and date of the relevant notice:	Activity No (s) (in terms of the relevant notice) :	Describe each listed activity as per project description:
983, 4 December 2014	27	The clearance of an area of approx. 12.996 ha hectares for the proposed township establishment consisting of residential and business uses
985, 4 December 2014	12 (a)(ii)	Clearance of 121 996 square meters of indigenous vegetation within a critical biodiversity area (CBA 2) as identified in the NW 2009 Biodiversity Conservation Assessment (BCA).

The project was registered with the Department of Rural, Environment and Agricultural Development and the Basic Assessment Report will be submitted to the fore-mentioned Department for consideration following the finalisation of the public participation process.

3.9 CULTURAL HERITAGE AREAS

African Heritage Consultants CC was commissioned to conduct a Phase 1 Cultural Heritage Resources Impact Assessment in respect of the proposed development area. The fore-mentioned assessment contained the following results:

3.9.1 DESCRIPTION OF SITES MAPPED

The site was visited and inspected together with the Environmental team on foot. From the inspection it is clear that the larger section of the site was levelled in the past. The grass was cut short which made the investigation much easier – see photographs – **Plates 7 – 9** below:



Plates 7 – 9: Photographs depicting the proposed development site

The most western section of the site is still mainly highveld grassland with a few trees. Some illegal dumping takes place in this section of the site – see photograph – **Plate 10**.



Plate 10: View of area subject to illegal dumping

No important cultural heritage resources or graves were found on the proposed development site.

3.9.2 DESCRIPTION OF THE ARTEFACTS, FAUNA, BOTANICAL OR OTHER FINDS AND FEATURES

None

3.9.3 CLEAR DESCRIPTION OF BURIAL GROUNDS AND GRAVES

None found

3.9.4 EVALUATION AND RATING (FIELD RATING)

Not applicable

3.9.5 STATEMENT OF SIGNIFICANCE (heritage value)

Not applicable

3.9.6 RECOMMENDATIONS AND CONCLUSIONS

No important cultural heritage resources or graves were found on the proposed development site. There is no objection to the proposed development from a cultural heritage resources point of view.

If during construction any cultural heritage resources or graves are unearthed all work has to be stopped until the site has been inspected and mitigated by a cultural heritage practitioner.

CHAPTER 4: PROPOSED DEVELOPMENT

4.1 LAND USES

The intention of the applicant i.e. the City of Matlosana is to utilize the concerned property for the establishment of the proposed township area of Alabama Extension 6. The primary aim of the township areas is to provide a climate that is conducive for private and public sector development through the provision of erven that can be utilized for a variety of commercial, residential and community facility purposes. In mentioned in Section 1, it is imperative to note that the proposed township area of Alabama Extension 6 forms an integral part of the Jouberton/Alabama precinct area

The planning of the precinct area makes provision for public sector development that will form the main catalysts for the development of the area as well as private sector development opportunities.

- **Public Sector Development**
 - **Land Use**
 - Community Health Centre (Department of Health)
 - Thusong Service Centre (Multipurpose Community Centre)
 - Municipal functions / pay points
 - Cultural centre
 - Community Hall
 - Indoor sport
 - Government functions such as pension pay point etc.
 - Complementary Sport and Recreational Area
 - Youth Development Centre (in association with SAFA)
 - » Artificial football turf
 - » Youth resource and training centre
 - Park and recreational area including an open air amphitheatre
 - Parking area for busses and vehicles
 - Flee market area adjacent to central spine (open square area)
 - Development of a small kwazi industrial park (currently a large number of small industrial activities and workshops are conducted on residential stands and street reserves). This can be developed in association with NWDC.
- **Landscaping of the precinct area**
 - Improvement of the environmental quality and aesthetical appearance of the area, as well as to **shape** and give meaning to the public realm:
 - **Soft landscaping**
 - Trees
 - Grass
 - Low planting
 - **Hard Landscaping**
 - Paving of pedestrian routes
 - Bins in the vicinity of taxi rank, drop-off, trading areas, etc.
 - Lighting in order to ensure safe public spaces
 - Signage – informative communicative and directional signage
 - Seating
 - Bollards to demarcate separate use zones
 - Toilets / water points at strategic points
- **Infrastructure**
 - Provision of infrastructure to vacant un-serviced land (roads, electricity, water and sanitation)
 - Upgrading of intersections (N12-Jabulani and Puthaditshaba intersection)
 - Provision of an additional pedestrian bridge on N12
 - Taxi rank with informal trade area (between 50 and 100 parking bays)

- Taxi drop off's (near community health centre and Buitekant Street – Alabama)
- **Core Business Development (retail / office)**
 - Land earmarked for business development: ± 8,85 ha
 - Vacant land with business rights: ± 5,14 ha
 - **Total area: ±10, 15 ha**
 - Public garage: 9900m²

Commercial development including uses such as:

- Vehicle showrooms
- Building materials
- Wholesale enterprises
- Retail warehouses
- Offices – professional offices and consulting rooms

- **Residential Development**

- The areas proposed for residential development can include public (***subsidised***) as well as private sector development (***affordable / bonded***).
- These developments must be in the form of medium to medium / high residential development between ***50 and 80 units per ha***, to accommodate different housing typologies such as:
 - duplex,
 - apartments,
 - 3-storey walk ups etc.
- The areas within the mixed land use zones between Rosebank and N12; the vacant areas in Alabama node as well as the vacant area east of the Tower Mall offers the best locality advantages for medium to medium high residential development. The current houses south of Rosebank Street (east and west of Puthaditshaba street in Alabama can also be considered for densification by means of rezonings.
- Potential based on a maximum density of 80 units per ha.
- Total potential area ± 15,032 ha.
- Number of potential units – 1203.

The facilities to be provided as part of the development of this precinct area are reflected on the following figure.

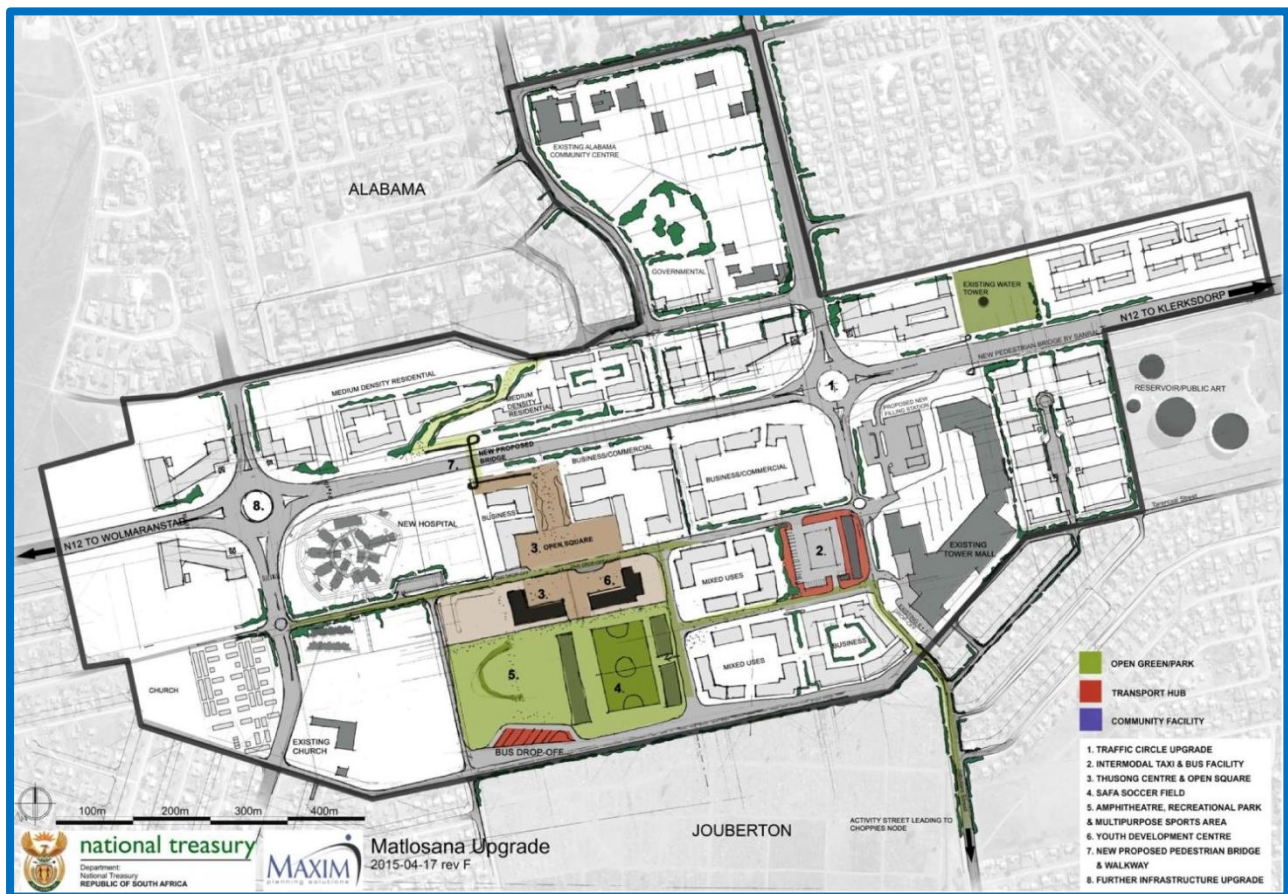


Figure 3: Proposed land uses and conceptual layout of the precinct area

The layout plan of the proposed township Alabama Extension 6 makes provision for the following number of erven:

Table 7: Proposed land uses – Alabama Extension 6

Proposed zoning	Number of Erven	Erf Numbers	Area (Ha)	% of Area
Special (for the purposes of uses included in the Business 1 and Residential 2 (maximum density of 80 dwelling units per hectare) use zones and including a vehicle workshop, wholesale trade, light industry and service industry. (Coverage: 60%; Height: 3 storeys)	13	Erven 7321 to 7333	10,3794 Ha	85,1%
Public Open Space	2	Erven 7334 to 7335	1,2946 Ha	10,6%
Streets			0,5256 Ha	4,3%
TOTAL	15	Erven 7321 to 7335	12,1996 Ha	100%

4.2 FACTORS INFLUENCING THE LAYOUT PLAN

The layout plan of the proposed township area of Alabama Extension 6 was influenced by the following factors:

