

MEMORANDUM

27 August 2019

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PROPOSED TOWNSHIP ESTABLISHMENT, SUBDIVISION, EXTENSION OF THE BOUNDARIES OF AN APPROVED TOWNSHIP AND CONSOLIDATION: VRYBURG EXTENSION 29

- Portion of the Remaining Extent of Erf 506, Vryburg and a portion of the Remaining Extent of Portion 3 of the farm Rosendal No. 673, Registration Division I.N., North West Province

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

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MOTIVATION REPORT

PROPOSED TOWNSHIP ESTABLISHMENT (VRYBURG EXTENSION 29), SUBDIVISION, EXTENSION OF THE BOUNDARIES OF AN APPROVED TOWNSHIP AND CONSOLIDATION

ON

A PORTION OF THE REMAINING EXTENT OF ERF 506, VRYBURG AND A PORTION OF THE REMAINING EXTENT OF PORTION 3 OF THE FARM ROSENDAL 673, REGISTRATION DIVISION I.N., NORTH WEST PROVINCE

CHAPTER 1: INTRODUCTION

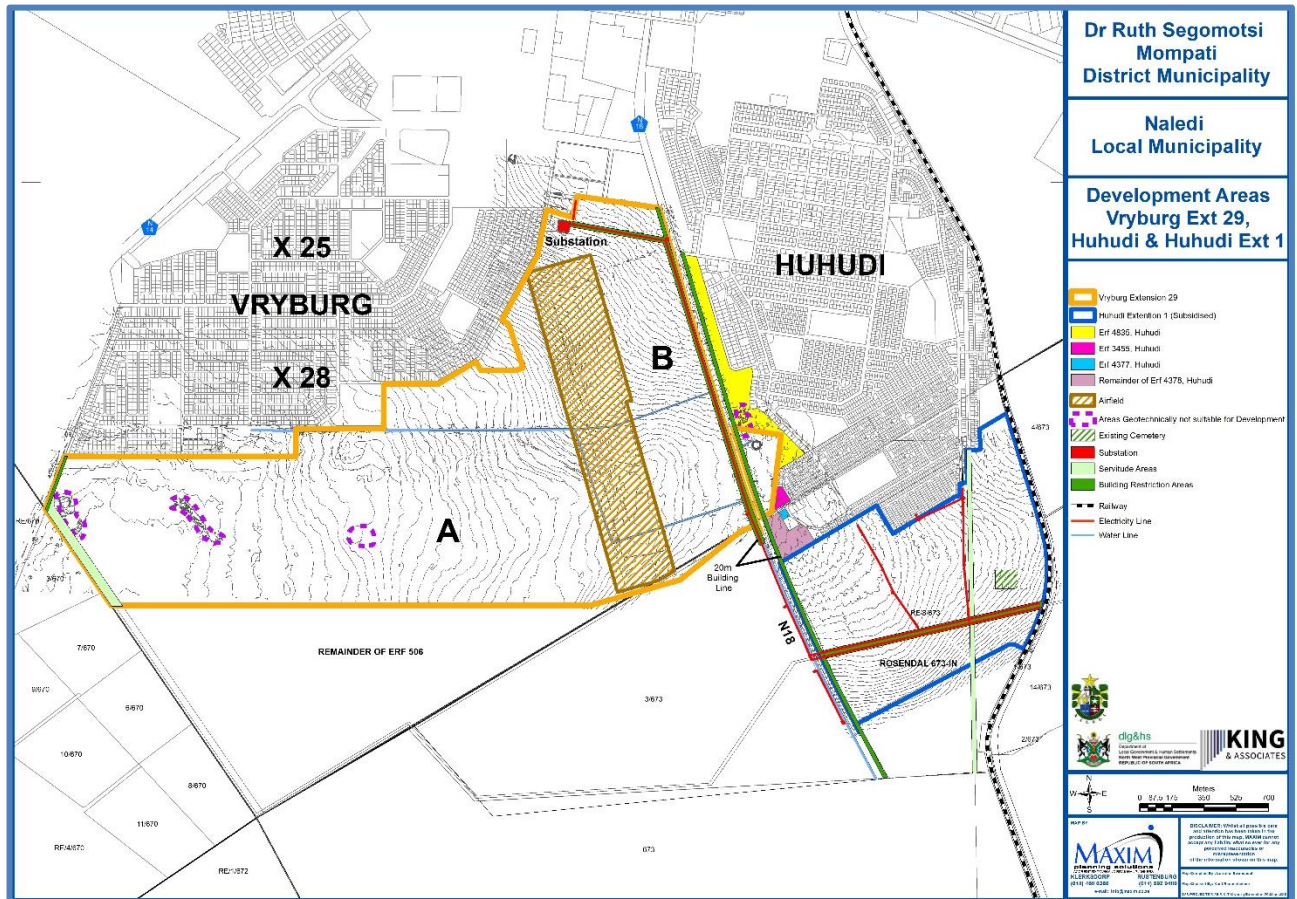
1.1 INTRODUCTION

Maxim Planning Solutions (Pty) Ltd (2002/017393/07), herein represented by Koot Raubenheimer (ID No. 700305 5192 089), was appointed by the Naledi Local Municipality (NW392) to attend to the establishment of an integrated human settlement of 8411 erven comprising of 7241 erven for subsidized and low income housing purposes, 1061 erven for middle income housing and 109 erven to accommodate the necessary no-residential community-, social-, educational- and business facilities. The project similarly set out to formalize areas where informal occupation has already taken place. Following the compilation of an integrated layout plan for the various areas identified for development purposes, the integrated layout plan was divided into five (5) distinct portions based on the location of the concerned development areas as well as the current status of the land on which the respective developments will take place. For this purpose, the integrated layout plan was divided into the following five (5) developments:

- **Proposed township area of Vryburg Extension 29 located on a portion of the Remaining Extent of Erf 506, Vryburg and a portion of the Remaining Extent of Portion 3 of the farm Rosendal 673, Registration Division I.N., North West Province;**
- Proposed township area of Huhudi Extension 1 located on a portion of the Remaining Extent of Portion 8 of the farm Rosendal 673, Registration Division I.N., North West Province;
- Proposed re-layout of Erf 3455, Huhudi;

- Proposed re-layout of Erf 4835, Huhudi
- Proposed subdivision of Erf 4377 and the Remaining Extent of Erf 4378, Huhudi

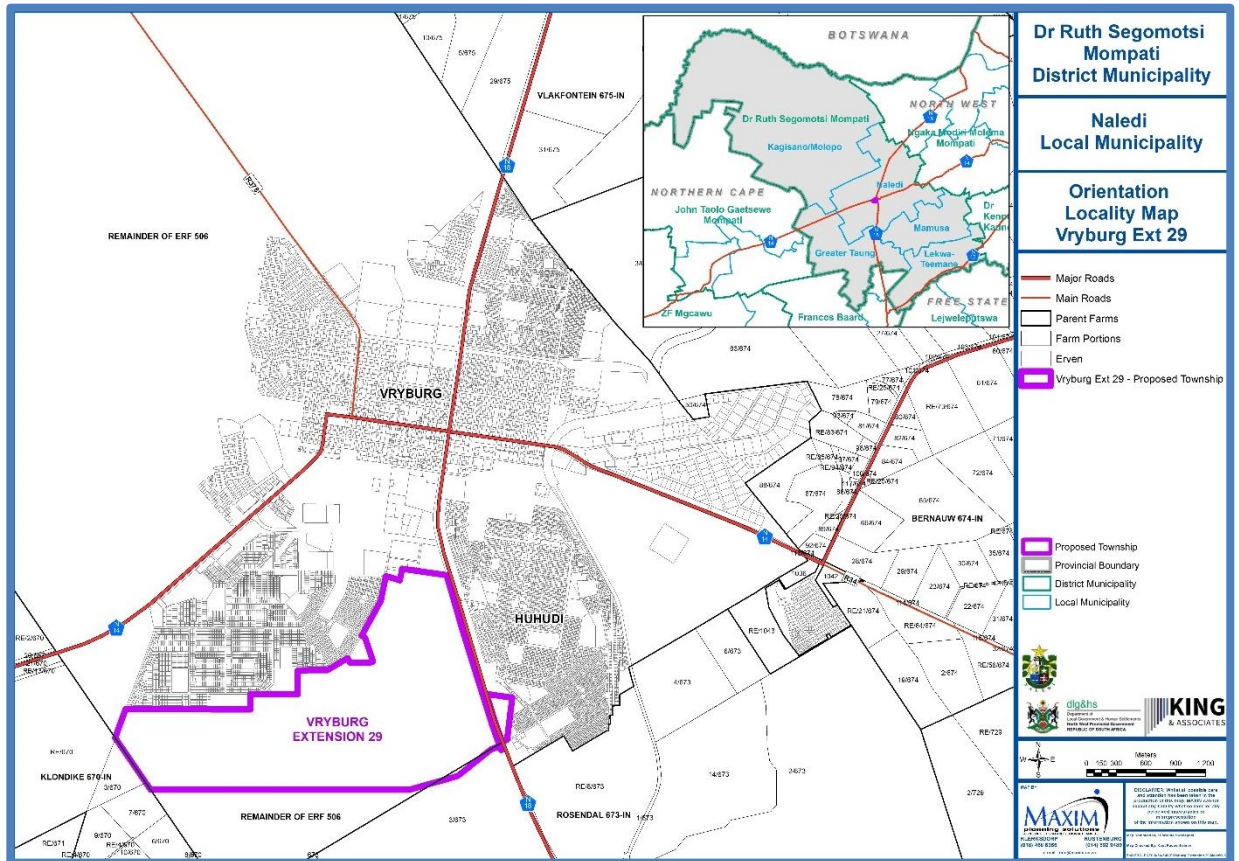
The locality of the development areas detailed above in relation to one another is reflected on **Map 1** below.



Map 1: Development Areas Vryburg Extension 29, Huhudi Extension 1 and re-layout / subdivision properties Huhudi

The area proposed for the establishment of the proposed township area of Vryburg Extension 29 is outlined in orange on **Map 1** whereas the area proposed for the establishment of the proposed township area of Huhudi Extension 1 is outlined in blue. The existing erven in the township area of Huhudi that form the subject of the application for re-layout and subdivision are highlighted in yellow (Erf 4835, Huhudi), purple (Erf 3455, Huhudi), light blue (Erf 4377, Huhudi) and pink (Remaining Extent of Erf 4378, Huhudi).

The purpose of the fore-mentioned developments is to not only address the short term need for low cost residential erven (which has given rise to the large-scale occupation of vacant community facility erven as well as the farm portion located south of the existing urban area of Huhudi) but also to create sufficient erven to accommodate the medium term need for residential erven in the entire Vryburg urban area to avoid the occurrence of informal settlement areas and to afford all inhabitants of Vryburg the opportunity for proper housing.



Map 2: Locality of Naledi Local Municipality (NW392) in provincial context as well as locality of the Vryburg Extension 29 development area in Municipal context.

1.2.2 DEMOGRAPHICS

The demographic profile detailed below was extracted from the Naledi Local Municipality Final IDP 2017-2018.

1.2.2.1 Population and Household Facts

- The total population of the Naledi Municipal area was **68 803 in 2016**.
- The average growth rate of the population from **2011 to 2016** was **2.94%**
- By applying the average growth rate of 2.94% to the period **2016 to 2019**, the total population of the Naledi Local Municipality is estimated at **75 052 in 2019**.
- The total number of households in the Naledi Municipal Area was **20 692 in 2016**.
- The average growth rate of households from **2011 to 2016** was **10.24%**

- By applying the average growth rate of 10.24% to the period **2016 to 2019**, the total number of households in the Naledi Local Municipal Area is estimated at 25 158 in **2019**
- Naledi's population gender is as follows: male 34771 female 34032 (based on 2016 total population of 68 803)
- Based on the estimated population calculated for 2019, the gender distribution is estimated as follows: male 37 929 female 37 123

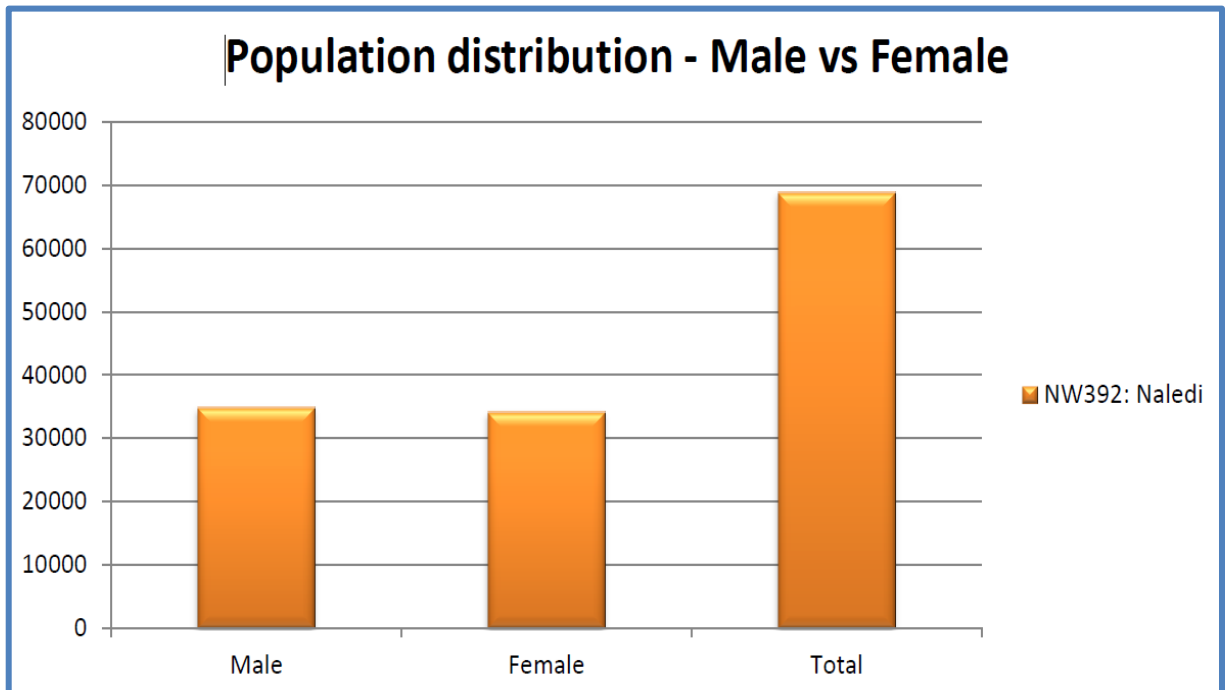


Figure 1: Population distribution of males and females against the total population.

(Source: Community survey of 2016 by Statistics South Africa)

1.2.2.2 Age Profile

The age profile of the Naledi Local Municipality (as shown on **Figure 2** below) indicates that the majority of the population is aged below 35 years with a very small percentage aged higher than 60 years. This indicates that the majority of the population can still be economically active.

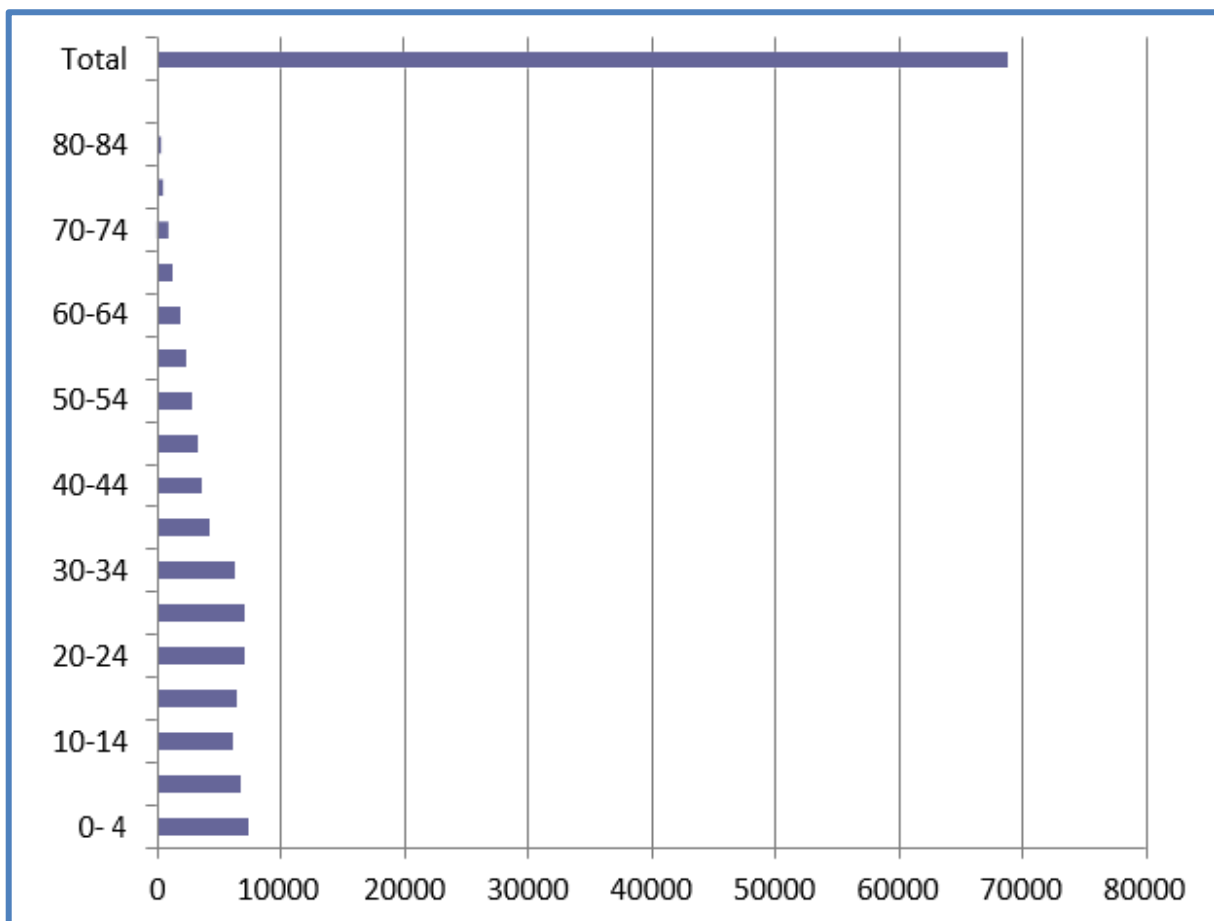


Figure 2: Population distribution by age group.
(Source: Community survey of 2016 by Statistics South Africa)

1.2.2.3 Education Profile

Table 1: Highest Level of Education against total population (2016)

Highest Level of Education against total population	
Type of Education	Number of people
Development Phase	11 785
Primary	22 052
Secondary	30 631
FET-(N1-N6)	499
Tertiary Education	2 836
Unspecified	1 000
Total	68 803

(Source: Community survey of 2016 by Statistics South Africa)

Based on the estimated population calculated in respect of 2019, the education profile was adapted as reflected **Table 2** below.

Table 2: Highest Level of Education against total population (Estimated 2019)

Highest Level of Education against total population		
Type of Education	Number of people	Percentage of total population
Development Phase	12 855	17,13%
Primary	24 055	32,05%
Secondary	33 413	44,52%
FET-(N1-N6)	544	0,73%
Tertiary Education	3 094	4,12%
Unspecified	1 091	1,45%
Total	75 052	100%

(Source: Own Calculations)

1.2.2.4 Macro-economic and local economic development outlook

Naledi's main macro-economic activities are that of agriculture and hunting which are the strongest contributors to the municipality's economy. Other important job creating sectors are finance and insurance, public administration, health and social and transport. Naledi Local Municipality aims to tap into this industry through Local Economic objectives and strategies as set out in the Integrated Development Plan (IDP) of the Municipality.

Table 3: Employment status against the total population

Employment Status	
Employment Status	Number of people
Employed	18201
Unemployed	6415
Discouraged work seeker	1780
Not economically active	16344
Not applicable	24040
Total	66781

(Source: Census 2011 by Statistics South Africa)

Table 4: Employment by sector against the total population

Employment by Sector	
Sector	Number of people
Formal	10710
Informal	3508
Private Household	4041
Do not know	416
Not applicable	48106
Total	66781

(Source: Census 2011 by Statistics South Africa)

1.2.2.5 Housing

Based on the data contained in **Table 5** below, it is estimated that the Housing need in the Naledi Local Municipality equates to 2 970 dwelling units comprising informal dwelling units in backyards as well as within informal settlement areas.

Table 5: Type of households against the total number of households

Type of dwellings in Naledi	
Type of Dwelling	Number
Formal dwelling/house or brick/concrete block structure on a formal erf/stand	15185
Traditional dwelling/hut/structure made of traditional matter	130
Flat or apartment in a block of flats	180
Cluster house in complex	20
Townhouse (semi-detached house in a complex)	1387
Semi-detached house	12
Formal dwelling/house/flat/room in backyard	712
Informal dwelling/shack in backyard	412
Informal dwelling/shack not in backyard (e.g. in an informal settlement area)	2558
Room/flat on a property or larger dwelling/servants' quarters	65
Caravan/tent	-
Other	33
Unspecified	-
Total	20692

(Source: Community survey of 2016 by Statistics South Africa)

1.2.2.6 Access to Services

Of the 20692 households in 2016, the majority of households' main source of drinking water is from piped sources, with 5% using natural water sources and 12% using other sources.

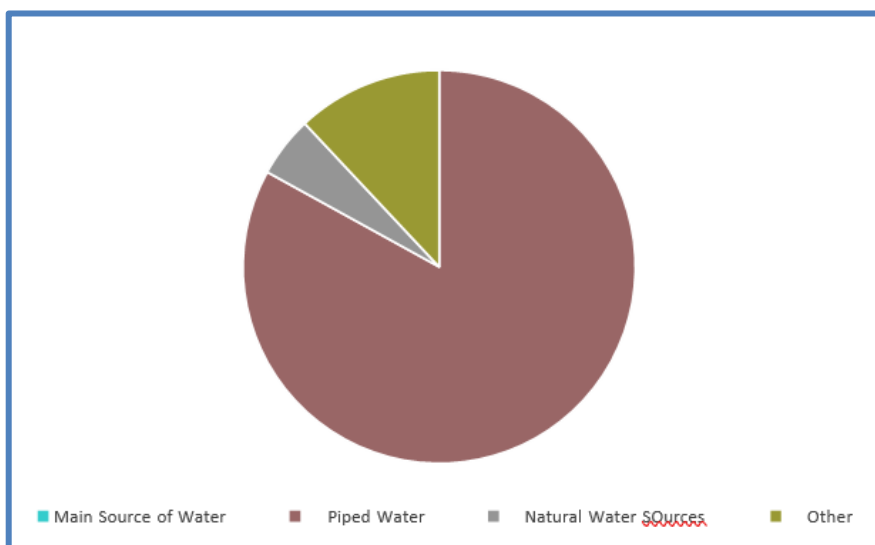


Figure 3: Main source of water against the total number of households
(Source: Community survey of 2016 by Statistics South Africa)

In terms of access to electricity, it was estimated that 12,56% of households do not have access to electricity.

Table 6: Number of households with access to electricity by type

Number of households with access to electricity by type	
Access to electricity	16612
Connected to other source which household is not paying for electricity	50
Generator	-
Solar home system	83
Battery	-
Other	91
No access to electricity	3856

(Source: Community survey of 2016 by Statistics South Africa)

Of the total number of households in 2016, an estimated 7,42% of households did not have access to toilet facilities (including bucket toilets and households with no facilities)

Table 7: Type of toilet facilities used in terms of the total number of households

Type of Toilet facilities used in Naledi	
Facility Type	Number of households
Flush toilet connected to a public sewerage system	14358
Flush toilet connected to a septic tank or conservancy tank	588
Chemical toilet	615
Pit latrine/toilet with ventilation pipe	2017
Pit latrine/toilet without ventilation pipe	1085
Ecological toilet	-
Bucket toilet (collected by municipality)	282
Bucket toilet (emptied by household)	134
Other	495
None	1119
Total	20692

(Source: Community survey of 2016 by Statistics South Africa)

1.3 INTEGRATED HUMAN SETTLEMENT PLANNING

As integral part of the township establishment process, the following studies were conducted as part of the pre-planning activities:

- Aerial survey of the development area conducted by Azur Aerial Work CC;
- Generation of contours based on aerial survey conducted by Azur Aerial Work CC;
- Detail survey of outside figure and physical features on site conducted by TMK Professional Land Surveyors;

- Geotechnical investigation of the development area conducted by Geoset CC;
- Phase 1 Heritage Impact Assessment conducted by A Pelsers Archaeological Consulting CC;
- Detail civil engineering services investigation conducted by Moedi Consulting Engineers;
- Detail electrical engineering services investigation conducted by Motla Consulting Engineers;
- Environmental Impact Assessment conducted by AB Enviro-Consult;
- Ecological Fauna and Flora Habitat Survey and Wetland conducted by Anthea Ecological CC;
- Traffic Impact Study conducted by Route 2 Transport Strategies.

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

In terms of current policy directives, the main development strategy for residential development should be based on the objectives of the Breaking New Ground Principles (BNG) for sustainable human settlements which can be summarised as follows:

- To ensure that sustainable housing development takes place.
- To integrate housing with other municipal services in order to establish sustainable human settlements, in support of spatial restructuring.
- To coordinate municipal departments in order to work together in planning and implementing.
- To promote middle- and high-income housing which will in turn generate resources to improve low income areas.
- To promote environmental and energy efficient housing.

The approach to ensuring that sustainable human settlements are achieved should include:

- Spatial transformation and economic integration
- Viable infrastructure provisioning and life-cycle management
- Functional, responsive and innovative design
- Easy and close access to range of services and amenities
- Affordable urban living
- Financial viability
- Effective urban management and municipal financial sustainability
- Environmental sustainability
- Local job creation and empowerment

1.4 APPLICATION

Maxim Planning Solutions (Pty) Ltd (2002/017393/07), herein represented by Koot Raubenheimer (ID No. 700305 5192 089), being the duly authorised agent of the Naledi

Local Municipality (NW392), is hereby applying on behalf of the Naledi Local Municipality in terms of:

- Section 67(2) read with Chapter 6 of the Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015 read with Section 41(2)(b) of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) for the:
 - subdivision of the Remaining Extent of Erf 506, Vryburg into three (3) portions; and
 - subdivision of the Remaining Extent of Portion 3 of the farm Rosendal 673, Registration Division I.N., North West Province into two (2) portions
- Section 56(1) read with Chapter 6 of the Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015 read with Section 41(2)(a) of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) for the extension of the boundaries of the township Vryburg by the incorporation of the newly created Portion 17 (a portion of Portion 3) of the farm Rosendal 673, Registration Division I.N., North West Province into the township of Vryburg as Erf 11978, Vryburg
- Section 73(1) of the Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015 read with Section 41(2)(c) of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) for the consolidation of a portion of the Remaining Extent of Erf 506, Vryburg (to be known as Erf 11976, Vryburg) and a portion of the Remaining Extent of Portion 3 of the farm Rosendal 673, Registration Division I.N., North West Province (to be known as Erf 11978 following incorporation thereof into the township area of Vryburg) to form Erf 11979, Vryburg
- Section 56(1) read with Chapter 6 of the Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015 read with Section 41(2)(a) of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) for the establishment of the proposed township Vryburg Extension 29 on a portion of the Remaining Extent of Erf 506, Vryburg and a portion of the Remaining Extent of Portion 3 of the farm Rosendal 673, Registration Division I.N., North West Province (to be known as Erven 11977 and 11979, Vryburg) comprising 5709 “Residential 4” erven, 2 “Business 1” erven, 17 “Business 2” erven, 15 “Institutional 1” erven, 2 “Institutional 2” erven, 19 “Public Open Space 1” erven, 2 “Authority” erven, 2 “Cemetery” erven, 1 “Special” (Airfield) erf as well as streets to be zoned “Transport 2”.

1.5 PUBLIC PARTICIPATION

Public participation in respect of the land development application comprising the establishment of the proposed township area of Vryburg Extension 29, the subdivision of the Remaining Extent of Portion 3 of the farm Rosendal 673, Registration Division I.N., North West Province and the Remaining Extent of Erf 506, Vryburg, the extension of the boundaries of the approved township Vryburg and the consolidation of a portion of the

Remaining Extent of Erf 506, Vryburg and the portion of the Remaining Extent of Portion 3 of the farm Rosendal 673, Registration Division I.N., North West Province incorporated into the township area of Vryburg as an erf will include the following:

- ✧ Publishing notices of the application (as set out in **Annexure T1** of the comprehensive Land Development Application) in the Stellalander as well as in the North West Provincial Gazette in Afrikaans & English for two consecutive weeks as contemplated in Sections 94(1)(b) and 94(1)(h) read with Sections 94(2)(a) and 95(1)(b) of the Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015;
- ✧ Displaying a site notice (as set out in **Annexure T2** of the comprehensive Land Development Application) in a conspicuous place on the land to which the application applies as contemplated in Sections 94(1)(b) and 94(1)(h) read with Section 97(1)(a) of the Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015;
- ✧ Giving notice to the following external organizations / departments (as set out in **Annexure T3** of the comprehensive Land Development Application) as contemplated in Section 94(1)(b) and 94(1)(h) read with Section 95(1)(d) of the Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015:
 - Department of Agriculture, Forestry and Fisheries (DAFF)
 - Transnet Freight Rail
 - South African Heritage Resources Agency (SAHRA)
 - Eskom
 - Department of Public Works and Roads
 - Department Water and Sanitation
 - Openserve (former Telkom SA Limited)
 - SA Post Office Limited (SAPO)
 - Dr. Ruth Segomotsi Mompati District Municipality
 - South African National Roads Agency Limited (SANRAL)
 - Department of Mineral Resources (DMR)
 - Department of Education
 - Department of Health
 - Department of Co-operative Governance, Human Settlements and Traditional Affairs (COGHSTA)
 - Department Agriculture, Land Reform and Rural Development
 - Sedibeng Water
 - South African Civil Aviation Authority (SACAA)
- ✧ Giving notice to all adjacent property owners (as set out in **Annexure T4** of the comprehensive Land Development Application) as contemplated in Section 94(1)(h) read with Section 95(1)(c) of the Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015.

