

# MOTIVATION REPORT

26 October 2018

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## PROPOSED TOWNSHIP ESTABLISHMENT, REMOVAL OF RESTRICTIVE TITLE CONDITIONS, CONSOLIDATION AND SUBDIVISION:

- Portions 1 and 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province

- Spatial Planning
- Development Management
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- Admin & Finance

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# MOTIVATION REPORT

## PROPOSED TOWNSHIP ESTABLISHMENT (KATHU EXTENSIONS 6, 7, 8, 9 AND 10), REMOVAL OF RESTRICTIVE TITLE CONDITIONS, CONSOLIDATION AND SUBDIVISION

### ON

## PORTIONS 1 AND 2 OF THE FARM KALAHARI GHOLF EN JAG LANDGOED NO. 775, DIVISION KURUMAN, NORTHERN CAPE PROVINCE

### CHAPTER 1: INTRODUCTION

#### 1.1 INTRODUCTION

Koot Raubenheimer (ID No. 700305 5192 089) of the company Maxim Planning Solutions (Pty) Ltd (2002/017393/07) was appointed by the Gamagara Local Municipality (NC453) to attend to the establishment of the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10 comprising a total of 5277 erven to address the short-medium term need for erven that can be used for subsidized housing purposes whilst similarly providing erven that can be utilized for middle- and higher income residential purposes. The project constitutes a collaboration between the Department of Co-operative Governance, Human Settlements and Traditional Affairs (COGHSTA) and the Gamagara Local Municipality whereby the Department of Co-operative Governance, Human Settlements and Traditional Affairs (COGHSTA) has, in addition to the acquisition during 2017 of Portion 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province on behalf of the Gamagara Local Municipality, also secured and allocated funding for the proper integrated human settlement planning and installation of services in respect of the proposed integrated human settlement on Portions 1 and 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province.

As integral part of the establishment of the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10, application is also made for the removal of certain restrictive title conditions contained in the Deeds of Transfer of Portions 1 and 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province as well as the consolidation of the fore-mentioned two (2) properties and the subsequent re-subdivision thereof into five (5) portions that will constitute the small scale diagrams of the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10.

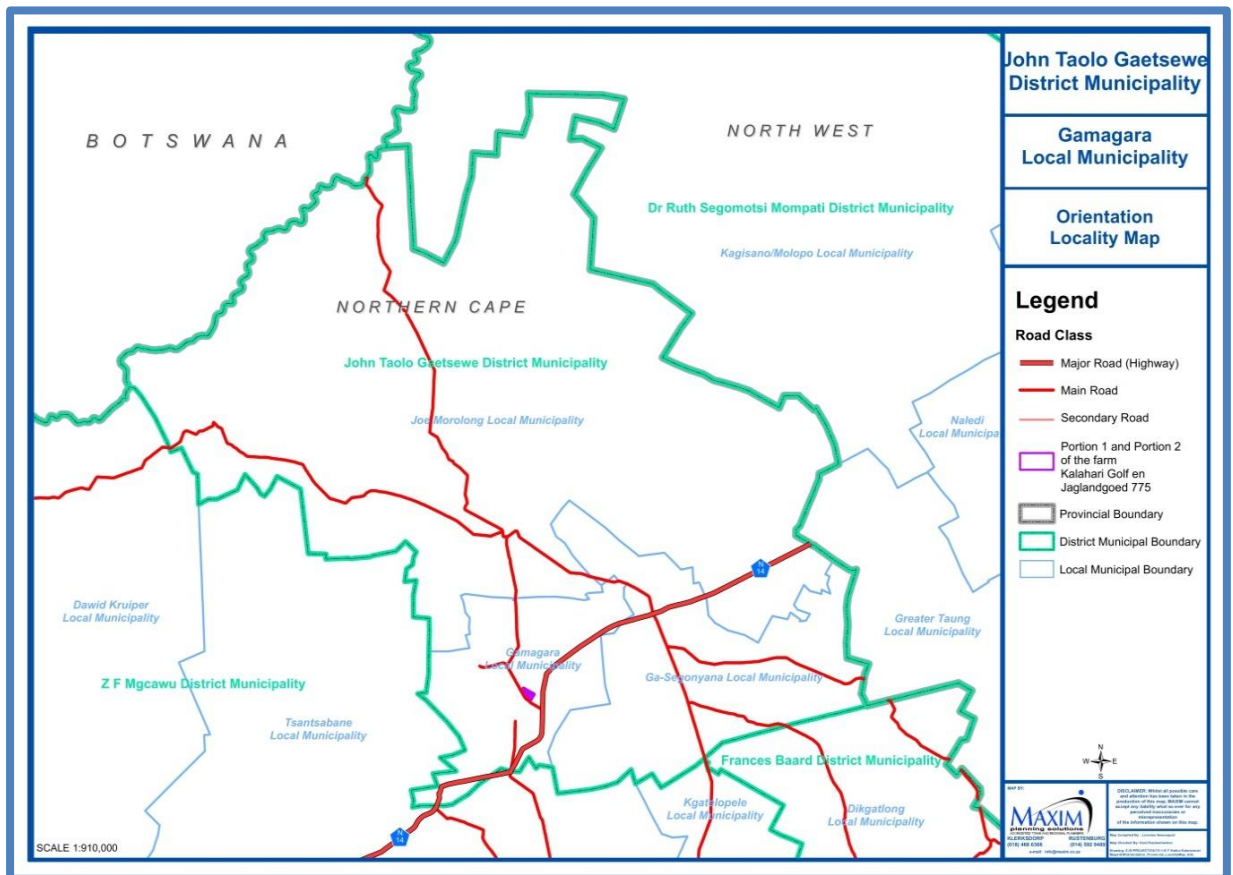
The planning of the proposed new township area at Kathu was conducted in an integrated manner and focussed on the entire designated development area. This integrated planning yielded a township area comprising 5 069 residential erven (earmarked for a variety of different housing typologies) together with an additional 208 erven earmarked for non-residential support functions (inclusive of streets). As per the procedural requirements of the Surveyor-General (Bloemfontein), it was indicated that the office of the Surveyor-General (Bloemfontein) restricts the number of erven included on a General Plan to a maximum of approximately 1200 erven to expedite the examination of the survey records and General Plans. Due to the fore-mentioned requirement, it was necessary to divide the proposed integrated human settlement into five (5) separate township areas i.e. Kathu Extensions 6, 7, 8, 9 and 10.

## 1.2 BACKGROUND OF GAMAGARA LOCAL MUNICIPALITY

### 1.2.1 REGIONAL LOCALITY

The Gamagara Local Municipality (NC453) covers approximately 261 942 hectares and is one of three local municipalities situated within the John Taolo Gaetsewe District in the Northern Cape Province. Gamagara Local Municipality (NC453) is a category B-municipality as defined in the Municipal Structures Act. The administrative head office of the municipality is located in Kathu.

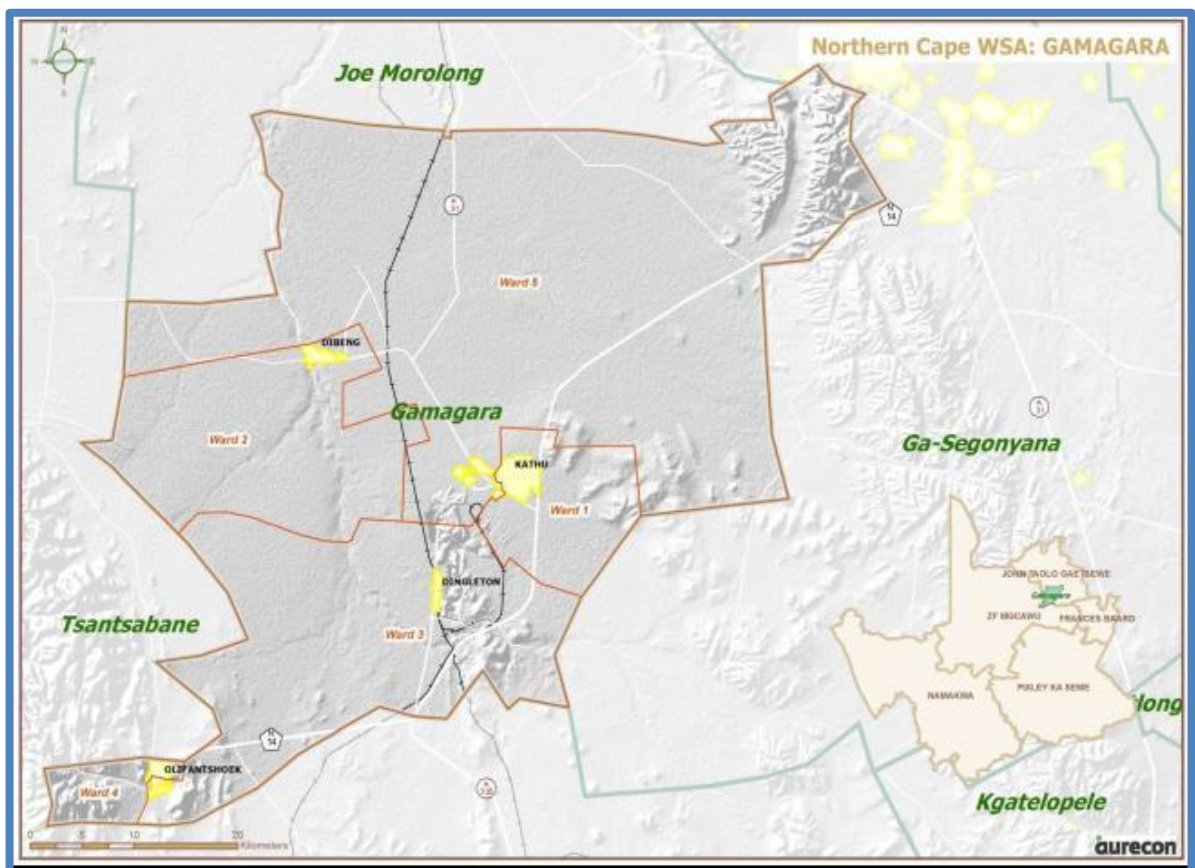
**Map 1: Locality of Gamagara Local Municipality (NC453) in provincial context**



Gamagara Local Municipality is located in the north-eastern sector of the Northern Cape, on the N14 National Road between Upington and Vryburg. It is approximately 200km north-east of Upington and 280 km north-west of Kimberley. The single largest factor that has guided the development of the Gamagara area is the iron ore mine at Sishen.