- Accommodating the pedestrian bridge across the N12 and the walkways located on both sides of the N12 within a public open space erf.
- Accommodating the municipal water reservoir and telecommunication masts and infrastructure located within the central portion of the development area within a public open space erf.
- Linking the public open space erf provided as part of the precinct planning in Jouberton Extension 19 with a public open space erf in Alabama Extension 6. This erf will connect the facilities in the precinct area of Jouberton Extension 19 with the facilities in the precinct area of Alabama Extension 6 through the introduction of a second pedestrian bridge.
- As the township is located adjacent to the N12, no access to the erven in the township area will be provided from this Road. This will be enforced through the imposition of a line-of-no-access that will be incorporated into the Klerksdorp Land Use Management Scheme in terms of Section 125 of the Town Planning and Townships Ordinance, 1986 (Ordinance 15 of 1986).
- Due to the locality of the proposed township area adjacent to the N12, a 20m building restriction area will apply along the boundaries of the erven bordering onto the N12. This building line will similarly be incorporated into the Klerksdorp Land Use Management Scheme in terms of Section 125 of the Town Planning and Townships Ordinance, 1986 (Ordinance 15 of 1986).
- In addition to the line of no access that will apply along Road N12, the erven bordering onto Omar Khyam Avenue and Libanon Street will also be subject to a line of no access and will have to be accessed of other streets in the existing township areas of Alabama and Alabama Extension 2.
- Aligning the erf boundaries of the proposed Erf 7322 with an existing municipal powerline. This line will be protected through the registration of a servitude for municipal purposes across the concerned erf. This servitude will be addressed and created in the Conditions of Establishment.
- To provide access to the two (2) erven provided in the western portion of the development area, a servitude of right of way in favour of the general public will have to be registered across Erf 1214 in the adjacent township area of Alabama Extension 2. This servitude of right of way will link a street in the proposed township area with Rosebank Street.

4.3 **ACCESS**

Access to the erven in the proposed township area of Alabama Extension 6 will be provided from Rosebank Street directly as well as through two (2) streets proposed within the township area of Alabama Extension 6. These internal streets will link onto Rosebank Street (as shown on the layout plan). No direct access to erven in the township area will be provided from the N12, Omar Khyam Avenue, Buitekant Street or Libanon Street.

Due to the location of the proposed township area of Alabama Extension 6 being adjacent to the N12 (Klerksdorp – Wolmaransstad Road), Maxim Planning Solutions (Pty) Ltd commissioned Siyazi North West (Pty) Ltd to conduct a Traffic Impact Study in respect of the proposed township area. The comprehensive Traffic Impact Study is attached as **Annexure H** to the application for township establishment).

The purpose of this study is to undertake an assessment of the implications of the vehicle traffic that would be generated by the proposed development north of Road N12 and to determine:

- a) The impact that the change in land use would have on road and related infrastructure;
- b) Whether it is possible to accommodate the proposed development within acceptable traffic engineering norms; and
- c) The mitigating measures required to accommodate the proposed development within acceptable traffic engineering norms.

The following intersections were evaluated as part of the Traffic Impact Assessment:

- a) Point 1: Intersection of Road N12 and Libanon Street;
- b) Point 2: Intersection of Road N12, Jabulani Street and Buitekant Street;
- c) Point 3: Intersection of Road N12, Lehalaangone Street and Omar Khayam Avenue;
- d) Point 4: Intersection of Omar Khayam Avenue and Rosebank Street;
- e) Point 5: Intersection of Rosebank Street and Buitekant Street; and
- f) Point 6: Intersection of Libanon Street and Mimosa Street.

The locality of the intersections that were evaluated in relation to the development area is shown on **Figure 4**:



Figure 4: Locality of relevant intersections under investigation

Based on a site inspection of the existing road network adjacent to the site of the proposed development, the traffic surveys, calculations and reference to the relevant guideline documents, the following findings and recommendations were made in terms of the Traffic Impact Study:

- **Site Accessibility**
 Proper, safe and reliable access could be provided to the proposed development provided that the required alterations are made to the road network as indicated in **Figure 5** and **Table 8**
- **Traffic Impact**
 Owing to the type and nature of the proposed development, it is expected that the proposed development will have a manageable impact on traffic.
- **Need For Improvements**
 It is recommended that the following road infrastructure improvements should be made:
 - a) The proposed improvements as illustrated by:
 - i) **Figure 5**; and
 - ii) **Table 8**.
 - b) That the necessary traffic and information signs and road markings should be provided as part of the road network to ensure safe and reliable functionality at all intersections as part of the detailed design process; and
 - c) Detailed design drawings will be submitted to the relevant road authority for approval purposes, and where necessary the required way leaves to conduct the required road improvements should be obtained.

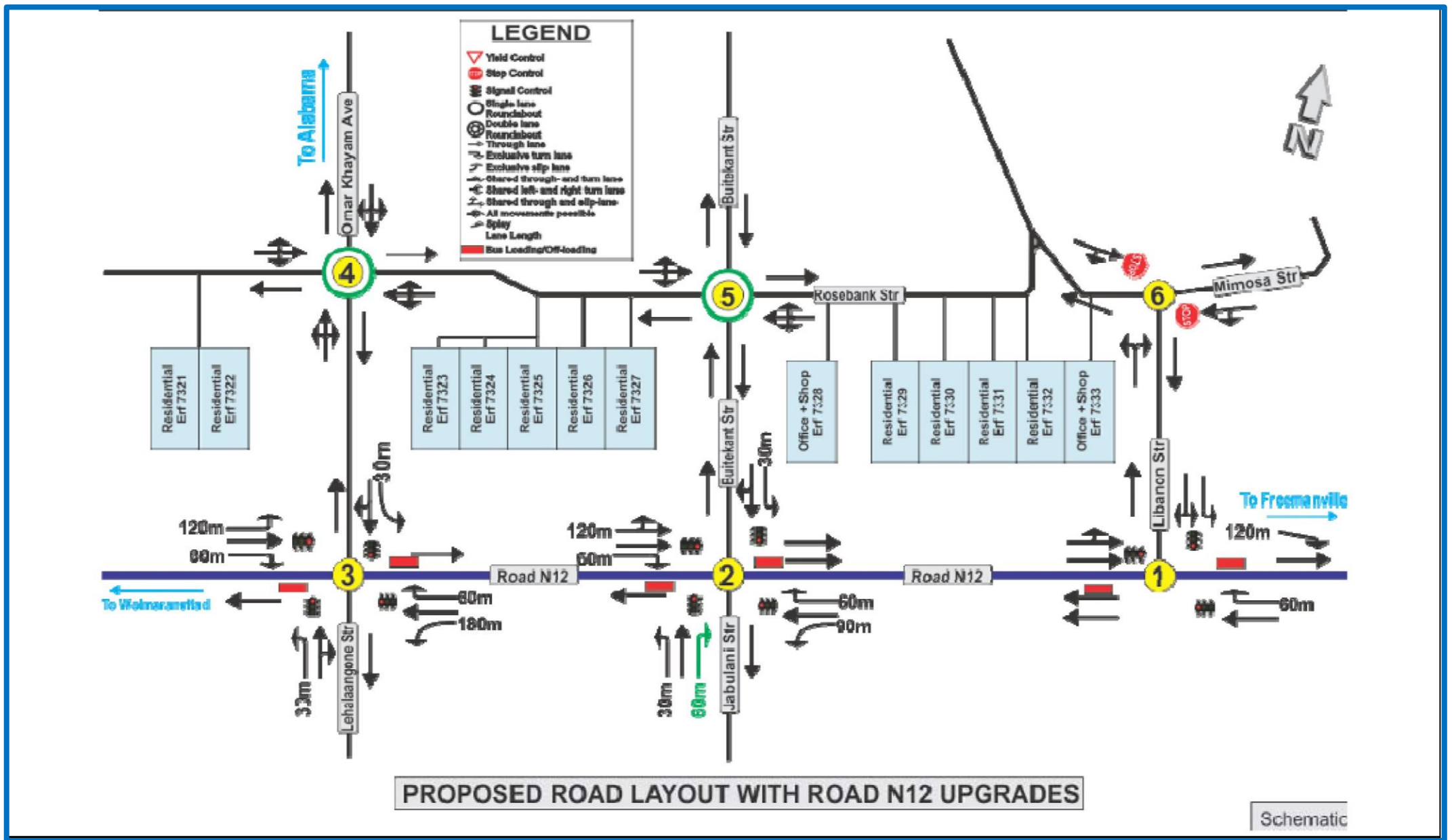


Figure 5: Proposed Road Layout

Table 8: Required Road Network improvements at relevant intersections due to the proposed development

POINT	INTERSECTION	APPROACH	IMPROVEMENTS RECOMMENDED											GEOMETRY	
			Approach Traffic Control				Extra Lanes Required (m)								
			Free-flow	Stop	Roundabout	Traffic Light System	Left Turn Lane	Left Turn Deceleration Lane	Acceleration Lane on Left Shoulder	Acceleration Lane in Middle of Road	Dedicated Right Turn Lane	Number of Extra Through Lanes	Improvements Required from an Intersection Performance or Safety Point of View		Reflective Studs Required at Intersection
1	Intersection of Road N12 and Libanon Street	Northern	No additional upgrading required with the proposed SANRAL upgrades implemented												
		Eastern													
		Southern													
2	Intersection of Road N12, Jabulani Street and Buitekant Street	Northern	Provide dedicated right-turn lane of 60 metres on southern approach. No additional upgrading required with the proposed SANRAL upgrades implemented												
		Eastern													
		Southern													
		Western													
3	Intersection of Road N12, Lehalaangone Street and Omar Khayam Avenue	Northern	No additional upgrading required with the proposed SANRAL upgrades implemented												
		Eastern													
		Southern													
		Western													

POINT	INTERSECTION	APPROACH	IMPROVEMENTS RECOMMENDED													GEOMETRY				
			Approach Traffic Control				Extra Lanes Required (m)							Improvements Required from an Intersection Performance or Safety Point of View	Reflective Studs Required at Intersection		Road Markings Required	Road Signs Required	Public Transport Loading and Off-Loading	Pedestrian Walkways
			Free-flow	Stop	Roundabout	Traffic Light System	Left Turn Lane	Deceleration Lane	Left Turn Deceleration Lane	Acceleration Lane on Left Shoulder	Acceleration Lane in Middle of Road	Dedicated Right Turn Lane	Number of Extra Through Lanes							
4	Intersection of Omar Khayam Avenue and Rosebank Street	Northern	-	-	Yes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Eastern	-	-	Yes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Southern	-	-	Yes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Western	-	-	Yes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5	Intersection of Rosebank Street and Buitekant Street	Northern	-	-	Yes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Eastern	-	-	Yes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Southern	-	-	Yes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Western	-	-	Yes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

POINT	INTERSECTION	APPROACH	IMPROVEMENTS RECOMMENDED													GEOMETRY		
			Approach Traffic Control			Extra Lanes Required (m)						Improvements Required from an Intersection Performance or Safety Point of View	Reflective Studs Required at Intersection	Road Markings Required	Road Signs Required		Public Transport Loading and Off-Loading	Pedestrian Walkways
			Free-flow	Stop	Roundabout	Traffic Light System	Left Turn Lane	Deceleration Lane	Left Turn	Acceleration Lane on Left Shoulder	Acceleration Lane in Middle of Road							
6	Intersection of Libanon Street and Mimosa Street	Eastern Southern Western	No additional upgrading required.															