The public will be afforded a period of 30 days to comment in this matter whereas the external organisations / departments that will be approached for comments will be afforded a period of 60 days to furnish us with their comments in respect of the application. Following

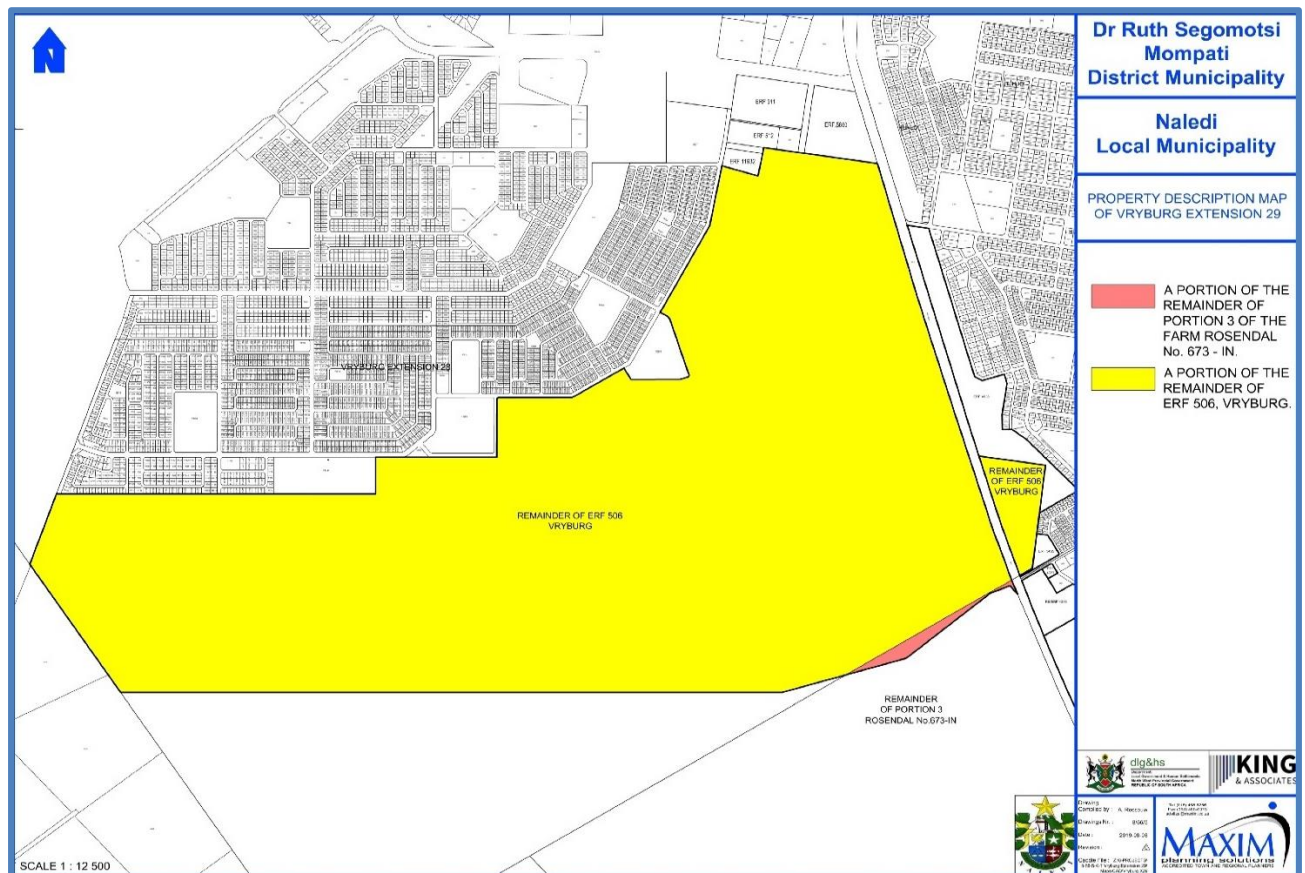
receipt of the said comments we will forward same to your Municipality for your further attention and record purposes.

1.6 STUDY AREA DELINEATION

The proposed development area comprises the following properties:

- Portion of the Remaining Extent of Erf 506, Vryburg; and
- Portion of the Remaining Extent of Portion 3 of the farm Rosendal 673, Registration Division I.N., North West Province

as depicted on **Map 3** below.



Map 3: Locality of properties to which the land development application applies

1.7 REPORT OUTLINE

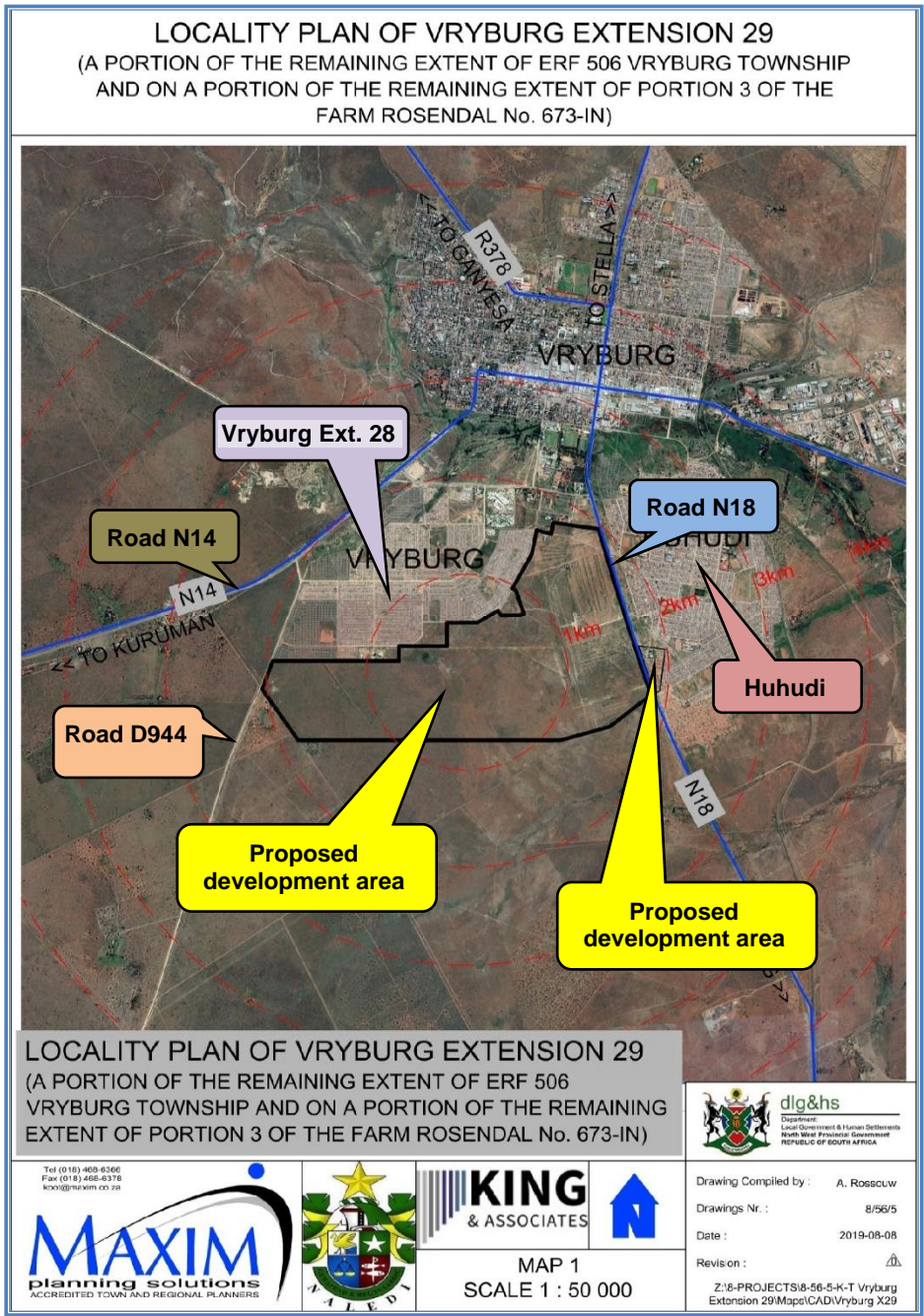
The remainder of the report is structured in terms of the following main headings:

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

CHAPTER 2: PARTICULARS OF THE DEVELOPMENT AREA

2.1 LOCALITY

The proposed development/township area is located directly adjacent and to the south and south-east of the existing township area Vryburg Extension 28 and is bordered to the west by Road D944 (Vryburg-Reivilo road) and to the east by Road N18 (Vryburg-Taung Road). A portion of the township area is also located east of Road N18 (Vryburg-Taung Road) and is bordered to the north, east and south by the existing township area Huhudi (as indicated on **Map 4** below).



Map 4: Locality map of proposed development area

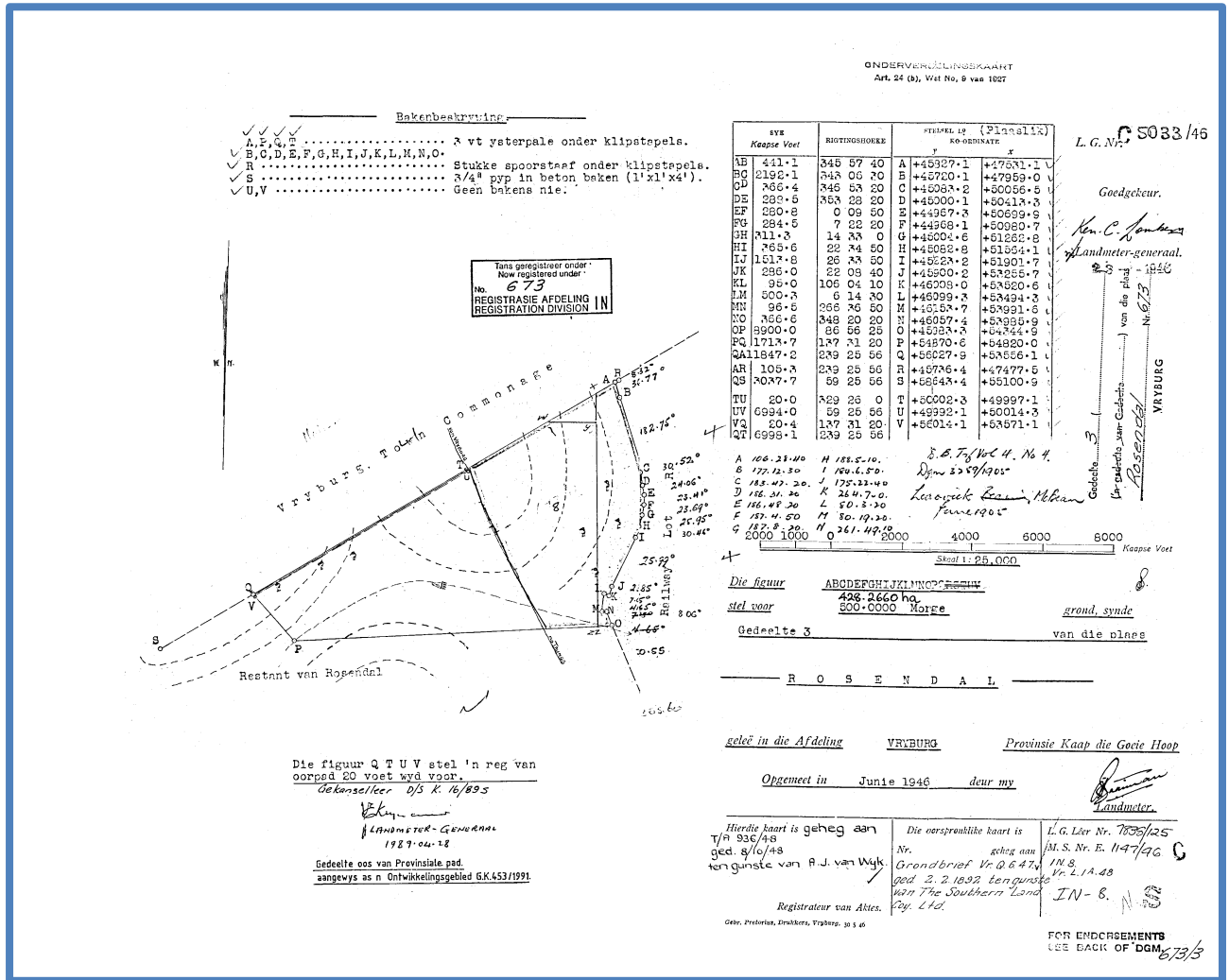


Figure 5: Subdivision Diagram SG No. 837/2009

2.3 OWNER

The properties to which this Land Development Application applies, are currently registered as follows:

Table 8: Ownership Details

Property Description	Registered Owner	Title Deed Number
Remaining Extent of Erf 506, Vryburg	Naledi Local Municipality	V F3/14
Remaining Extent of Portion 3 of the farm Rosendal 673, Registration Division I.N., North West Province	Naledi Local Municipality	T676/2003

(Refer Annexures J1 and J2 of the comprehensive land development application for copies of the Aktex Deeds Office Enquiries as well as Annexures J3 and J4 for copies of the relevant Title Deeds).

2.4 AREA

The properties to which this land development application applies currently comprise the following areas:

Table 9: Property Areas

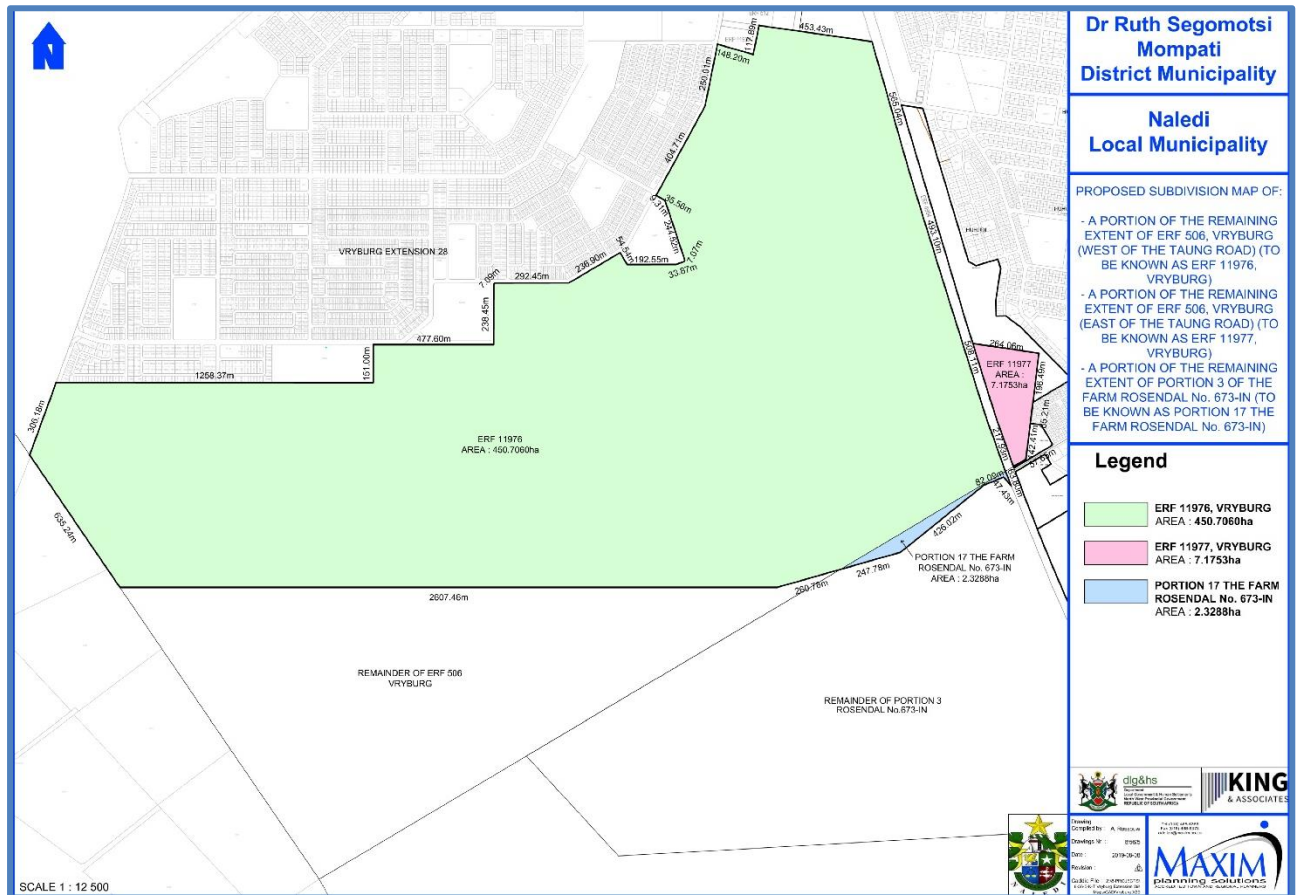
Property Description	Total Area
Remaining Extent of Erf 506, Vryburg	4763,9726 Hectares
Remaining Extent of Portion 3 of the farm Rosendal 673, Registration Division I.N., North West Province	428,2660 Hectares
TOTAL	5192,2386 Hectares

The proposed township area of Vryburg Extension 29 will comprise a total area of 460,2101 hectares made up of the following portions.

Table 10: Development Areas

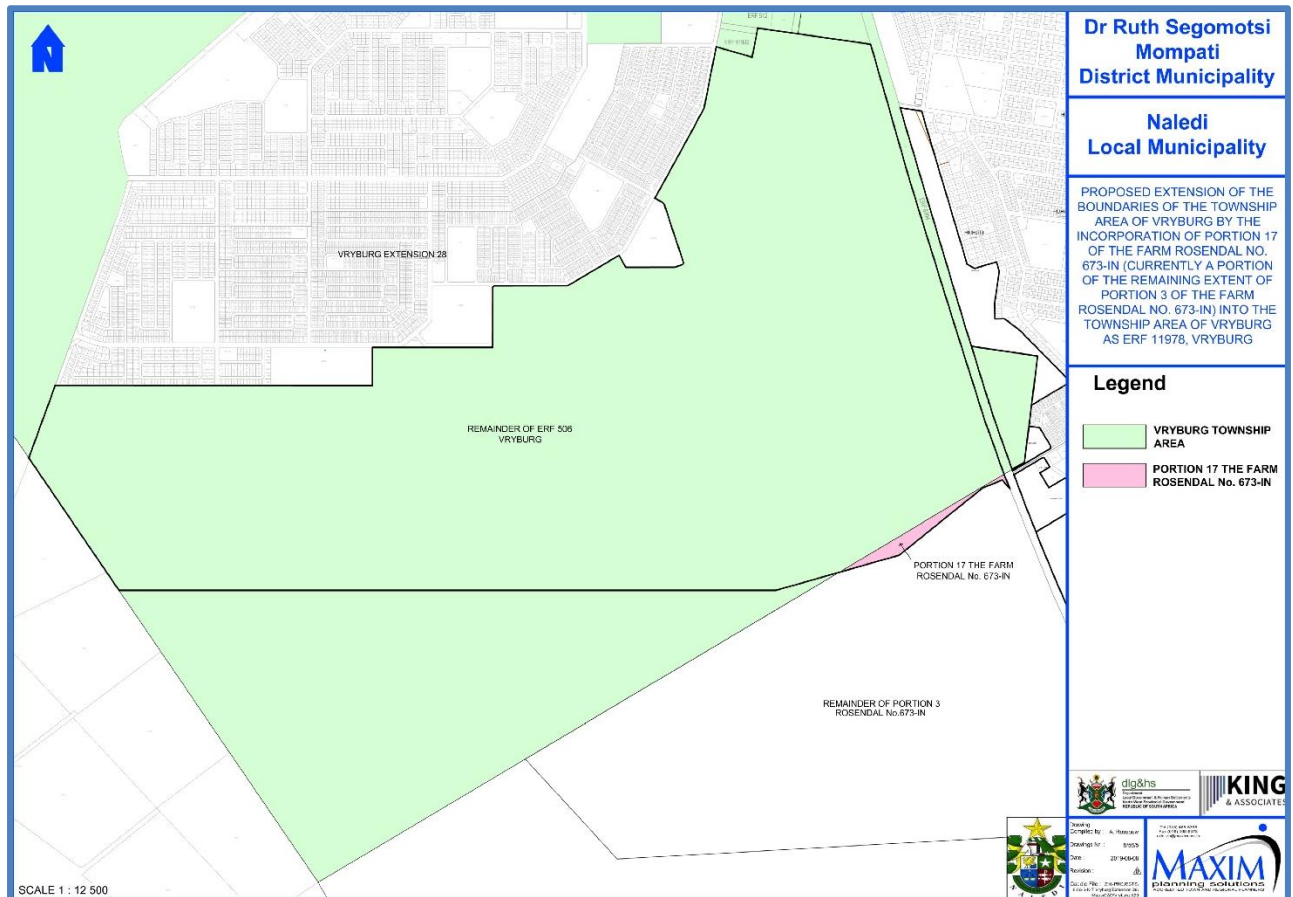
Development Area Description	Development Area
Portion of the Remaining Extent of Erf 506, Vryburg	457,8813 Hectares
Portion of the Remaining Extent of Portion 3 of the farm Rosendal 673, Registration Division I.N., North West Province	2,3288 Hectares
TOTAL	460,2101 Hectares

As the proposed township area will be located on a portion of the Remaining Extent of Erf 506, Vryburg and a portion of the Remaining Extent of Portion 3 of the farm Rosendal 673, Registration Division I.N., North West Province, this land development application also seeks to obtain the necessary approval in respect of the subdivision of the Remaining Extent of Erf 506, Vryburg into three portions (to create Erven 11976, 11977 and the Remainder of Erf 506, Vryburg) as well as the subdivision of the Remaining Extent of Portion 3 of the farm Rosendal 673, Registration Division I.N., North West Province into two (2) portions (to create Portion 17 and the Remaining Extent of Portion 3 of the farm Rosendal 673, Registration Division I.N., North West Province (as reflected on **Map 5** below – attached as **Annexure G1** to the comprehensive Land Development Application).



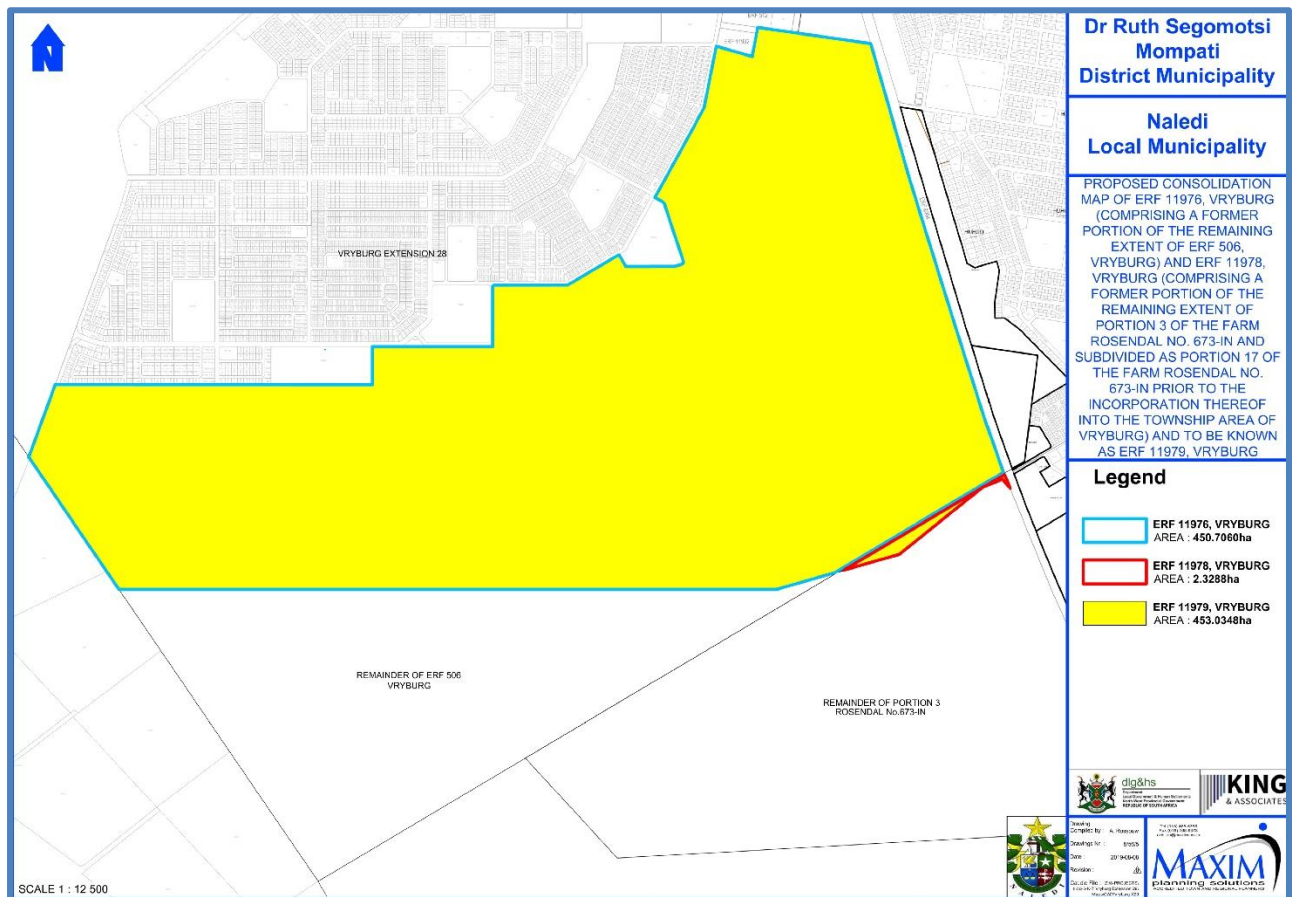
Map 5: Subdivision Map of the Remaining Extent of Erf 506, Vryburg and the Remaining Extent of Portion 3 of the farm Rosendal 673, Registration Division I.N., North West Province

It is further proposed to extend the boundaries of the approved township area of Vryburg by the incorporation of a portion of the Remaining Extent of Portion 3 of the farm Rosendal 673, Registration Division I.N., North West Province (subdivided as Portion 17 of the said farm) into the township area of Vryburg as Erf 11978, Vryburg (as reflected on **Map 6** below – attached as **Annexure G2** to the comprehensive Land Development Application). This application in respect of the extension of the boundaries of the approved township area of Vryburg is required as it is currently, in terms of existing legislation, not possible to consolidate an erf in an approved township with a farm portion. It is therefore required to extend the boundaries of the approved township Vryburg to incorporate the newly subdivided Portion 17 of the farm Rosendal 673, Registration Division I.N., North West Province as an erf in the fore-mentioned township area. This erf will be known as Erf 11978, Vryburg



Map 6: Proposed Extension of the Boundaries of the township area of Vryburg by the incorporation of Portion 17 of the farm Rosendal 673, Registration Division I.N., North West Province into the township area of Vryburg as Erf 11978, Vryburg

This application further seeks to obtain approval in respect of the consolidation of the newly subdivided Erf 11976, Vryburg and the newly incorporated Erf 11978, Vryburg to form Erf 11979, Vryburg (as reflected on **Map 7** below – attached as **Annexure G3** to the comprehensive Land Development Application).



Map 7: Consolidation Map of Erf 11976 , Vryburg (comprising a former portion of the Remaining Extent of Erf 506, Vryburg) and Erf 11978, Vryburg (comprising a former portion of the Remaining Extent of Portion 3 of the farm Rosendal 673, Registration Division I.N., North West Province and subdivided as Portion 17 of the said farm prior to the incorporation thereof into the township area of Vryburg) and to be known as Erf 11979, Vryburg

The proposed township area of Vryburg Extension 29 will ultimately be located on Erf 11977 and Erf 11979, Vryburg. The scenario where this township area will be located on two (2) separate properties is as a result of the fact that the proposed township area of Vryburg Extension 29 is dissected into two by the Vryburg-Taung National Road (N18) resulting in a portion of the proposed township area being located east of the N18 and a portion being located west of the N18.

2.5 EXISTING LAND USE AND ZONING

The proposed development area is currently predominantly vacant with the exception of the current Vryburg Airfield located in the eastern portion of the development area as well as a substation located within the northern portion of the development area. The proposed township area is bordered to the north by the existing residential township area of Vryburg Extension 28 as well as the newly constructed Vryburg Extension 28 ground- and elevated tower reservoirs whereas the area located west and south of the development area is

currently vacant. The northern boundary of the proposed township area borders onto dilapidated infrastructure of a former LED horticulture project as well as the existing Vryburg Cemetery and the proposed township area makes provision for the future extension of this cemetery onto the proposed township area. The portion of the proposed township area located east of the Vryburg-Taung Road (N18) currently houses the Naledi tower- and ground reservoirs and a cellphone base station and antenna whereas the remainder of the property is further occupied by informal dwelling units.

Plate 1: View of development area from Vryburg Extension 28



Plate 2: View of development area from N18



Plate 3: View of subsidized housing units in Vryburg Extension 28



Plate 4: View of dilapidated LED horticulture project infrastructure



Plate 5: View of existing Naledi Main Substation



Plate 6: View of Vryburg Cemetery



Plate 7: View of Vryburg Airfield



Plate 8: View of Huhudi elevated- and ground reservoirs



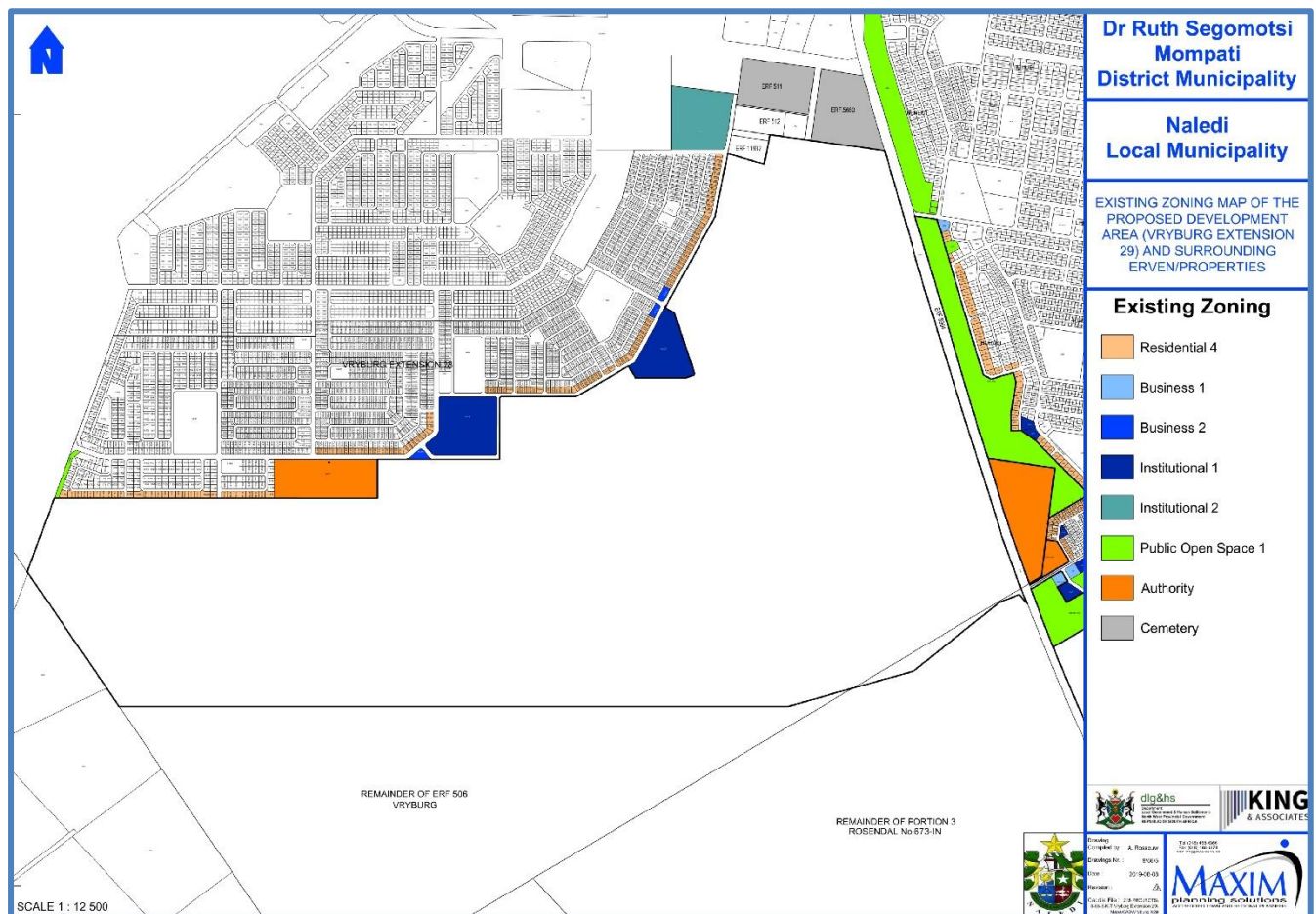
Plate 9: View of informal dwelling units surrounding reservoir site



Plate 10: View of new ground- and elevated reservoir in Vryburg Extension 28



On scrutiny of the Town Planning Scheme Maps of the Naledi Local Municipality it was noted that neither the Remaining Extent of Erf 506, Vryburg nor the Remaining Extent of Portion 3 of the farm Rosendal 673, Registration Division I.N., North West Province have not been allocated a zoning in terms of the fore-mentioned Town Planning Scheme. The township establishment process will culminate in the proposed township area being incorporated into the then applicable Land Use / Town Planning Scheme of the Naledi Local Municipality to allow for the proper management of land uses within this proposed township area. The properties surrounding the proposed township area are inter alia zoned for “Residential 4”, “Business 1”, “Business 2”, “Institutional 1”, “Institutional 2”, “Public Open Space”, “Authority” and “Cemetery” purposes (as reflected on **Map 8** below – attached as **Annexure M** to the comprehensive Land Development Application).