The municipal area of Gamagara consists of 4 towns, Kathu, Sesheng, Dibeng, and Olifantshoek; and the area is demarcated into 7 wards (Ward 1: Kathu, Ward 2: Dibeng, Ward 3: Skerpdraai, Diepkloof and Town, Ward 4: Ditlounge, Welgelee and Ward 5: Sesheng; Ward 6: Siyathemba, Kathu Technical College and Ben Alberts rd; Ward 7: Dibeng Town, Bestwood and Babatas Communal property Association).

**Map 2: Locality of Gamagara Local Municipality (NC453) in district context**



Kathu, ‘the town under the trees’, came into being because of Iscor’s iron ore mining activity in the Kalahari. Municipal status was allocated to the town of Kathu in July 1979. Kathu is connected by rail (Dingleton Station) via Kimberley, as well as by road to all the main centres namely Johannesburg, Bloemfontein, Windhoek and Cape Town, and has an airport with a tarmac runway (located north-west of the proposed development area). The municipality originally consisted of 2 towns, namely Sesheng and Kathu.

Sesheng is located to the west of Kathu and was initially planned as a high density residential area for mine workers, without families of any social structure. It consists

of group housing units that belong to the mine to the west, with small pockets of other houses to the west thereof. The larger residential housing component of Sesheng is located nearer to Kathu in the form of single residential houses (Ext. 5).

Dibeng is located approximately 28km north-west of Kathu alongside the R380 road. The settlement consists of two suburbs, namely Deben and Haakbosdraai. Dibeng started off as a small settlement on the banks of the Gamagara River, which provided water for the small town. The locations of the residential areas are characterized by the river in the centre of town and the rocky lime stone outcrops directly east and west of the river. Dibeng consists entirely of single residential houses, but can be split into a low density area to the west and higher density houses to the east. Dibeng was given its name by the Tswana and means "first drinking place".

Dingleton developed in a linear form along the one side of the then main road between Upington and Kuruman. Dingleton consists exclusively of low density single residential houses. The town is surrounded by large mine activities and the resettlement of Dingleton residents has already commenced with further resettlement eminent due to expansions of mining activities in this direction. The town is currently left with few residents who are waiting to move to Siyathemba where other residents are residing. Consideration will also be given to the possible relocation of these remaining residents in Dingleton to the proposed new integrated human settlement area of Kathu Extensions 7, 8, 9 and 10 due to the lack of sufficient vacant erven in Siyathemba to accommodate the current waiting list.

Olifantshoek is located south-west of Kathu, south-west of Kuruman and north-east of Upington. With the amalgamation of municipalities in 2000 Olifantshoek Municipality became part of the Tsantsabane Local Municipality, until 2006 when it was amalgamated with the Gamagara Local Municipality. The town is a low/medium density residential area, but due to new developments which are underway it will in future become a high density residential area.

## 1.2.2 DEMOGRAPHICS

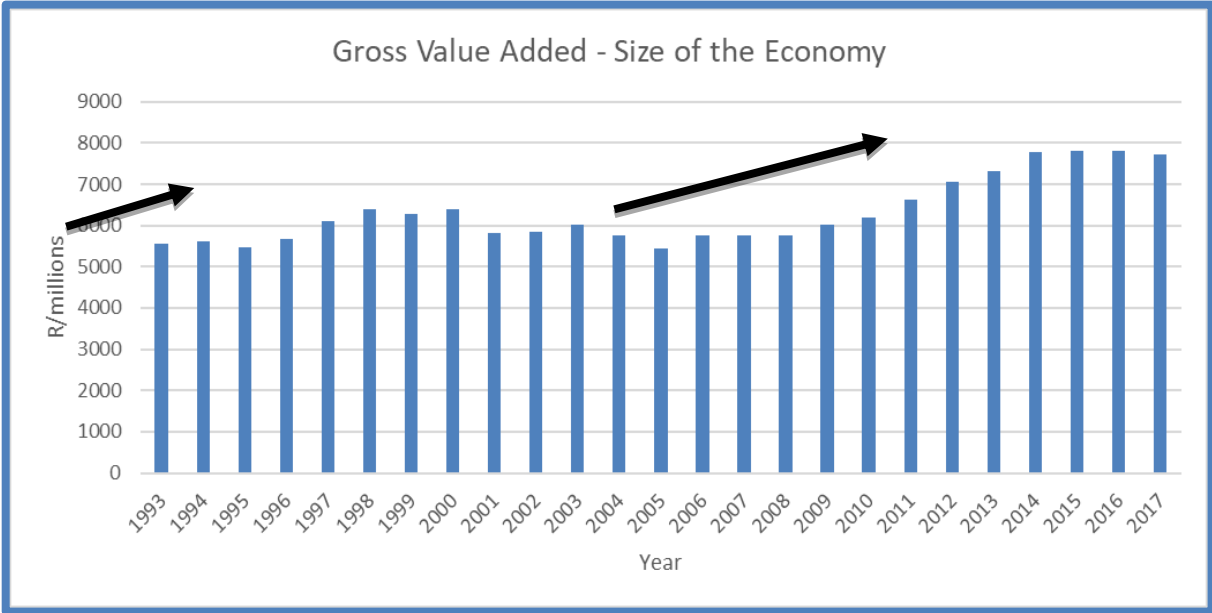
The demographic profile detailed below provides an economic overview of the Gamagara Local Municipality (NC453) in respect of the sectoral composition (GVA) and employment trends, the population and households as well as household income. The information contained in sections 1.2.2.1 to 1.2.2.4 is based on a study commissioned by Maxim Planning Solutions (Pty) Ltd conducted by Dr. David Dyason (PhD in Economics) from the North West University (September 2018).

### 1.2.2.1 Economic Overview

The economy of the Gamagara Local Municipality (NC453) is characterised by two periods of strong economic growth from 1995 to 2000 and again from 2008 to 2015.

Since 2015 the economy has stayed more or less constant at an output level of R7.7 billion. **Figure 1** shows the size of the local economy (measured in GVA) from 1993 to 2017.

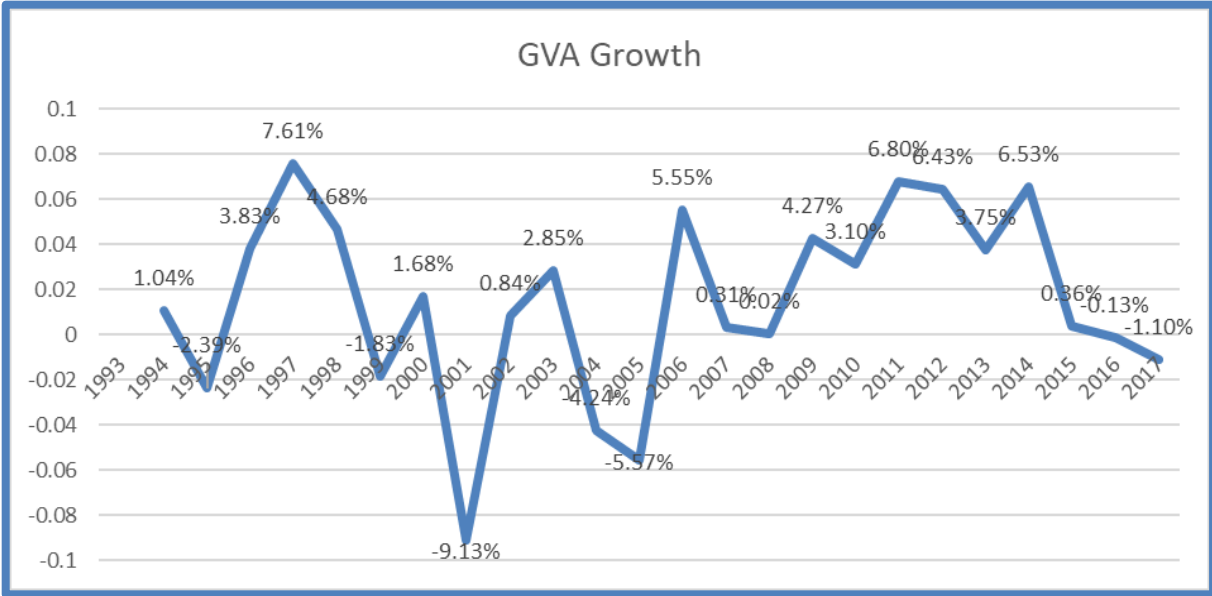
**Figure 1: Size of the local economy, 1993 - 2017**



Source: Stats SA ex.Quantec, 2018

The growth trend of the local economy is mostly characterised by positive growth, however some periods of slow and negative growth is evident. Interestingly, the periods of negative growth (below 0%) tends to be short-lived and are followed by periods of high growth. The latest data shows that the local economy is in recession with two years of negative growth (2016 & 2017); however, these are only slightly negative as evident in **Figure 2**.