- d) Note should be taken of the upgrades currently in progress at the following intersections by the South African National Roads Agency Limited (SANRAL):
- i) Road N12 and Libanon Street (Point 1), see **Figure 6**;
 - ii) Road N12, Jabulani Street and Buitekant Street (Point 2), see **Figure 7**; and
 - iii) Road N12, Lehalaangone Street and Omar Khayam Avenue (Point 3), see **Figure 8**.

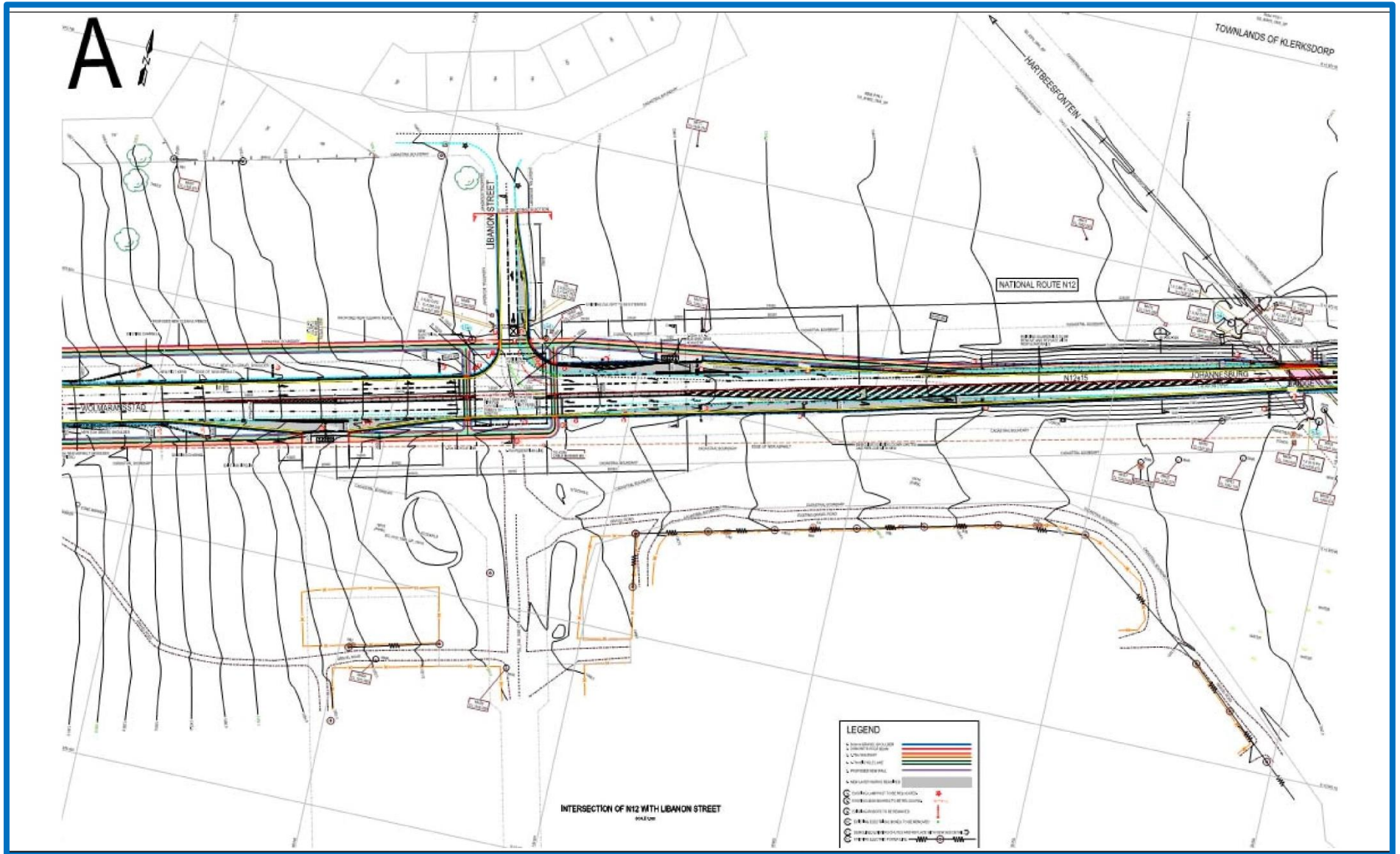


Figure 6: Road N12 and Libanon Street intersection (Point 1) upgrade by SANRAL

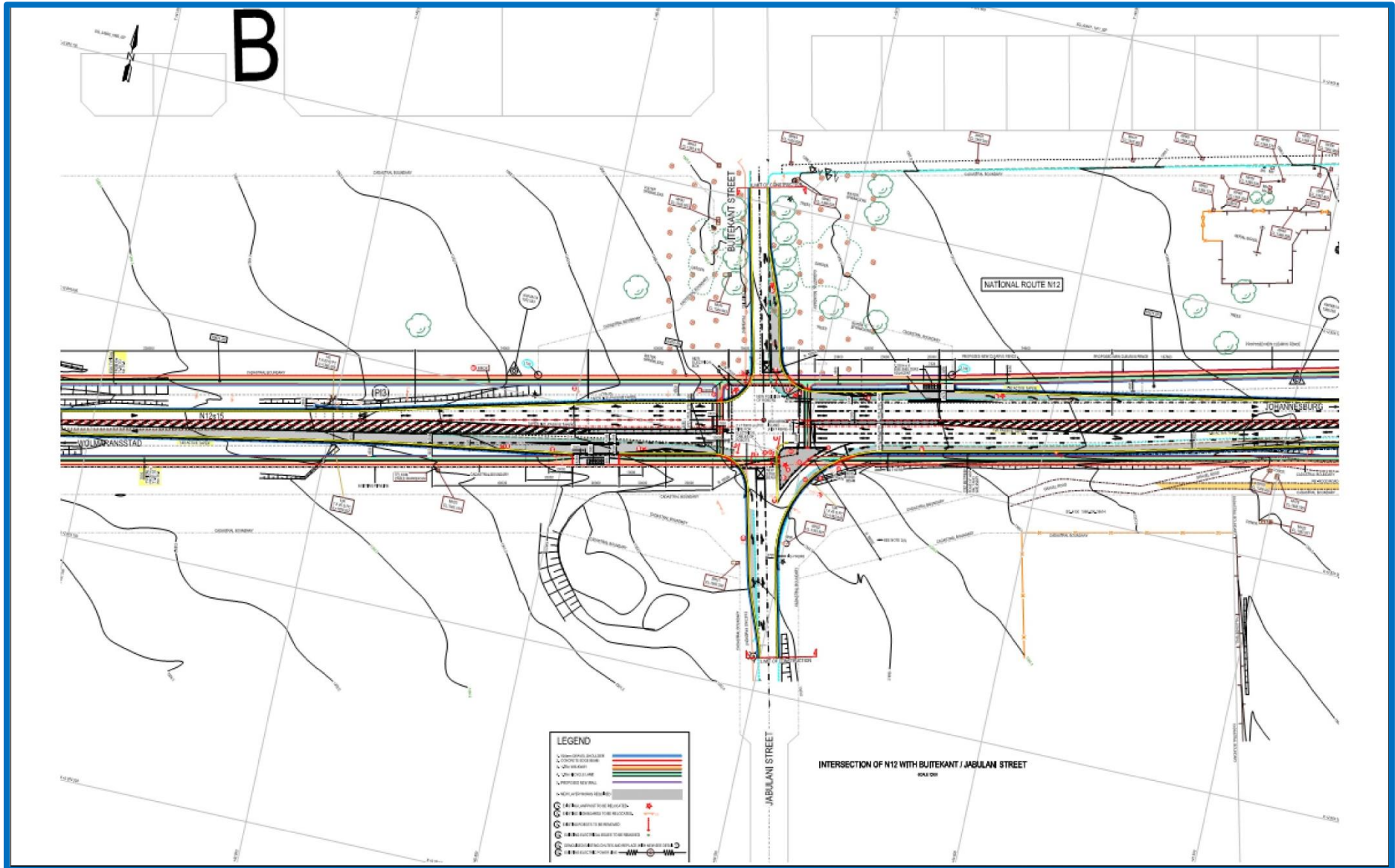


Figure 7: Road N12 and Buitekant Street intersection (Point 2) upgrade by SANRAL.