Map 8: Existing zoning of development area and surrounding properties

2.6 MINERAL RIGHTS

According to Deed of Grant V F3/14, the rights to minerals, mineral products, mineral oils, precious stones and precious or base metals in respect to the Remaining Extent of Erf 506, Vryburg have been reserved in favour of the Crown as indicated in the following extract from Deed of Grant V F3/14:

“III. “That all rights to mineral products, mineral oil, and precious stones, precious or base metals, on or under the land hereby granted are expressly reserved to the Crown, together with the right of access to any mines or works undertaken for mining or prospecting purposes by any person duly authorised in that behalf.

The land is subject to such further rights as the public or the Government now may hereafter have to be entitled to obtain under or by virtue of any law relating to the prospecting, digging, mining or exploitation of minerals, mineral products, mineral oils, precious stones, precious or base metals on or under the land hereby granted, which rights shall not be impaired or in any way affected by the title deed”.

In terms of Deed of Transfer T676/2003, the rights to any deposits of gold, silver, platinum or precious stones and the right of mining for gold, silver, platinum or precious stones in respect of the Remaining Extent of Portion 3 of the farm Rosendal 673, Registration Division I.N., North West Province were reserved in favour of the Government as indicated in the following extract from Deed of Transfer T676/2003:

“V. THAT the rights of the Proprietor shall not extend to any deposits of gold, silver, platinum or precious stones, which may at any time be or be discovered on the land hereby granted, and the right of mining for gold, silver, platinum or precious stones is reserved by the Government under such regulations as shall from time to time be established by law”.

Deed of Transfer T676/2003 also contains a further reservation of mineral rights (excluding those in favour of the State) to be reserved in favour of Jacob Barend Maree Alberts and Pieter Arnoldus Alberts as set out in Certificate of Mineral Rights K12/1988RM, as set out in the following extract from Deed of Transfer T676/2003:

“A. Die voorbehoud van mineraleregte, uitgesluit die voorbehoud ten gunste van die Staat, ten gunste van JACOB BAREND MAREE ALBERTS en PIETER ARNOLDUS ALBERTS, kragtens Sertifikaat van Mineraleregte K 12/1988 RM.”

The 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 land development application will subsequently also be referred to the Department of Mineral Resources for its consent in terms of Section 53 of the fore-mentioned Act in respect of the proposed development.

2.7 RESTRICTIVE TITLE CONDITIONS

According to Deed of Grant V F3/14 (attached as **Annexure J3** to the comprehensive land development application), the Remaining Extent of Erf 506, Vryburg is subject to the following title conditions, which will be dealt with as indicated:

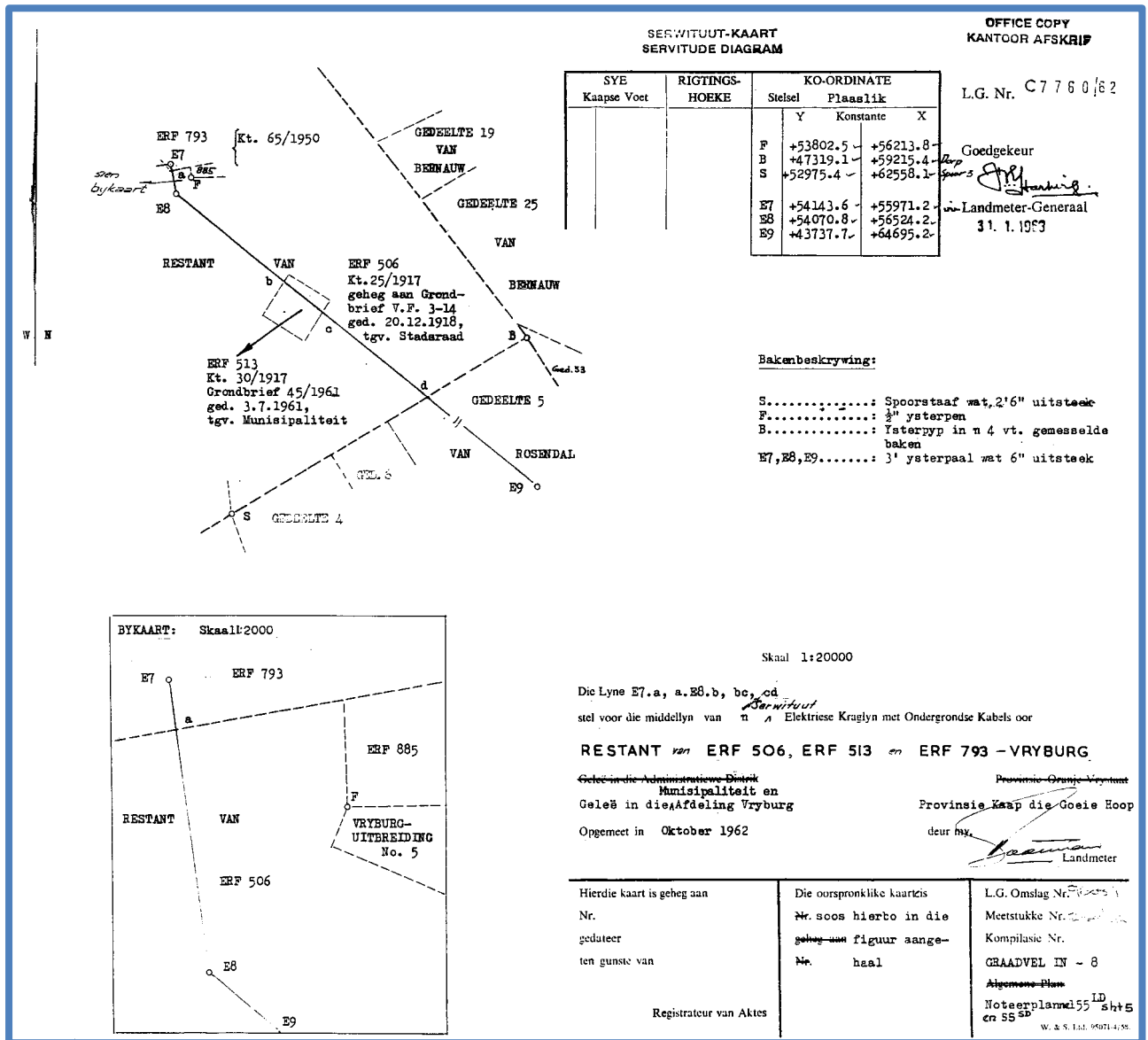


Figure 6: Servitude Diagram SG No. C7760/1962

“Portion L4 measuring 52 4020 ha

Leased to The Vryburg Golf Club for 50 years as from 16/5/86 by Deed of Lease dated 7/11/1986 filed as K 17/1987L registered this day of 1987-03-24”.

Deed of Lease K17/1987L in favour of the Vryburg Golf Club was registered for a period of 50 years from 16 May 1986 and will subsequently only lapse in 2036. The locality of the Vryburg Golf Course is however known and said area does not affect the proposed township area due to the location thereof in relation to the proposed township area.

“Kragtens Notariële Akte No. K 9/1990S gedateer 3/5/1989 is die hierinvermelde eiendom onderhewig aan ‘n servituut van spoorweglynreserwe t.g.v. Erf 2493 en Erf 883 Vryburg gehou kragtens SVT 852/1966 en T1580/82 respektiewelik soos aangedui deur die figuur ABCDE op kaart SG 3196/87 soos meer volledig sal blyk uit gemelde Notariële Akte waarvan ‘n afskrif hieraan geheg is”.

This condition relates to Notarial Deed of Servitude K9/1990S in favour of Erf 2493 and Erf 883, Vryburg and comprises a railway line reserve servitude. This servitude is reflected on diagram SG No. 3196/1987 and does not affect the proposed township area due to the locality thereof (refer **Figure 7** below).

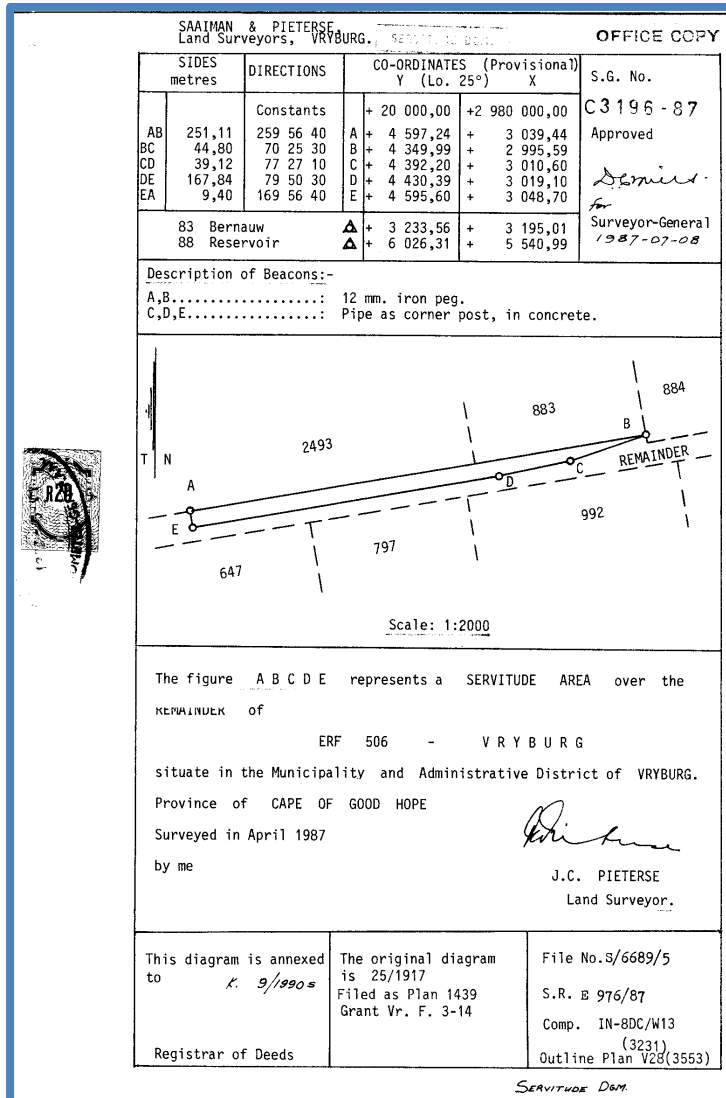


Figure 7: Servitude Diagram SG No. C3196/1987

“The within mentioned property is subject to a powerline servitude in favour of ESKOM with ancillary rights. K141/92S”.

Notarial Deed of Servitude K141/1992S is registered in favour of Eskom. This servitude was registered in general terms and was not reflected on a servitude diagram. The route of this servitude has since been determined by Notarial Deed of Servitude K2/1998S and is reflected on diagram SG No. 9679/1994 (refer **Figure 8** below). This servitude does not affect the proposed township area due to the location thereof.

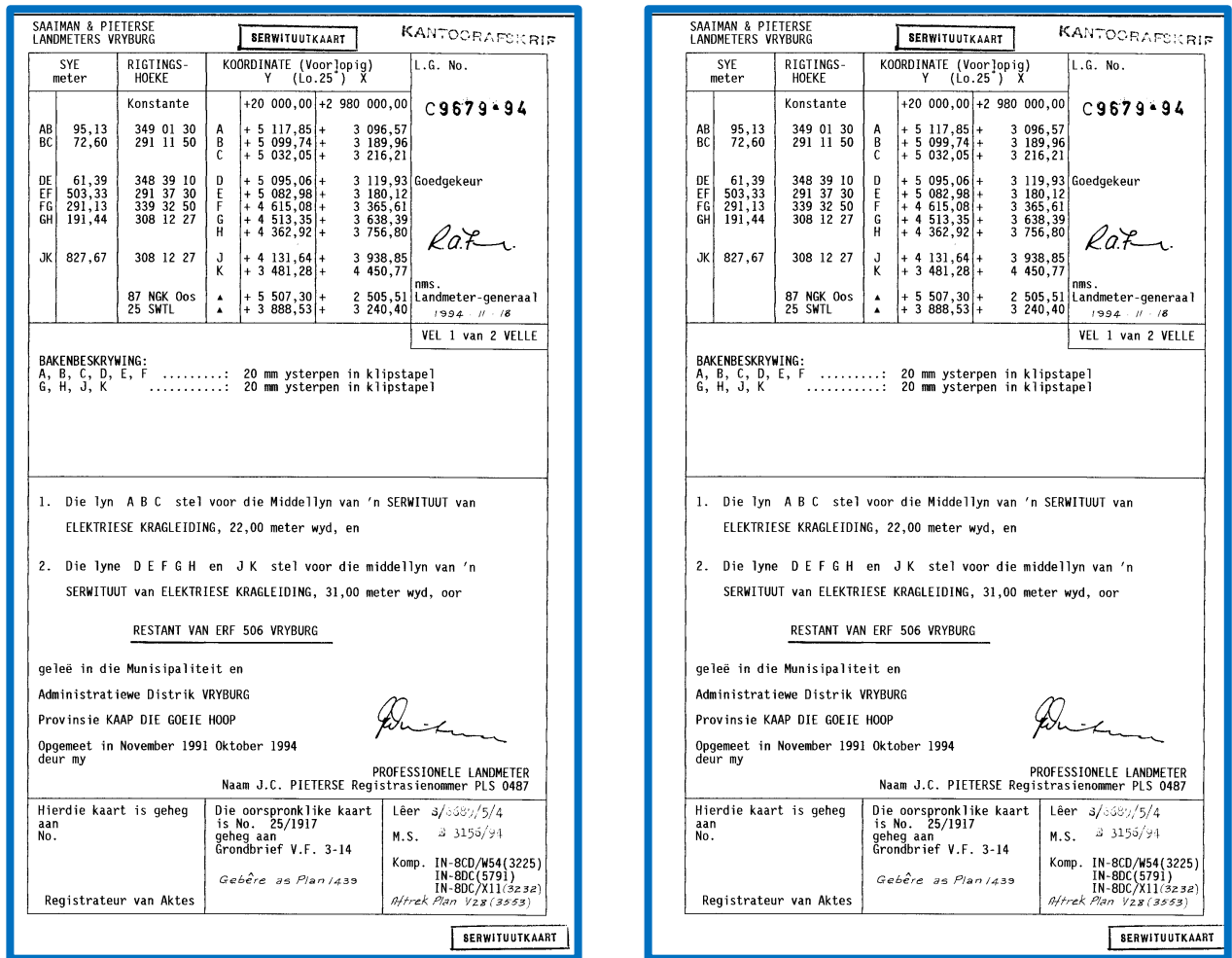


Figure 8: Servitude Diagram SG No. 9679/1994 (Sheets 1 and 2)

1. **Binnegemelde eiendom onderhewig aan 'n serwituu gebied van elektriese kragleiding soos aangedui deur die figuur ABC op kaart LG 9678/94 aangeheg aan K 30/97S t.g.v ESKOM tesame met bykomende regte.**
2. **Onderhewig aan Serwituu Padgebied soos aangedui deur die figuur AB weste kant van Pad en CD Oostekant van pad EF op kaart LG 9677/94 aangeheg aan K 30/97S t.g.v ESKOM tesame met bykomende regte”.**

Notarial Deed of Servitude K30/1997S is registered in favour of Eskom and is reflected on servitude diagrams SG Nos. 9677/1994 and 9678/1994 (refer **Figures 9 and 10** below). This servitude does not affect the proposed township area due to the location thereof.

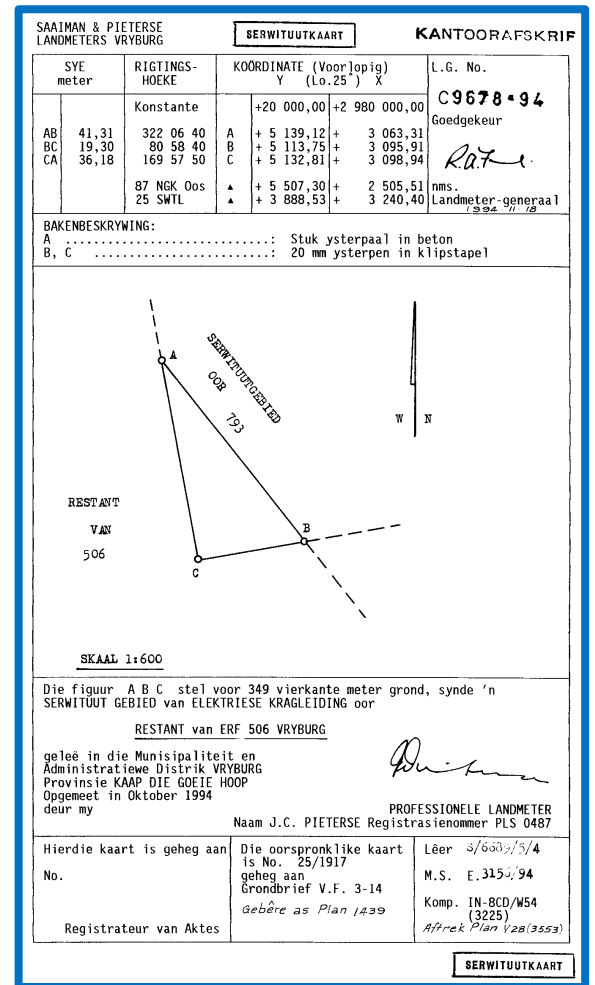
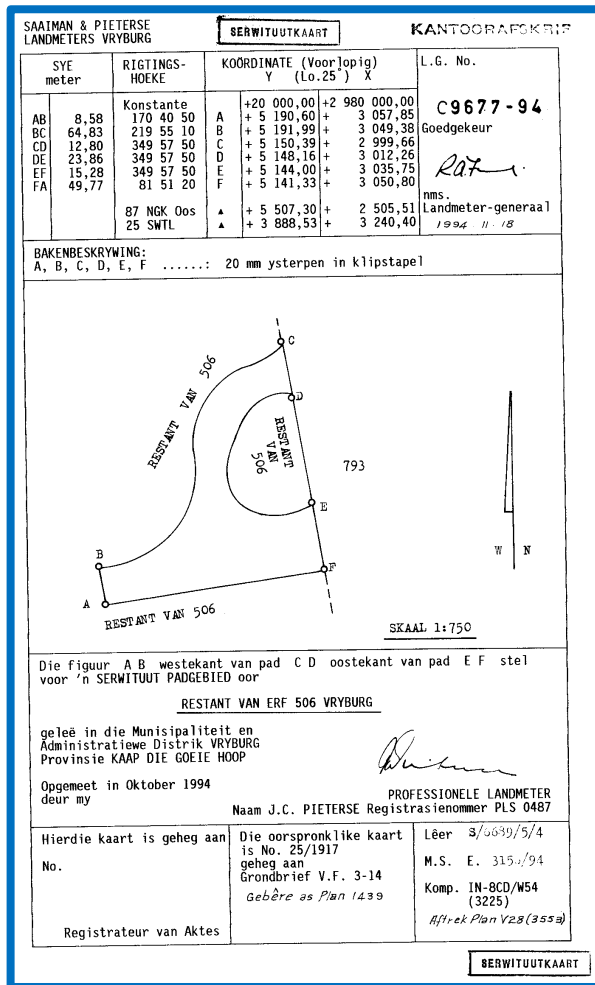


Figure 9: Servitude Diagram SG No. 9677/1994 Figure 10: Servitude Diagram SG No. 9678/1994

“Binnegemelde eiendom is onderhewig aan ‘n middellyn van ‘n Servituut van elektriese kragleiding, 22,00 meter wyd soos aangedui deur die figuur ABC op kaart LG 9679/94 aangeheg aan K 2/98S t.g.v ESKOM met bykomende regte”.

Notarial Deed of Servitude K2/1998S is registered in favour of Eskom and constitutes the route determination of Notarial Deed of Servitude K141/1992S. This servitude is reflected on servitude diagram SG No. 9679/1994 (refer **Figure 8** above) and does not affect the proposed township area due to the location thereof.

“By Notarial Deed No. K 207/2015 S date 05/10/2015 the within-mentioned property is subject to a perpetual servitude of electric power transmission over the property and a perpetual servitude for telecommunication and other related purposes in favour of ESKOM HOLDINGS SOC LIMITED as will more fully appear on reference to the said notarial deed”.

Notarial Deed of Servitude K207/2015S granted Eskom the right to convey electricity over the subject property by means of a transmission line, the route whereof is still to be determined. Based on the sketch plan attached to the Letter to Exercise an Option: Mookodi

Ganyesa 132 kV Line and Sub issued by Eskom on 09 February 2015, the approximate route of this servitude has been indicated and this servitude will affect the proposed Erf 17732 (Park) and Collen Colane Street in the proposed township area (refer **Figure 11** below for approximate locality of proposed powerlines and servitude). Erf 17732 (Park) and Collen Colane Street should be made subject to this servitude.

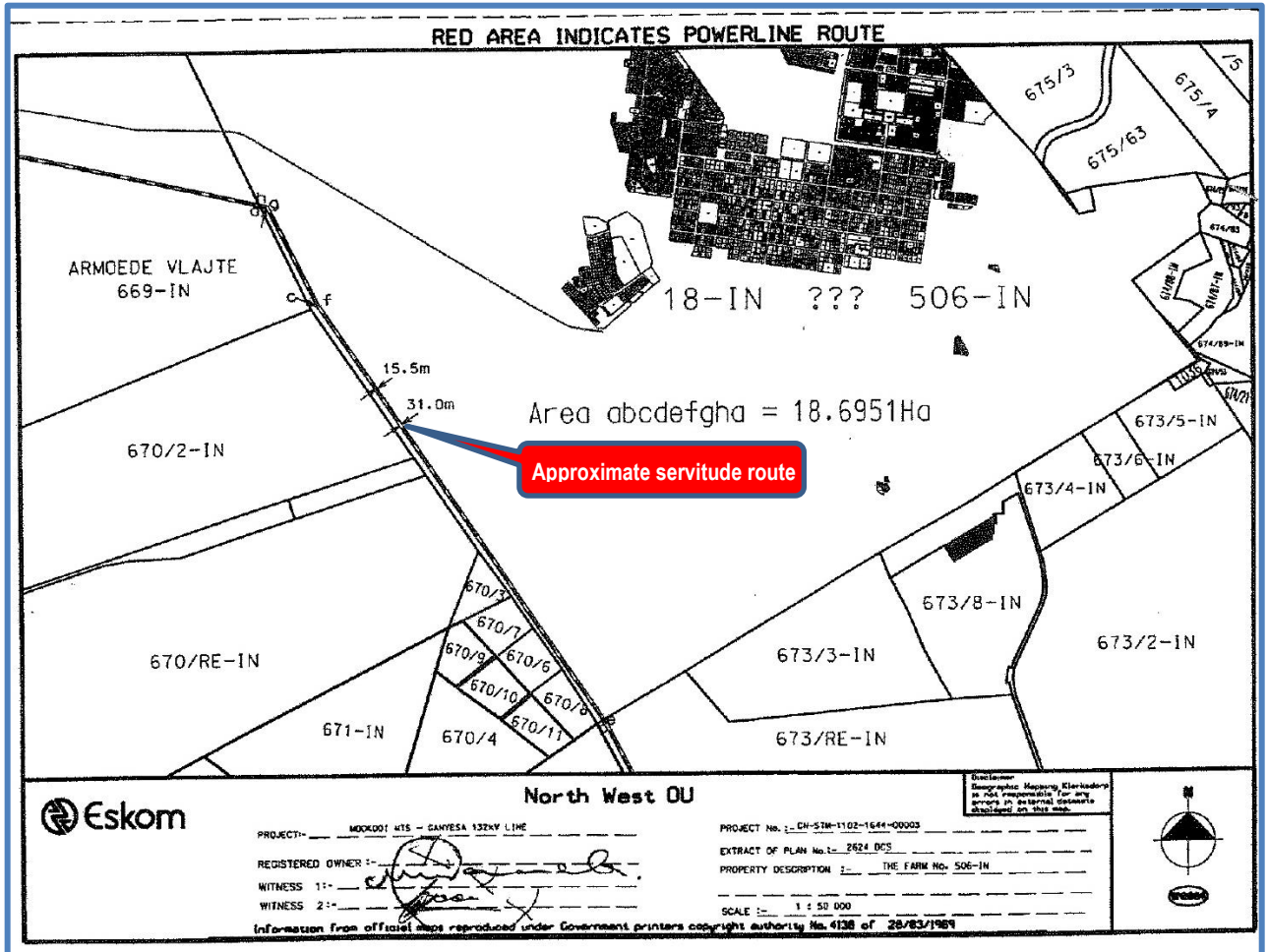


Figure 11: Proposed Route of Notarial Deed of Servitude K207/2015S

“By Notarial Deed No. K 008/2016 S date 26/11/2015 the within-mentioned property is subject to a perpetual servitude of electric power transmission over the property and a perpetual servitude for telecommunication and other related purposes in favour of ESKOM HOLDINGS SOC LIMITED as will more fully appear on reference to the said notarial deed”.

Notarial Deed of Servitude K8/2016S granted Eskom the right to convey electricity over the subject property by means of a transmission line, the route whereof is still to be determined. Based on the sketch plan attached to the Letter to Exercise an Option: Bophirima-Vryburg Munic 132 kV Line Area Servitude issued by Eskom on 09 February 2015, the approximate route of this servitude has been indicated and this servitude will not affect the proposed township area of Vryburg Extension 29 due to the locality thereof in relation to the proposed

township area (refer **Figure 12** below for approximate locality of proposed powerlines and servitude).

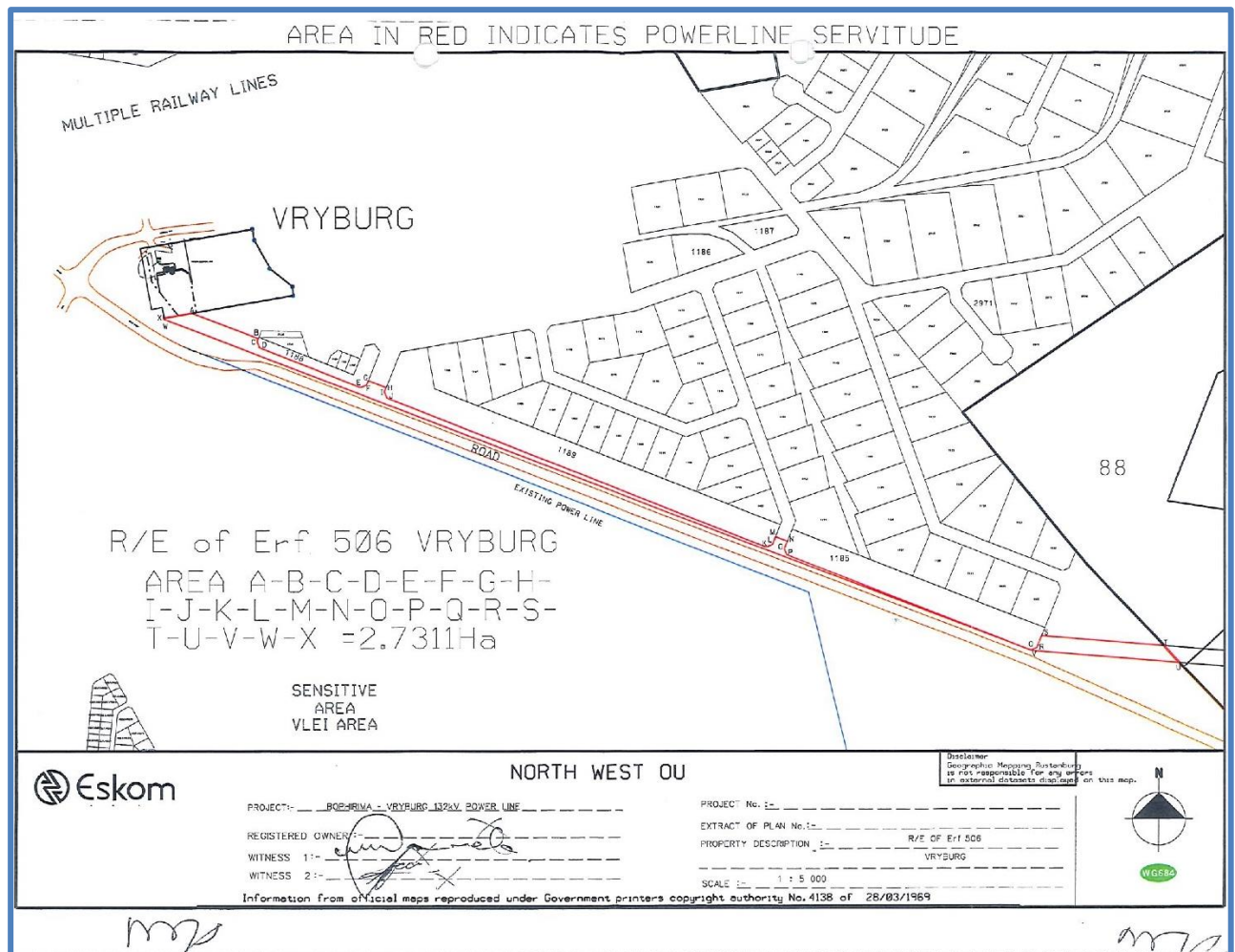


Figure 12: Proposed Route of Notarial Deed of Servitude K8/2016S

According to Deed of Transfer T676/2003 (attached as **Annexure J4** to the comprehensive land development application), the Remaining Extent of Portion 3 of the farm Rosendal 673, Registration Division I.N., North West Province is subject to the following title conditions, which will be dealt with as indicated:

- A. ***“THE conditions contained in DEED of GRANT Nr. F.T. 639, Nr. V which reads as follows:***

- V. ***THAT the rights of the Proprietor shall not extend to any deposits of gold, silver, platinum or precious stones, which may at any time be or be discovered on the land hereby granted, and the right of mining for gold, silver, platinum or precious stones is reserved by the Government under such regulations as shall from time to time be established by law.***

B. “Die voorbehoud van mineraleregte, uitgesluit die voorbehoud ten gunste van die Staat, ten gunste van JACOB BAREND MAREE ALBERTS en PIETER ARNOLDUS ALBERTS, kragtens Sertifikaat van Mineraleregte K 12/1988 RM.”