**Figure 2: Economic growth trends, 1993 - 2017**

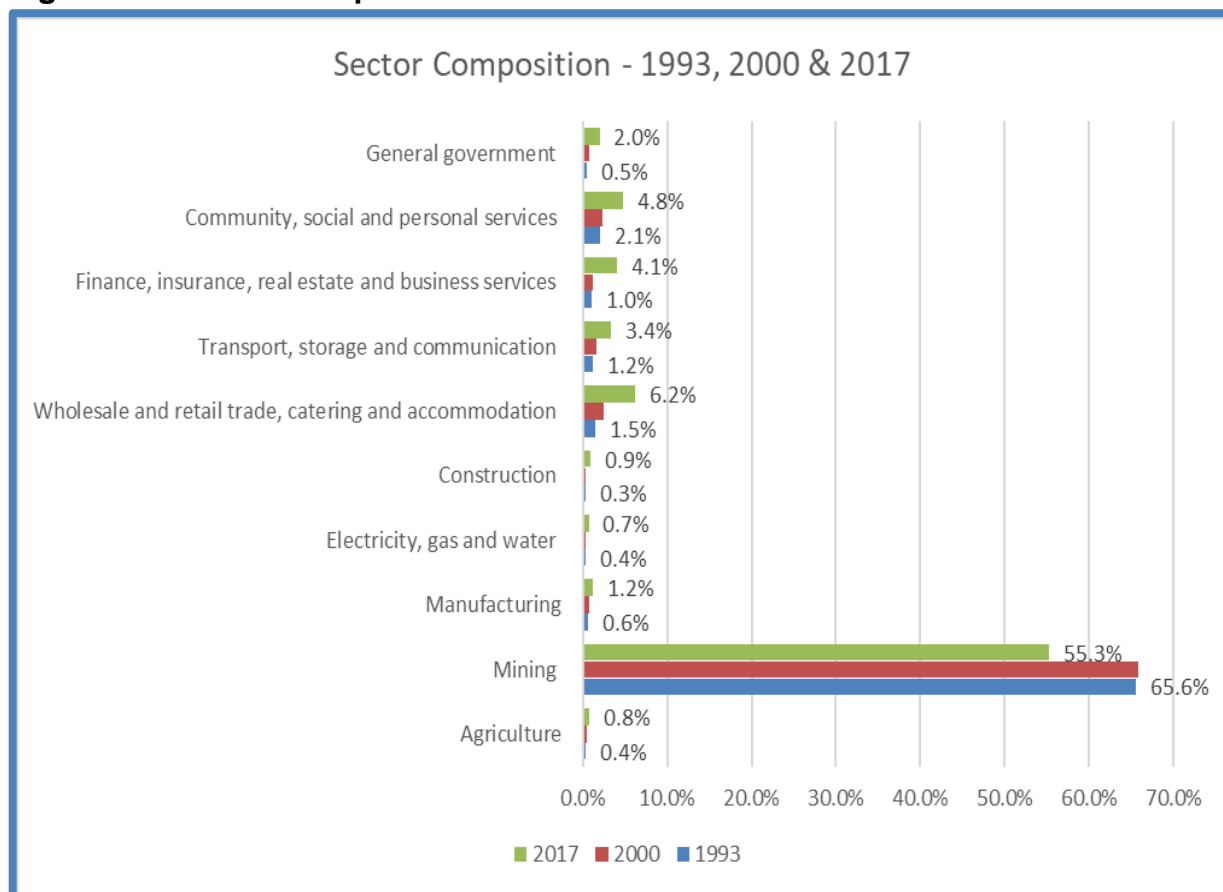


Source: Stats SA ex.Quantec, 2018

### 1.2.2.1.1 Sectoral Composition (GVA)

The sectoral contribution for the local economy is illustrated in **Figure 3**. This figure illustrates which sectors drive the local economy and as a result play a significant role in the growth and development of the area.

**Figure 3: Sectoral composition & contribution**



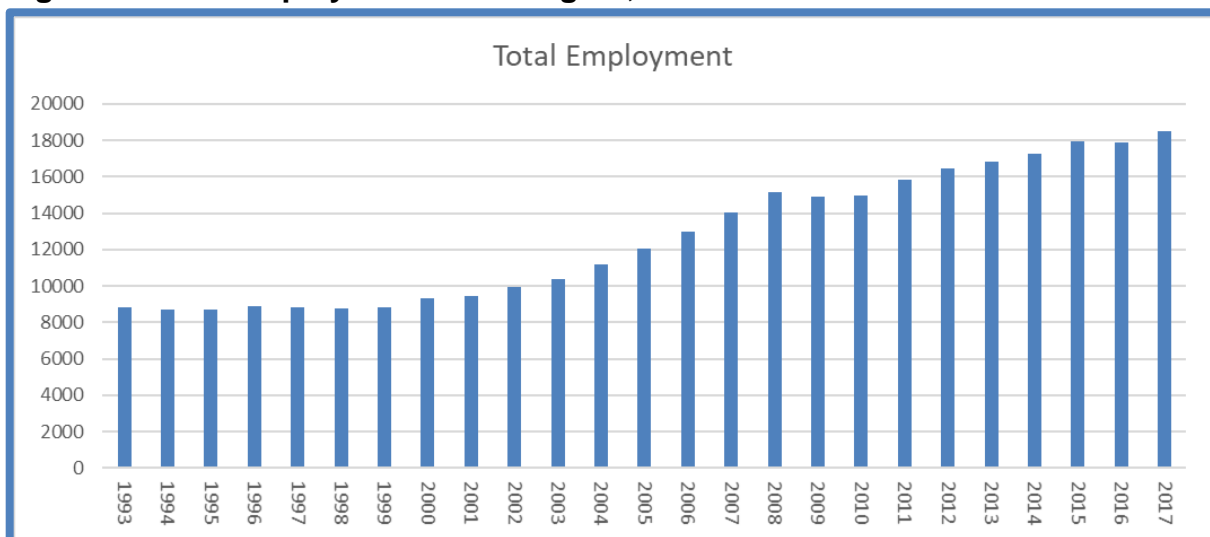
Source: Stats SA ex.Quantec, 2018

**Figure 3** illustrates how the economy has changed over time (from 1993 to 2017). The mining sector has continued to be the major driver locally and is supported by the tertiary (services) sectors. The recent trend illustrate that the tertiary sector, in particular, has started to contribute more towards the local economy. This is not as a result of a decreasing mining sector; however, it is an indication of an **economy** that has slowly **started to diversify**.

### 1.2.2.1.2 Employment Trends

The employment trends in the local economy are somewhat different to that of the economic trends. The total employment in the local economy is illustrated in **Figure 4**. In 2017, the local economy, although in a recession, has employed the most people since 1993 with a total of 18 500. This trend bodes well for the economy, and should support the local economy to be in a position to have stronger growth in 2018.

**Figure 4: Total employment in Gamagara, 1993 - 2017**

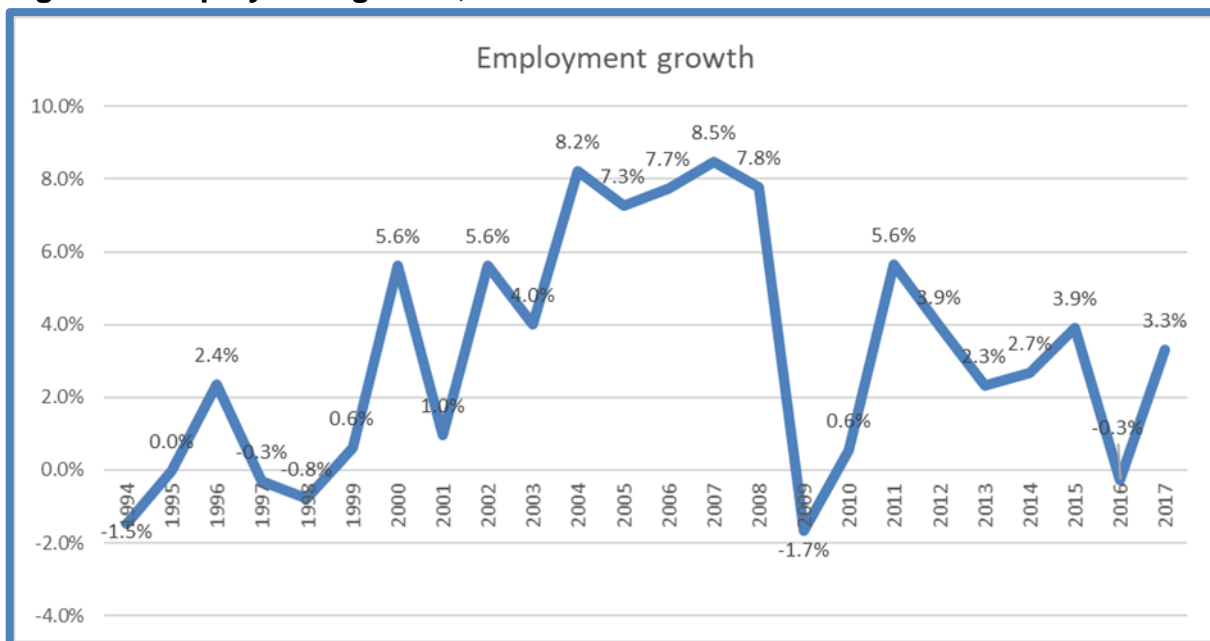


Source: Stats SA ex.Quantec, 2018

The employment growth rate is shown in **Figure 5**. The employment growth rate is mostly positive and high for the economy. The fluctuations are typical of economies that are as dependent on one commodity.