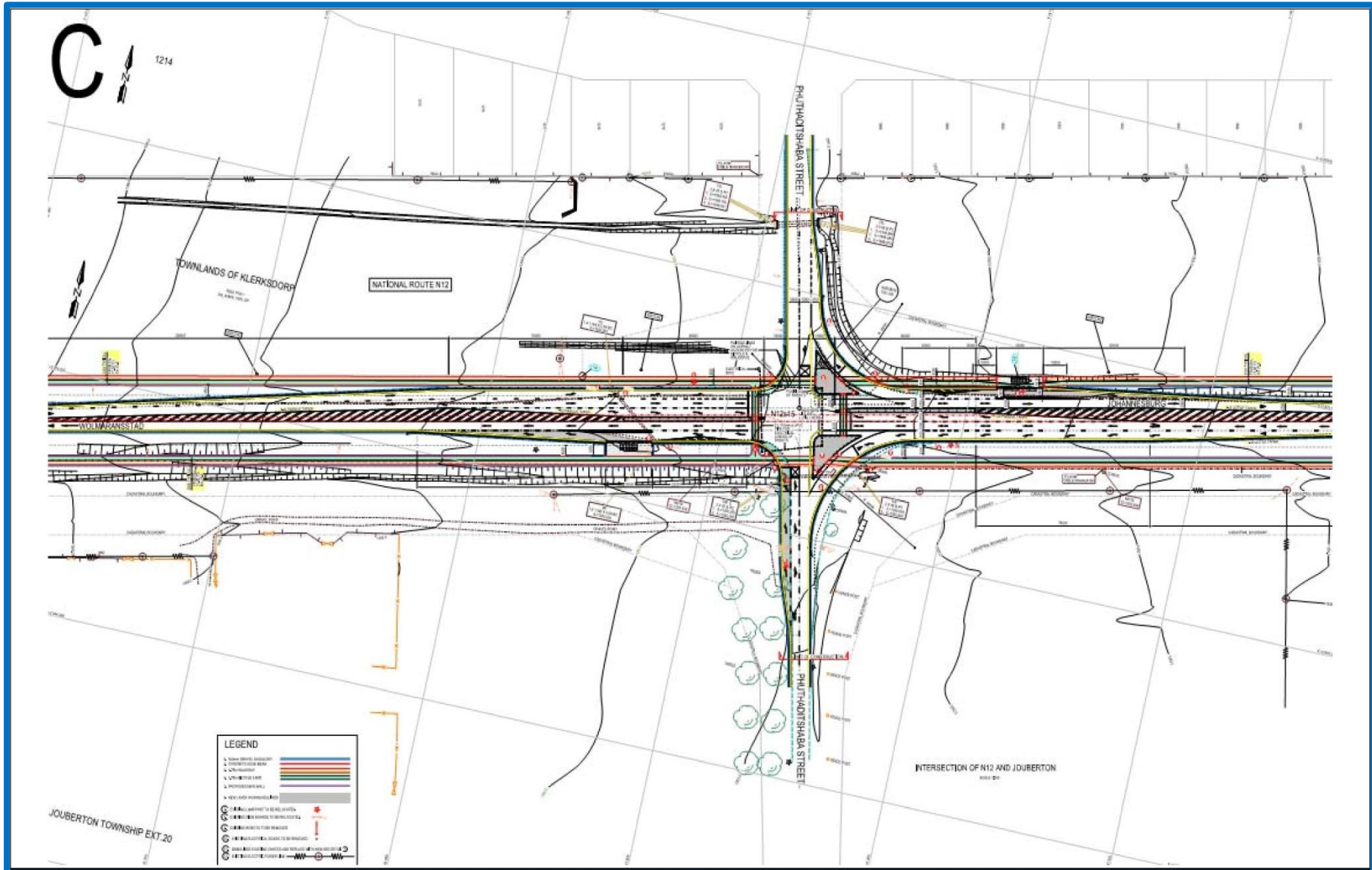


Figure 8: Road N12 and Omar Khayam Avenue/Lehalaangone (Phuthaditshaba) Street intersection (Point 3) upgrade by SANRAL

- **Need For Improvements**

- a) The following types of public transport commuters are relevant:
 - i) Workers who will travel to and from the proposed development;
 - ii) Visitors who will travel to and from the proposed development;
 - iii) Residents who will travel to and from the proposed development; and
 - iv) Existing users of public transport.
- b) Bus loading and off-loading areas will be constructed at Points 1, 2 and 3 as part of the SANRAL upgrades; and
- c) An integrated public transport facility will be constructed as part of the development proposed south of Road N12.

In conclusion, it is recommended that the road authorities namely SANRAL and City of Matlosana should approve the TIA based on the recommendations of this report.

CHAPTER 5: PROVISION OF ENGINEERING SERVICES

5.1 INTRODUCTION

Bigen Africa Services (Pty) Ltd was commissioned to investigate and report on the provision of civil and electrical engineering services to the proposed township area.

The provision of services to the proposed development area will be addressed as follows:

- Section 5.2: Road Infrastructure and access
- Section 5.3: Stormwater Infrastructure
- Section 5.4: Potable Water Supply'
- Section 5.5: Sanitation
- Section 5.6: Electrical Infrastructure

5.2 ROAD INFRASTRUCTURE AND ACCESS

5.2.1 REQUIRED BULK / LINK ROAD INFRASTRUCTURE

Ilifa Africa Engineers had been appointed by SANRAL for the investigations and detail design for the pedestrian's safety improvements of the intersections on the N12 between Jagspruit Bridge and Rail Bridge in Klerksdorp.

The scope of works comprises the upgrading of four intersections of which two of the intersections (Buitekant and Jabulani Street and Phuthaditshaba and Omar Khayam Street) directly affects the proposed development.

The upgrades include:

- Widening existing road between above mentioned intersections and at intersections self (provision of dedicated turning lanes)
- Construction of bus stops
- Construction of a central paved median including paved islands
- Signalisation of intersections
- New road markings, road signs, road studs and raised paved islands
- Installation of high density high tensile mesh fencing
- Construction of a 3.5m wide pedestrian cycle walkway
- Construction of new guardrails
- Stone pitching where required
- Cleaning of hydraulic structures
- Extension of existing culverts
- New street lighting

- New 45mm asphalt overlay

Due to SANRAL's above planned upgrades in the area, no further bulk road infrastructure is required for the proposed development.

5.2.2 INTERNAL ROAD INFRASTRUCTURE

The main collector roads are classified as Class 4 roads that will mainly provide a safe environment for vehicles and pedestrians. Access to the development site will be gained through a ring road which consists out of Jubulani / Buitekant Street, Lehalaangane Street, Phuthaditshaba Street and Rosebank Street which has a 30m, 25m and 16m road reserve width with a 7.2m and 7.0m respectively wide with an asphalt surfaced roadway.

The activity spine (25m road reserve) provides access to all the stands in the proposed development and will be constructed mainly with an asphalt surface and a portion of the spine (at the open square) of an 80mm Type A S-A interlocking paving in accordance with Figure 17 of the UTG 2 of 1987. The activity spine carries public transport and a taxi rank is located along the eastern boundary of the precinct. Double lane traffic calming circles will be constructed at Jubulani street (at the Tower mall) and at Phuthaditshaba Street.

The lower order roads that form part of the Precinct Development are mainly 13m and 16m road reserves with asphalt surfaced road way widths of 6.0m and 7.0m respectively.

The lower order roads will be implemented out over the project's duration on a when required basis.

The proposed Road Hierarchy is reflected on **Figure 9** below.

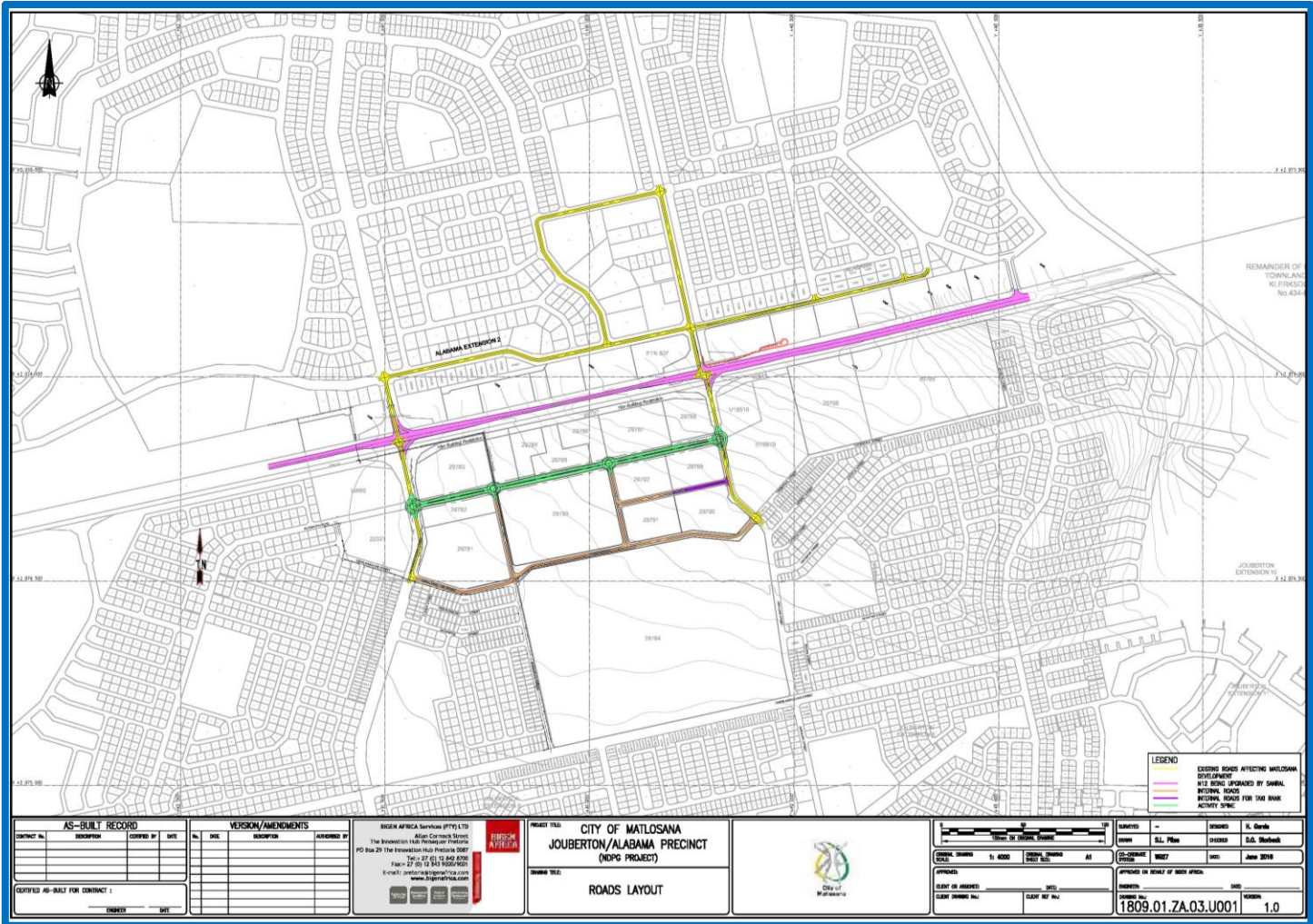


Figure 9: Road Hierarchy

5.3 STORMWATER INFRASTRUCTURE

5.3.1 EXISTING INFRASTRUCTURE

The major storm will discharge into the surrounding river located approximately 3km from the proposed site. Limited information relating to the existing stormwater infrastructure was sourced. As no stormwater masterplanning exists, an assessment of the existing stormwater infrastructures was conducted.