Conditions A and B relate to the reservation of rights to minerals and will be addressed as detailed in Section 2.6 supra.

“C. Kragtens Notariële Akte van Servituut Nr 1/1965 is die binnegemelde eiendom onderhewig aan ‘n ewigdurende reg ten gunste van die Munisipaliteit van Naledi om elektrisiteit te lei langs die roete aangedui deur die figure P.1 – A en P.2 – P.3 op Kaart SG 2223/1963 geheg aan gesegde servituutakte.”

Notarial Deed of Servitude Nr 1/1965 was registered in favour of the Naledi Local Municipality for the purpose of a powerline servitude. The route of this servitude is reflected on servitude diagram SG No. 2223/1963 and does not affect the proposed township area due to the location thereof in relation to the proposed township area (refer **Figure 13** below).

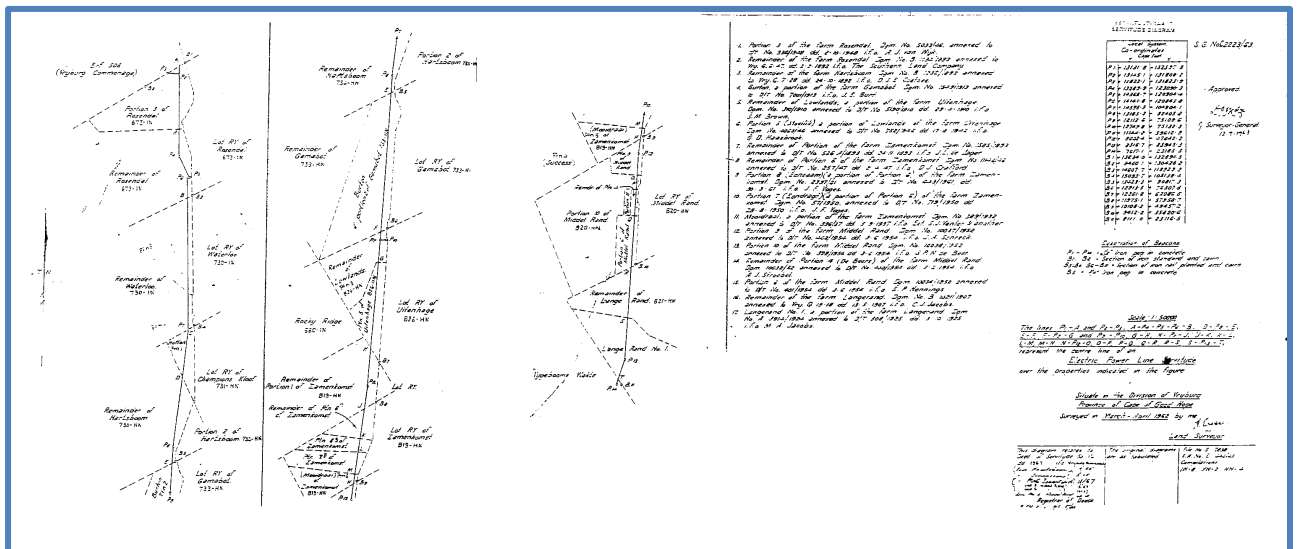


Figure 13: Servitude Diagram SG No. 2223/1963

The applicability of the existing title condition on the proposed development area was confirmed by means of a Conveyancer Certificate issued by Coetzer & Steyn Attorneys (attached as **Annexure K** to the comprehensive Land Development Application).

Based on the assessment of the existing title conditions, it is evident that it is not necessary to apply for the removal, suspension or amendment of any of the title conditions contained in Deed of Grant V F3/14 or Deed of Transfer T676/2003.

2.8 SERVITUDES

As alluded to in Section 2.7 supra, preliminary indications are that the portion of the Remaining Extent of Erf 506, Vryburg, to which this application applies, is only directly

affected by Notarial Deed of Servitude K207/2015S. This servitude is reflected on the sketch plan attached to the Letter to Exercise an Option: Mookodi Ganyesa 132 kV Line and Sub issued by Eskom on 09 February 2015 (refer **Figure 11** above), and this servitude will be located along the western boundary of the proposed township area. For this purpose, provision was made on the layout plan of the proposed township area to accommodate the servitude within a “Public Open Space” erf i.e. Erf 17732 (Park). This erf together with Collen Colane Street will be made subject to this servitude.

Cognisance should be taken of the fact that where any of the servitudes detailed in Section 2.7 above include “ancillary rights”, and where such servitudes do not directly affect the proposed township area due to the location thereof in relation to the proposed township area, application will also be made to the relevant servitude holders for their consent in respect of the transfer of the erven in the proposed township area free from such servitude.

CHAPTER 3: PHYSICAL ASPECTS

3.1 TOPOGRAPHY

As part of the pre-planning studies that were conducted in respect of the development area, an aerial survey was conducted by Azur Aerial Work CC (refer **Figure 14**).

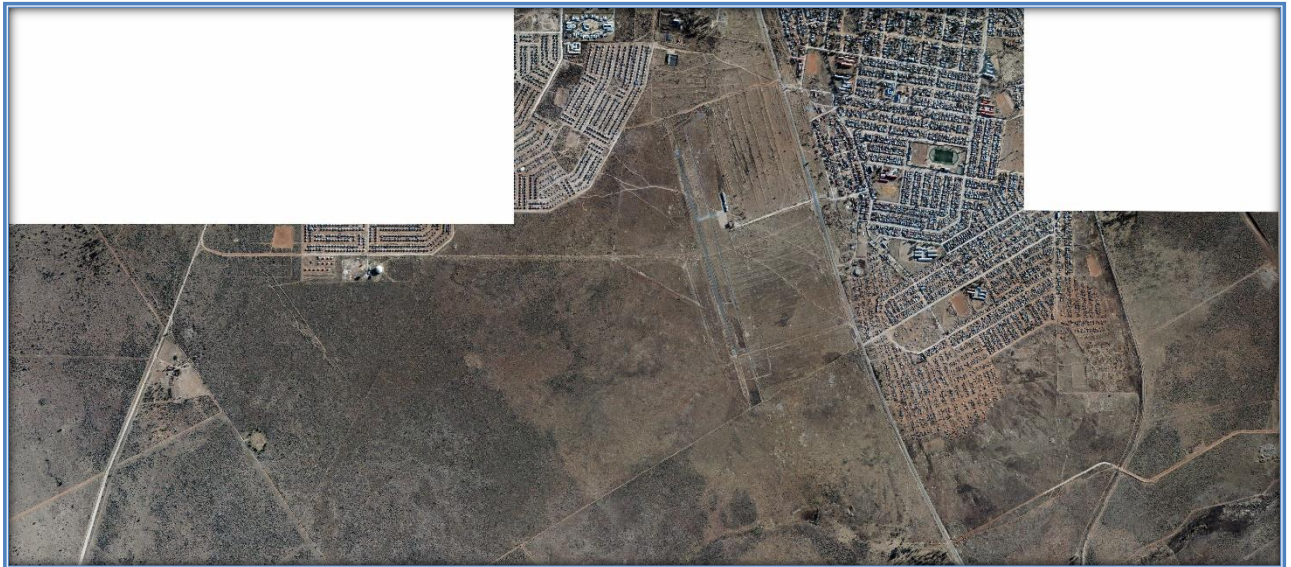
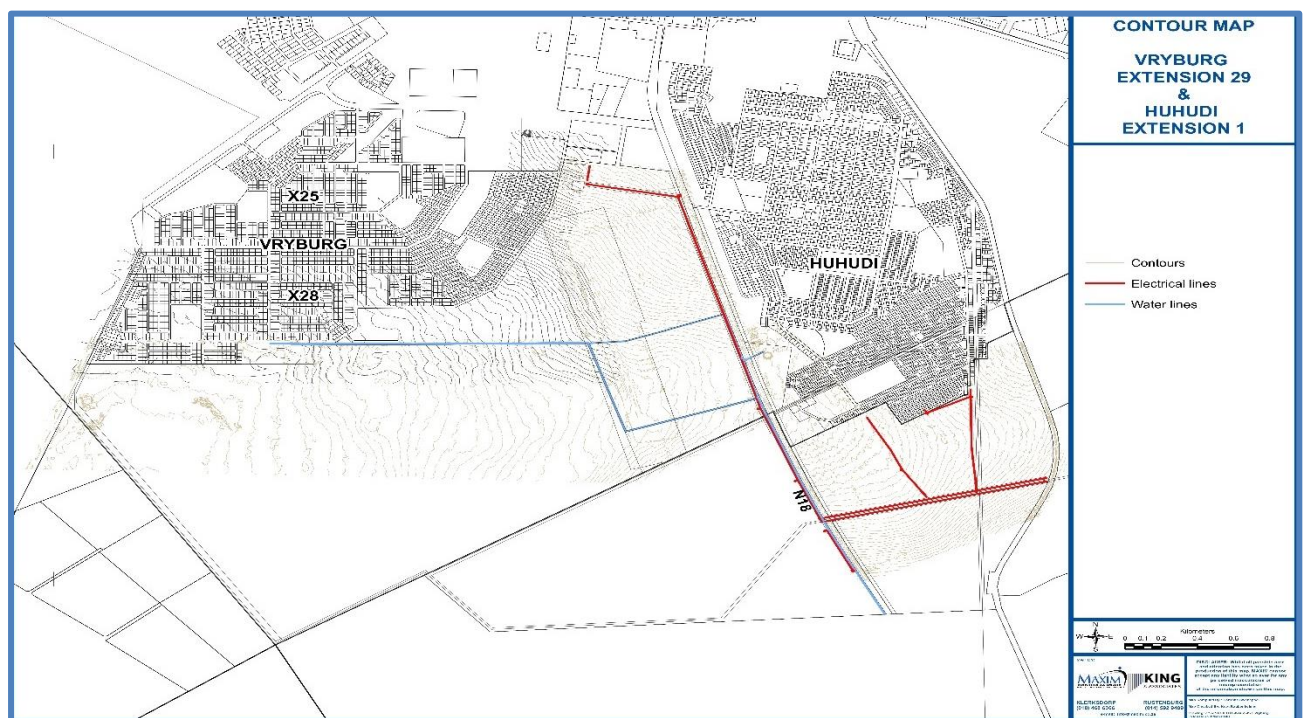


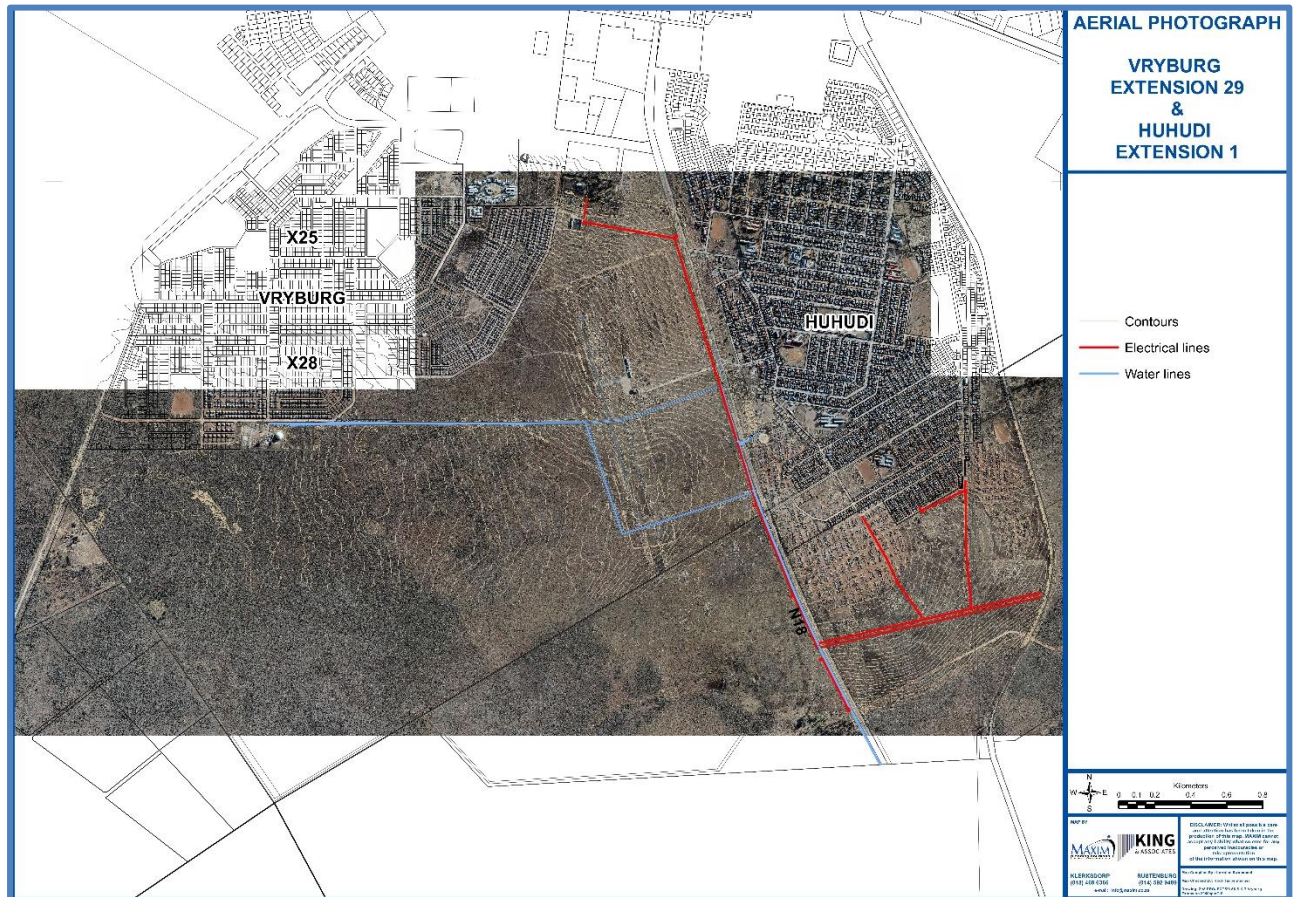
Figure 14: Aerial photograph of development area

Based on the results of the aerial survey, a contour map of the development area was generated by Azur Aerial Work CC. The results of the contour survey are reflected **Map 9**.



Map 9: Contour data of development area

This aerial survey was supplemented by a physical survey of prominent features that could affect the planning of the concerned development area that was conducted by TMK Professional Land Surveyors (refer **Map 10**). During the physical survey, the positions of existing powerlines as well as underground water pipelines traversing the development area were detected and this information was employed during the layout planning process to allow for the layout plan to accommodate the existing services infrastructure.



Map 10: Results of aerial photography, contour data and physical survey

The proposed development area is located on a shallow eastern slope of 1190,5 to 1225,5 MASL, the lowest point towards the Dry Harts River. A number of old dry pans are located in the area (this issue will be addressed in greater detail in Section 3.4).

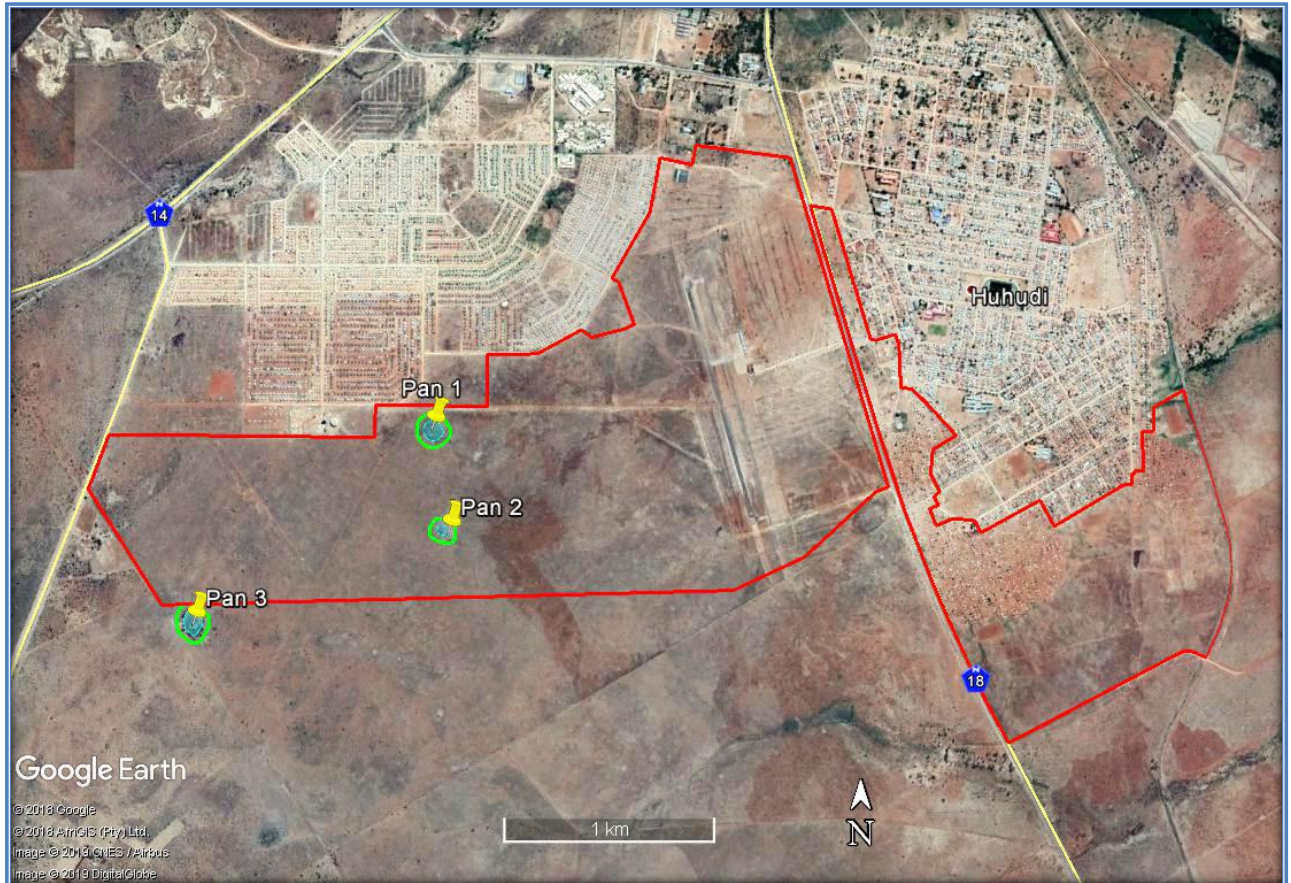
3.2 CLIMATE

The region is characterized by summer rainfall with thunderstorms, with annual rainfall figures of 550 mm (Vryburg) 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 6 for Vryburg. The mechanical disintegration of rocks will therefore be dominant over chemical

3.4 WETLANDS AND PANS

As mentioned in section 3.3 supra, two pan depressions (Pan 1 = 0,7 ha; Pan 2 = 0,2 ha) are present at the site and one pan depression (Pan 3 = 0.7 ha) is found adjacent to the site but within 500 m from the site.



Map 11: Indication of wetland depressions (small pan) and their buffer zone (30 m) at the site.

- Light blue outline and shading: Extent of wetland depression (small pan) at the site
- Green outline: Outer edge of buffer zone

Anthene Ecological CC was commissioned to conduct an assessment and classification of the wetland areas as well as to determine the Present Ecological Status (PES) of the wetland areas. The Wetland Report compiled by Anthene Ecological CC concluded as follows:

✧ **Assessment and classification of wetland depression Pan 1 at the site**

A small wetland depression (ephemeral pan), **Pan 1**, with a surface area of approximately 0,7 ha and longest diameter of approximately 100 m, is found at the central part of the site.

Vegetation at the restricted wetland area consists of a permanent, seasonal and temporary zone. Obligate wetland plant species appear to be rare. The small depression is endorheic, where the water that flows in during rainfall events mostly leaves through evapotranspiration and infiltration in a low rainfall area (Mean Annual Precipitation < 500 mm).

The wetland appears to be modified. There is a leak from nearby, probably from an existing pipe system, that feeds water into the wetland. There were some diggings and some landscaping at and nearby the wetland which have modified the wetland.

Some shrub-height *Vachellia karoo* (Sweet Thorn), *Leptochloa fusca* (Swamp Grass), *Cynodon dactylon* (Couch Grass) as well as the alien invasive *Opuntia engelmannii* (Small Round-leaved Prickly Pear) are found at parts of the wetland.

Present ecological status (PES) of the wetland depression **Pan 1** at the site is CATEGORY D which means the wetland is largely modified and a large loss of natural habitats and basic ecosystem functions that has occurred. Ecological importance and sensitivity (EIS) of the wetland is Low/marginal which means the wetland is not ecologically important and sensitive at any scale. The biodiversity of the wetland is ubiquitous and not sensitive to flow and habitat modifications. The wetland plays an insignificant role in moderating the quantity and quality of water of major rivers.



Plate 11: View of Pan 1 and surrounding area at the site.

The Wetland Report concluded as follows in respect of the wetland areas detailed above:

“Risks and possible impacts on the small wetlands, if its buffer zones are upheld, are not expected to be significant. The small wetlands are at gentle slopes (flat) in a low rainfall area so that excessive or significant surface flow, erosion and loss of wetland habitat, are unlikely. Features such as interflow do not appear to play an important role at maintaining the wetland. Significant impact on the flow regime of the wetland depression at the site is unlikely to be altered. Proposed development implies no changes to the geomorphological setting of the small wetland depression. Small depressions at the site are conspicuously poor in wetland animal and plant species and unlikely to be a particular habitat for resident any wetland species of particular conservation concern. In summary it appears that an application for a Water Use License given the buffer zone of 30 m around the outer edge of the small wetland depression would not be necessary in the case of this study”

The Wetland Report is attached to the comprehensive Land Development Application as **Annexure O3**.

3.5 FAUNA AND FLORA ASSESSMENT

Anthene Ecological CC was commissioned to compile an Ecological Fauna and Flora Habitat Survey of the development area. This report is attached as **Annexure O3** to the comprehensive Land Development application and concluded as follows:

- ✘ Vegetation at the site contains a visibly poor cover of grass-layer and conspicuous high frequency of shrub-height trees. Shrub-height thorn trees such as *Vachellia karroo*, *Vachellia tortilis* and *Vachellia hebeclada* are prominent in some areas and in other areas visible concentrations of *Tarchonanthus camphoratus* (Camphor Bush) are noted.
- ✘ The site is on very gentle slopes (flat area).
- ✘ The entire site is visibly degraded or transformed. Large cleared or trampled areas with partial cover of exotic plant species or weeds are present. Tracks, roads and old buildings are found at the site. Informal dumping is extensive at the site.
- ✘ The vegetation type that represents the Savanna Biome at the site, Ghaap Plateau Vaalbosveld (SVk 7), is not listed as threatened ecosystem according to the National List of Threatened Ecosystems (2011).
- ✘ Presence of Threatened or Near Threatened animal or plant species are unlikely.
- ✘ One individual of a Protected tree species, *Vachellia erioloba* (Camel Thorn) is found at the site.
- ✘ Protected Tree species are listed under the National Forests Act No. 84 of 1998. In terms of a part of section 15(1) of Act No. 84 of 1998, no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a license granted by the Minister.

- ✧ Ecological sensitivity at the site is medium-low, apart from the degraded and modified small wetlands which are regarded as of medium sensitivity.
- ✧ The footprint proposed for the proposed development is not part of a corridor of particular conservation importance. Small and restricted pan depressions at the site could be important in a stepping stone conservation corridor system.

3.6 **GROUNDWATER**

The permanent or perched water table on site is deeper than 1,5m below ground surface. Ground water in the form of seepage was not intersected in any test pit during the investigation, but normal water tightening techniques such as damp course on foundation levels are required.

Plate flow is the dominant drainage pattern on site, and no prominent drainage channel intersects the site but according to the topography and height contours, the water dissipates into the sandy colluvium or pebble marker or pans on site. The permanent or perched water table on site is deeper than 1,5m below ground surface.

No seepage or the presence of perennial fluctuations of ground water was encountered on site, but a seasonal perched water table may exist. A ferruginised profile indicates that some perennial water level fluctuations occur.

The expected high permeability of the silty sand may lead to leachate from sanitation systems to reach the ground water, and a closed water borne sewage system is recommended.

3.7 **GEOLOGY** (Extract from Geotechnical Report compiled by Geoset attached as **Annexure N** to the comprehensive land development application)

The site is underlain by diamictite and shale of the Dwyka Formation, Karoo Supergroup. Surficial deposits include quaternary diamondiferous gravel and calcrete gravel, covering the lithology. Diamictite is a sedimentary rock that consists of non-sorted to poorly sorted terrigenous sediment containing particles that differ and may range in size from clay to boulders, suspended in a matrix of mudstone or sandstone.

Although dolomite occurs in the greater area around Vryburg, no dolomite was identified on these sites and a dolomite stability investigation will not be required before the commencement of township proclamation.

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 and moderately collapsible and compressible or medium expansive soil with limited thickness of less than 0,75m, and foundations will not need special treatment to withstand movement associated with the variable moisture content of the soil.

Some problems regarding excavatability can be expected almost across the site.

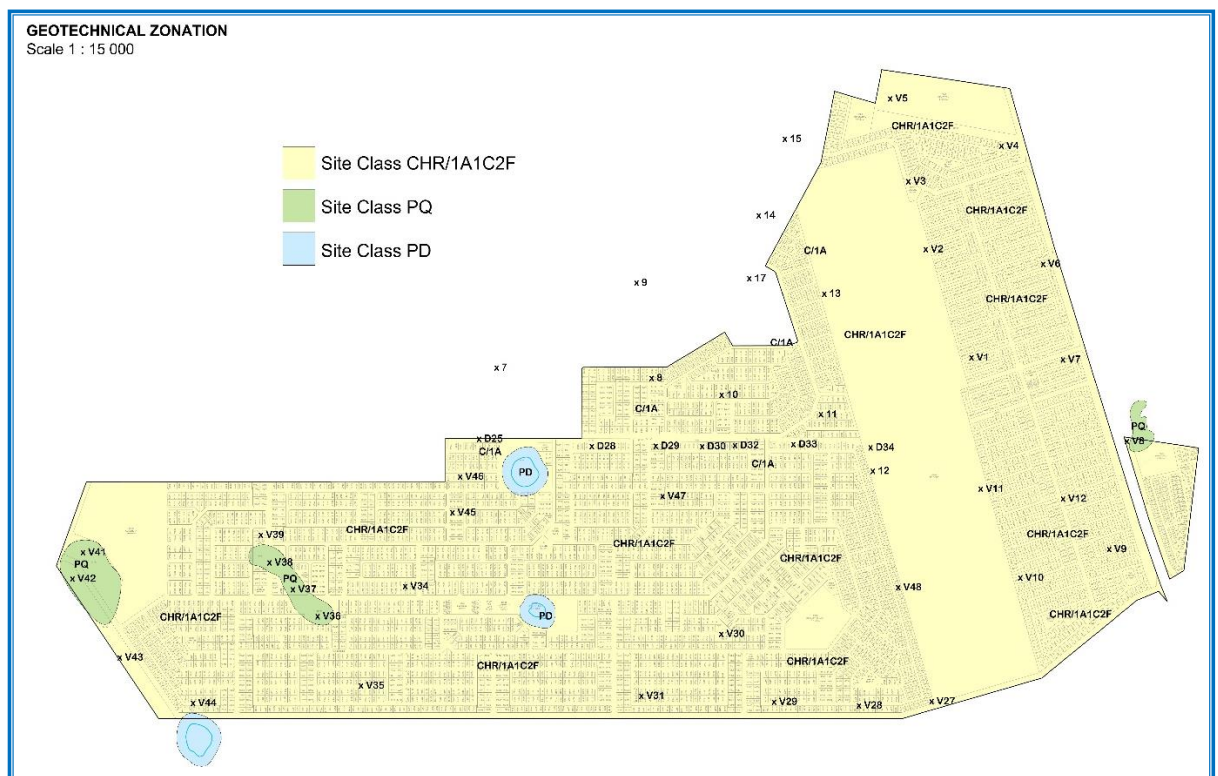
Retaining walls as well as slope stabilization measures are recommended on all constructed embankments exceeding 1,5m.

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 reflected on **Map 12**.



Map 12: Geotechnical Site Zonation

Normal Development with risk:

Site Class CHR/1A1C2F:

This zone represents the majority of the area and comprises of a relative thin top layer less than 0,75m in thickness of moderately collapsible or medium compressible and medium expansive soil underlain by a competent pebble marker and diamictite, with an expected range of total soil movement measured at surface as consolidation calculated to less than 5mm of total settlement, or less than 7,5 mm heave, with a site classification of CHR, underlain by **shallow rock shale and diamictite** and this added a **R site class designation** to the zone with **problems relating to restricted excavation to 1,5m**. Normal foundation techniques will be adequate to enable proper development, with proper compaction within standard strip foundations and drainage provision that will be required.

Special Development with expected problems or increased cost

Site Class H3PD:

This small zone is represented by medium to highly expansive soil or turf with estimated total heave of more than 30mm measured at surface. A wet pan area possibly within the 1:50 year flood line may also restrict development. Special foundation techniques will be required to enable proper development. It was classified as H3 in terms of the NHBRC. Split construction with suspended floors, piles with or without suspended floor slabs and ground beams, or even soil replacement with a soil raft, or stiffened or cellular rafts with articulation joints and reinforcement are required for residential development. Development must include site drainage and plumbing and service precautions.

Site Class PQ:

Quarried areas or borrow pits must be backfilled with a controlled fill better than G5 material according to engineer's specification before any development can take place.

In general, will normal foundation techniques and construction such as proper standard compaction techniques and strip footing foundations with drainage provision be adequate for proper township development.