On average the employment growth for the local economy has been positive. The long run (10-years) employment growth average is 2.8% and the 5-year average is 2.4%. This amount to approximately **333 new employment opportunities created annually** from 2013 to 2017.

**Figure 5: Employment growth, 1993 - 2017**

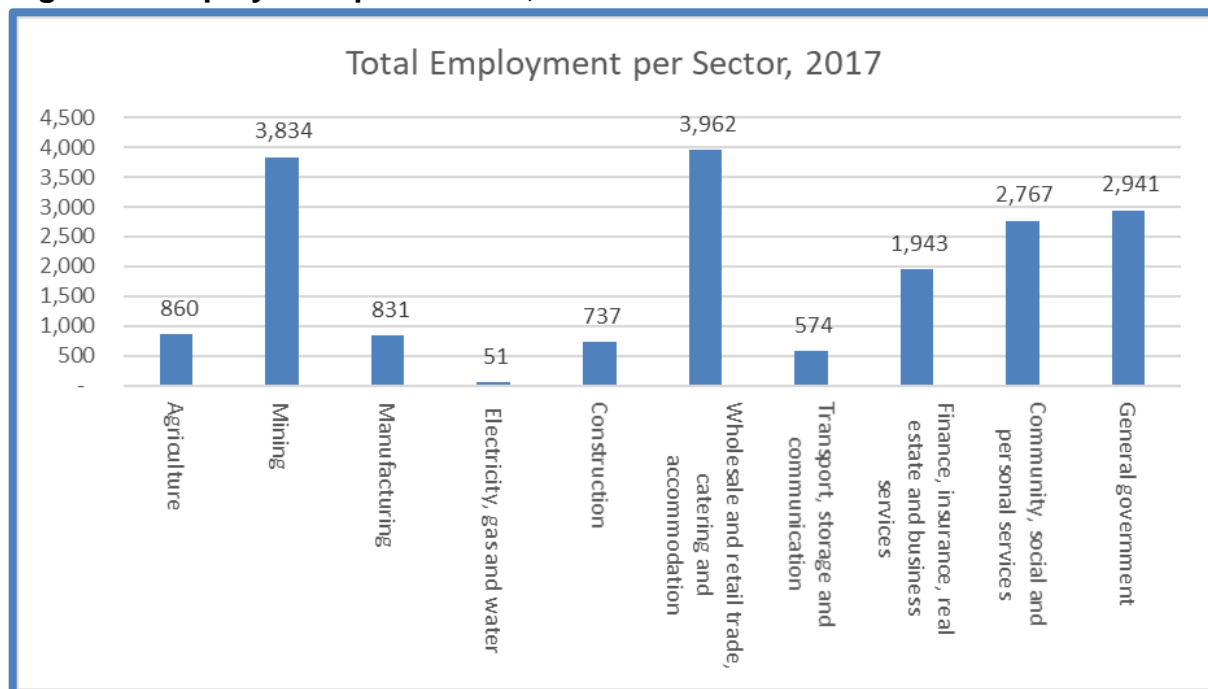


Source: Stats SA ex.Quantec, 2018

The employment per sectors is illustrated in **Figure 6**.



**Figure 6: Employment per sectors, 2017**



Source: Stats SA ex. Quantec, 2018

The results from **Figure 6** are not what one would expect from an economy that is reliant on mining. The figure shows how the economy has started to diversify with employment. The wholesale and retail trade sector is the largest employer locally, followed by the mining and government sectors. The implication for the local economy is that employment diversification provides a buffer and some sort of stability to employment especially in times of fluctuating mining employment.

### 1.2.2.1.3 Summary

#### Main findings:

- The local economy has experienced good, positive economic growth over the past decade (2008 – 2017). The average economic growth for this period was 3% per annum.
- The employment growth has had similar growth of 2.8% per annum (2008 – 2017).
- The mining sector is the main driver in the local economy and has remained the major driver of economic activity since 1993.
- The diversifying of the economy is evident in the employment per sector, where retail trade is employing more people than the mining sector.
- The level of employment has been very positive over the past decade and in 2017, the local economy has had the highest employment levels in its history.
- The economy is still at its peak and has been constantly high over the past four years.

### 1.2.2.2 Population & Household

The population and household total for the Gamagara municipal area is illustrated in **Table 1**. The data source for this table is the 2001 and 2011 national census and the data is provided on a sub-place level. The 2016 data is based on the Stats SA community survey conducted on the municipal level (and not a sub-place level).

The municipal area experienced an increase in both population and household numbers of just over 78% from the 2001 total to 2011. The annual growth rate equates to 6% for the population and households during this period.

From 2011 to 2016 the growth was still high, albeit slightly lower than the previous period, at 5.25% annual population growth and 5.7% annual household growth. This equates to an annual increase in households of 760 for the municipal area.

**Table 1: Population & Household Totals; 2001, 2011 & 2016**

Sub place	2001		2011		2016 <sup>1</sup>	
	Population	Household	Population	Household	Population	Household
Dibeng SP	4,005	825	7,848	1,766		
Gamagara NU	1,032	440	992	438		
Kathu SP	6,279	2,067	11,510	3,622		
Diepkloof	814	187	1,286	289		
Ditloug	2,740	594	4,749	1,050		
Olifantshoek SP	860	245	994	284		
Welgelee	2,575	501	3,205	681		
Mapoteng	56	16	5,929	2,296		
Sishen Mine	4,833	1,807	5,105	1,496		
<b>Gamagara total</b>	<b>23,193</b>	<b>6,682</b>	<b>41,617</b>	<b>11,922</b>	<b>53,656</b>	<b>15,723</b>

Community survey data is not available on a sub-place level, only on a municipal level.  
Source: Stats SA (Census 2001, 2011 & Community Survey 2016)

#### 1.2.2.2.1 A focus on Kathu town

The town of Kathu is the main economic and population node within the municipal area with various new real estate projects that have developed over the past decade. The town’s population increased from 6 279 in 2001 to 11 510 in 2011 while the number of households have increased from 2 067 (2001) to 3 622 (2011). Based on population trends and supported by the community survey of 2016, the **town’s population is still increasing and estimated to be approximately 16 427 with households at 5 336 in 2018.**

**Figure 7** provides an indication of the population and household totals for the municipal area (Gamagara) and Kathu.

**Figure 7: Population and household totals (values based on Stats SA surveys)**



Source: Stats SA (Census 2001, 2011 & Community Survey 2016) & own estimates

The annual increase in the number of households in Kathu is estimated to be 245 per annum (2011 to 2018) while the annual increase in households for the municipal area is estimated at 806 (2011 to 2018).

**Figure 8** provides an estimate of the population and households for the municipal area. The growth is illustrated for two scenarios:

1. **Scenario 1** assumes continued population and household growth at levels similar to the 2011 to 2016 survey results i.e. **±5.5% compound growth**.
2. **Scenario 2** assumes that population and household growth have peaked and will stabilise at an **average of 806 new households and 2 540 people per annum**.

The growth rates take into consideration the impact of births, migration and deaths for the municipal area.