The existing stormwater infrastructure system does not provide for any stormwater attenuation.

5.3.2 REQUIRED BULK / LINK INFRASTRUCTURE

The existing open channels situated in Jabulani Street and Vaalrivier Street have sufficient capacity to drain the proposed development together with the surrounding area.

No upgrades on the bulk stormwater system are required. As the existing / proposed layout planning does not make provision for stormwater attenuation facilities, none is prepared. It is however proposed that the Municipality investigate regional stormwater attenuation should this be considered necessary.

5.3.3 INTERNAL INFRASTRUCTURE

There is no existing stormwater infrastructure on the proposed development site.

The proposed stormwater system will consist of an underground system that will collect the minor flood, while the major flood will be accommodated on the surfaced (including sidewalks) road reserves.

A proposed layout of the stormwater network is shown on **Figure 10**.

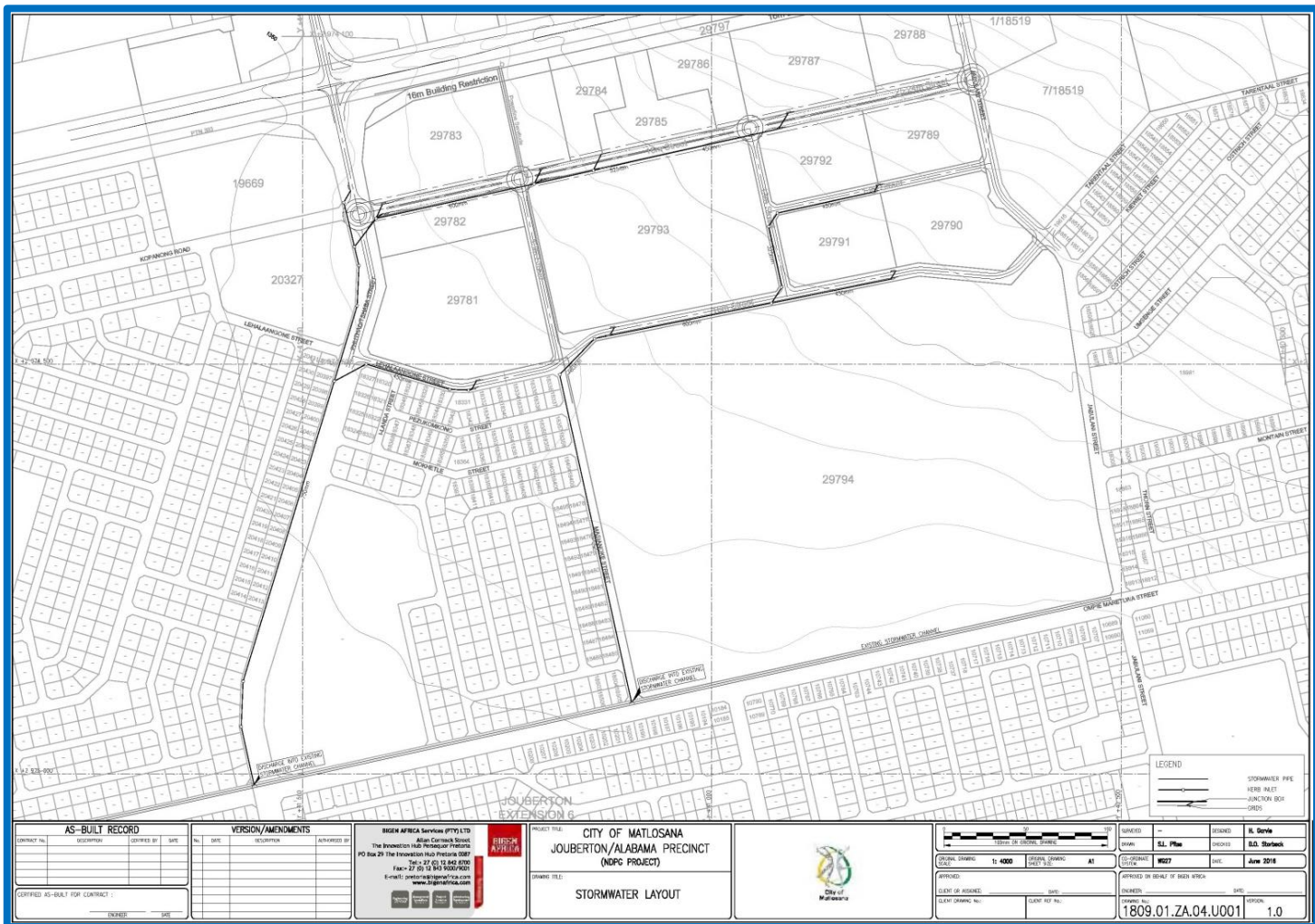


Figure 10: Stormwater Layout

5.4 POTABLE WATER SUPPLY

The City of Matlosana is in terms of the Water Services Act, 1997 (Act 108 of 1997) the Water Services Authority for the proposed development area.

5.4.1 EXISTING BULK /LINK WATER INFRASTRUCTURE

The proposed development site and its environs falls within the Midvaal Water bulk supply distribution zones. The Midvaal Water bulk supply scheme (which feeds the Alabama reservoir complex) is considered sufficient and no information to the contrary was obtained during the assignment.

The existing Alabama reservoir complex consists of the 17.5MI and 4.5MI ground reservoirs and a 2MI elevated tank. The existing 2MI elevated tank will not be able to supply the existing users together with the proposed development.

It is understood from discussions with the Municipality's technical staff that the portion of the proposed development located north of the N12 (that will comprise the proposed township Alabama Extension 6 will also be able to connect to the existing infrastructure.

5.4.2 REQUIRED BULK /LINK WATER SUPPLY

Limited as-build information relating to the existing water infrastructure was sourced. The water and sanitation master planning assignment being conducted by NEP Consulting has not generated any hydraulic models to date.

The upgrades identified in this section of the report are thus based on provisional calculations of the existing networks capacity conducted by Bigen Africa.

An additional 2 MI elevated tower (including new pump station and bulk water meter installation) is required for the proposed development. The concrete elevated tower (15m high) will be constructed on the existing Alabama reservoir complex site, with a similar design as the existing elevated tower.

It is to date expected that there is sufficient capacity for the Taxi Rank to connect to the existing water system in the area. A 355Ø uPVC project dedicated link water pipe (approximately 680m long) from the proposed elevated tower to the development is however required for further phases of the development.

5.4.3 INTERNAL WATER RETICULATION

No existing water network exists within the proposed development. A proposed layout of the water network and the water demands for the proposed development are shown on **Figure 11** and **Table 9** respectively.

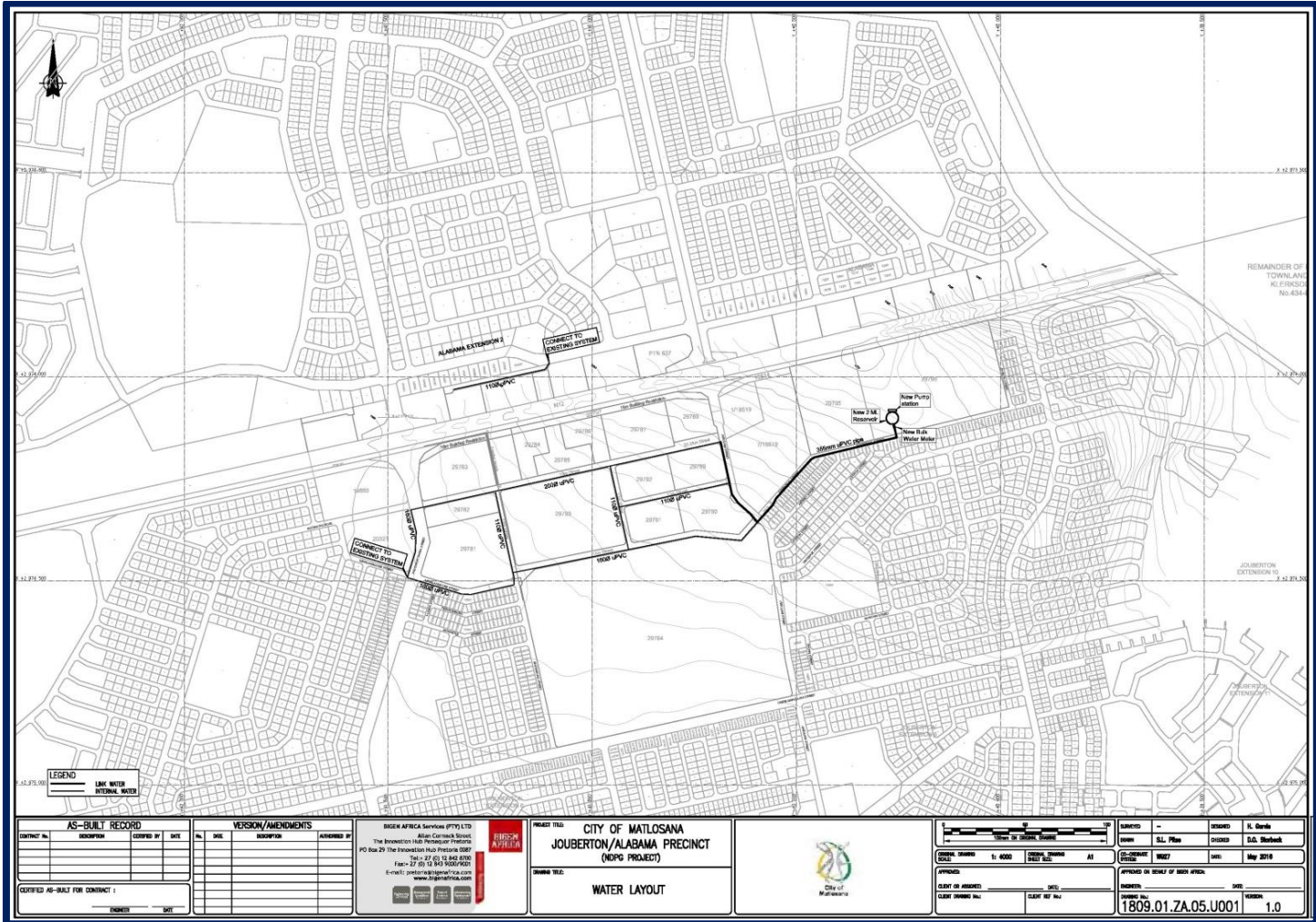


Figure 11: Water Layout

A full level of service (i.e. full network with underground erf connections) will be provided to the project.