3.7.3 FOUNDATION RECOMMENDATIONS AND SOLUTIONS

The following foundations solutions can be considered:

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.*

3.8 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 activity that forms the subject of this application 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 11: Listing details in terms of the National Environmental Management Act, 1998

Indicate the number and date of the relevant notice:	Activity No (s) (in terms of the relevant notice):	Describe each listed activity as per project description ¹ :
GN.R. 327, 7 April 2017	23	The development of a cemetery of 100 586 square metres in size.
GN.R. 327, 7 April 2017	44	The expansion of the existing cemetery at Vryburg by an additional 69 066 square meters and the expansion of the existing cemetery at Huhudi with an additional 36 413 square meters.
GN.R. 325, 7 April 2017	15	The clearance of 533,64 ha of indigenous vegetation (This area includes the clearance of 1 241 083 square meters of indigenous vegetation that is located within a critical Biodiversity area 2 as identified in the North West Bioregional Plan) in order to establish a township that will be located on a Portion of the Remaining Extent of Portion 8 of the farm Rosendal No. 673-IN, a Portion of the Remaining Extent of Erf 506, Vryburg, a

		Portion of the Remaining Extent of Portion 3 of the farm Rosendal No. 673-IN and Erven 3455, 4377, the remaining extent of Erf 4378 and Erf 4835, Huhudi, North West Province..
GN.R. 324, 7 April 2017	12 (h) (iv)(vi)	Clearance of 1 241 083 square meters of indigenous vegetation within a Critical biodiversity area 2 (CBA 2) and the clearance of 60 365 square meters of indigenous vegetation within 100 meters from a Pan.

The purpose of the study is to determine the impacts that the environment may have on the proposed activity, as well as the possible impacts that the activity may have on the environment.

The project was registered with the Department Rural, Environment and Agricultural Development by virtue of NWP/EIA/98/2018 and the final Environmental Impact Assessment Report (EIAR) was submitted to the fore-mentioned Department on 09 July 2019.

The information contained in this EIAR and Specialist Studies, provides a detailed and comprehensive description of the proposed project, baseline environment and potential environmental impacts associated with the proposed development (a copy of the comprehensive final Environmental Impact Assessment Report (EIAR) is attached to the comprehensive land development application as **Annexure O1**). As no significant impacts that cannot be mitigated were identified, AB Enviro Consult recommended that the project should proceed, provided that the necessary mitigation and management measures are implemented.

In response to the final Environmental Impact Assessment Report (EIAR) being submitted to the Department Rural, Environment and Agricultural Development (READ), the Environmental Authorisation in respect of this project was issued by the fore-mentioned Department on 06 August 2019 (refer **Annexure O2** of the comprehensive Land Development application for a copy of the Environmental Authorisation).

Under South African environmental legislation, the Applicant is accountable for the potential impacts of the activities that are undertaken and is responsible for managing these impacts. The Applicant therefore has overall and total environmental responsibility to ensure that the implementation of the construction phase of the EMPR complies with the relevant legislation and the conditions of the environmental authorisation. The applicant will thus be responsible for the implementation of the EMPR.

The environmental management programme (EMPR) compiled as part of the Environmental Impact Assessment process should form part of the contract between the construction company and the applicant. This will help ensure that the EMPR is adhered to.

1. Detailed mapping of the stone tools and possible scatters of material in the study area
2. Surface sampling of representative material from the sits to assist with the dating of the Stone Age archaeology of the area and to interpret it within the Stone Age archaeology of the larger geographical area
3. Test Trenching in selected areas to determine if there is any “in situ” archaeological deposits in areas where township development will be taking place.

GPS Location of Stone Age Sites: S26 58 53.40 E24 43 54.80 (ESA/MSA tools Area B); S26 59 46.90 E24 44 40.80 (south of Area F); S26 58 59.20 E24 43 42.50 (Bifacial hand axe); S26 58 59.80 E24 43 42.60 (Bifacial tool)

Cultural Significance: Medium - High.

Heritage Significance: Grade II

Field Rating: General protection A (IV A): Site should be mitigated before destruction (high/medium significance)

Mitigation: See above



Plate 14: MSA flake tool from the first area. Plate 15: MSA core from first site



Plate 16: ESA/MSA tools from the first area. Plate 17: Weathered MSA tool from the first area.



Plate 18: One of the large ESA/MSA tools from the gravels in the road.

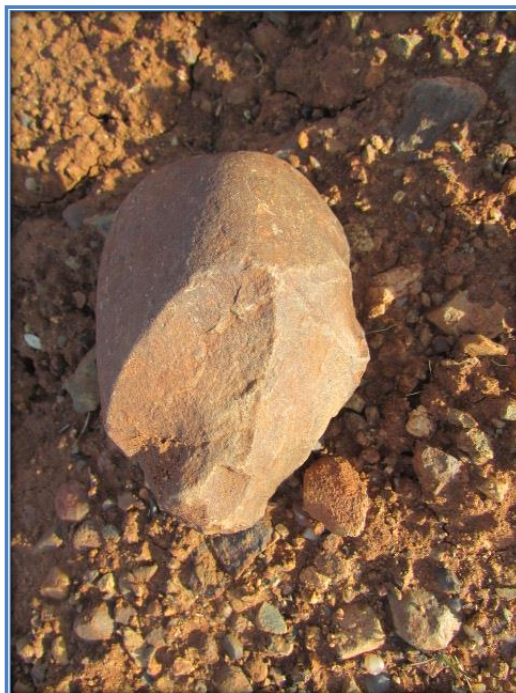


Plate 19: An ESA pebble tool (chopper)



Plate 20: A bifacial hand axe from the pipeline site in Area B.



Plate 21: Another bifacial tool from the pipeline site (ESA cleaver?)

CHAPTER 4: PROPOSED DEVELOPMENT

4.1 LAND USES

The intentions of the township applicant i.e. the Naledi Local Municipality is to utilize the concerned properties for the establishment of a proper integrated human settlement comprising the proposed township areas of not only Vryburg Extension 29 but also Huhudi Extension 1 (addressed under cover of a separate Land Development Application). The aim of this township establishment process is not only to address the short terms need for erven that can be utilized for low cost and subsidized housing purposes, but to create a variety of residential erven that can be utilized for various housing typologies including inter alia GAP/FLISP housing, rental housing, bonded housing and middle income housing. In accordance with the policy guidelines contained in the Breaking New Ground (BNG) Principles it is indicated that new residential township areas should focus on the establishment of integrated human settlements focussing on the provision of erven not only for subsidized/low income households but also addressing the need for other housing typologies such as rental housing, social housing, bonded housing and FLISP projects.

To achieve the fore-mentioned, the following erf sizes were adopted:

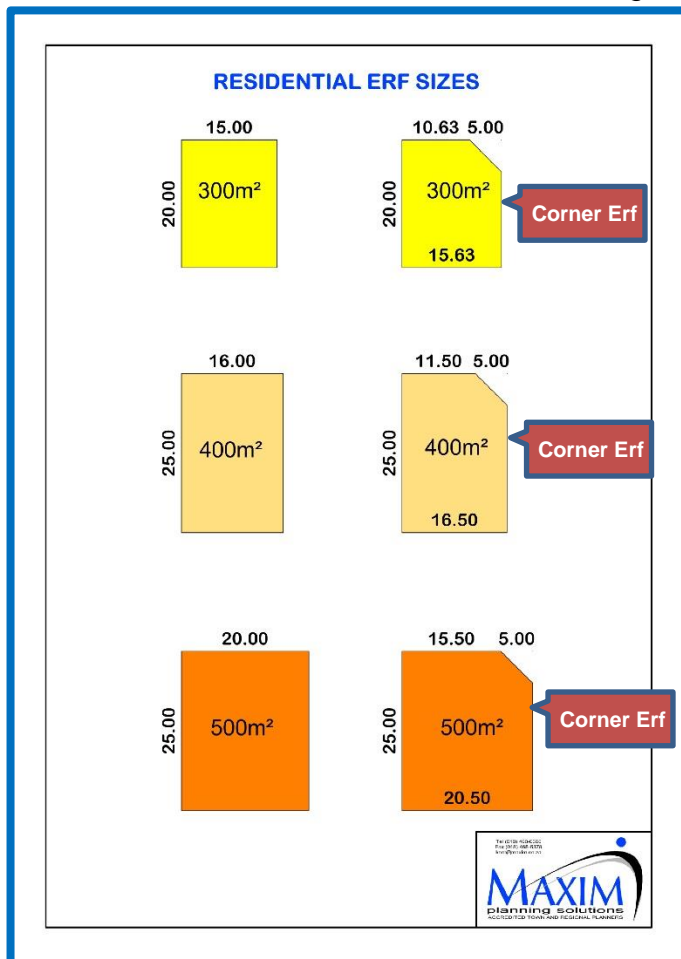


Figure 15: Residential erf sizes

As alluded to in Section 1.1, the planning of the proposed new integrated human settlement area at Vryburg Extension 29 was conducted in an integrated manner and focussed on the entire designated development area. This integrated planning yielded a township area comprising 8411 erven comprising of 7241 erven for subsidized and low-income housing purposes, 1061 erven for middle-income housing and 109 erven to accommodate the necessary no-residential community-, social-, educational- and business facilities. The integrated layout plan compiled in respect of the proposed township area on Vryburg Extension 29 located on a portion of the Remaining Extent of Erf 506, Vryburg and a portion of the Remaining Extent of Portion 3 of the farm Rosendal 673, Registration Division I.N., North West Province makes provision for the following erven/land uses:

Table 12: Detail land use analysis of the proposed township Vryburg Extension 29

Proposed Zoning	Proposed Land use	Number of Erven	Erf Number	Area in Ha	% of Area
Residential 4	Dwelling Unit Minimum 300m ²	93	17637-17725; 17727-17730	3.1505ha	0.68%
	Dwelling Unit Minimum 400m ²	4555	11981-12181; 12183-12186; 12188-12350; 12352-12940; 12942-13059; 13061-13930; 13932-14276; 14278-14406; 14408-14532; 14534-14991; 14994-15197; 15199-15241; 15251-15319; 15323-15598; 15600-15697; 15699-16561	190.5516ha	41.40%
	Dwelling Unit Minimum 500m ²	1061	16565-16688; 16690-16700; 16702-17136; 17138-17159; 17161-17177; 17179-17379; 17384-17634	57.1923ha	12.43%
Business 1	Business	2	15246; 17383	0.5294ha	0.12%
Business 2	Shop	17	12187; 12351; 14277; 14407; 15242-15245; 15247-15250; 17137; 17178; 17380-17382	1.1844ha	0.26%
Institutional 1	Place of Instruction (Primary School)	1	14993	3.3108ha	0.72%
	Place of Instruction (Creche)	6	12182; 12941; 14992; 15701; 17160; 17726	1.2748ha	0.28%
	Place of Worship (Church)	8	13060; 13931; 14533; 15198; 15599; 15698; 16689; 17635	1.7644ha	0.38%
Institutional 2	Community Facility	1	15321	0.3520ha	0.08%
	Sports Field	1	15322	2.1753ha	0.47%
Public Open Space 1	Public Open Space	19	17731-17749	22.3135ha	4.85%
Authority	Municipal	2	16564; 17636	2.6983ha	0.59%
Transport 1	Taxi Rank	1	15320	0.1975ha	0.04%
Transport 2	Public Street			82.9867ha	18.03%
Cemetery	Cemetery	2	11980; 16563	16.9652ha	3.69%
Special	Airfield	1	16562	73.5634ha	15.98%
TOTAL		5770	11980-17749	460.2101ha	100%

- **Individual Subsidy**

This programme provides access to state assistance where qualifying households wish to acquire an existing house or a vacant serviced residential stand, linked to a house construction contract through an approved mortgage loan. These properties are available in the normal secondary housing market or have been developed as part of a project not financed through one of the National Housing Programmes

- **Enhanced People’s Housing Process**

The Enhanced People’s Housing Process aims to support households who wish to enhance their housing subsidies by funding their own homes. The Enhanced People’s Housing process can be accessed through the Integrated Residential Development Programme, Project Linked Consolidation or Institutional Subsidies.

- **People’s Housing Process**

This subsidy is given to people who want to build or manage the building of their own homes. Unlike the Project Linked Subsidy where a contractor builds houses for a number of people, the People’s Housing Process allows people or beneficiaries to build or organize the building of their homes.

Housing the poor was an ingredient of the Department of Human Settlement’s three-part response to the State’s Vision 2030 Strategy. “Gap housing” is a term that describes the shortfall or gap in the market between units supplied by the State and houses delivered by the private sector. The gap housing market comprises people who typically earn between R3500 and R15000 per month, which is too little to enable them to participate in the private property market, yet too much for state assistance. Gap housing is a policy that addresses the housing aspirations of people such as nurses, fire-fighters, teachers, SAPS members and member of the armed forces who earn between R3500 and R15000 per month and therefore do not qualify for RDP houses and do not earn enough to obtain home loans.

The following figure illustrates the income divide / Need for alternative solutions.

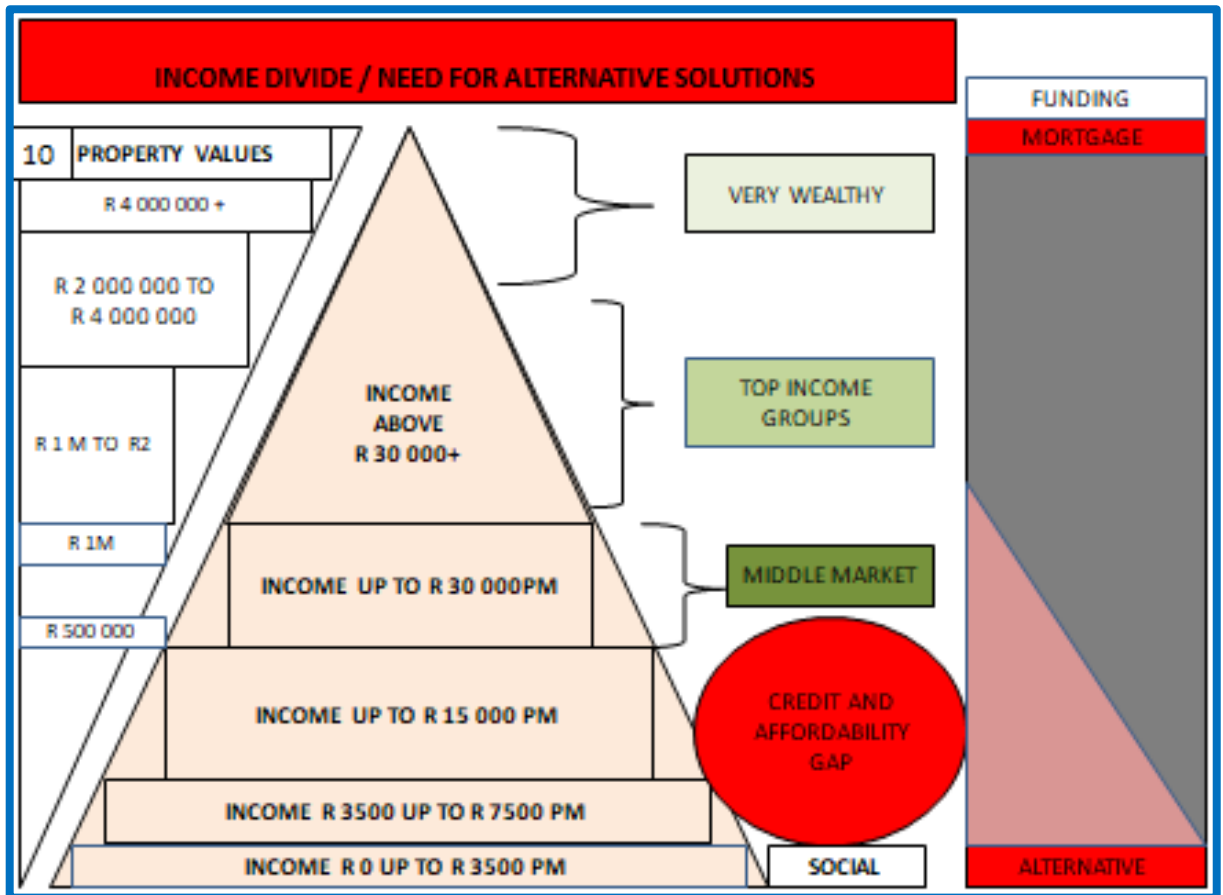


Figure 16: Income Divide / Need for alternative solutions

One of the subsidy programmes further available from the Department of Human Settlements includes the Finance Linked Individual Subsidy Programme (FLISP).

FLISP was developed to enable first time home-ownership to households in the “affordable or gap” market, that is, people earning between R3501 and R15000 per month. Individuals in these salary bands generally find it hard to qualify for housing finance; their income is regarded as low for mortgage finance, but too high to qualify for the government subsidy scheme available to households earning less than R3500 per month. Depending on the applicant’s gross monthly income, their once-off FLISP subsidy qualifying amount may vary between R20 000 and R87 000, as defined in the FLISP Subsidy Quantum. Any residential property acquired with the FLISP subsidy may not exceed the R300 000 price margin. FLISP assists qualifying beneficiaries who wish to obtain mortgage finance from a lender to:

- Acquire ownership of an existing residential property
- Obtain vacant serviced residential stands which are linked to house building contracts with the home builders registered with the National Home Builders Registration Council (NHBRC); or
- Build a new house with the assistance of a home builder registered with the National Home Builders Registration Council (NHBRC) on serviced residential stand that is already owned by the beneficiary.

The objective of the programme is to reduce the initial mortgage loan amount to render the monthly loan repayment instalments affordable over the loan payment term.

It is therefore imperative to note that the proposed 5 709 erven provided for “Residential Zone IV” purposes are not provided to only accommodate subsidized housing but that the erven will also be available to potential owners who may not qualify for one of the government subsidies but who still wishes to acquire an erf from the Naledi Local Municipality to build their own house.

The “Residential 4” erven will be subject to the following development parameters as imposed in terms of the Naledi Town Planning Scheme, 2004:

Table 13: “Residential 4” development parameters

Development parameter	Development Parameter Detail
Primary Use	<ul style="list-style-type: none"> ▪ Dwelling house ▪ Additional dwelling ▪ Electrical purposes ▪ Home occupation ▪ Medical Rooms ▪ Semi-detached unit
Special Consent Uses	<ul style="list-style-type: none"> ▪ Institutional use ▪ Place of instruction ▪ Place of worship ▪ Special usage
Written Consent Uses	<ul style="list-style-type: none"> ▪ Day care facility ▪ Service Trade ▪ Shelter
Coverage	60%
Height	2 storeys
Floor Area Ration (FAR)	-
Building lines	<ul style="list-style-type: none"> ▪ Street boundary: 1m ▪ Rear boundary: 2m ▪ Side boundary: 1m
Maximum dwelling units per hectare	33.3 units /ha
Maximum area per erf	740m ²

▪ **Business 1**

The layout plan of the proposed township area of Vryburg Extension 29 makes provision for two (2) erven to be zoned as “Business 1”.

To ensure that a proper integrated human settlement is established, it is imperative that adequate provision also be made for commercial activities that will address the needs of the concerned community whilst similarly providing opportunities for job creation. The township area of Vryburg Extension 29 makes provision for the establishment of two (2) commercial/service nodes that are located at the intersection

of Class 3 roads and centrally within the eastern and western sections of the proposed development area. It is envisaged that these erven will be utilized as the main commercial nodes offering the greatest variety of goods and services. It is envisaged that these nodes will function as mixed land use nodes also providing supporting social facilities such as clinics, municipal pay points, Thusong Centres, Post Office facilities, SASSA pay points etc. The “Business 1” erven were positioned centrally within the development area and adjacent to the main collector roads to limit walking distances whilst also ensuring easy accessibility to these facilities.

The proposed “Business 1” erven will be subject to the following development parameters imposed in terms of the Naledi Town Planning Scheme, 2004:

Table 14: “Business 1” development parameters

Development parameter	Development Parameter Detail
Primary Use	<ul style="list-style-type: none"> ▪ Authority use ▪ Bed & Breakfast ▪ Canteen ▪ Community facility ▪ Electrical purposes ▪ Filling Station ▪ Funeral parlour ▪ Guest house / lodge ▪ Hotel ▪ Office ▪ Parking ▪ Place of assembly ▪ Private street / parking ▪ Restaurant ▪ Shop ▪ Tavern
Special Consent Uses	<ul style="list-style-type: none"> ▪ Nursery ▪ Place of entertainment ▪ Place of worship ▪ Special usage ▪ Transmission tower
Written Consent Uses	<ul style="list-style-type: none"> ▪ Dwelling house ▪ Institutional use ▪ Place of instruction ▪ Residential building ▪ Service station
Coverage	80%
Height	6 storeys
Floor Area Ration (FAR)	3
Building lines	<ul style="list-style-type: none"> ▪ Street boundary: 0m ▪ Rear boundary: - ▪ Side boundary: -

- **Business 2**

The layout plans of the proposed township area of Vryburg Extension 29 makes provision for seventeen (17) erven to be zoned as “Business 2”:

To ensure that a proper integrated human settlement is established, it is imperative that adequate provision also be made for commercial activities that will address the daily needs of the concerned community whilst similarly providing opportunities for job creation. The township area of Vryburg Extension 29 makes provision for the establishment of 17 suburban business nodes that are primary located along Class 3 and 4 roads and at the intersections of such roads. As a support function to the business hub/node provided in the western part of the development area, provision was also made for 8 smaller business erven that can be developed as integral part of the greater business development and which will afford smaller entrepreneurs to also enter the market by providing their own shops and businesses or by providing opportunities for people that wishes to rent such facilities.

The “Business 2” erven were positioned in such a way to limit walking distances whilst ensuring easy accessibility to these facilities. The large number of business erven provided aims at stimulating economic growth and providing opportunities for job creation.

The proposed “Business 2” erven will be subject to the following development parameters imposed in terms of the Naledi Town Planning Scheme, 2004:

Table 15: “Business 2” development parameters

Development parameter	Development Parameter Detail
Primary Use	<ul style="list-style-type: none"> ▪ Canteen ▪ Electrical purposes ▪ Office ▪ Parking ▪ Place of assembly ▪ Shop
Special Consent Uses	<ul style="list-style-type: none"> ▪ Place of entertainment ▪ Place of worship ▪ Special usage ▪ Tavern ▪ Transmission tower
Written Consent Uses	<ul style="list-style-type: none"> ▪ Dwelling house ▪ Filling Station ▪ Place of instruction ▪ Residential building ▪ Service station
Coverage	80%
Height	4 storeys
Floor Area Ration (FAR)	2

Building lines	<ul style="list-style-type: none"> ▪ Street boundary: 0m ▪ Rear boundary: - ▪ Side boundary: -
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▪ **Institutional 1**

The layout plan of the proposed township area of Vryburg Extension 29 makes provision for the following number of erven to be zoned as “Institutional I”:

Table 16: Number of “Institutional 1” erven

Proposed township area	Number of “Institutional 1” erven	Proposed land use	Combined area
Vryburg Extension 29	1	Primary School	3,3108 hectares
	6	Crèche	1,2748 hectares
	8	Church	1,7644 hectares
TOTAL	15		6.3500 hectares

For this development area to function as a proper integrated human settlement, it is of critical importance to also address the needs of the community for education facilities in the form of early learning centres / crèches, primary schools and secondary schools.

In terms of the CSIR Guidelines for the Provision of Social Facilities in South African Settlements, the following norm is proposed in respect of educational facilities:

Table 17: CSIR Guideline for educational facilities

Proposed facility	CSIR Guideline	Number of erven required	Number of erven provided
Small Crèche / Early childhood development centre	1 per 2400 – 3000 inhabitants	5.7 - 7.1	6
Primary School	1 per 7000 inhabitants	2.4	1
Secondary School	1 per 12 500 inhabitants	1.4	0

(Based on estimated 5709 households, 2.9 average household size and total estimated inhabitants of 17 013)

Based on the results contained in **Table 17** above, it may seem that there is an under provision of 1 primary and 1 secondary school. In this regard cognisance should be taken of the fact that there are both a vacant primary school erf and a vacant secondary school erf located directly adjacent to the northern boundary of the proposed township area (located within the proclaimed township area of Vryburg Extension 28. An analysis done in respect of the provision of educational facilities within the township areas of

erven that can be utilized for primary and secondary school purposes. This fact and the close proximity of the existing school erven in the township area of Vryburg Extension 28 informed the decision in respect of the provision of only 1 primary and no secondary school sites. The erf earmarked for the use as primary school was positioned in such a manner to limit walking distance for learners whilst ensuring that the facilities are positioned in such a manner to ensure optimum accessibility. To prevent any conflict in land use and ensure the safety of learners, the primary school erf was positioned in such a manner to prevent residential erven bordering onto such primary school erf.

In addition to the educational facilities to be provided, the layout plan also incorporates 8 erven that can be utilized for religious purposes to address the needs of the community for religious facilities.

Table 18: CSIR Guideline for educational facilities

Proposed facility	CSIR Guideline	Number of erven required	Number of erven provided
Church	1 per 3000 – 6000 inhabitants	2.8 to 5.7	8

(Based on estimated 5709 households, 2.9 average household size and total estimated inhabitants of 17 013)

The erven earmarked for use as churches were positioned centrally within the township area to limit waking distance to such facilities.

The proposed “Institutional 1” erven will be subject to the following development parameters imposed in terms of the Naledi Town Planning Scheme, 2004:

Table 19: “Institutional 1” development parameters

Development parameter	Development Parameter Detail
Primary Use	<ul style="list-style-type: none"> ▪ Dormitory Establishment ▪ Electrical purposes ▪ Place of assembly ▪ Place of instruction ▪ Place of worship ▪ Sport and Recreation
Special Consent Uses	<ul style="list-style-type: none"> ▪ Special usage
Written Consent Uses	<ul style="list-style-type: none"> ▪ Dwelling house
Coverage	50%
Height	3 storeys
Floor Area Ration (FAR)	1.4
Building lines	<ul style="list-style-type: none"> ▪ Street boundary: 5m ▪ Rear boundary: 2m ▪ Side boundary: 2m

▪ **Institutional 2**

The layout plan also incorporates the following number of erven to be zoned as “Institutional 2”:

Table 20: Number of “Institutional 2” erven per township area

Proposed township area	Number of “Institutional 2” erven	Proposed land use	Combined area
Vryburg Extension 29	1	Community facility	0,3520 hectares
	1	Sports field	2,1753 hectares
TOTAL	2		2,5273 hectares

The proposed “Institutional 2” erven will be subject to the following development parameters imposed in terms of the Naledi Town Planning Scheme, 2004:

Table 21: “Institutional 2” development parameters

Development parameter	Development Parameter Detail
Primary Use	<ul style="list-style-type: none"> ▪ Authority use ▪ Community facility ▪ Electrical purposes ▪ Place of assembly ▪ Sport and Recreation
Special Consent Uses	<ul style="list-style-type: none"> ▪ Place of instruction ▪ Special usage
Written Consent Uses	<ul style="list-style-type: none"> ▪ Dwelling house ▪ Place of worship ▪ Restaurant
Coverage	50%
Height	3 storeys
Floor Area Ration (FAR)	1.4
Building lines	<ul style="list-style-type: none"> ▪ Street boundary: 5m ▪ Rear boundary: 2m ▪ Side boundary: 2m

▪ **Public Open Space 1**

The layout plan of the proposed township Vryburg Extension 29 also incorporates 19 erven that were earmarked for “Public Open Space” purposes. These erven were primarily provided to accommodate areas that were deemed not suitable for development purposes due to geotechnical constraints or the presence of wetland areas as well as to accommodate the routes of existing services infrastructure (water lines and power lines) that traverse the proposed development area. The public open space erven are also provided to accommodate the prescribed 16m and 20m building restriction areas applicable along Road D944 and Road N18 respectively as well as

the proposed Eskom power line servitude which is planned along the western boundary of the proposed township area.

The proposed “Public Open Space 1” erven will be subject to the following development parameters imposed in terms of the Naledi Town Planning Scheme, 2004:

Table 22: “Public Open Space 1” development parameters

Development parameter	Development Parameter Detail
Primary Use	<ul style="list-style-type: none"> ▪ Electrical purposes ▪ Public open space ▪ Public street / parking
Special Consent Uses	<ul style="list-style-type: none"> ▪ Special usage ▪ Transmission tower
Written Consent Uses	<ul style="list-style-type: none"> ▪ Sport and recreation
Coverage	-
Height	-
Floor Area Ration (FAR)	-
Building lines	<ul style="list-style-type: none"> ▪ Street boundary: - ▪ Rear boundary: - ▪ Side boundary: -

▪ **Authority**

The layout plan of the proposed township Vryburg Extension 29 also incorporates 2 erven that will be utilized for municipal purposes. These two erven were created to accommodate the existing Vryburg Main Substation as well as the Huhudi ground and elevated water towers.

The proposed “Authority” erf will be subject to the following development parameters imposed in terms of the Naledi Town Planning Scheme, 2004:

Table 23: “Authority” development parameters

Development parameter	Development Parameter Detail
Primary Use	<ul style="list-style-type: none"> ▪ Authority use ▪ Cemetery ▪ Dwelling house ▪ Electrical purposes ▪ Municipal purposes ▪ Nursery ▪ Offices ▪ Parking ▪ Place of assembly ▪
Special Consent Uses	<ul style="list-style-type: none"> ▪ Special usage ▪ Transmission tower

Written Consent Uses	-
Coverage	Council to decide
Height	Council to decide
Floor Area Ration (FAR)	Council to decide
Building lines	<ul style="list-style-type: none"> ▪ Street boundary: Council to decide ▪ Rear boundary: Council to decide ▪ Side boundary: Council to decide

▪ **Transport 1**

The layout plan of the proposed township Vryburg Extension 29 incorporates one (1) “Transport 1” erf that will be utilized for the purposes of a taxi rank. This site was specifically positioned along the Class 3 collector road and forms an integral part of the largest business node within the integrated human settlement area. The positioning of the taxi rank was specifically chosen to limit walking distance specifically within the area where vehicle ownership is expected to be lower than in the areas designated for middle income households. The taxi rank will comprise a total area of 0,1975 hectares.

The proposed “Transport 1” erf will be subject to the following development parameters imposed in terms of the Naledi Town Planning Scheme, 2004:

Table 24: “Transport 1” development parameters

Development parameter	Development Parameter Detail
Primary Use	<ul style="list-style-type: none"> ▪ Cemetery ▪ Dwelling house ▪ Electrical purposes ▪ Railway purposes ▪ Transport usage
Special Consent Uses	<ul style="list-style-type: none"> ▪ Commercial use ▪ Light industry ▪ Offices ▪ Special usage ▪ Transmission tower
Written Consent Uses	-
Coverage	-
Height	-
Floor Area Ration (FAR)	-
Building lines	<ul style="list-style-type: none"> ▪ Street boundary: - ▪ Rear boundary: - ▪ Side boundary: -

▪ **Transport 2**

The public streets within the proposed township area of Vryburg Extension 29 will on proclamation of the proposed township be zoned “Transport 2” in terms of the Naledi Town Planning Scheme, 2004 and will be subject to the following development parameters:

Table 25: “Transport 2” development parameters

Development parameter	Development Parameter Detail
Primary Use	<ul style="list-style-type: none"> ▪ Electrical purposes ▪ Private street / parking ▪ Public street / parking
Special Consent Uses	<ul style="list-style-type: none"> ▪ Special usage
Written Consent Uses	-
Coverage	-
Height	-
Floor Area Ration (FAR)	-
Building lines	<ul style="list-style-type: none"> ▪ Street boundary: - ▪ Rear boundary: - ▪ Side boundary: -

As per request from the Naledi Local Municipality, all streets within the proposed township area of Vryburg Extension 29 was provided with proposed street names. The street names adopted for this specific township area relate to precious and non-precious metals and minerals and are indicated on the layout plan of the proposed township area and are also contained in **Annexure S** of the comprehensive Land Development Application.