**Figure 8: Population & Household Estimates**

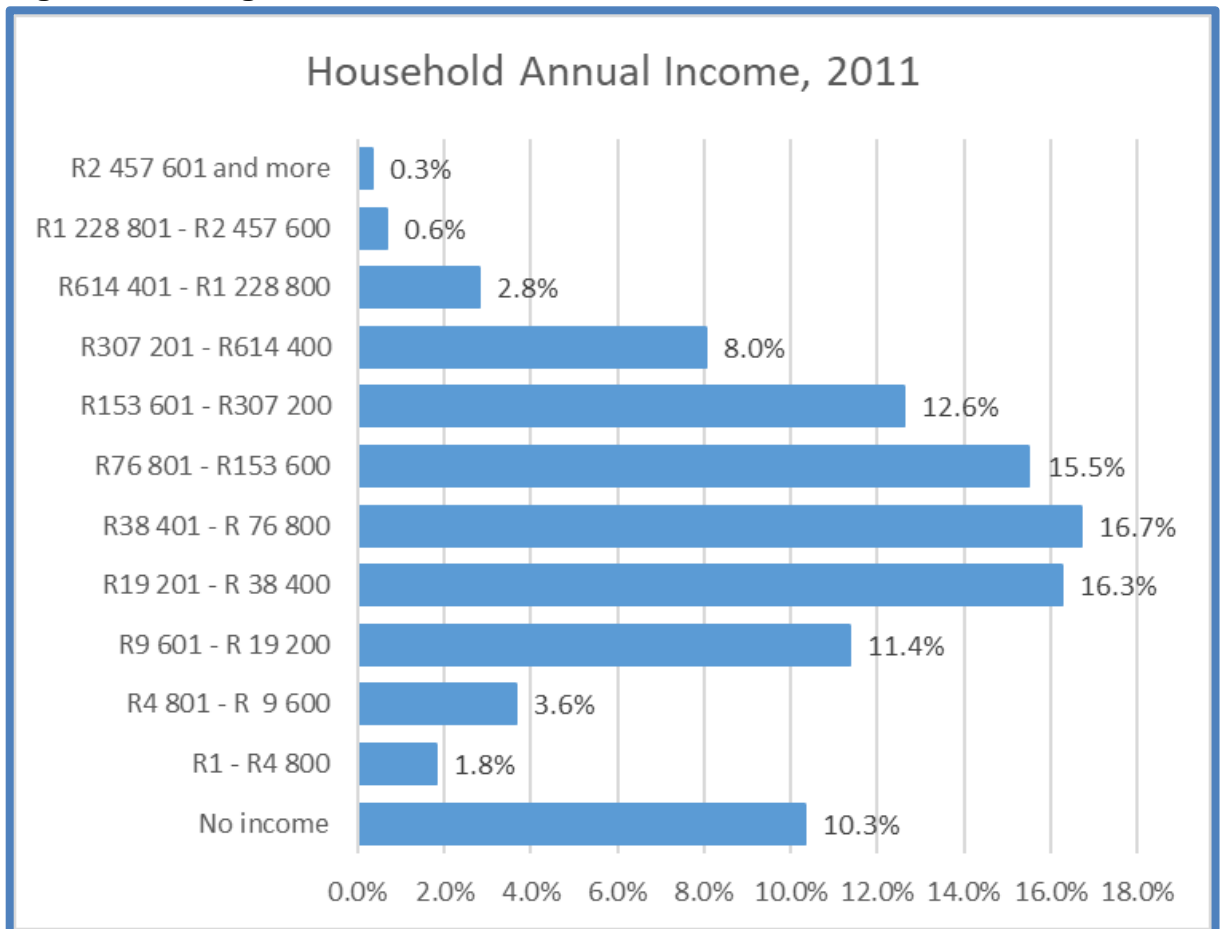


Source: Stats SA, Quantec & own estimates, 2018

### 1.2.2.3 Household Income

The average annual household income for the municipal area is illustrated in **Figure 9**. The figure shows that 60.1% of households earn below R76 800 per annum with 39.9% above R76 800.

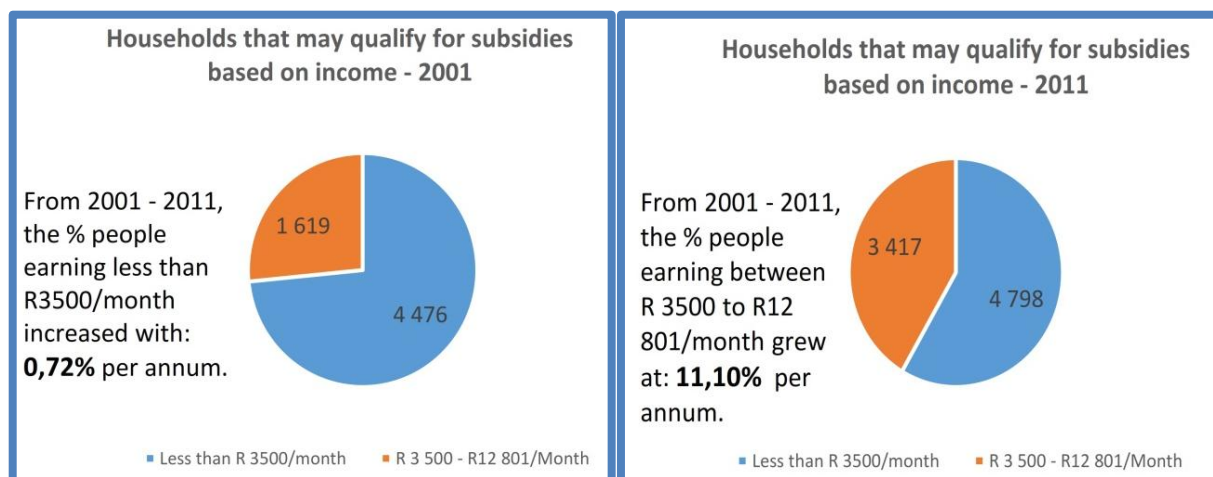
**Figure 9: Average annual household income, 2011**



Source: Stats SA, Quantec & Author calculations 2018

According to the Municipal Profile of the Gamagara Local Municipality compiled by the Housing Development Agency (HDA) (2014), households in Gamagara Local Municipality are relatively poor with a large segment of the market that earn no income at all, representing 10.3% of all households. **76,02%** of the households **earn less than R12 800/month**. There has been significant growth in the income bracket earning between R3500 and R12 800/month—a clear signal for rental or gap market housing options.

**Figure 10: Households that may qualify for subsidies based on income - 2001/2011**



Source: HDA, Municipal Profile – Gamagara Local Municipality 2014

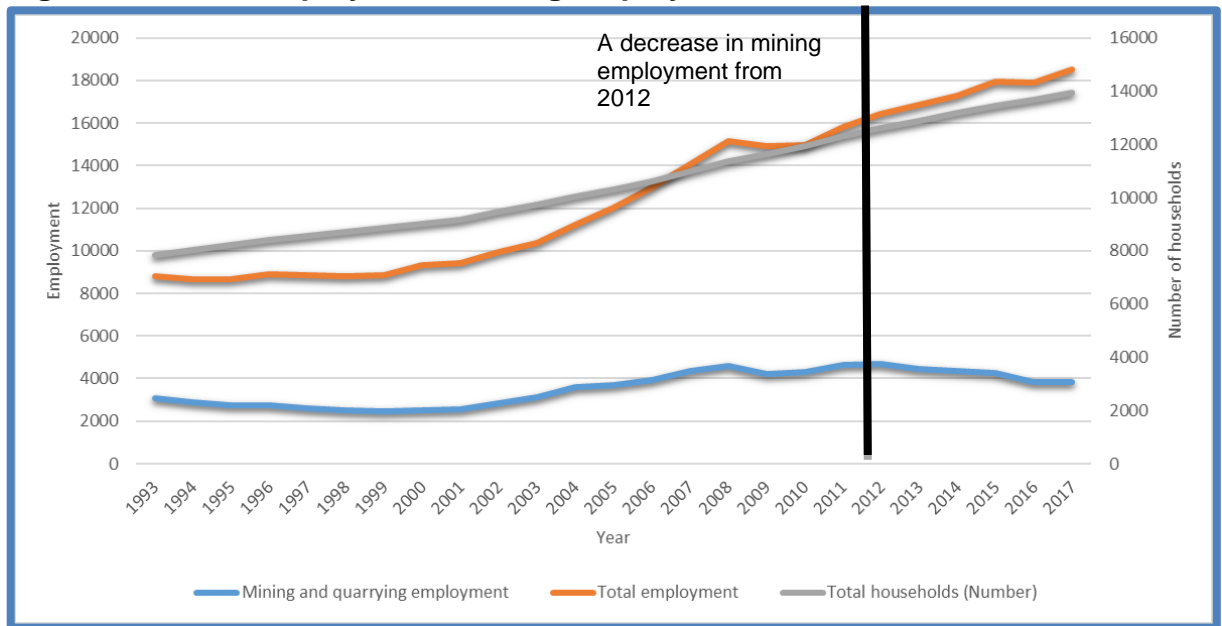
### 1.2.2.4 Conclusion

The characteristic of the local economy is one where the primary sectors play a significant role in the growth and development of the economy. Although the employment in the other sectors provide some stability and buffer in fluctuations of the mining sector, the mining sector is still the main economic activity in the area, and changes in this sector is expected to influence growth locally.

The mining sector has already employed a lower number of people since the highs of 2008 to 2012. Even with the lower employment the local economy has increased the total level of employment with the other sectors responsible for the increase in employment. This indicates that the local economy is able to absorb and create new employment irrespective if the mining sector increases its levels of employment.

Since 2012 the economy was able to create on average 342 new jobs, this in a period where mining employment decreased by an average of 144 jobs annually. **Figure 11** shows the decrease in mining employment as well as the increase in total employment and total households.

**Figure 11: Total employment, mining employment and total households.**



Source: Stats SA, Quantec & Author calculations 2018

Figure 11 illustrates that a decrease in mining employment in the local economy has not led to a lower overall employment level and lower number of households, but in fact, the opposite.

### 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 contour 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;
- 1:100 year floodline determination conducted by CWT Water Technology;
- Phase 1 Heritage Impact Assessment conducted by A Pelsers Archaeological Consulting CC;
- Detail civil engineering services investigation conducted by Civilsense Consulting;
- Detail electrical engineering services investigation conducted by Motla Consulting Engineers;
- Environmental Impact Assessment conducted by AB Enviro-Consult;
- Ecological Fauna and Flora Habitat Survey conducted by Reinier F Terblanche;
- Wetland Assessment conducted by Reinier F Terblanche; and
- Traffic Impact Study conducted by AC<sup>2</sup> (Pty) Ltd.

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

During the Ministry of Human Settlements' Budget Vote in Parliament on 03 May 2016, the Minister of Human Settlements announced during her budget speech that MinMec has taken a decision to target the Northern Cape Province for the complete eradication of the housing backlog.