The use of pre-paid meters over post-paid metre will need further discussion with the Water Services Authority.

Table 9: Proposed Potable Water Demand Calculations

CITY OF MATLOSANA MUNICIPALITY
JOUBERTON/ALABAMA PRECINCT (NDPG PROJECT)
Proposed Potable Water Demand Calculations

**Proposed Development**

Stands	Purpose zoning	Proposed Land Use	FAR	FSR	ha	No. Units	Unit	AADD (kℓ/day)	AADD (kℓ/day)	Peak Factor	Total Peak flow (ℓ/sec)
29784	Special for the purposes of the uses included in the Business 1 & Residential 2 (maximum density of 80 dwelling unites per hectare) including use zones vehicle workshop, wholesale trade, light industrial and service	Business/Offices	1.3	0.45	0.7	1	Kℓ per 100m ²	0.8	32.95	4.0	1.8
29786	Special for the purposes of the uses included in the Business 1 & Residential 2 (maximum density of 80 dwelling unites per hectare) including use zones vehicle workshop, wholesale trade, light industrial and service	Business/Offices	1.3	0.45	0.8	1	Kℓ per 100m ²	0.8	39.66	4.0	2.1
29787	Special for the purposes of the uses included in the Business 1 & Residential 2 (maximum density of 80 dwelling unites per hectare) including use zones vehicle workshop, wholesale trade, light industrial and service	Business/Offices 50% with 50% wholesale trade	1.5	0.53	1.8	1	Kℓ per 100m ²	0.8	115.13	4.0	6.1
29788	Special for the purposes of the uses included in the Business 1 & Residential 2 (maximum density of 80 dwelling unites per hectare) including use zones vehicle workshop, wholesale trade, light industrial and service	Business/Offices 50% with 50% wholesale trade	1.5	0.50	1.0	1	Kℓ per 100m ²	0.8	61.79	4.0	3.3
29790	Special for the purposes of the uses included in the Business 1 & Residential 2 (maximum density of 80 dwelling unites per hectare) including use zones vehicle workshop, wholesale trade, light industrial and service	Business/Offices 50% with 50% wholesale trade	1.2	0.40	1.6	1	Kℓ per 100m ²	0.8	60.53	4.0	3.2
29791	Special for the purposes of the uses included in the Business 1 & Residential 2 (maximum density of 80 dwelling unites per hectare) including use zones vehicle workshop, wholesale trade, light industrial and service	Residential (120 units per ha)	1.2	0.40	1.2	97	Kℓ per erf	0.8	77.24	4.0	4.1
29792	Special for the purposes of the uses included in the Business 1 & Residential 2 (maximum density of 80 dwelling unites per hectare) including use zones vehicle workshop, wholesale trade, light industrial and service	Residential (120 units per ha)	1.2	0.40	1.2	95	Kℓ per erf	0.8	75.81	4.0	4.0
29795	Special for the purposes of the uses included in the Business 1 & Residential 2 (maximum density of 80 dwelling unites per hectare) including use zones vehicle workshop, wholesale trade, light industrial and service	Business/Offices 50% with 50% wholesale trade	1.2	0.50	3.5	1	Kℓ per 100m ²	0.8	168.95	4.0	9.0
29789	Municipal	Taxi Rank, Transit Related Retail, Waste management, Infrastructure	0.4	0.50	1.2	1	Kℓ per hectare	15.0	355.37	4.0	18.9
29793	Municipal	Youth Centre/Thusong Centre	1.3	0.50	5.2	1	Kℓ per 100m ²	0.4	136.27	4.0	7.3
29785	Municipal	Open Square	1.0	0.0	1.0	1	Kℓ per hectare	15.0	0.00	4.0	0.0
29796	Municipal	Reservoir site	1.0	0	7.4	1	Kℓ per hectare	0.0	0.00	4.0	0.0
29781	Institutional	Institutional	1.0	0.50	3.1	1	Kℓ per 100m ²	1.2	186.60	4.0	9.9
29782	Institutional	Hospital	1.0	0.50	0.9	1	Kℓ per 100m ²	1.2	53.63	4.0	2.9
29783	Institutional	Hospital	1.0	0.50	3.1	1	Kℓ per 100m ²	1.2	184.22	4.0	9.8
29797	POS	POS	0.0	0.00	0.8	1	Kℓ per hectare	15.0	0.00	4.0	0.0
Ptn 637	Medium density residential (Ptn 637)	Res (120 units per ha)	1.2	0.40	5.1	408	Kℓ per erf	0.8	130.56	4.0	7.0
Alabama (North)	Alabama Mixed Land uses	Res (120 units per ha)	1.2	0.40	5.1	408	Kℓ per erf	0.8	130.56	2.5	4.3
Total Proposed					44.7	1,021.31	-	-	1,809.28	-	93.7

Existing Development

Stands	Project Areas	Proposed Land Use	FAR	FSR	ha	No. Units	Unit	ADWF (kℓ/day)	ADWF (kℓ/day)	Peak Factor	Total PWWF (ℓ/sec)
Alabama (North)	Alabama Community Centre	Community centre	1	0.5	1.7	1	Kℓ per 100m ²	0.4	34.00	4.0	1.8
Alabama (North)	Alabama business	Business	1	0.5	1.0	1	Kℓ per 100m ²	0.8	40.00	4.0	2.1
Alabama (North)	Alabama Freedom Square	POS	1	1.0	0.7	1	Kℓ per hectare	15.0	10.50	4.0	0.6
7/18519	Tower mall	Business	1	0.5	6.0	1	Kℓ per 100m ²	0.8	240.00	4.0	12.8
29781	Church	Church grounds	1	0.5	0.60	1	Kℓ per hectare	15.0	9.00	4.0	0.5
29794	Municipal	Cemetery	1	1.0	25.83	1	Kℓ per hectare	15.0	387.50	4.0	20.6
Total Existing					35.8	6.0	-	-	721.00	-	38.39
TOTAL					80.6	1027.3			2,530.28	-	132.11

Notes:

- 1) FSR as indicated on land use summary provided via mail on 25 May 2016.
- 2) 120 units/ha utilised for Residential units.

5.5 SANITATION

The City of Matlosana is in terms of the Water Services Act, 1997 (Act 108 of 1997) the Water and Sanitation Services Authority for the proposed development area.

5.5.1 EXISTING BULK /LINK SANITATION INFRASTRUCTURE

Two outfall sewers (400Ø and 500Ø) drains the Jouberton and Alabama areas to the Jurgspruit pumpstation. No information regarding spare capacity in those sewers could be obtained. The 500Ø is an augmentation of the 400Ø and was recently completed. It is thus expected that the outfall sewer will have sufficient capacity to accommodate the discharge from the proposed development. Discussion with the Municipality Mr. Johannes Pilusa confirms same.

The 500mm outfall sewer drains towards the Jurgspruit pump station which is currently under strain. The mechanical works of the pump station is currently being refurbished. There are however no plans to upgrade the pump station. No information regarding the capacity of the mechanical and civil components of the pump station could be obtained from Aurecon.

The existing Wastewater Treatment Works (WWTW) has a capacity of 36ML/day of which approximately 24ML/day is being utilised, the proposed development will generate a flow of approximately 1.8ML/day once fully developed. The additional 100l/s discharge of the proposed development will not have an influence on the existing capacity thus resulting in sufficient capacity at the WWTW to accommodate the proposed development.

The internal sewer network within Jouberton has no spare capacity to accommodate the proposed development and surcharges regularly.

From its estimated flows it is however expected that there is sufficient capacity for the Taxi Rank to connect to the existing water system in the area. The portion of the proposed development located north of the N12 will also be able to connect to the existing infrastructure.

5.5.2 REQUIRED SANITATION INFRASTRUCTURE

Phases subsequent to the Taxi Rank will however require upgrades to the existing infrastructure.

It is proposed that a new 200mm internal sewer be constructed (located outside of the development boundary) to connect to the existing 500mm outfall sewer line located along the water course west of the development site.

The proposed development will discharge approximately 100l/s of sewerage to the existing Jag Spruit pumpstation.

5.5.3 INTERNAL SEWER RETICULATION

No existing sewer network exists within the proposed development. A proposed layout of the sewer network and the proposed development sewer discharges are reflected on **Figure 12** and **Table 10** respectively.