▪ **Cemetery**

The layout plan of the proposed township Vryburg Extension 29 incorporates two (2) erven that are earmarked for cemetery purposes. The first site was positioned within the farm western part of the development area where the geotechnical conditions are best suited for a facility of this nature. Provision was also made along the north-eastern corner of the proposed township area for the future extension of the existing Vryburg Cemetery into the township area of Vryburg Extension 29. These cemetery facilities were also included in the Environmental Authorisation that was issued in respect of the proposed development.

The proposed “Cemetery” erf will be subject to the following development parameters imposed in terms of the Naledi Town Planning Scheme, 2004:

Table 26: “Cemetery” development parameters

Development parameter	Development Parameter Detail
Primary Use	<ul style="list-style-type: none"> ▪ Cemetery ▪ Electrical purposes
Special Consent Uses	<ul style="list-style-type: none"> ▪ Special usage
Written Consent Uses	-
Coverage	Council to decide
Height	Council to decide
Floor Area Ration (FAR)	Council to decide
Building lines	<ul style="list-style-type: none"> ▪ Street boundary: Council to decide

	<ul style="list-style-type: none"> ▪ Rear boundary: Council to decide ▪ Side boundary: Council to decide
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▪ **Special (Airfield)**

During the layout planning of the proposed township area, it was decided to incorporate the existing Vryburg Airfield into the layout planning process to allow for this facility to be located on a proper demarcated erf in an approved township area should further development of this facility be required in future.

Vryburg Airport is an airport serving Vryburg and is located approximately 2.5 kilometres south of the Vryburg CBD. In 1919 the Royal Air Force built the first airport in Vryburg. It was located to the north of the town and west of the Gert Lubbe Sports Grounds. The area was originally identified by Major Court Treatt as a landing strip for the regular flights between Cairo and Cape Town. At that time the town council rented the terrain to the Royal Air Force for 10 cents a year.

The current airport, which is located south of Vryburg was completed during March 1939. At that stage it could accommodate any existing aircraft type. The airport was used by the South African Department of Defence during the Second World War. After the end of the Second World War the Department of Defence notified the town council that it would no longer require the airport for defence purposes. The town council decided that it would continue the operation of the airport and applied to the Director of Civil Aviation (now the South African Civil Aviation Authority) for an aerodrome license and on 1 November the license application was granted.

- Type:** Airport (Aerodrome, Airfield)
- Latitude:** 26°58'57"S (-26.982407)
- Longitude:** 24°43'44"E (24.728756)
- Date:** WGS 1984
- Elevation:** 3920 ft (1195 m)
- Variation:** 18.62°W (WMM2015 magnetic declination) -0.08° annual change
- Runways:** 1
- Longest:** 3937 x 66 ft (1200 x 20 m), paved (asphalt) 1200 m 3937 ft

The existing Vryburg aerodrome, with the potential of becoming an important linkage, was identified as an opportunity in the Naledi Integrated Development Plan (IDP). Funding need to be sourced in order to revive the Vryburg aerodrome into a fully functional air strip which can contribute to the economy of Vryburg.

Based on available information, the existing Vryburg airfield is not licensed by the South African Civil Aviation Authority (SACAA).

the existing street network of the adjacent township areas of Vryburg Extension 28 and Huhudi.

The street network adopted for the proposed township area comprises a network of 20, 16, 13m and 10m streets and were designed to ensure proper surface stormwater drainage.

In order to assess the impact of the proposed township area on the surrounding road network, Route 2 Transport Strategies was commissioned to conduct a Traffic Impact Assessment in respect of the entire integrated human settlement area (encompassing Vryburg Extension 29, Huhudi Extension 1 and the re-development of four erven in the township area of Huhudi). The results of the Traffic Impact Study will focus on all the fore-mentioned development areas combined (refer **Annexure Q** to the comprehensive land development application for the Traffic Impact Assessment).

The results of the Traffic Impact Study can be summarized as follows:

4.3.1 STUDY AREA

The extent of the study area is driven by an estimation of the traffic generated by the proposed development and the intersections likely to be affected by the additional traffic. The development is expected to generate in the order of 1 000 peak hour trips, therefore a traffic impact study is required. The study includes the intersections of:

1. Market Street (N14) and Moffat Street (N18) - signalised.
2. Moffat Street (N18) and Suid Street – priority controlled.
3. Moffat Street (N18) and Unknown Street – priority controlled.
4. Moffat Street (N18), Airstrip Road and Unknown Street – priority controlled.
5. Moffat Street (N18) and Unknown Street to Huhudi – priority controlled.
6. N14 and Suid Street – priority controlled.

4.3.2 SURROUNDING ROAD NETWORK

4.3.2.1 N14

The N14 is a National Class 1 road and falls under the jurisdiction of SANRAL.



Plate 22: View of N14 National Road

4.3.2.1 N18

The N18 is a National Class 1 road and falls under the jurisdiction of SANRAL.



Plate 23: View of National Road N18

4.3.3 TRAFFIC FLOW AND TRIP GENERATION

4.3.3.1 Trip Generation

The COTO *Trip Generation Manual (September 2012 TMH 17 Volume 1)* recommends the peak hour trip rates as per in **Tables 27 & 28** below. The trip generation rates for Residential 1 and Primary- & Secondary Schools have

been obtained from a study that was conducted by ITS Consulting Engineers. The lower trip rates are now used for similar type of lower income developments in the country and is more a true reflection of vehicle ownership. Since the Townships have low levels of employment and there are very scarce job opportunities in the area, these trip rates can be justified. Most people therefore walk, use public transport or is transported by their employers in the areas, therefore the reductions for very low vehicle ownerships were allowed.

Table 27: Proposed Development AM Peak Hour Trip Generation

Land use	Extend	Units	Pc Factor	Trip Rate	Split		Trips		Adjusted Total in & out
					In	Out	In	Out	
Business	5 000m ²	100m ²	0.085	0.6	65%	35%	27	15	42
Residential 4	8 435	Units	0.225	0.31	25%	75%	196	588	784
Primary School	2 000	Pupils	0.400	0.07	50%	50%	14	14	28
Pre-School	500	Children	0.275	1.0	50%	50%	50	50	100
Light Industrial	6 500	100m ²	0.150	0.8	70%	30%	25	11	36
TOTAL							313	678	991

Table 28: Proposed Development PM Peak Hour Trip Generation

Land use	Extend	Units	Pc Factor	Trip Rate	Split		Trips		Adjusted Total in & out
					In	Out	In	Out	
Business	5 000m ²	100m ²	0.085	3.4	50%	50%	118	118	236
Residential 4	8 435	Units	0.225	0.31	70%	30%	549	235	784
Primary School	2 000	Pupils	0.400	0.02	50%	50%	4	4	8
Pre-School	500	Children	0.275	0.8	50%	50%	40	40	80
Light Industrial	6 500	100m ²	0.150	0.8	25%	75%	9	27	36
TOTAL							720	425	1 145

4.3.3.2 Expected Trip Distribution

The following distribution was used:

- 25% from the north along N18.
- 25% from the east along N14 & R34.
- 10% from the north along N14 from town.
- 20% from within town.
- 20% from the south along the N18.

4.3.4 TRAFFIC IMPACT AND CAPACITY ANALYSIS

4.3.4.1 Future 2023 Traffic

The 2018 traffic volumes on the N14 & N18 were grown with 3% per annum to calculate the 2023 demand. No latent traffic was applied for the area.

4.3.4.2 Market Street (N14) and Moffat Street (N18) Intersection

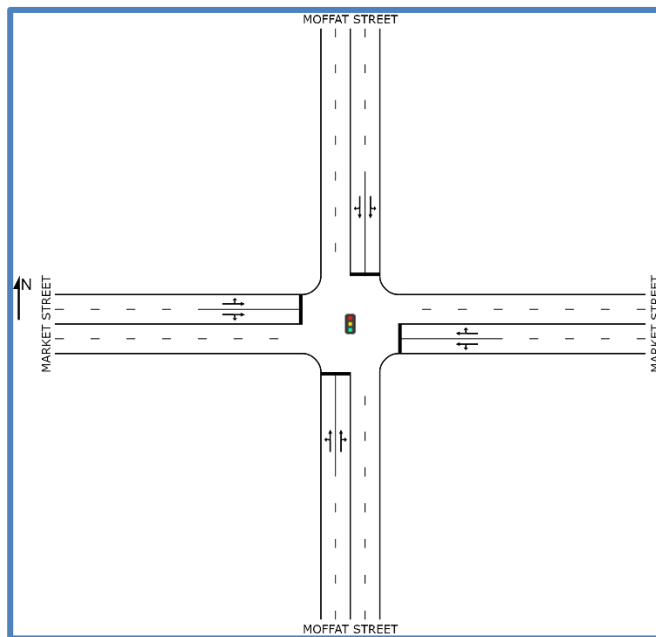


Figure 17: Existing layout of Market Street (N14) and Moffat Street (N18) intersection

For the **Existing 2018 & Future 2023** scenarios the analysis indicates that the intersection operates with acceptable LOS and spare capacity therefore no upgrades are proposed.

4.3.4.3 N18 and Suid Street Intersection

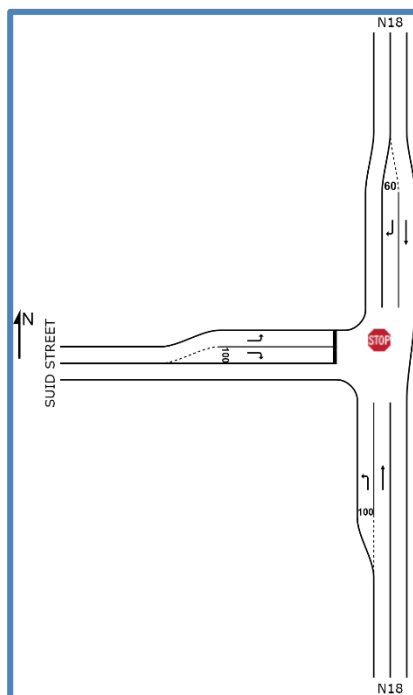


Figure 18: Existing Layout of N18 and Suid Street Intersection

For the **Existing 2018** scenario the analysis indicates that the intersection operates with acceptable LOS and spare capacity. By including the development traffic, the side road (Suid Street) will experience delays although the intersection will still have capacity left, thus to mitigate this, upgrades and signals are proposed by **2023** which should firstly be Warranted. The proposed layout is shown below in **Figure 19**:

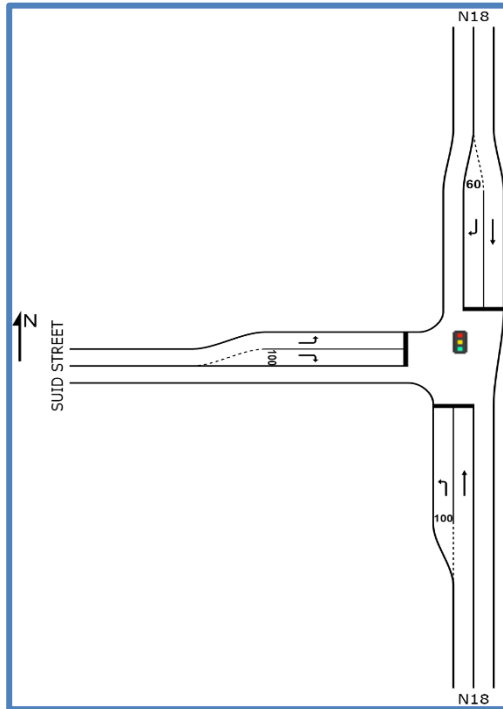


Figure 19: Proposed Layout of N18 and Suid Street Intersection

4.3.4.4 N18 and Nelson Mandela Street Intersection

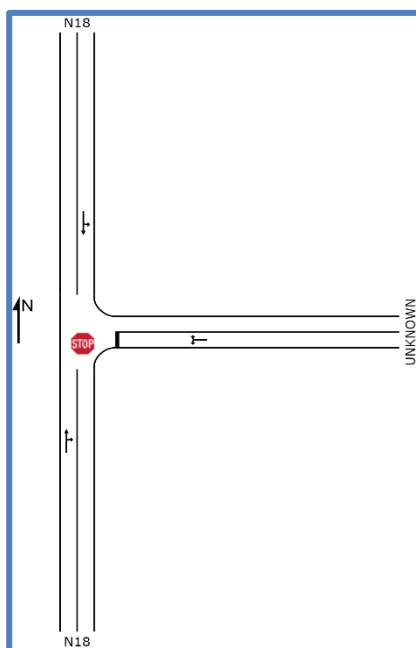


Figure 20: Existing Layout of N18 and Nelson Mandela Street Intersection

For the **Existing 2018** scenario the analysis indicates that the intersection operates with acceptable LOS and spare capacity. By including the development traffic, the side roads will experience very long delays. To mitigate this, upgrades and signals are proposed by **2019** which should firstly be Warranted. The proposed layout is shown in **Figure 21** below:

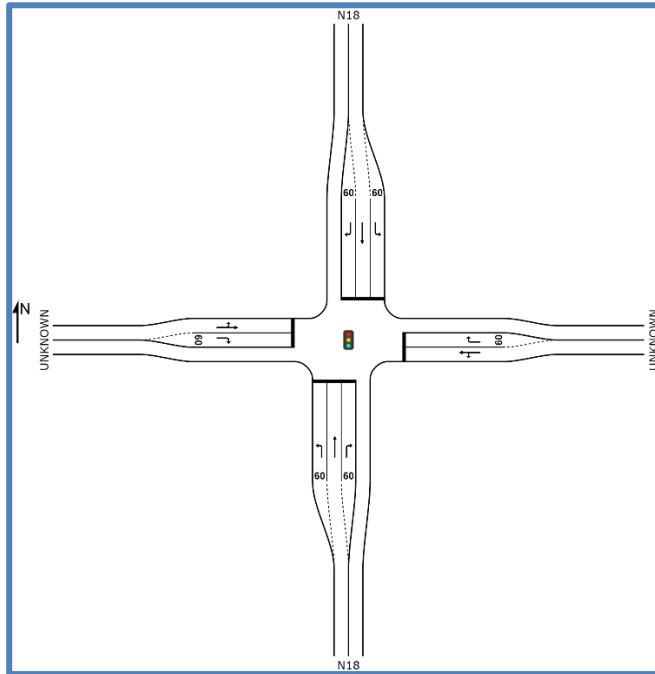


Figure 21: Proposed Layout of N18 and Nelson Mandela Street Intersection

4.3.4.5 N18, Airstrip Road and Liquid Silver Street

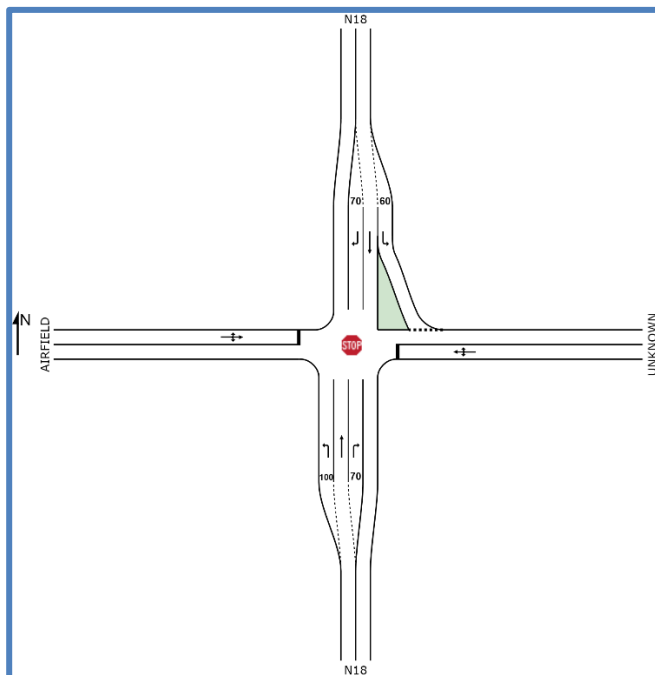


Figure 22: Existing Layout of N18, Airstrip Road and Liquid Silver Street

For the **Existing 2018 & Future 2023** scenarios the analysis indicates that the intersection operates with acceptable LOS and spare capacity therefore no upgrades are proposed.

4.3.5 PUBLIC TRANSPORT AND NON-MOTORISED TRANSPORT

4.3.5.1 Public Transport

The following public transport facilities are recommended:

- ***The implementation of bus and minibus-taxi lay-bys on both sides of N18 at the access road intersections where is not currently in place.***



Plate 24: View of existing bus and minibus taxi lay-bys along N18

4.3.5.2 Non-Motorised Transport (NMT)

The following is proposed:

- Formalising existing pedestrian crossings with appropriate road markings and signage.
- Provision of street lighting.
- Implementation of walkways and kerb ramps.
- Provision of pedestrian sidewalks along the Class 3 and 4 roads in the Townships.

4.3.6 CONCLUSION AND RECOMMENDATIONS

With regards to traffic generation and impact, it is estimated that the developments will generate in the order of 991 AM peak and 1 145 PM peak hour trips (total in and out).

The Traffic Engineer concluded and made the following recommendations:

- Provision of minibus-taxi and bus lay-buys at the access road intersections off the N18 where it is not currently there.
- Signalisation of the intersection of N18 and Suid Street by 2023.
- Upgrading and signalising of the N18 and Unknown Road intersection by 2019 (base year).
- Upgrading and signalising of the N18, Airstrip Road and Unknown Road intersection by 2019 (base year).
- Upgrading and signalising of the N18 and southern unknown road intersection by 2019 (base year).
- If any Business site become a retail site, then a small rank will be necessary.
- Provision of pedestrian sidewalks along the Class 3 and 4 roads within the Townships

CHAPTER 5: PROVISION OF ENGINEERING SERVICES

5.1 INTRODUCTION

Moedi Consulting Engineers was appointed to investigate and report on the provision of civil engineering services to the proposed township area.

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

- Section 5.2: Civil Engineering Services
- Section 5.3: Electrical Engineering Services

5.2 CIVIL ENGINEERING SERVICES

(Extract from the civil engineering services report compiled by Moedi Consulting Engineers (attached as Annexure H1 to the comprehensive Land Development Application))

5.2.1 BULK WATER

5.2.1.1 Water Demand

Information with regards to water consumption is not available. Although the district municipality embarked on a programme to install bulk meters for improved water demand management, reliable data on bulk water consumption meter readings is not available yet.

The most probable water demand for the study area is therefore calculated using a unit water consumption rate of 250 $\ell / c / d$ for Vryburg and 150 $\ell / c / d$ for Huhudi. The consumption figures are derived from “Guidelines for Human Settlement Planning and Design”, published by the CSIR. The industrial sector of Vryburg is the predominated water consumer of the region, water consumption of the sector equates to 0.449 M $\ell /$ day. The following table indicates the derived water demand:

Table 29 - Current Water Demand

Area	Population / Stands	Water Demand ($\ell / c / d$)	AADD* (K $\ell /$ Day)	GAADD** (K $\ell /$ Day)	Daily Peak (ℓ / s)
Vryburg	13 698	250	3 424.5	3 766.9	104.6
Huhudi	16 385	150	2 457.7	2 703.5	75.1
Extension 25 & 28	14 213	150	2 131.9	2 345.1	65.1
CBD	149	-	254.6	280.0	7.8
Industrial Area	53	-	449.6	494.5	13.7
Institutional Areas	34	-	67.8	74.5	2.1
Total	44 597		8 786	9 664.8	268.5

*AADD – Average Annual Daily Demand

**GAADD - Gross Average Annual Daily Demand

Table 30: Future Water Demand Including Vryburg Extension 29 and Huhudi Extension 1

Area	Population / Stands	Water Demand (ℓ / c / d)	AADD (Kℓ / Day)	GAADD (Kℓ / Day)	Daily Peak (ℓ / s)
Vryburg	13 698	250	3 424.5	3 766.9	104.6
Huhudi	16 385	150	2 457.7	2 703.5	75.1
Extension 25 & 28	14 213	150	2 131.9	2 345.1	65.1
<i>Vryburg Ext.29 & Huhudi Ext. 1</i>	28 014	150	4 202.1	4 622.3	128.4
CBD	149	-	254.6	280.0	7.8
Industrial Area	53	-	449.6	494.5	13.7
Institutional Areas	34	-	67.8	74.6	2.1
Total	69 710		12 920.5	14 212.6	394.8

In summary, the proposed new development will require an increase in the total bulk water demand of Vryburg from the current 9.6 Mℓ/day to 14.2 Mℓ/day.

5.2.1.2 Bulk Water Infrastructure

The bulk water system of Vryburg and Huhudi functions inter related, however for the report purposes the dynamics of the systems will be explained individually. The basic components of the existing water infrastructure of **Vryburg** is graphically illustrated in the figure below:



Figure 27: Existing Vryburg Water Infrastructure.

The bulk water infrastructure of Huhudi functions fundamentally as follows:

- Bulk water is pumped from the Pudimoe WTW into Huhudi Reservoir Complex and Vryburg Extension Reservoir Complex.
- The Huhudi Reservoir Complex provides water to the settlement of Huhudi. Water from the Huhudi Reservoir Complex can also be pumped to the Vryburg Extension Reservoir Complex and to the Warren Booster Pumping Station.
- The Vryburg Extension Reservoir Complex supplies drinking water to Extension 25 & 28.
- The Huhudi Reservoir Complex can be supplied with bulk water from the Vryburg Extension Reservoir Complex via a gravity bulk main.

5.2.1.3 Bulk Water Supply

It is common knowledge and also reported in the media that Vryburg currently experiences severe water supply challenges resulting in water restrictions and regular “drought” periods. The existing ground water supply from the respective wellfield and supplementary water supply from the Pudimoe WTW is inadequate and unreliable to meet the existing water demand of Vryburg. The proposed development demands will further increase the bulk water supply shortfall.

- **Ground Water**

Bulk Water for the Greater Vryburg is abstracted from five individual borehole wellfields (Armoedsvlakte, Biesiesvlakte, Swartfontein, Vegter & Vryburg town). The wellfields are clustered into three supply systems (Northern supply-, Western supply- and Townlands supply mains).

The Northern supply main, conveying water to the Edwin Freyling Reservoir Complex, is supplied by the Swartfontein wellfield. The borehole cluster consist of 5 boreholes having a theoretical combined safe yield of 1.45 Ml/day.

The Western supply main, consists of the Armoedsvlakte, Biesiesvlakte, Vegter wellfields. The supply system comprises of 15 active boreholes having a theoretical combined yield of 4.65 Ml/day. This includes the four new Armoedsvlakte boreholes (No's 3 -6) equipped and connected under the emergency interventions which are being commissioned at the time of this report.

The Townlands supply mains convey abstracted water to the Warren Booster Pumping Station as well as Huhudi and the industrial area. The supply system consists of 4 boreholes having a total theoretical yield 0.85 Ml/day.

The combined theoretical yield for all the wellfields in the Greater Vryburg region amounts to 6.95 Ml/day. This is based on an average 12 hour per day pumping

and supply potential of new boreholes are known. Target is to establish an additional 25 boreholes for the long term.

▪ **Pudimoe WTW supply**

- Sustained supply of sufficient raw water is received from the Vaalharts canal system
- Project to connect the Dry-Harts Reservoir to the new RBIG supply system be implemented. This project requires installation of a 6,8km pipeline and decommissioning of the old leaking pipeline in order for Naledi to receive bulk water from Pudimoe Plant via the new 550mm diameter line. A WSIG business plan with motivation was submitted for the project. Survey and detail design completed and the project is implementation ready – awaiting funding approval.
- Deadlock with Ba-Ga-Maidi & Ba-Ga Phudhuhucwana Traditional Authorities be resolved in order for Phases C & D of the Taung RBIG scheme to be commissioned. This will invariably release more water from the Pudimoe WTW, previously used for various villages in the Taung Area, to be pumped directly to the Naledi demand zone. Projects are 99% complete and only need final interventions in order to be commissioned. Cost already provided for under the RBIG project budget.
- Upgrading of the Vaalharts North Canal to augment sustainable long-term supply of raw water from the Vaal River system to the Pudimoe WTP. Conceptual planning & cost estimates completed. Will provide reliability of 7,5Ml/day capacity of Module 3 at the Pudimoe WTP dedicated for Huhudi/Vryburg

5.2.1.5 Bulk Water Storage

As described in section "5.2.1.2 Bulk Water Infrastructure", bulk water storage is facilitated in three distinctive storage nodes for the Greater Vryburg region (Edwin Freyling, Huhudi and Vryburg Extension reservoir complexes).

The Edwin Freyling Reservoir Complex consist of an 18 Ml concrete reservoir and a 360kl elevated tower supplying water to the town of Vryburg, CBD, Colridge and the industrial area. The theoretical water demand (AADD) for the supply region amounts to 3.9 Ml /day and the 4-hour instantaneous peak demand equates to 1.7 Ml.

The Edwin Freyling Reservoir Complex supply water to the Colridge Tower (0.386 Ml). Thus, it is not considered as an individual storage node. The proposed development will not directly affect the Edwin Freyling Reservoir Complex.

The Huhudi Reservoir Complex consist of a 4.5Ml concrete reservoir and a 0.386 Ml elevated tower supplying water to Huhudi, and the industrial area. The theoretical water

Table 31: Current Sewer Generation

Area	Population	Sewerage Generation (ℓ / c / d)	ADWF * (Kℓ / Day)	PWWF** (ℓ /s)	IPWWF** * (ℓ / Day)
Vryburg	13 698	125	1 712.25	1 969.09	45.6
Huhudi	16 385	100	1 638.50	1 884.28	43.6
Extension 25 & 28	14 213	100	1 421.30	1 634.50	37.8
CBD	149	-	203.70	234.25	5.4
Industrial Area	53	-	427.12	491.18	11.4
Institutional Areas	34	-	23.73	27.29	0.6
Total	44 498		5 426.60	6 240.58	144.5

* ADWF - Average Dry Weather Flow

**PWWF - Peak Wet Weather Flow

***IPWWF - Instantaneous Peak Wet Weather Flow

Table 32: Future Sewer Generation Including Vryburg Extension 29 and Huhudi Extension 1

Area	Population	Sewerage Generation (ℓ / c / d)	ADWF * (Kℓ / Day)	PWWF** (ℓ /s)	IPWWF*** (ℓ / Day)
Vryburg	13 698	125	1 712.25	1 969.09	45.6
Huhudi	16 385	100	1 638.50	1 884.28	43.6
Extension 25 & 28	14 213	100	1 421.30	1 634.50	37.8
<i>Vryburg Ext.29 & Huhudi Ext. 1</i>	28 014	100	2 801.40	3 221.61	74.6
CBD	149	-	203.70	234.25	5.4
Industrial Area	53	-	427.12	491.18	11.4
Institutional Areas	34	-	23.73	27.29	0.6
Total	69 710		8 204.3	9 434.9	218.4

5.2.2.2 Bulk Sewer Infrastructure

The basic components of the existing sewer infrastructure located in the Greater Vryburg region is graphically illustrated in the figure below:

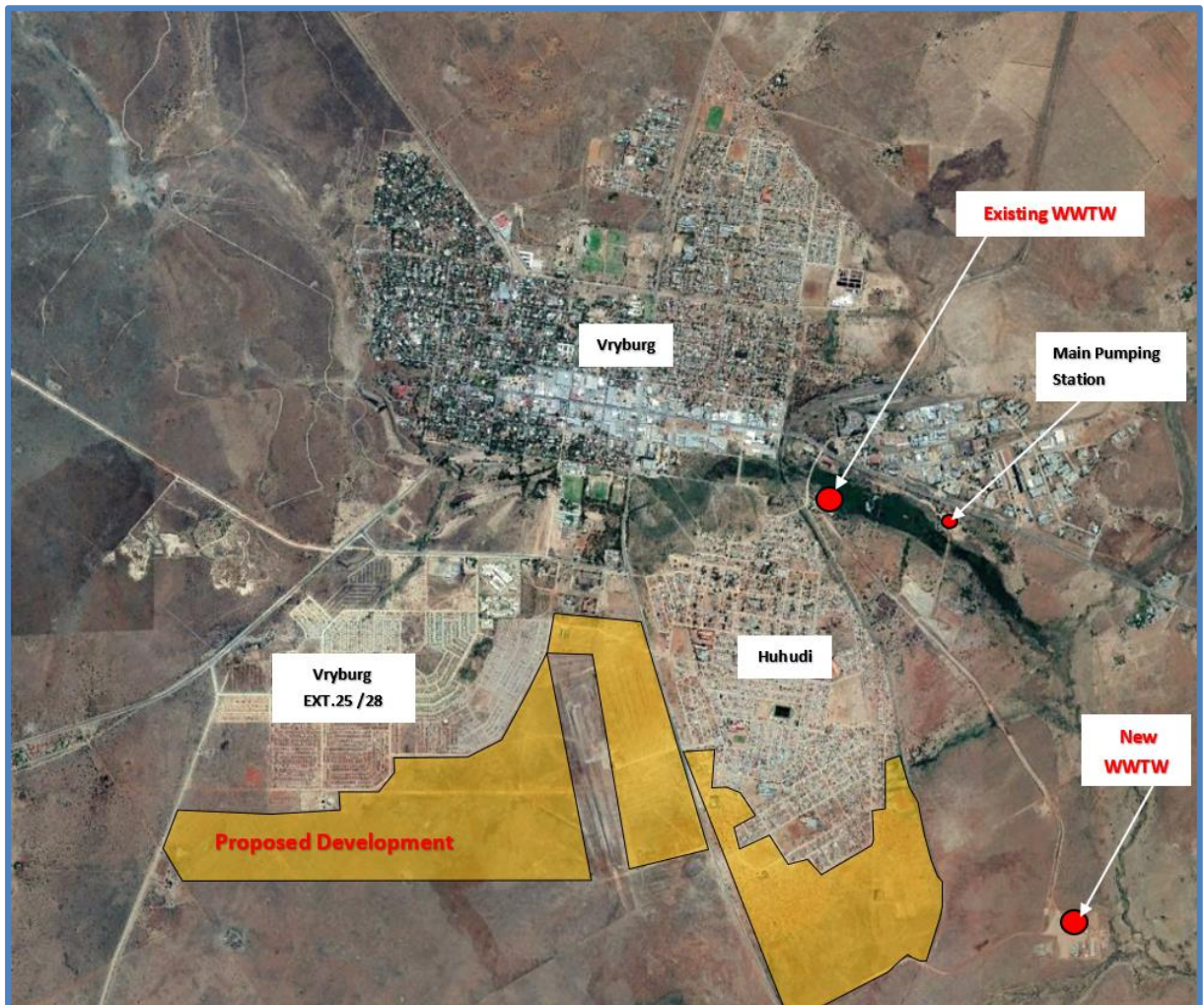


Figure 30: Existing Vryburg Sewer Infrastructure.