In terms of a presentation by the Department of Co-operative Governance, Human Settlements and Traditional Affairs (COGHSTA) on Sustainable Human Settlements presented on 22 August, the following main objectives were set in respect of Sustainable Human Settlements:

- Accelerate housing delivery
- Improve the quality of housing products and environments to ensure asset creation
- Ensure a single efficient formal housing market
- Restructure and reintegrate human settlements
- *Key shift: Housing is an economic driver for the country and an economic asset for beneficiaries*

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

Koot Raubenheimer (Id No. 700305 5192 089) of the company Maxim Planning Solutions (Pty) Ltd (2002/017393/07), being the authorised agent of the Gamagara Local Municipality (NC453), is hereby applying on behalf of the Gamagara Local Municipality in terms of:

- The provisions of Section 3(2)(a) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016 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:
  - Kathu Extension 6 on a portion of Portion 1 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province and a portion of Portion 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province comprising approximately 1178 “Residential zone I” erven, 3 “Residential zone III” erven, 1 “Business zone I (including Institution, Authority Use, Flats, Residential Building)” erf, 1 “Business zone II” erf, 3 “Institutional zone I” erven, 4 “Institutional zone II” erven, 3 “Open space zone I” erven, 46 “Transport zone II” erven and 1 “Authority zone I” erf (final number of erven only to be determined on finalization of layout planning);
  - Kathu Extension 7 on a portion of Portion 1 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province and a portion of Portion 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province comprising approximately 1129 “Residential zone IV (low cost housing excluded)” erven, 2 “Business zone I (including Institution, Authority Use, Flats, Residential Building)” erven, 2 “Institutional zone I” erven, 3 “Institutional zone II” erven, 3 “Open space zone I” erven, 1 “Open space zone II” erf, 23 “Transport zone II” erven and 1 “Authority zone I” erf (final number of erven only to be determined on finalization of layout planning);
  - Kathu Extension 8 on a portion of Portion 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province comprising approximately 2 “Residential zone III” erven, 974 “Residential zone IV (excluding low cost housing)” erven, 6 “Business zone I (including Institution, Authority Use, Flats, Residential Building)” erven, 15 “Business zone II” erven, 3 “Institutional zone I” erven, 1 “Institutional zone II” erf, 2 “Open space zone I” erven, 1 “Transport zone I” erf and 23 “Transport zone II” erven (final number of erven only to be determined on finalization of layout planning);
  - Kathu Extension 9 on a portion of Portion 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province comprising approximately 663 “Residential zone IV (low cost housing excluded)” erven, 1 “Business zone II” erf, 1 “Institutional zone I” erf, 1 “Institutional zone II” erf, 3 “Open space zone I” erven, 2 “Open space zone II” erven and 13 “Transport zone II” erven (final number of erven only to be determined on finalization of

- layout planning);
- Kathu Extension 10 on a portion of Portion 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province comprising approximately 1120 “Residential zone IV (low cost housing excluded)” erven, 2 “Business zone II” erven, 2 “Institutional zone I” erven, 2 “Institutional zone II” erven, 9 “Open space zone I” erven, 23 “Transport zone II” erven and 1 “Authority zone I” erf (final number of erven only to be determined on finalization of layout planning);
- The provisions of Sections 3(2)(c) and 15(1) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016 read with Sections 41(1)(b), 41(2)(e) and 47(1) of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) for the:
    - Removal of Conditions A. IX. (1), A. IX. (2)(a) and A. IX. (2)(b) on page 3 in Deed of Transfer T1989/2007 in respect of Portion 1 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province;
    - Removal of Conditions A. IX. (1), A. IX. (2)(a) and A. IX. (2)(b) on page 2 in Deed of Transfer T3223/2017 in respect of Portion 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province;
    - Removal of Conditions (a) V., (a) IX.(1), (a) IX.(2)(a) and (a) IX.(2)(b) on pages 3 and 4 in Deed of Transfer T3223/2017 in respect of Portion 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province;
    - Removal of Condition (c) on page 4 in Deed of Transfer T3223/2017 in respect of Portion 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province;
    - Removal of Condition B. on page 4 in Deed of Transfer T3223/2017 in respect of Portion 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province;
  - The provisions of Sections 3(2)(e), 3(2)(m) and 13(1) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016 read with Section 41(2)(c) of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) for the consolidation of Portion 1 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province and Portion 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province (to be known as Portion 3 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province);
  - The provisions of Sections 3(2)(e), 3(2)(l) and 8(1) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016 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 consolidated Portion 1 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province and Portion 2 of the farm Kalahari Gholf

en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province (to be known as Portion 3 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province) into five (5) portions to be known as:

- Erf 16729, Kathu (that will comprise the small scale diagram of Kathu Extension 6),
- Erf 17970 (that will comprise the small scale diagram of Kathu Extension 7),
- Erf 19137 (that will comprise the small scale diagram of Kathu Extension 8),
- Erf 20165 (that will comprise the small scale diagram of Kathu Extension 9) and
- Erf 20850 (that will comprise the small scale diagram of Kathu Extension 10),

## 1.5 PUBLIC PARTICIPATION

Public participation in respect of the land development application comprising the establishment of the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10, the removal of the restrictive title conditions / servitudes in Deeds of Transfer T1989/2007 and T3223/2017 as well as the consolidation and re-subdivision of the consolidated Portions 1 and 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province will include the following:

- Publication of notices as contemplated in Section 27(2)(b) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016 in Afrikaans and English in a local newspaper i.e. Kathu Gazette (refer **Annexure C4** of the comprehensive land development application for pro-forma local newspaper notices);
- Publication of notices as contemplated in Schedule 2 – Section 8 of the Gamagara Spatial Planning and Land Use Management By-Law, 2016 in Afrikaans and English in the Northern Cape Provincial Gazette (refer **Annexure C4** of the comprehensive land development application for pro-forma Northern Cape Provincial Gazette notices);
- Posting of notices as contemplated in Section 27(2)(a) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016 in Afrikaans and English on the notice boards at all libraries (refer **Annexure C5** of the comprehensive land development application for pro-forma library notices);
- Posting a site notice as contemplated in Sections 28(2)(a) and 30(1)(d) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016 in Afrikaans and English on the development area (refer **Annexure C6** of the comprehensive land development application for pro-formal site notices);
- Giving notice to all adjacent property owners as contemplated in Section 28(2)(b) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016 (refer **Annexure C8** of the comprehensive land development application for pro-forma letters to adjacent property owners); and
- Giving notice to the following external organizations / departments as contemplated in Section 28(2)(a) read with Section 32(1) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016:

- ✘ Department of Public Works and Roads
- ✘ Openserve (Telkom SA Limited)
- ✘ Eskom
- ✘ John Taolo Gaetsewe District Municipality
- ✘ Department of Minerals Resources (DMR)
- ✘ Department of Agriculture, Forestry & Fisheries (DAFF)
- ✘ Department of Water and Sanitation
- ✘ Department of Co-Operative Governance, Human Settlements and Traditional Affairs
- ✘ Department of Education
- ✘ Department of Health
- ✘ South African Post Office (SAPO)
- ✘ Transnet Freight Rail
- ✘ South African Heritage Resources Agency (SAHRA)
- ✘ South African National Roads Agency Limited (SANRAL)
- ✘ Sedibeng Water
- ✘ South African Civil Aviation Authority (SACAA)
- ✘ Department Agriculture, Rural Development and Land Reform
- ✘ National Department of Public Works

The fore-mentioned organizations / departments will be afforded a period of sixty (60) days to comment in this matter in accordance with the prescriptions of Section 32(1) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016. The adjacent property owners and the general public will be afforded a period of thirty (30) days to lodge comments or objections in this matter as contemplated in Section 29(h) read with Section 32(2) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016.

To ensure that the community of Kathu and surrounding areas are actively involved during the establishment of this integrated human settlement, three (3) additional community meetings were held on the dates and venues listed below:

- Siyathemba Community Hall on 14 August 2018;
- Kathu Municipal Hall on 14 August 2018; and
- Mapoteng Soup Kitchen on 15 August 2018.

The notices published in the Kathu Gazette in respect of the public meetings, the attendance registers of these meetings as well as the presentation made during these meetings are attached as **Annexures C1, C2 and C3** to the comprehensive land development application. Cognisance should be taken of the fact that the attendance register of the Siyathemba community meeting only reflects the details of the officials from the Gamagara Local Municipality and the Department of Co-Operative Governance, Human Settlements and Traditional Affairs (COGHSTA) as the attendance register that was circulated for completion by the attendees was retained by one of the attendees at the end of the meeting. The public meeting that was held at Mapoteng Soup Kitchen was only attended by officials from the Gamagara Local Municipality as well as the Department of

Co-Operative Governance, Human Settlements and Traditional Affairs (COGHSTA) as no community members attended this meeting.