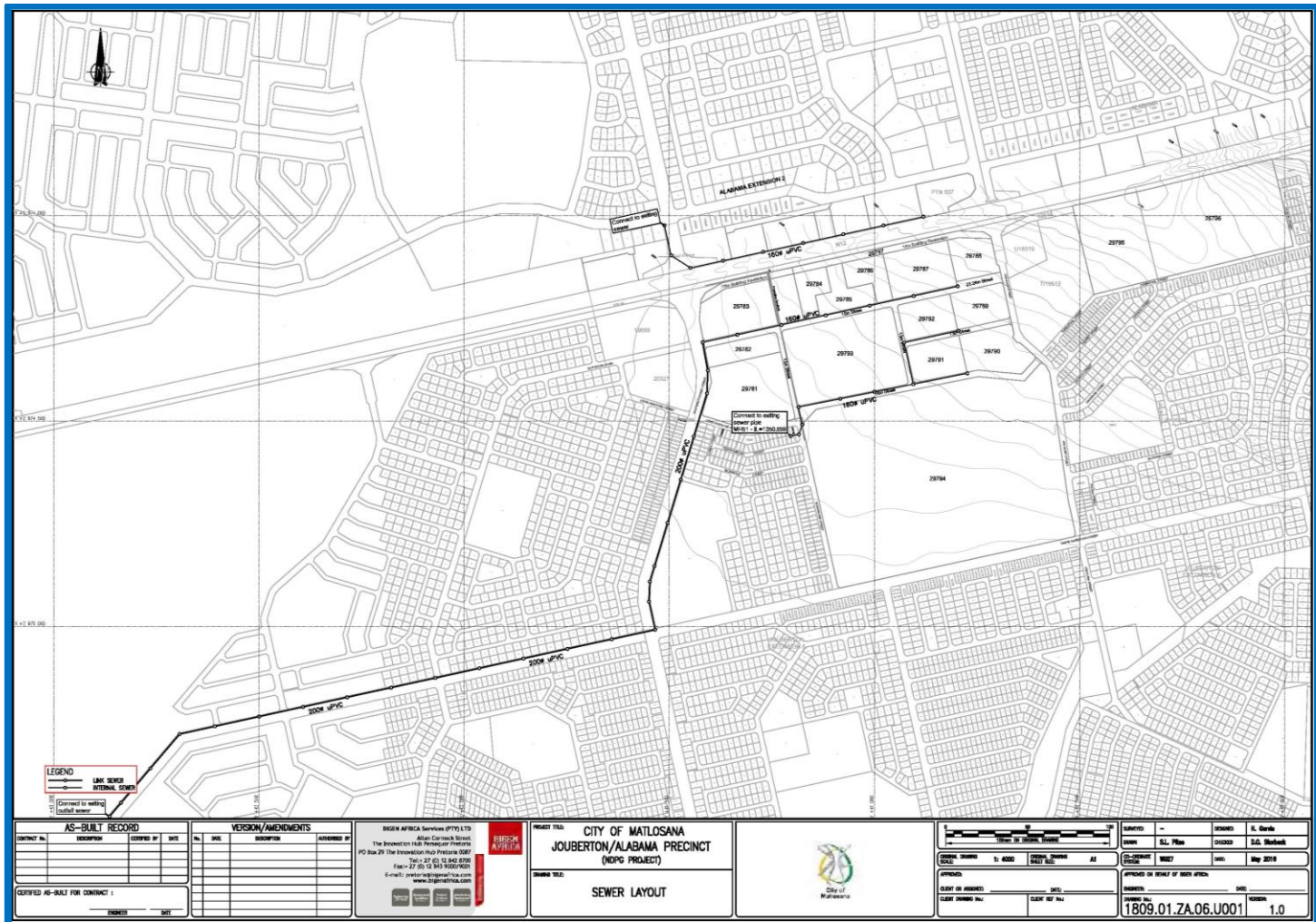


Figure 12: Sewer Layout

A full level of service (i.e. full network with underground erf connections) will be provided to the project.

The eastern portion of the development (Taxi Rank) can connect to the existing sewer system directly south of the development. For further phases the bulk upgrades needs to be in place.

Table 10: Proposed Sanitation Discharge Calculations

CITY OF MATLOSANA MUNICIPALITY
 JOUBERTON/ALABAMA PRECINCT (NDPG PROJECT)
 Proposed Sanitation Discharge Calculations



Proposed Development

Stands	Purpose zoning	Proposed Land Use	FAR	FSR	ha	No. Units	Unit	ADWF (kℓ/day)	ADWF (kℓ/day)	Peak Factor	Total PWWF (ℓ/sec)
29784	Special for the purposes of the uses included in the Business 1 & Residential 2 (maximum density of 80 dwelling units per hectare) including use zones vehicle workshop, wholesale trade, light industrial and service	Business/Offices	1.3	0.45	0.7	1	Kℓ per 100m ²	0.7	28.83	2.5	1.0
29786	Special for the purposes of the uses included in the Business 1 & Residential 2 (maximum density of 80 dwelling units per hectare) including use zones vehicle workshop, wholesale trade, light industrial and service	Business/Offices	1.3	0.45	0.8	1	Kℓ per 100m ²	0.7	34.70	2.5	1.2
29787	Special for the purposes of the uses included in the Business 1 & Residential 2 (maximum density of 80 dwelling units per hectare) including use zones vehicle workshop, wholesale trade, light industrial and service	Business/Offices 50% with 50% wholesale trade	1.5	0.53	1.8	1	Kℓ per 100m ²	0.7	100.74	2.5	3.4
29788	Special for the purposes of the uses included in the Business 1 & Residential 2 (maximum density of 80 dwelling units per hectare) including use zones vehicle workshop, wholesale trade, light industrial and service	Business/Offices 50% with 50% wholesale trade	1.5	0.50	1.0	1	Kℓ per 100m ²	0.7	54.07	2.5	1.8
29790	Special for the purposes of the uses included in the Business 1 & Residential 2 (maximum density of 80 dwelling units per hectare) including use zones vehicle workshop, wholesale trade, light industrial and service	Business/Offices 50% with 50% wholesale trade	1.2	0.40	1.6	1	Kℓ per 100m ²	0.7	52.96	2.5	1.8
29791	Special for the purposes of the uses included in the Business 1 & Residential 2 (maximum density of 80 dwelling units per hectare) including use zones vehicle workshop, wholesale trade, light industrial and service	Residential (120 units per ha)	1.2	0.40	1.2	97	Kℓ per erf	0.7	67.58	2.5	2.2
29792	Special for the purposes of the uses included in the Business 1 & Residential 2 (maximum density of 80 dwelling units per hectare) including use zones vehicle workshop, wholesale trade, light industrial and service	Residential (120 units per ha)	1.2	0.40	1.2	95	Kℓ per erf	0.7	66.33	2.5	2.2
29795	Special for the purposes of the uses included in the Business 1 & Residential 2 (maximum density of 80 dwelling units per hectare) including use zones vehicle workshop, wholesale trade, light industrial and service	Business/Offices 50% with 50% wholesale trade	1.2	0.50	3.5	1	Kℓ per 100m ²	0.7	147.83	2.5	4.9
29789	Municipal	Taxi Rank, Transit Related Retail, Waste management, Infrastructure	0.4	0.50	1.2	1	Kℓ per hectare	0.4	9.48	2.5	0.3
29793	Municipal	Youth Centre/Thusong Centre	1.3	0.50	5.2	1	Kℓ per 100m ²	0.4	136.27	2.5	4.5
29785	Municipal	Open Square	1.0	0.0	1.0	1	Kℓ per hectare	0.4	0.00	2.5	0.0
29796	Municipal	Reservoir site	1.0	0	7.4	1	Kℓ per hectare	0.4	0.00	2.5	0.0
29781	Institutional	Institutional	1.0	0.50	3.1	1	Kℓ per 100m ²	1.0	155.50	2.5	5.2
29782	Institutional	Hospital	1.0	0.50	0.9	1	Kℓ per 100m ²	1.0	44.69	2.5	1.5
29783	Institutional	Hospital	1.0	0.50	3.1	1	Kℓ per 100m ²	1.0	153.51	2.5	5.1
29797	POS	POS	0.0	0.00	0.8	1	Kℓ per hectare	0.4	0.00	2.5	0.0
Ptn 637	Medium density residential (Ptn 637)	Res (120 units per ha)	1.2	0.40	5.1	408	Kℓ per erf	0.7	114.24	2.5	3.8
Alabama (North)	Alabama Mixed Land uses	Res (120 units per ha)	1.2	0.40	5.1	408	Kℓ per erf	0.8	130.56	2.5	4.3
Total Proposed					44.7	1,021.31	-	-	1,297.31	-	43.2

Existing Development

Stands	Project Areas	Proposed Land Use	FAR	FSR	ha	No. Units	Unit	ADWF (kℓ/day)	ADWF (kℓ/day)	Peak Factor	Total PWWF (ℓ/sec)
Alabama (North)	Alabama Community Centre	Community centre	1	0.5	1.7	1	Kℓ per 100m ²	0.4	34.00	2.5	1.1
Alabama (North)	Alabama business	Business	1	0.5	1.0	1	Kℓ per 100m ²	0.7	35.00	2.5	1.2
Alabama (North)	Alabama Freedom Square	POS	1	0.0	0.7	1	Kℓ per hectare	0.4	0.00	2.5	0.0
7/18519	Tower mall	Business	1	1.0	6.0	1	Kℓ per 100m ²	0.7	420.00	2.5	14.0
29781	Church	Church grounds	1	0.5	0.60	1	Kℓ per hectare	0.4	0.24	2.5	0.0
29794	Municipal	Cemetery	1	0.0	25.83	1	Kℓ per hectare	0.4	0.00	2.5	0.0
Total Existing					35.8	6.0	-	-	489.24	-	16.28
TOTAL					80.6	1027.3			1,786.55	-	59.45

- Notes:
 1) FSR as indicated on land use summary provided via mail on 25 May 2016.
 2) 120 units/ha utilised for Residential units.

5.6 ELECTRICITY INFRASTRUCTURE

5.6.1 EXISTING ELECTRICAL INFRASTRUCTURE

The land in question depicted on the proposed township layout plan is not serviced with electricity.

The electrical supply authority for the proposed development is City of Matlosana. The development forms part of Jouberton's greater township plan which is inclusive of Choppies shopping centre, Tower Mall and Alabama Community Hall. A new hospital is also being built at the corner of the N12 and Phuthaditshaba Street on Stand No. 29783. An investigation was done on the hospital's electrical supply point to determine the possibility of obtaining a supply for Phase 2 of the Precinct Plan from the same supply as the hospital. This investigation was not successful as it was discovered that the hospital consultants has just recently submitted an application for 500kVA capacity to City of Matlosana and no feedback has been received thus far.

The nearest Substations to the development are Klerksdorp West (Uraniaville) Substation and Jouberton Main Substation which are 5.33km and 3.3km respectively from the proposed development area.

A new Substation, Manzilpark 20MVA Substation is also in the process of being built at Alabama Hub. The municipality is in the process of getting the Substation designs approved by Eskom. The planned completion date for the Substation is December 2017.

5.6.2 ELECTRICAL SUPPLY- PRECINCT PLAN DEVELOPMENT REQUIREMENTS

The electrical design of the internal electrical infrastructure will provide an adequately matched connection to each individual registered stand in accordance to its designated use and economic level of residents catered for.

The following received information is used to determine the electrical connection requirements and preliminary costs for the internal electrical infrastructure as well as the cost for the provision of the required electrical connection to the development in accordance to the infrastructure design level based on the economic level of residents to be accommodated within the development.

The total estimated maximum demand for the proposed development is **8.15MVA** distributed as shown in **Table 11**.