Vryburg has a well-developed water-borne sanitation system consisting of a waste water treatment works (WWTW) as well as a pumping station with inter-connecting outfall sewer lines and rising mains. The topographical layout of the Greater Vryburg settlement allow all generated sewerage (excluding the industrial area, abattoir and eastern area of Colridge) to gravitate to the existing WWTW. Waste water generated in the industrial area of Vryburg as well as the abattoir and eastern area of Colridge gravitates to the Main Pumping Station from where accumulated sewerage is pumped to the existing WWTW.

In future, accumulated sewerage will gravitate towards the New WWTW via the existing WWTW for treatment prior to disposal of final effluent into the natural water course.

5.2.2.3 Bulk Sewerage Treatment Capacity

The existing Vryburg WWTW is situated north of the township of Huhudi and south of the industrial area of Vryburg: Geographical co-ordinates: 26°57'52.76" South and 24°44'43.19" East.

The hydraulic capacity of the WWTW is 6.5 Ml/day which utilises conventional treatment to produce a stable effluent.

Existing WWTW Capacity - Current Sewer Generation

$$\begin{aligned} &= \text{Design Capacity} - \text{Existing Sewer Inflow} \\ &= 6.4 - 5.4 \\ &= 1 \text{ Ml/d} \end{aligned}$$

The estimated peak influent at the WWTW amounts to 144 l/s. Calculated as follows:

$$\begin{aligned} &= 45.6 + 43.6 + 37.8 + 5.4 + 11.4 + 0.6 \\ &= 144 \text{ l/s} \end{aligned}$$

Existing WWTW Capacity - Sewer Generation Including Proposed Development

$$\begin{aligned} &= \text{Design Capacity} - \text{Existing Sewer Inflow} \\ &= 6.4 - 8.2 \\ &= - 1.8 \text{ Ml/d} \end{aligned}$$

The estimated peak influent at the WWTW amounts to 144 l/s. Calculated as follows:

$$\begin{aligned} &= 45.6 + 43.6 + 37.8 + 74.6 + 5.4 + 11.4 + 0.6 \\ &= 218.4 \text{ l/s} \end{aligned}$$

The existing WWTW will not have sufficient capacity to accommodate the increased load created by the proposed development. However, the Dr Ruth S Mompati District Municipality is currently constructing a new 16.0 Ml/day WWTW south east of Huhudi. The first module of the New WWTW with capacity of 9Ml/day is expected to be operational by 2020. The new and existing WWTW in tandem will have ample capacity to accommodate the increased sewerage loading induced by the proposed development as evident from the calculations below:

New & existing WWTW Capacity - Current Sewer Generation

$$\begin{aligned} &= \text{Design Capacity} - \text{Existing Sewer Inflow} \\ &= (9 + 6.5) - 5.4 \\ &= 10.1 \text{ Ml/d} \end{aligned}$$

New & existing WWTW Capacity - Sewer Generation Including Proposed Development

$$\begin{aligned} &= \text{Design Capacity} - \text{Existing Sewer Inflow} \\ &= (9 + 6.5) - 8.2 \\ &= 7.3 \text{ Ml/d} \end{aligned}$$

5.2.2.4 Proposed Bulk Sewer Infrastructure Augmentation

The successful implementation of the proposed development requires effective integration with the existing and new bulk sewer infrastructure of Vryburg. The

proposed new outfall sewer lines, to convey generated sewerage to the respective WWTW's, are graphically displayed below:

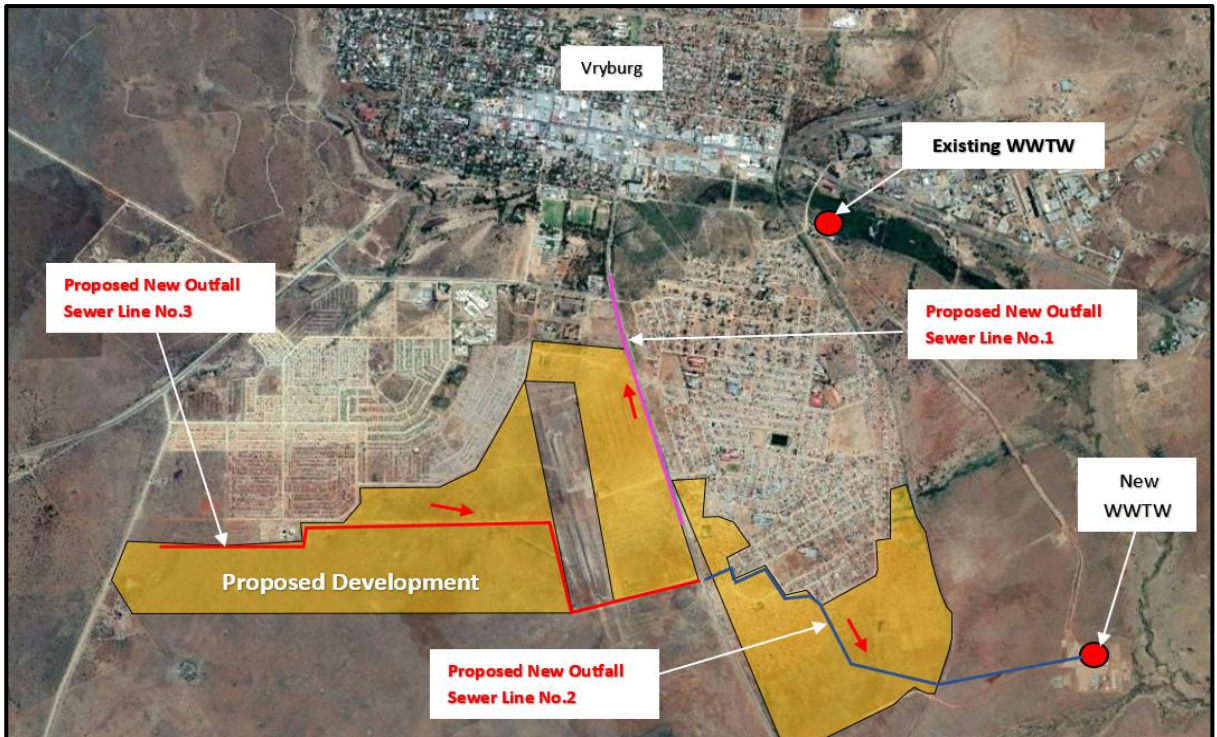


Figure 31: Sewer Infrastructure Augmentation

Proposed New Outfall Sewer Line No.1 - Pink

The route of the said outfall sewer line is recommended along the N18 commencing at the southern end of the proposed development and connecting to the existing Ø 450 mm outfall sewer line of Vryburg Extension 25 & 28 leading to the existing WWTW. The existing Ø 450 mm outfall sewer line has ample capacity to convey the increased sewerage load - flow will increase from 42 l/s to 59 l/s implying that the existing pipe will operate at an estimated 49 % of full-bore capacity. The proposed sewer line design is according to the following parameters:

Dwellings:	1 061 Households
Slope:	1: 300
Average Dry Weather Flow:	538 Kl/s
Instantaneous Peak Wet Weather Flow:	17.5 l/s
Pipe Diameter:	300 mm

Proposed New Outfall Sewer Line No.2 – Blue

This line, intended to convey most of the sewerage generated in Huhudi Extension 1, shall commence in the vicinity of the of the Huhudi Reservoir Complex and discharge accumulated effluent into the New WWTW. The following parameters is applied in the proposed sewer line design:

Storm-water infrastructure will be designed to accommodate runoff as surface flow in an open system. This will be achieved by designing internal roadways to disperse storm-water towards the undeveloped green zones located east of Huhudi Ext 1 and north-east of Vryburg Extension 29. Comprehensive information of storm water attenuation should be presented in the detail design report of internal services for approval by the municipality.

5.2.4 SOLID WASTE

Removal of Municipal Solid Waste (MSW) is a function of the Waste & Environmental Management Division of the Naledi Local Municipality. The Greater Vryburg region currently generates an estimated MSW volume of 34.2 tonne per day. The proposed development will increase the daily MSW volume to 51.0 tonne. The table below illustrates the estimated MSW volume as per USAID 2009 publication on Environmental Guidelines for Activities in Africa (EGSAA) literature:

Table 33: MSW Generation Including Vryburg Extension 29 and Huhudi Extension 1

Area	Population	MSW Generation (kg / c / d)	Total (kg / d)
Vryburg	13 698	1.16	15 890
Huhudi	16 385	0.6	9 831
Extension 25 & 28	14 213	0.6	8 528
<i>Vryburg Ext.29 & Huhudi Ext. 1</i>	28 014	0.6	16 808
Total	72 310		51 057

The encouragement of an integrated waste management system will dramatically reduce MSW and promote Reduce, Reuse and Recycle practices. Solid waste handling however is a municipal function and the capacity of the current landfill site must be established and evaluated.

5.2.5 INTERNAL SERVICES

5.2.5.1 Water

The design of internal services will be dependent on the proposed development layout and subsequent approval by the municipality. The following basic design guidelines will be followed:

- Use of uPVC and HDPE pipe materials of varying diameter according to designs of the Civil Engineer.
- Sufficient capacity to comply with fire flow demands.
- Installation of consumer water meters according to municipal policy.

- Provision of isolating valves, fire hydrants and air release valves to comply with the requirements and regulations the municipality.

5.2.5.2 Sewer

An internal sewer network of adequate diameter pipes with related connections and inspection eyes will be installed to comply with the minimum specifications stipulated in the SANS 0400/89 Building Regulations. Manholes and rodding eyes will be constructed at necessary positions to allow for effective maintenance. The internal sewer network will be connected to the existing bulk sewer infrastructure as detailed in the preceding sections.

5.2.5.3 Roads and Stormwater

➤ **Internal Streets Geometric Design**

The proposed internal street widths vary between 5m and 6m (nominal) depending on the category and road reserve width. The cross section of each of the afore mentioned roads will vary according to the natural topography and related storm water outlet positions (low points). The design philosophy will be to convey storm water as presented in the sections below.

Due to the natural topography, gradients on longitudinal road profiles vary between 1 in 500 (min.) and 1 in 50 (max.). A minimum cross fall of 3% sloping towards natural low points shall be introduced in the design with minimum intersection bell mouth radiuses of 10m.

➤ **Pavement Design**

The internal streets are classified as Residential Access Collectors – Road Category UC and Road Class 5(a) in respect of UTG 2 design guidelines with Moderate level of service and traffic loading of $0,2 \times 10^6$ E80's/lane.

Although surfaced roads with appropriate sub-structure layer works will be preferred, budget limitations may warrant reduction of the pavement structure to only a gravel wearing course of suitably selected gravel on top of the in-situ material.

The detail geotechnical investigation and laboratory analysis of material samples from test pit excavations should be employed to establish suitability of in-situ material.

➤ **Stormwater Drainage**

Storm-water runoff will be accommodated in the road prism and in open channels up to outlet points as far as possible. Lined concrete ditches

should be constructed where concentrated volumes of storm-water crosses roadways and/or intersections.

Concrete lined roadside channels will also be introduced at critical positions to prevent erosion. More featured information of the above-mentioned has to be provided in the final design report once the detail design is concluded.

Roads and storm-water infrastructure will generally be designed to follow the natural runoff patterns to avoid ponding and flooding of properties with associated damage.

5.2.5.4 Refuse Removal

Refuse removal is currently conducted by the Municipality and their services will be extended to the proposed development – refer section 5.2.4 above. Refuse shall be removed by the Municipality at regular intervals as required.

5.3 ELECTRICAL ENGINEERING SERVICES

(Extract from the electrical engineering services report compiled by Motla Consulting Engineers (attached as Annexure H2 to the comprehensive Land Development Application))

5.3.1 LOAD ESTIMATION

Based on the layout plan of the integrated human settlement area (encompassing the proposed township areas of Vryburg Extension 29, Huhudi Extensions 1 as well as the re-development of four (4) existing erven in the township area of Huhudi) the load estimation will be as follows:

Table 34: Load Estimation

Proposed Zoning	Proposed Land Use	Number of Erven	kVA per Erf	Area (Ha)	kVA/ Ha	Total Demand (kVA)
Residential 4	Dwelling Unit Minimum 300m ²	2 739	2,4			6 574
	Dwelling Unit Minimum 400m ²	4 594	3,5			16 079
	Dwelling Unit Minimum 500m ²	1 102	5			5 510
Business 1	Business	3		0,7	100	73
Business 2	Shop	26		2,0	150	299
Commercial	Business Light Industry	1		1,1	200	217

Institutional 1	Place of Instruction (Primary School)	2		6,7	30	201
	Place of Instruction (Creche)	10		1,9	30	58
	Place of Worship (Church)	16		2,8	30	84
Institutional 2	Community Facility	2		0,6	30	17
	Sports Field	2		3,0	30	90
Public Open Space 1	Public Open Space	35		N/A	0	0
Public Open Space 2	Public Open Space	1		0,9	0	0
Authority	Municipal	2		2,7	100	270
Transport 1	Taxi Rank	2		0,3	100	34
Transport 2	Public Street			N/A	0	0
Cemetery	Cemetery	3		20,6	5	104
Special	Airfield	1		73,6	30	2 207
TOTAL						31 817

5.3.2 BULK SUPPLY

5.3.2.1 General

The town of Vryburg is can be divided into three (3) electricity supply areas with two (2) Eskom points of delivery (POD) they are:

1. Vryburg Main Substation – 132/11 kV
 - a. Naledi Local Municipality license area
 - i. Vryburg town
 - b. Eskom license area
 - i. Huhudi
2. Naledi Substation – 22/11 kV
 - a. Supplies power to the South side of town
 - b. Naledi Local Municipality license area

The locations of these substations can be seen in the figure below.

Eskom is currently busy with a program of standardising its power distribution network on 132 kV and no new work will be done on any other voltage level. As part of this program Woodhouse substation is planned to be replaced by a new 132kV substation called Bophirima.

5.3.3 BULK SUPPLY PROPOSAL

The development separation line of the N18 is also the separation line between the Eskom and Naledi license areas. It is therefore proposed that the electrical supply for the development should also be divided accordingly.

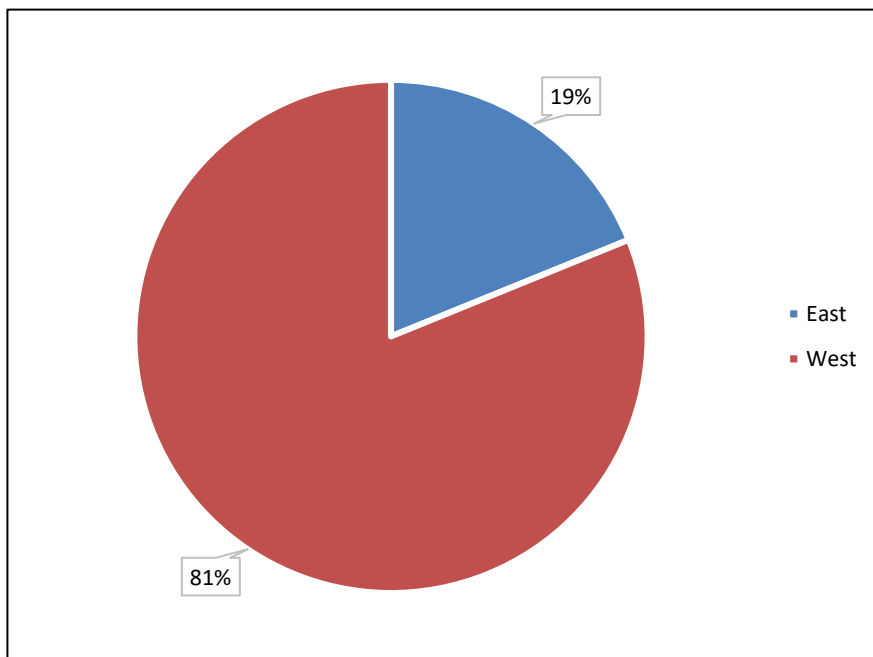


Figure 34: Load Allocation

5.3.3.1 East Development

The development to the East of the N18 has a total estimated load of 6 MVA. It is proposed that this should be included into the Eskom license area as a part of the existing Huhudi network.

This area is currently supplied from the Vryburg Main substation which will have capacity available to supply the new development. It is proposed that this should be done via a new 11kV overhead line, shown in green below.

As this is an Eskom license area the details will have to be confirmed by Eskom.



Figure 36: West Bulk Supply Proposal

5.3.4 PROPOSED ELECTRICAL SERVICES

The following electrical services are proposed:

- a) **Bulk Supply:** As per bulk supply proposal.
- b) **MV Distribution:** MV distribution will be done in accordance with the ring design philosophy as shown in the figure below. All MV distribution cables will be underground with miniature-substations.

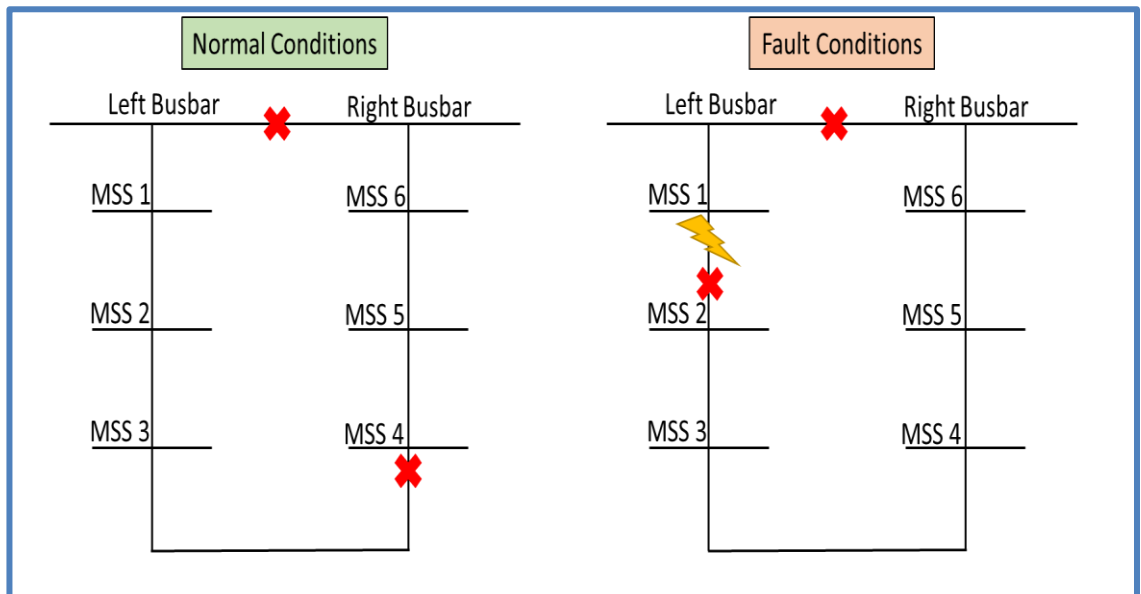


Figure 37: Ring Design Philosophy

- c) **LV Reticulation:** Electricity will be distributed throughout the development by way of an overhead LV radial network and associated pole top boxes.
- d) **LV Connections:** LV connections (10/16mm², 3 Core, PVC/SWA/PVC/PVC) will be provided for each residential stand and specific sized LV feeders to each larger customer from the various pole top boxes.
- e) **Street & Area Lighting:** Residential roads and public areas will make use of HPS type luminaires installed on wooden poles.
- f) The detail of the above will be determined during the detail design phase of the project, dependant on the final SDP and will be submitted for review and approval.

identifying suitable land for housing development and planning, facilitating, initiating and co-ordinating housing development in its area of jurisdiction.

Housing comprises a series of complex interrelationships between people, their needs and values and resources within a political and legal environment. This complexity requires a focused approach to efforts aimed at providing housing. National Government has started to respond by putting the necessary policy and legislative environment in place.

This framework outlines the roles and responsibilities of different spheres of government in relation to housing, as well as dealing with aspects relating to the design and content of housing policy and legislation. In the context of this framework the Naledi Local Municipality is required to take all reasonable steps to ensure the provision of adequate housing to its residents.

The core legislation and policies guiding housing planning and development are set out in Sections 6.2 to 6.19 below.

6.2 NATIONAL DEVELOPMENT PLAN: VISION 2030

The National Planning Commission (NPC) (2011) published the NDP: Vision for 2030. Its contents will impact directly and indirectly on the provision of housing within the national spatial system.

Its core focuses include:

- The active efforts and participation of all South Africans in their own development
- Redressing the injustices of the past effectively
- Faster economic growth and higher investment and employment
- Rising standards of education, a healthy population and effective social protection
- Strengthening the links between economic and social strategies
- An effective and capable government
- Collaboration between the private and public sectors
- Leadership from all sectors in society.

Where we live and work matters. Apartheid planning consigned the majority of South Africans to places far away from work, where services could not be sustained, and where it was difficult to access the benefits of society and participate in the economy.

The physical and social environment in which we are born and grow up is one of the most important determinants of every person's wellbeing and life chances.

This environment has a bearing on access to opportunities, good schools, useful social networks, public services and safe environments. Separation between social groups, long distances between jobs and housing, and poor public services exacerbate poverty and

inequality. Location affects communities, local economies, labour markets and infrastructure networks. Businesses are also affected by where they are situated. Access to markets and suppliers determines their survival and profitability. This is hugely significant for South Africa's society, economy and environment.

To fundamentally reshape human settlements by 2050 (with significant progress by 2030), South Africa needs:

- To address inequities in the land market that makes it difficult for the poor to access the benefits of life in towns and cities.
- Stronger measures to reconfigure towns and cities towards more efficient and equitable urban forms.
- Housing and land policies that accommodate diverse household types and circumstances.
- Municipalities that put economic development and jobs at the heart of what they do and how they function.

The establishment of the proposed township area of Vryburg Extension 29 (together with the proposed township area of Huhudi Extension 1 and the re-development of four erven in the township area of Huhudi) specifically aims at redressing the injustices of the past by ensuring proper integrated planning in respect of the location of new residential developments in well-located places that are conducive to the health and wellbeing of the community. Due to the mixed land use nature of the proposed development, ample opportunities will be created for the development of partnerships between the private and public sector to develop this area. In addition to the residential facilities that will be provided in the respective township areas, ample provision has also been made for properties that will stimulate economic growth and broaden the economic base of the area whilst similarly addressing the need for accelerated job creation.

6.3 **CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA (ACT 108 OF 1996)**

The Constitution of the Republic of South Africa (Act 108 of 1996) is the supreme law of the country. The sections/schedules of the Constitution that are relevant with respect of the delivery of housing are the following:

- Sections 26, 27 and 29 of Chapter 2 – Bill of Rights states **that everyone has the right to access to adequate housing, health care services, social security and education.**
- Schedules 4 and 5, states that the Province has legislative competence in regard to (inter alia): Environment; Urban and Rural Development; Welfare; Housing; Health Services; Regional planning and development; (concurrent competence with national) and Provincial Planning and Provincial Roads and Traffic (exclusive competence)

- Creating a financially and socially viable environment for housing delivery.
- Facilitating the resolution of conflicts arising from housing delivery initiatives.
- Facilitating the provision of bulk services.
- Administrating national programmes.
- Exploring land for housing development.

The project under discussion specifically aims at providing access to housing for the inhabitants of the Naledi Local Municipality. Through the provision of erven for a multitude of housing typologies, provision is not only made for the sector of the community who cannot access adequate housing due to financial circumstances coupled with the lack of serviced vacant erven to accommodate said individuals, but also for inhabitants requiring other forms of tenure e.g. rental housing as well as those aspiring to building their own house.

The Naledi Local Municipality will also promote private sector development as the proposed township area makes ample provision for residential erven that can be developed by the private sector or through partnerships between Government, financial institutions and private contractors in terms of the development of FLIPS housing. This proposed development area will also provide erven for middle income households that wish to acquire a preferred stand from the Naledi Local Municipality and erect their own home on the concerned site. In this manner the Naledi Local Municipality will also be promoting private sector development. Private sector development is however not only limited to housing but also incorporates private sector commercial and social facility development.

For this purpose, the Naledi Local Municipality has initiated, planned and is facilitating and coordinating the establishment of this integrated human settlement project. Setting aside, planning and managing the land for housing further attained momentum during 2013 when the subject properties were earmarked for future residential development purposes in terms of the Spatial Development Framework of the Naledi Local Municipality (this matter will be addressed in detail in Section 6.17 below).

6.6 A COMPREHESIVE PLAN FOR THE DEVELOPMENT OF SUSTAINABLE HUMAN SETTLEMENT (BNG STRATEGY)

The new "Human Settlements Plan" promotes the achievement of a non-racial, integrated society through the development of sustainable human settlements and quality housing. Housing is to be utilized for the development of sustainable human settlements in support of spatial restructuring.

The aim is to move beyond the provision of basic shelter towards achieving the broader vision of sustainable human settlements and more efficient towns, cities and regions. The following factors will be taken into consideration in order to achieve this vision:

- Progressive Informal Settlement Eradication: These settlements must be integrated into the broader urban setup so as to overcome spatial, social and economic

exclusion. The plan encourages the eradication of informal settlements through in-situ upgrading in desired locations coupled with the relocation of households where development is not possible or desirable.

- Promoting Densification and Integration: The aim is to integrate previously excluded groups into the city so as to enable them to enjoy the benefits it offers and to create more integrated, functional and environmentally sustainable human settlements, towns and cities.
- Enhancing Spatial Planning: Greater co-ordination and alignment of various planning instruments and economic policies lies at the heart of sustainable human settlements. This requires more than mere co-ordination between departments but there needs to be a single overarching planning authority and/or instrument to provide macro-level guidance to support the development of sustainable human settlements.
- Enhancing the location of New Housing Projects: The location of past housing projects was said to reinforce apartheid spatial settlement patterns. Spatial restructuring aims to achieve a more decisive intervention in land markets. The following interventions are envisaged viz. accessing well located state-owned and parastatal land: acquisition of well-located private land for housing development, funding for land acquisition and fiscal incentives.
- Supporting Urban Renewal and Inner-City Regeneration: Urban renewal and inner-city regeneration often result in the current inhabitants being excluded as a result of the construction of dwelling units they cannot afford. Some municipalities are trying to avoid this by promoting affordable inner-city housing. The "Human Settlements Plan" will support this by encouraging social housing.
- Developing Social and Economic Infrastructure: The need to move away from a housing-only approach towards a more holistic development of human settlements which includes the provision of social and economic infrastructure is emphasized.
- Enhancing the Housing Product: The aim is to develop more appropriate settlement layouts and housing products and to ensure appropriate housing quality.

This project from the onset aimed at providing a proper integrated human settlement that ascribes to the BNG Principles set out above. This was achieved as follows:

- This project makes provision for a variety of erven that can be utilized for various housing typologies. The largest proportion of the township areas will however be aimed at both the subsidized housing sector through the implementation of one of Government's subsidized housing programmes as well as the need that exists for people that does not qualify for a Government subsidy, due to either already owning other property or earning in excess of the threshold household income prescribed in respect of the various housing subsidy programmes, but who still wishes to acquire an affordable stand where they can construct their own home. This project will also aim at alleviating the plight of the landless community of Naledi that live in informal settlement areas and in squalid conditions. The informal occupation of vacant land and backyard shacks are especially prevalent in the Huhudi area where multiple informal structures are present on sites within the proclaimed township area. Large

- to be placed at strategic positions with good access routes in close proximity to these amenities.
- A mixed land use development is *socially responsible* based on the following:
 - It covers the mixed and lower income bracket by providing a higher density housing option;
 - The development will inevitably support the use of public transport;
 - The development will include supporting social infrastructure (schools), as well as some retail or commercial activities;
 - The layout of the development must respond to the future road planning for the area, to facilitate and maximise pedestrianisation and public transport.
 - Commercial erven can accommodate a shopping centre, to service the existing formalised and informal settlements in the area. The commercial node will:
 - Promote entrepreneurial services and products;
 - Be within walking distance to places of refreshment and trade for residents;
 - Provide Job opportunities; and
 - Improve neighbourhood quality.
 - By providing only one land use type (i.e., housing), mixed income development and social integration across race and income levels, *cannot be achieved*. By restricting a township to one land use only, the above benefits to the local community, and subsequent council area, cannot be realised, and hence, is not a preferred land use option.
 - The development of the subject properties has been in the public domain since the compilation of the Naledi Spatial Development Framework as far back as **2013** when the properties were already earmarked for future residential development purposes. To ensure that the community is involved in this project, the residents, community and stakeholders will have an opportunity to participate in this process during the prescribed public participation process. This process will include the publication of notices in a local newspaper, the posting of site notices on the subject properties, the notification of all adjacent property owners of the development as well as the involvement of a number of external organizations and departments as integral part of the township establishment process.
 - The engineering services investigations that were conducted in respect of both the civil and electrical engineering services concluded that this development can, subject to the implementation of the necessary bulk services upgrades, be provided with the full spectrum of engineering services.

6.9 MUNICIPAL DEMARCATION ACT, 1998 (ACT 27 OF 1998)

Demarcation objectives: The Demarcation Board determines a Municipal boundary with the objective that it must be able to enable the municipality for that area to fulfil its constitutional obligations in line with the provision of a democratic and accountable government for communities within a specific geographic area inclusive of:

within the framework of national and provincial housing legislation and policy to ensure that the **right of access to adequate housing is realised on a progressive basis**.

This project will at its core and as first development implementation phase aim at addressing the needs of the poor in respect of the provision of housing. The development of the Vryburg Integrated Human Settlement comprising the proposed township areas of Vryburg Extension 29 and Huhudi Extension 1 as well as the re-development of four existing erven in the Huhudi urban complex will however not be focussed solely on the needs of the poor but will also address the needs of people that do not qualify to participate in one of the government subsidy programmes or those that wish to construct their own home or wishes to explore other housing options. This will ensure that the right of access to adequate housing is realised on a progressive basis.

6.12 WHITE PAPER ON WISE LAND USE (2001)

This White Paper intends to show practical ways in which South Africa may move to this approach. The system should satisfy the following specific needs:

- The development of policies which will result in the best use and sustainable management of land.
- Improvement and strengthening planning, management, monitoring and evaluation.
- Strengthening institutions and coordinating mechanisms.
- Creation of mechanisms to facilitate satisfaction of the needs and objectives of communities and people at local level

Integrated planning for sustainable management of land resources should thus ensure:

- That development and developmental programmes are holistic and comprehensive so that all factors in relation to land resources and environmental conservation are addressed and included.
- In considering competing needs for land, and in selecting the "best" use for a given area of land, all possible land-use options must be considered.
- That all activities and inputs are integrated and coordinated with each other, combining the inputs of all disciplines and groups.
- That all actions are based on a clear understanding of the natural and legitimate objectives and needs of individual land users to obtain maximum consensus.
- That institutional structures are put in place to develop, debate and carry out proposals.

Of core importance in the planning and development of housing is the normative planning principles identified in the White Paper:

The basis of the system will be principles and norms aimed at achieving sustainability, equality, efficiency, fairness and good governance in spatial planning and land use

management. The decisions of planning authorities, whether related to the formulation of plans such as IDPs or the consideration of land development applications such as rezoning, must all be consistent with these principles and norms. A failure by an authority to affect this enables the Minister to intervene in the decision, either to require that it is reconsidered or in extreme cases to take the decision him or herself.