**Plate 1: View of attendees at Siyathemba Community Hall public meeting (14 August 2018)**



**Plate 2: View of attendees at Kathu Municipal Hall public meeting (14 August 2018)**



**Plate 3: View of Mapoteng Soup Kitchen public meeting (15 August 2018)**

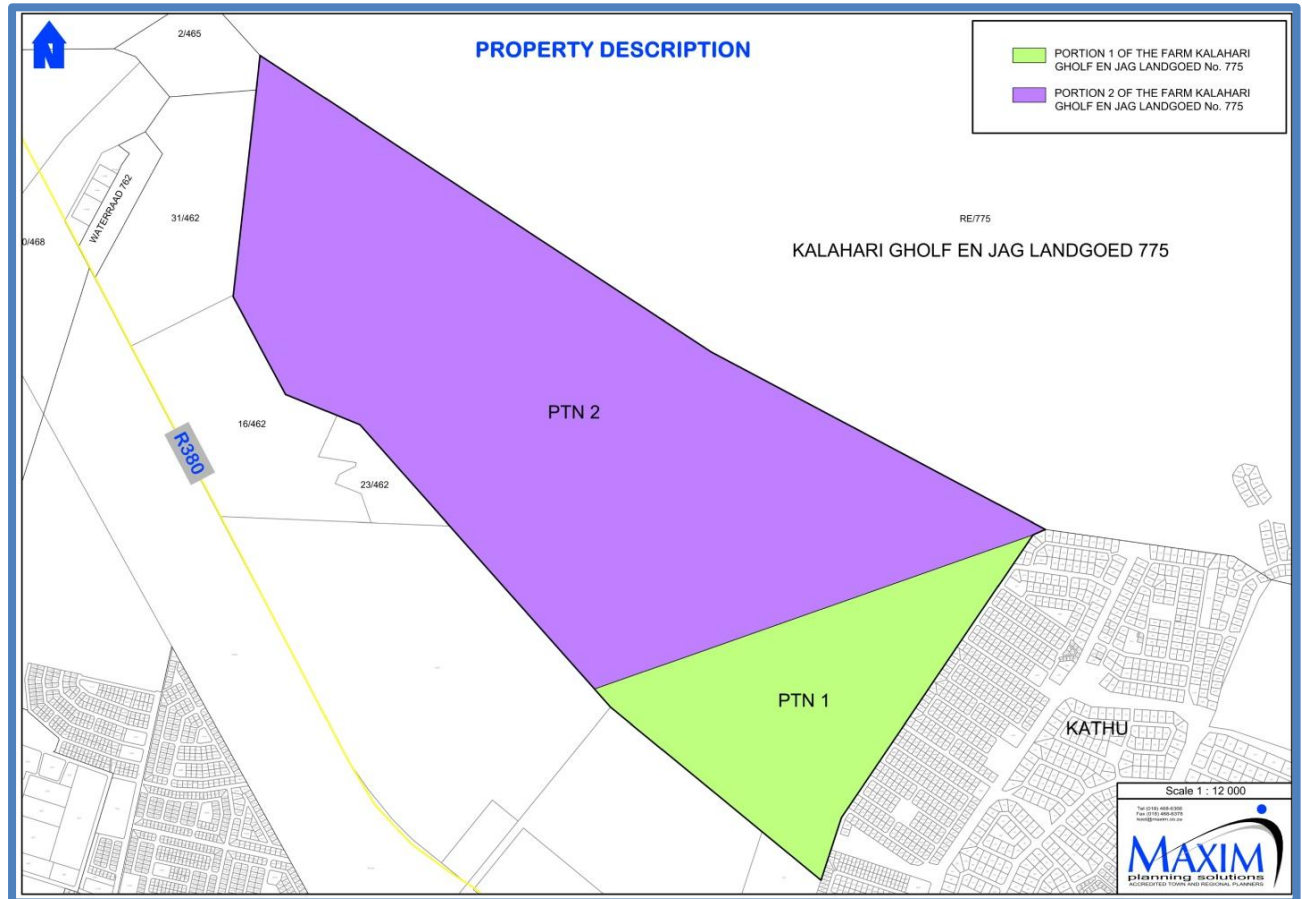


## **1.6 STUDY AREA DELINEATION**

The proposed development area comprises the following properties:

- Portion 1 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province; and
  - Portion 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape 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:

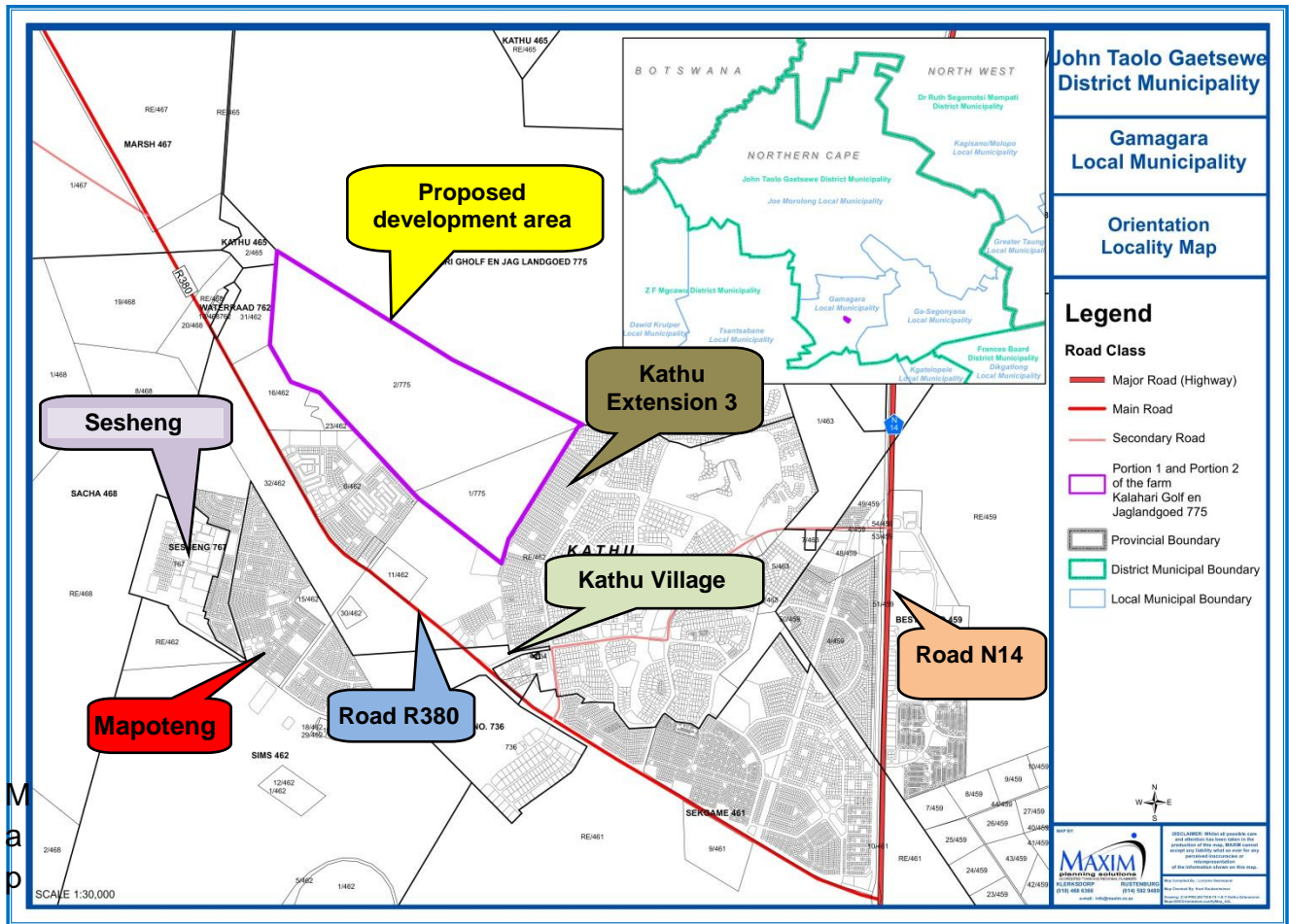
- Chapter 2: Particulars of the development area
- Chapter 3: Physical aspects
- Chapter 4: Proposed development
- Chapter 5: Provision of Engineering Services
- Chapter 6: Motivation

# CHAPTER 2: PARTICULARS OF THE DEVELOPMENT AREAS

## 2.1 LOCALITY

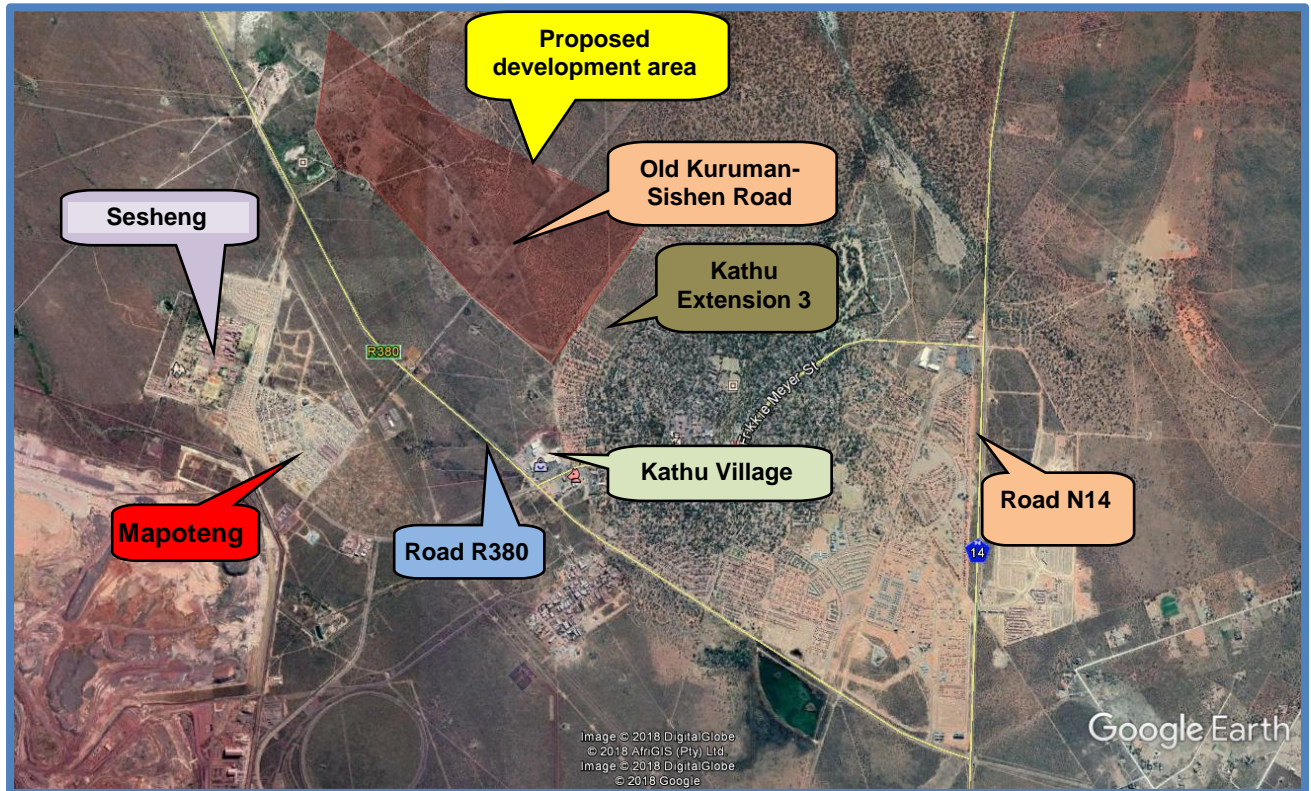
The proposed development/township area is located directly adjacent and north-west of the existing Kathu Extension 3 township area and is located approximately 850m north-east of the Kathu – Dibeng/Hotazel road (R380) and approximately 550m directly north of the Kathu Village Mall (as indicated on **Map 4** below).