Table 11: Total Estimated Maximum Demand

ERF number	Zoning	Precinct Plan					
		Stand Area (m ²)	FSR	Coverage GLA (ha)	Floor Area (m ²)	Load (kVA/m ²)	Total kVA
29783	Hospital Site	30702.9				500	500.00
29784	Business / Offices	6 655	1.3	45%	8 651.5m ²	0.05	432.58
29786	Business / Offices	8 090	1.3	45%	10 517.0m ²	0.05	525.85
29787	Business / Offices	16 600	1.5	53%	24 900.0m ²	0.05	1 245.00
29788	Business / Offices	10 200	1.5	50%	15 300.0m ²	0.05	765.00
29789	Taxi Rank	11 845					30.52
29790	Business / Offices	15 762	1.2	40%	18 914.4m ²	0.05	945.72
29791	Business / Residential 2 (@80 units/ha)	12 068	1.2	40%	14 481.6 m ²	0.05	724.08
29792	Business / Residential 2 (@80 units/ha)	11 800	1.2	40%	14 160.0m ²	0.05	708.00
29793	SAFA Soccer Field, Amphitheatre & Recreational Park	52 412		6 lamps per pole	4 poles	2000W/lamp	158
29795	Business / Offices	35 198	1.2	50%	42 237.6m ²	0.05	2 111.88
29797	Public open space	7 774.8	N/A	N/A	N/A	N/A	N/A
Street	Street lighting			45m apart	750m	250W/lamp	5.17
Total		219 107.7					8 150.8

From the above approximate load calculations for business (day time maximum demands) and the residential (evening time maximum demands), a very good diversity of peak maximum demands between business and residential will result in a combined diversified maximum demand for the identified Precinct area of an estimated **8MVA**.

Phase 2 of the Precinct Plan comprises of the Taxi Rank and Street Lighting for the Central Activity Spine. This portion of the project will require a supply of 35.69kVA. The City Council has agreed to supply Phase 2 of the project from the existing electrical infrastructure close to the development.

The rest of the load starting from **Phase 3** of the project will be supplied from a dedicated power supply from Uraniaville Substation, which is 5.3km from the development. An alternative bulk supply to the development will be sourced from the proposed Manzilpark 20MVA Substation – Estimated completion date December 2017 which falls within the Phase 3 implementation timeframe. Supply for the Phase 3 development projects could be geared in terms of possible contributions from the planned Hospital and Public Works initiatives.

Phase 4 – Infrastructure North and South of the N12 same as per supply proposal Phase 3

5.6.3 INTERNAL ELECTRICAL SERVICES

The internal electrical infrastructure within the development boundaries will have to comply with the City of Matlosana Master Plan that is inclusive of the reticulation designs prepared for the developments that will be supplied from the Uraniaville and Manzilpark Substations.

After the construction of the internal electrical infrastructure on the City of Matlosana standards, the City Council will take over the internal infrastructure and will maintain the infrastructure to the same level than all electrical infrastructures within the City of Matlosana service area.

For standardisation purposes and the fact that certain materials used by City of Matlosana are coded; all materials, Miniature Substations, cables, overhead conductors, meter boxes, streetlights, etc. will be constructed with standard materials generally used by City of Matlosana and stocked in the City Council's stores.

In terms of ruling legislation, when township establishment takes place, one electrical connection point will be made available on the street boundary of each registered stand according to its designated use.

The MV networks that will be supplied from the existing infrastructure (Taxi Rank and the Central Spine Street Lighting reticulation) will consist of an overhead network supplying a 50kVA pole mounted transformer.

The remainder of the MV networks will be supplied from Uraniaville and Manzilpark Substations. This will consist of an overhead 11kV network, supplying a Switching Substation within the development. This Switching Substation will supply a configuration of Ring Main Units (RMUs) and miniature Substations within the development.

The internal Low Voltage network may consist of an underground cable network or an overhead Aerial Bundle Conductor (ABC) network although for this level of development, it is recommended to install an underground LV cable network for the following reasons:

- Higher loads can be distributed from miniature Substations with LV cables opposed to ABC conductors resulting in fewer miniature Substations having to be installed.
- No need for interconnections between miniature Substation's LV supply cables to overhead structures equipped with ABC conductors, resulting in exposed LV cables that are targeted for theft.

- No overhead road crossing with connection cables supported by kicker poles on the other side of streets.
- Much neater installation than an overhead installation.
- Fewer infrastructures that may be damaged by vehicles.
- Inclement weather conditions have less impact on an underground installation opposed to an overhead network.
- Fewer power failures and less maintenance required.

5.6.4 BULK ELECTRICAL INFRASTRUCTURE

The bulk supply for the development will come from the existing City of Matlosana’s Jouberton internal reticulation infrastructure (Taxi Rank and the Central Activity Spine Street Lighting), Uraniaville Substations and the new Manzilpark Substation. The installed capacity at both Substations is 30MVA and 20MVA respectively. Uraniaville Substation has 3 X 10MVA transformers and has a current demand of 22MVA with a spare capacity of 8MVA.

The establishment of Manzilpark Substation was driven by a planned new development at Alabama Hub financed by DoE with anticipated demand of 8MVA. The Substation will still have a spare capacity of 12MVA after supplying the DoE project. This capacity will be more than enough to cater for the Jouberton/Alabama Precinct Plan.

This arrangement will be more favourable to the development as it will result in a secured network in case of a failure from one of the incoming feeders. **Figure 13** below is an illustration of the bulk supply and link line for the Precinct Plan.

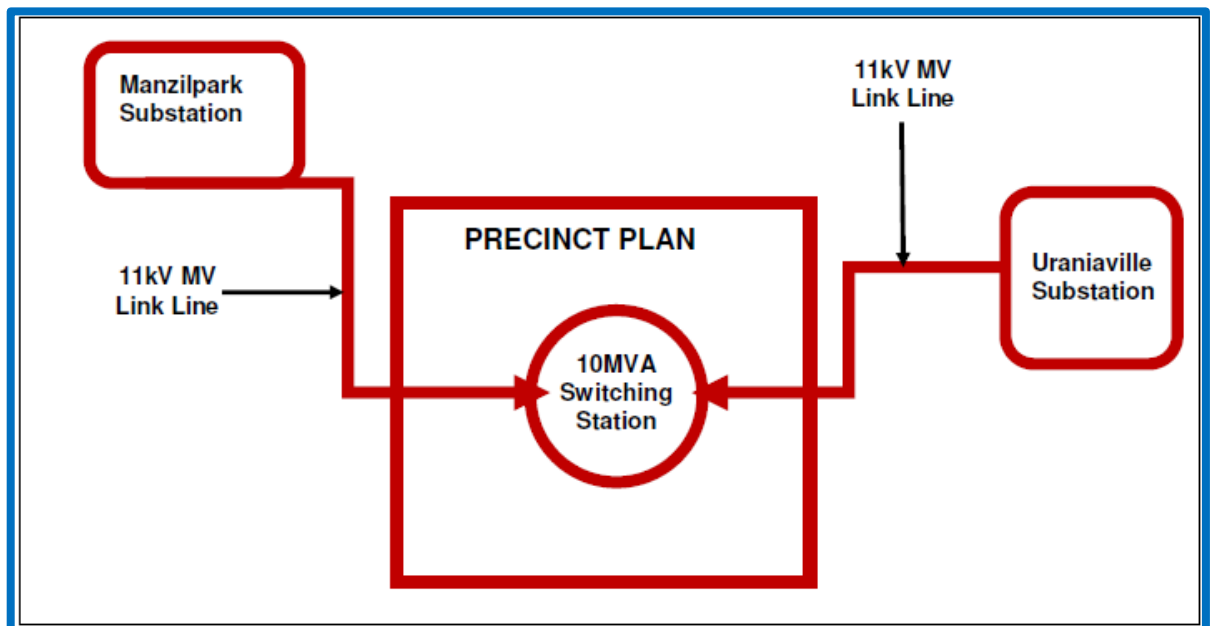


Figure 13: Bulk Supply and Link Services Configuration

There will also be a need for the supply and installation of the MV feeder panels at Uraniaville Substation for the supply of the required bulk capacity to the development.

5.6.5 ELECTRICAL DESIGN

- **Medium Voltage Reticulation**

The medium voltage network will be an overhead 11kV network feeding a Switching Station within the development. The Switching Station will provide supply to a configuration of RMUs, miniature substations and 200kVA pole mounted transformers.

At Uraniaville Substation the following upgrades will have to be completed:

- Install 1 X New feeder panel

- **Medium Voltage Link Supply**

The link supply will be achieved by the installation of an overhead 11kV Fox conductor from Uraniaville Substation to the proposed 10MVA Switching Station to be built within the development. An underground cable of 600m will be installed from Uraniaville Substation for the exiting of the link supply from the substation; from the outside of the substation the cable will be connected to an overhead network for the rest of the Link Supply to the Switching Station.

Should the supply from Uraniaville substation not be sufficient for the development, a second link cable shall be installed from the new Manzilpark Substation to the Switching Station:

- A new 10MVA Switching Station shall be built.

- **Low Voltage Reticulation**

For the residential land portions, the low voltage network will be an underground cable supplied from the different miniature Substations. The LV feeder cable sizes from the Miniature Substations will be determined at the final design stage.

- **Street and Area Lighting**

The proposed streetlights will be standard street light fittings with 1.5m outreach, installed on 11m steel galvanized poles. The local council requires installation of 250W HPS lamps for the township Street Lighting.

The street lighting will be connected to the controllers installed on the first pole from the supply source (pole mounted transformer). Streetlights will be supplied from an overhead 25mm² 2- core ABC conductors.

5.7 SOLID WASTE

Solid waste removal is a function of the City of Matlosana.

CHAPTER 6: CONCLUSION

In view of the information contained in the preceding sections, it is evident that this development will create a prominent and functional urban hub for the Jouberton / Alabama area that will create a sense of place in terms of a safe, convenient and secure public space network that will cater for safe and functional pedestrian movement, an improved environmental quality whilst also responding to the needs and aspirations of the community relating to their social and economic expectation. The precinct will create opportunities for mixed land use development that can include social amenities, business, commercial and medium density residential development. It is envisaged that it will development and stimulate prominent public amenities and basic infrastructure that can serve as catalyst for the stimulation of complementary public and private sector investment.

In view of the fore-mentioned, we trust that this application will be considered favourably.

K. RAUBENHEIMER
Pr. PIn A/924/1996