6.13 MILLENNIUM DEVELOPMENT GOALS (MDG)

The MDG include the following: The eradication of informal settlements by 2014 as one of the policy imperatives of government (Goal 7, Target 11) implies that government and the private sector would have to implement the Social Contract (Social Contract for Rapid Housing Delivery, 2005) commitments to aid the removal of slums in South Africa.

The targets included in the Social Contract consist of:

- The removal or improvement of all slums in South Africa as rapidly as possible, but not later than 2014.
- The fast tracking of the provision of formal housing within human settlements for the poorest of the poor and those who are able to afford rent and/or mortgages.
- The creation of rental stock for a rapidly growing, mobile (migrant) and urban population within inner city and other locations close to employment opportunities.
- To remove administrative blockages that prevent speedy developments and to strive to reduce the time to grant various permissions relating to the built environment to 50% of the current time;
- To ensure consumer education and understanding in all housing development projects.

This project has at its core not only the provision of formal housing within an integrated human settlement for the poorest of the poor and those who cannot afford rent or mortgages but also to alleviate the plight of the inhabitants residing in squalid conditions in the informal settlement areas located south of Huhudi and on the four erven earmarked for re-development as integral component of this project.

6.14 NATIONAL SPATIAL DEVELOPMENT PERSPECTIVE (2006)

The NSDP consists of a set of five normative principles for development:

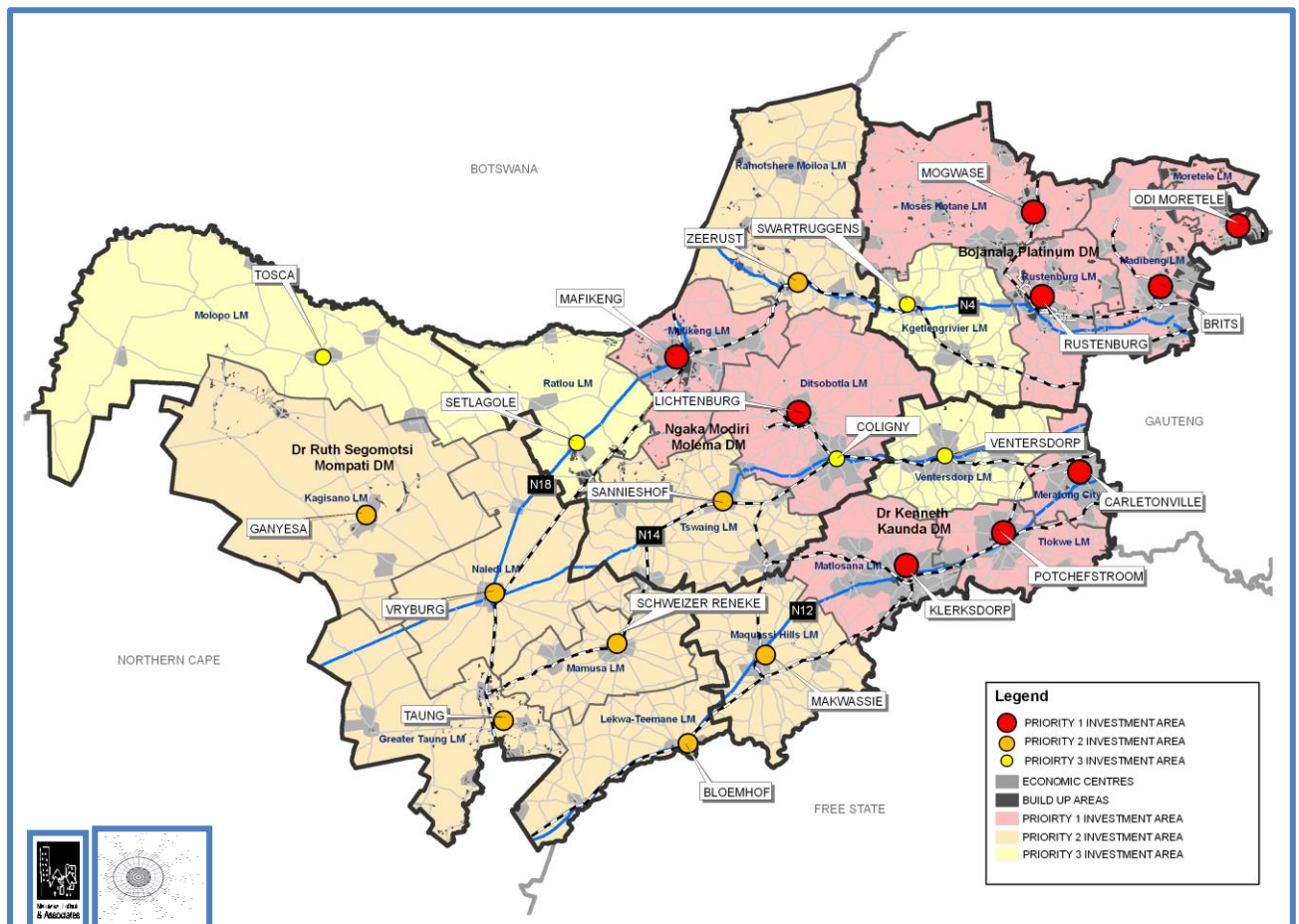
- Principle 1: Rapid economic growth that is sustained and inclusive is a pre-requisite for the achievement of other policy objectives, among which poverty alleviation is key.
- Principle 2: Government has a constitutional obligation to provide basic services to all citizens wherever they reside.
- Principle 3: Government spending on fixed investment should be focused on localities of economic growth and/or economic activities and to create long-term employment opportunities.

- **Principle 4:** Efforts to address past and current social inequalities should focus on people, not places. In localities where there are both high levels of poverty and demonstrated economic potential, this could include fixed capital investment beyond basic services to exploit the potential of those localities. In localities with low demonstrated economic potential, government should beyond the provision of basic services, concentrate primarily on human development.
- **Principle 5:** In order to overcome the spatial distortions of apartheid, future settlement and economic development opportunities should be channelled into activity corridors and nodes that are adjacent to or that link the main growth centres. Infrastructure investment should primarily support localities that will become major growth nodes in South Africa and the SADC region to create regional gateways to the global economy.

Consistent with national priorities, local authorities must support "*increased economic growth and promote social inclusion*", whilst ensuring that such growth is "*ecologically sustainable*". In the National Spatial Development Perspective (NSDP) it is highlighted that, to achieve the goal of stimulating sustainable economic activities and to create long-term employment opportunities, it is required that spending on economic infrastructure is focused in priority areas with potential for economic development, with development to serve the broader societies' needs equitably.

6.15 NORTH WEST PROVINCIAL SPATIAL DEVELOPMENT FRAMEWORK, 2016

In terms of the North West Spatial Development Framework, Vryburg was classified as a Priority 2 Investment Area due to its economic status compared to other first order nodes such as Matlosana, Rustenburg, Tlokwe, etc., although it already functions as a prominent node for the western parts of the province.



Map 14: Hierarchy of Nodes

From a strategic development point of view, Vryburg should be enhanced and supported to develop into a fully-fledged regional node of importance. This can be achieved by improving the services function of the town in terms of social, retail, industrial and institutional development. Capital expenditure programmes will therefore focus to a large extent on Vryburg as the primary development node.

At a District and Local Municipal level priority investment areas indicate areas that will be prioritized in terms of development spending and investment. On a Provincial scale it contributes to the following:

- **Addressing Spatial Imbalances**
 - To reduce the number of households living under unsustainable conditions with 10% per annum
- **Functional hierarchy of towns and cities**
 - Promoting corridor development
 - To enhance the development of primary nodes to develop into organized, well planned metropolitan areas.
 - To reduce the number of small unsustainable settlements by 50% over a period of between 20 and 30 years.
- **Specific Land Use Management Principles**
 - Compact Urban Development

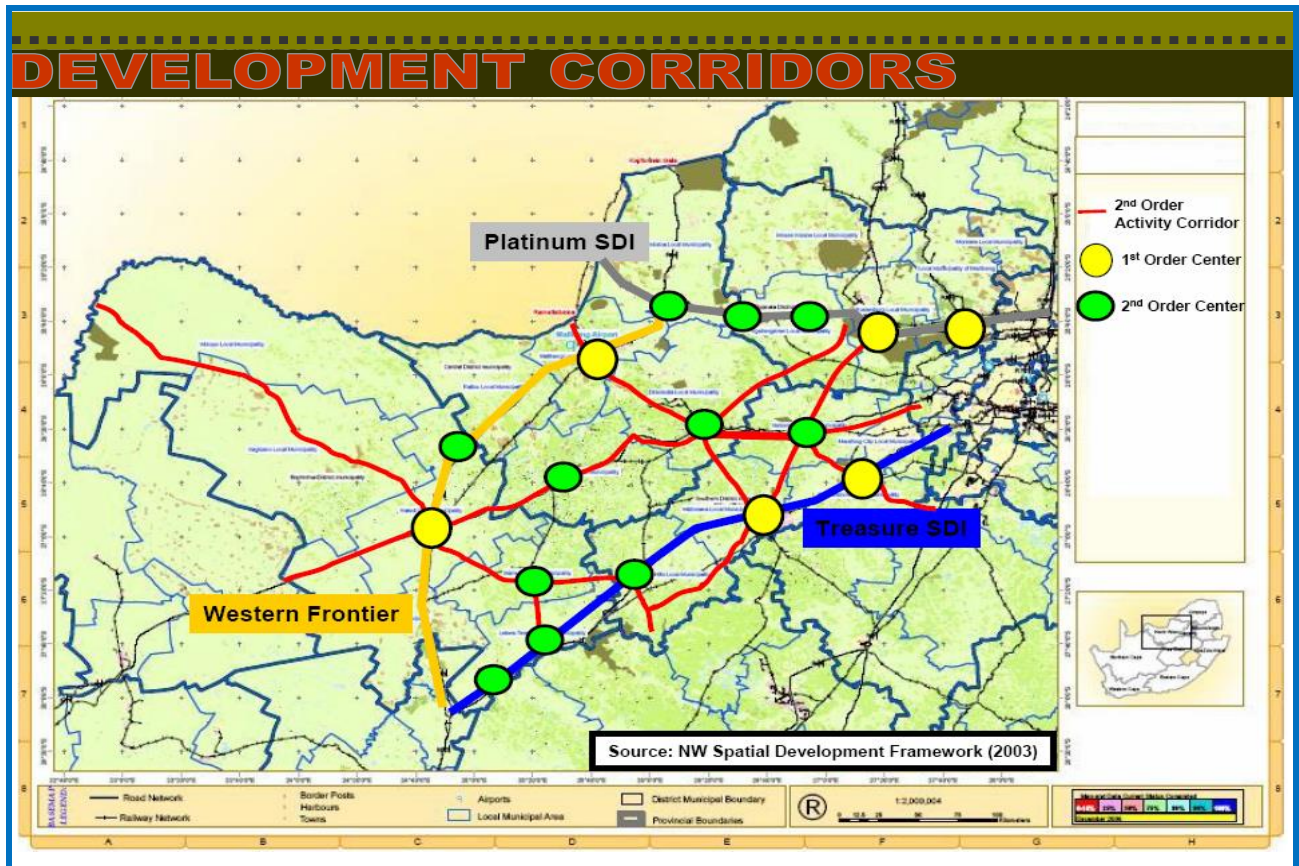
- Focused Investment
- Managed growth
- **Conforming to concepts such as:**
 - Economic and social activity overlaps
 - Densification
 - Combats urban sprawl
 - Providing economies of scale for effective and affordable service delivery
 - Promoting infill development where high levels of services are available
 - Increased population density (people per m²).

The alleviation of poverty is one of the key challenges for economic development. Higher levels of economic growth are a key challenge for poverty eradication. Investment in people is pivotal to the eradication of poverty and inequality. Investment in people is also, to a large extent, about delivering social and economic infrastructure for education, welfare, health, housing, as well as transport and bulk infrastructure.

Housing is one of the basic human needs that has a profound impact on health, welfare, social attitudes and economic productivity of the individual. It is also one of the best indicators of a person's standard of living and place in society. In achieving the Millennium Development Goals, the South African government is to ensure that its citizens live in good housing conditions. In order to achieve this goal, the government aims to eliminate all informal dwellings, bucket type toilets, and ensure that all citizens have access to electricity for lighting, and access to clean, safe water within a reasonable distance.

Economic development opportunities are the key determinant in the settlement pattern of the province. Economic development, in turn, typically responds to the availability of *Environmental Capital* (e.g. water, suitable agricultural soil, mining resources, etc.) and *Infrastructural Capital* (e.g. roads, electricity, bulk engineering services, etc.). Over time, this has resulted in the evolution of distinct *development regions and corridors*.

The *development regions and corridors* constitute a clustering of nodes and the creation of a system that synergises the capacity of stakeholders and entities within these nodes to ensure institutional and leadership capacity that would lead to regional equity. **Map 15** illustrates the spatial context of the current *development regions and corridors* of the North West Province.



Map 15: Development Corridors of the North West Province

The restructuring of regional spatial distortions needs a clear set of policy directives in order to direct people to migrate towards areas with higher level of services and opportunities.

Future settlement and economic development opportunities should therefore be channelled into activity corridors and nodes.

Naledi Local Municipality should further capitalize on its locality on the Western frontier SDI as well as its importance as a 1st order centre for Dr Ruth S Mompoti District Municipality, according to the PSDF.

The Western Corridor is intended to strengthen a North- South initiative from SADCC through Botswana southwards through the North West and Northern Cape. This corridor simultaneously links the Platinum Corridor with the Treasure corridor through the Mafikeng airport and industrial zone and the Taung irrigation scheme and promoting the development and growth in between.

The quality of subsidised settlements that could be achieved through innovative design and cross-subsidisation is visually represented in **Figure 37**.



Figure 38: Quality of subsidised settlement that could be achieved through innovative design and cross-subsidisation.

6.16 NALEDI FINAL INTEGRATED DEVELOPMENT PLAN 2017-2022

The location of Vryburg at the intersection of N18, N14, R34 and R378 highlights the strategic locality of this town within municipal and district context.

The main development corridor is formed by the Western Frontier SDI (N18 and Kimberley – Botswana railway line), that is intended to strengthen the north- south development initiatives from Botswana to Northern Cape via North West Province. This corridor also links the Treasure Corridor with the Platinum Corridor through the Mafikeng airport / industrial zone and Taung irrigation scheme.

The secondary corridors are formed by the N14 (east-west corridor), R34 to Schweizer-Reneke / Matlosana and R378 to Ganyesa.

Vryburg is also strategically situated on major provincial tourism corridors namely – the N14 (Taljaart Nature Reserve / Barberspan); N18 (Taung Skull area / Taung Dam / Kimberley); R378 (Molopo Nature Reserve) and the N12 Treasure Corridor via R34 (Bloemhof dam / Sandveld Nature Reserve).

Vryburg functions as a first order node for the municipal area as well as the District Municipality. Although the PSDF identified Vryburg as a Priority 2 Node (area) due to its economic status compared to other first order nodes such as Matlosana, Rustenburg,

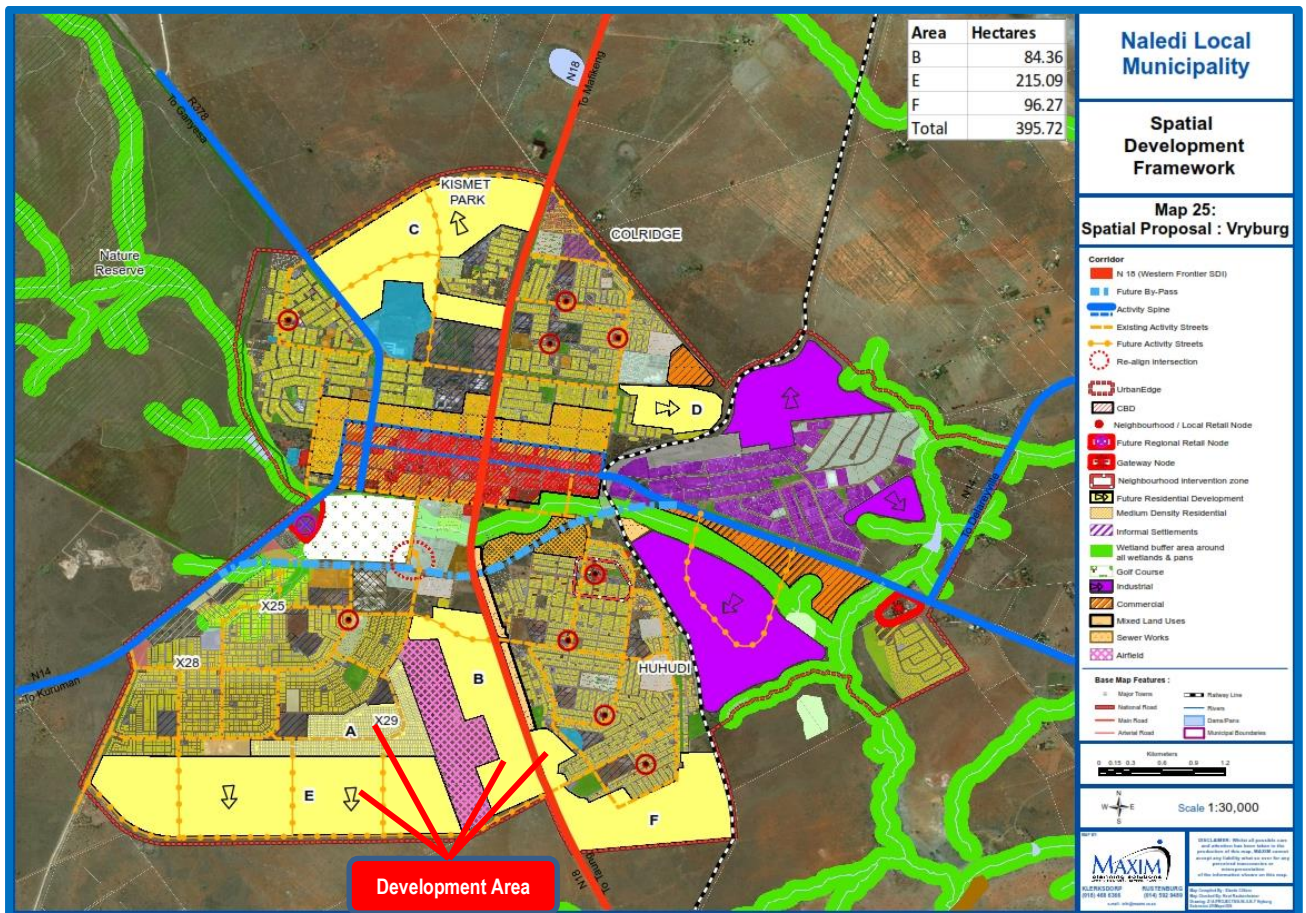
Tlokwe, etc., it already functions as a prominent node for the western parts of the province.

From a strategic development point of view, Vryburg should be enhanced and supported to develop into a fully-fledged regional node of importance. This can be achieved by improving the services function of the town in terms of social, retail, industrial and institutional development. Capital expenditure programmes will therefore focus to a large extent on Vryburg as the primary development node.

The potential exists to grow Vryburg’s potential as a regional distribution centre for retail companies expanding into Botswana and even Namibia. This will require joint strategies between Naledi and major retail players, the support of development finance institutions and investments in infrastructure such as warehouses, storage and cooling facilities.

6.17 NALEDI SPATIAL DEVELOPMENT FRAMEWORK, 2013

In terms of the Spatial Development Framework of the Naledi Local Municipality, the property on which the proposed township is to be established, is located inside the demarcated Urban Edge. The subject properties were also earmarked for “future residential development”, as reflected on **Map 16** (refer **Areas A, B and E**).



Map 16: Naledi Spatial Development Framework

The SDF also proposed the introduction of a future activity street along the southern boundary of Area E. This proposed activity street is accommodated in the layout plan of the proposed township area of Vryburg Extension 29 as Collen Colane Street.

6.18 OUTCOME 8 – 2014-2019 MEDIUM TERM STRATEGIC FRAMEWORK (MTSF)

Outcome 8 (sustainable human settlements and improved quality of household life) of government's 2014-2019 Medium Term Strategic Framework (MTSF) guides the Department of Human Settlement's work over the medium term towards ensuring that poor households have access to adequate housing in better living environments, and that institutional capacity and coordination is improved.

Outcome 8 determines that human settlements in future in South Africa must at least consist of:

- The development of suitable located and affordable housing (shelter) and decent human settlements;
- An understanding that human settlements are no longer about building houses;
- Transforming our cities and towns (moving towards efficiency, inclusion and sustainability); and
- Building cohesive, sustainable and caring communities with improved access to work and social amenities, including sports and recreation facilities.

In terms of Outcome 8, sustainable human settlements and improved quality of household life are defined by:

- Access to adequate accommodation that is suitable, relevant, appropriately located, affordable and fiscally sustainable;
- Access to basic services (water, sanitation, refuse removal and electricity);
- Security of tenure irrespective of ownership or rental, formal or informal structures; and
- Access to social services and economic opportunity within reasonable distance.

This outcome is of critical importance as it is a requirement of the Constitution and Bill of Rights. It is secondly core to human dignity and social stability and is a key enabler of health, education and social cohesion outcomes. With good planning it can also serve as a catalyst for economic development and job creation.

6.19 SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 2013 (SPLUMA) DEVELOPMENT PRINCIPLES

The act applies to spatial planning, land development and land use management. The following five (5) primary development principles referred to in the Spatial Planning and Land

Use management Act, 2013 (Act 16 of 2013) (SPLUMA) and explained in SPLUMA: A Practical Guide compiled by Nic Laubscher, Lizette Hoffman, Ernst Drewes and Jan Nysschen, 2016, need to be taken into consideration:

- “7. (a) the principle of spatial justice, whereby-**
(i) past spatial and other development imbalances must be redressed through improved access to and use of land;

The focus of the principle would be on integration or development of rural and/or traditional settlements and urban integration strategies. This development specifically aims at redressing past spatial imbalances in combatting the past planning principles of providing low income residential areas on the periphery of urban areas. Based on the data contained in **Table 5** (refer Section 1.2.2.5), it is estimated that the Housing need in the Naledi Local Municipality equates to 2 970 dwelling units comprising informal dwelling units in backyards as well as within informal settlement areas.

The large-scale informal occupation of vacant municipal land prevalent in specifically the Huhudi urban complex is reflected on the aerial photograph produced in respect of the development areas, as reflected on **Map 17** below)



Map 17: Extent of informal occupation within the Huhudi urban complex

The inhabitants of these informal dwelling units reside in squalid conditions due to the non-availability of vacant and serviced residential erven and the lack of available housing for those households that qualify for subsidized housing or other forms of housing (e.g. rental housing). This development will provide residents access to land and the use of such land to better their living conditions whilst similarly providing the necessary security of tenure. It is therefore imperative that the Naledi Local Municipality act pro-actively in providing vacant erven for housing development purposes in an attempt to

(iii) uphold consistency of land use measures in accordance with environmental management instruments;

Environmental sustainability refers to the relationship between the settlement and the natural landscape.

The development is planned with a full level of infrastructure elements including sewer, water, electricity, access and refuse removal services, thereby reducing the effect that the development will have on the natural surrounding area. For an area to be environmentally sustainable, it should protect the unique amenity and character of the surrounding environment and also prevent degradation. The development will not be situated in an ecological sensitive area or in places of hazard or high risk, such as within the flood plain. This statement is supported by the fact that the two (2) wetland areas encountered within the development area have been properly integrated into the open space system of the proposed township area. The proposed development further excludes noxious activities.

In considering the environmental management instruments applicable to the proposed development, it is pertinent to note that the activity does indeed constitute a listed activity in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014.

The township applicant appointed a qualified independent Environmental Practitioner to conduct the necessary Environmental Impact Assessment and public participation process as prescribed in terms of the fore-mentioned Act and Regulations.

The environmental sustainability of this development is further supported by the fact that the project was authorised by the Department Rural, Environment and Agricultural Development (READ) 06 August 2019 through the issuing of the required Environmental Authorisation (refer **Annexure O2** of the comprehensive Land Development application for a copy of the Environmental Authorisation).

Under South African environmental legislation, the Applicant is accountable for the potential impacts of the activities that are undertaken and is responsible for managing these impacts. The Applicant therefore has overall and total environmental responsibility to ensure that the implementation of the construction phase of the EMPR complies with the relevant legislation and the conditions of the environmental authorisation. The applicant will thus be responsible for the implementation of the EMPR. The development of this township area as well as the activities conducted from the erven in the township area during the operational phase will be subject to the conditions

of the Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015. The processes prescribed in terms of this legislation make provision for the necessary community involvement through a comprehensive public participation process.

- (d) **the principle of spatial resilience, whereby flexibility in spatial plans, policies and land use management systems are accommodated to ensure sustainable livelihoods in communities most likely to suffer the impacts of economic and environmental shocks; and -**

Standards for the protection of natural resources, agricultural land, open spaces and ecosystems have been compiled on a national and regional level. The local municipality compiled a Spatial Development Framework to increase resilience for human settlements, focusing on vulnerable and informal areas. The Spatial Development Framework needs to be flexible to adapt to social, economic and technological trends. This development is specifically aimed at providing opportunities for people that are currently devoid of land for proper housing purposes. In addition to addressing the need for subsidized housing, provision is also made for the provision of housing opportunities for middle / bonded / FLISP / rental housing purposes. The provision of proper housing for the landless community of Naledi will alleviate the plight of a community who is most vulnerable to suffer the impacts of environmental and economic shock.

- (e) **principle of good administration, whereby-;**

- (i) **all spheres of government ensure an integrated approach to land use and land development that is guided by the spatial planning and land use management systems as embodied in this Act;**

The Naledi Local Municipality has both a land use management scheme and a Spatial Development Framework as part of their land use management system. In terms of the Spatial Development Framework the area to which this development applies was specifically earmarked for residential development which renders this proposed development in line with the Spatial Development Framework. The development will also be incorporated into the Naledi Town Planning Scheme, 2004 in terms of applicable legislation following the opening of the required township register. This land use management scheme will effectively regulate the land uses to be established within these township areas as well as the extent of development.

- (ii) **all government departments must provide their sector inputs and comply with any other prescribed requirements during the preparation or amendment of spatial development frameworks;**

Integration between the different levels of government assists to create complimentary and mutually reinforcing policies, while integration between the different sectors will result in positive benefits. Government departments have been consulted during the compilation of the Spatial Development

Framework of the local municipality. In addition to the fore-mentioned consultation, it should be noted that this application for township establishment will also be referred to the following government and non-government departments as integral part of the public participation process:

- Department of Agriculture, Forestry and Fisheries (DAFF)
- Transnet Freight Rail
- South African Heritage Resources Agency (SAHRA)
- Eskom
- Department of Public Works and Roads
- Department Water and Sanitation
- Openserve (former Telkom SA Limited)
- SA Post Office Limited (SAPO)
- Dr. Ruth Segomotsi Mompati District Municipality
- South African National Roads Agency Limited (SANRAL)
- Department of Mineral Resources (DMR)
- Department of Education
- Department of Health
- Department of Co-operative Governance, Human Settlements and Traditional Affairs (COGHSTA)
- Department Agriculture, Land Reform and Rural Development
- Sedibeng Water
- South African Civil Aviation Authority (SACAA)

(iii) the requirements of any law relating to land development and land use are met timeously;

The Minister of Rural Development and Land Reform has prescribed timeframes to which land development applicants and decision makers must adhere to.

(iv) the preparation and amendment of spatial plans, policies, land use schemes as well as procedures for development applications, include transparent processes of public participation that afford all parties the opportunity to provide inputs on matters affecting them; and;

Effective procedures for public participation are in place, to afford the residents and other parties the opportunity to provide inputs on development applications and other matters affecting them.

The public participation process undertaken as part of this township establishment application includes the following:

- ✧ Publishing notices of the application (as set out in **Annexure T1** of the comprehensive Land Development Application) in the Stellalander as

- well as in the North West Provincial Gazette in Afrikaans & English for two consecutive weeks as contemplated in Sections 94(1)(b) and 94(1)(h) read with Sections 94(2)(a) and 95(1)(b) of the Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015;
- ✧ Displaying a site notice (as set out in **Annexure T2** of the comprehensive Land Development Application) in a conspicuous place on the land to which the application applies as contemplated in Sections 94(1)(b) and 94(1)(h) read with Section 97(1)(a) of the Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015;
 - ✧ Giving notice to the following external organizations / departments (as set out in **Annexure T3** of the comprehensive Land Development Application) as contemplated in Section 94(1)(b) and 94(1)(h) read with Section 95(1)(d) of the Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015:
 - Department of Agriculture, Forestry and Fisheries (DAFF)
 - Transnet Freight Rail
 - South African Heritage Resources Agency (SAHRA)
 - Eskom
 - Department of Public Works and Roads
 - Department Water and Sanitation
 - Openserve (former Telkom SA Limited)
 - SA Post Office Limited (SAPO)
 - Dr. Ruth Segomotsi Mompati District Municipality
 - South African National Roads Agency Limited (SANRAL)
 - Department of Mineral Resources (DMR)
 - Department of Education
 - Department of Health
 - Department of Co-operative Governance, Human Settlements and Traditional Affairs (COGHSTA)
 - Department Agriculture, Land Reform and Rural Development
 - Sedibeng Water
 - South African Civil Aviation Authority (SACAA)
 - ✧ Giving notice to all adjacent property owners (as set out in **Annexure T4** of the comprehensive Land Development Application) as contemplated in Section 94(1) (h read with Section 95(1)(c) of the Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015.

The external organizations / departments will be afforded a period of sixty (60) days to comment in this matter. The adjacent property owners and the general public will be afforded a period of thirty (30) days to lodge comments

township area through the existing street network of the adjacent township areas of Vryburg Extensions 25 and 28 as well as the existing township area of Huhudi.

- The proposed township area of Vryburg Extension 29 will also be linked to the economic activities offered within the Vryburg urban area through the existing road network of Vryburg which links with the proposed road network of the proposed township area.
- The construction phase of this project will create a number of additional jobs for the local community.
- The layout plan that was compiled in respect of the township area comprehensively address the issues identified during the pre-planning studies relating inter alia to the following:
 - Incorporating the road network with that of the adjacent township areas;
 - Incorporating all existing servitudes and Eskom powerlines as well as services infrastructure (water lines and power lines) within the layout plan of the township area;
 - Incorporating the results of the geotechnical investigation which indicated that the development area is suitable for township establishment purposes subject to the precautionary measure proposed;
 - Engineering services can be provided to the proposed township area subject to the necessary bulk services upgrades set out in Section 5 above required not only to service the proposed township area but to also address current services challenges experienced within the Vryburg/Huhudi urban complexes especially relating to the provision of sufficient water.
 - Traffic generated by the development can be accommodated within the existing road network subject to the necessary road and intersections upgrades proposed in terms of the Traffic Impact Study.

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

K. RAUBENHEIMER
Pr. PIn A/924/1996