**Map 4: Locality map of proposed development area**



The proposed development area is dissected in an eastern and western portion by the old Kuruman-Sishen road which was decommissioned and closed following the realignment of the N14 road (as indicated on **Map 5** below). This road is still present on site but has gone into disuse.

**Map 5: Google Earth Image depicting the locality of the proposed development area**



The proposed development / township areas Kathu Extensions 6, 7, 8, 9 and 10 will be located on the respective properties listed in **Table 2** below:

**Table 2: Township areas property descriptions**

Proposed township area	Property description
Kathu Extension 6	Portion of Portion 1 and a portion of Portion 2 of the farm Kalahari Golf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province
Kathu Extension 7	Portion of Portion 1 and a portion of Portion 2 of the farm Kalahari Golf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province
Kathu Extension 8	Portion of Portion 2 of the farm Kalahari Golf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province
Kathu Extension 9	Portion of Portion 2 of the farm Kalahari Golf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province
Kathu Extension 10	Portion of Portion 2 of the farm Kalahari Golf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province



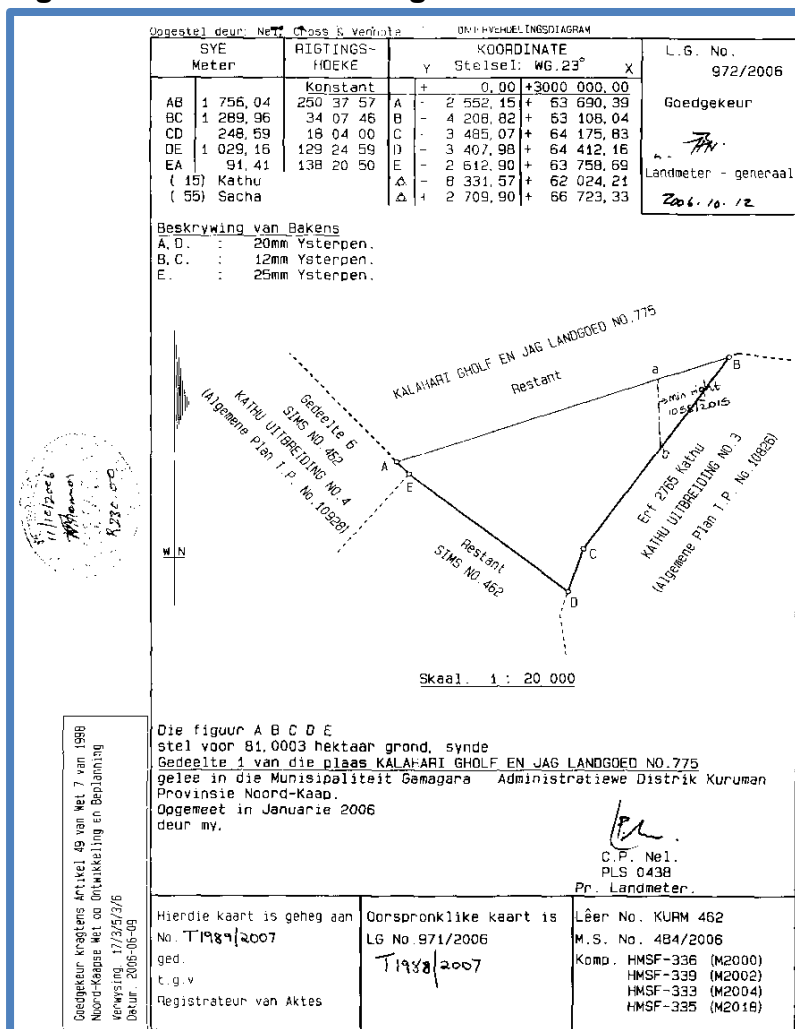
The proposed township areas detailed above are located within the area of jurisdiction of the Gamagara Local Municipality which in turn falls within the area of jurisdiction of the John Taolo Gaetsewe District Municipality.

An orientation locality plan of the proposed township/development area is attached to the comprehensive land development application as **Annexure H**.

## 2.2 SG DIAGRAM

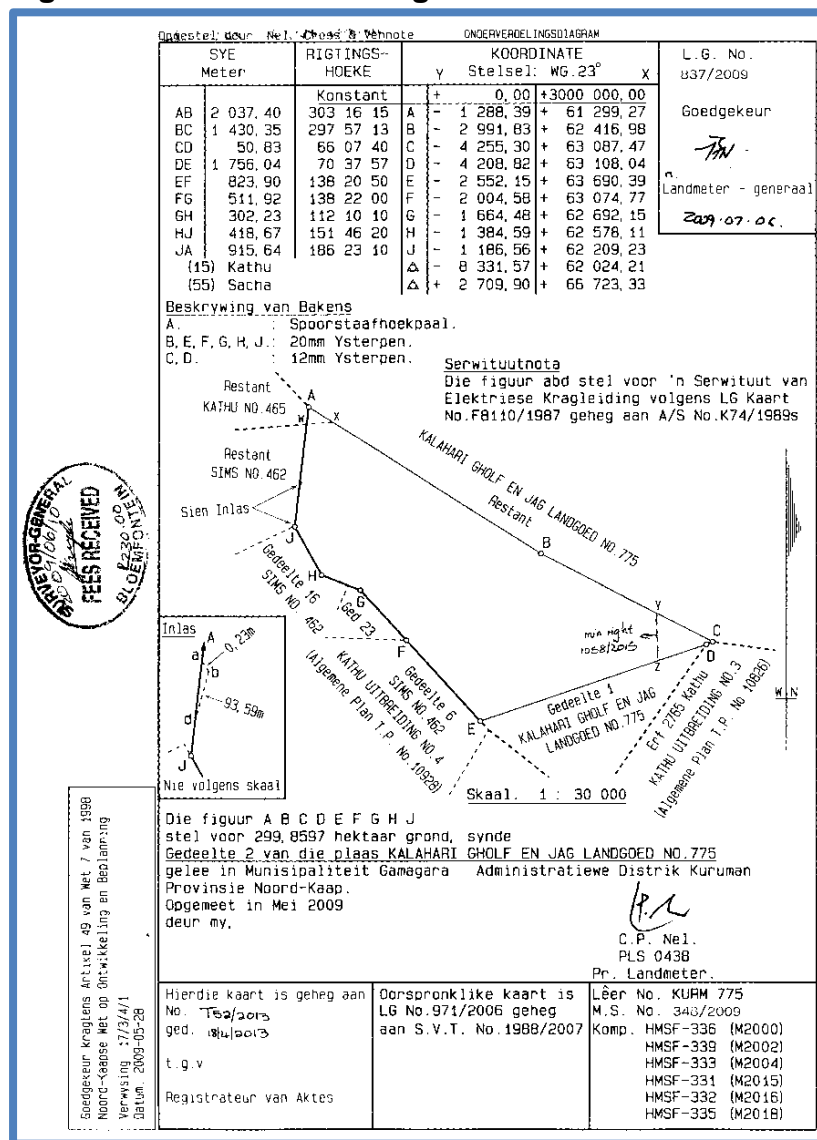
Portion 1 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province is reflected on subdivision diagram SG No. 972/2006 (attached as **Annexure F1** to the comprehensive land development application and reflected on **Figure 12** below).

**Figure 12: Subdivision Diagram SG No. 972/2006**



Portion 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province is reflected on subdivision diagram SG No. 837/2009 (attached as **Annexure F2** to the comprehensive land development application and reflected on **Figure 13** below).

Figure 13: Subdivision Diagram SG No. 837/2009



2.3 OWNER

Portions 1 and 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province are currently registered as follows:

Table 3: Ownership Details

Property Description	Registered Owner	Deed of Transfer Number
Portion 1 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province	Gamagara Local Municipality	T1989/2007
Portion 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province	Gamagara Local Municipality	T3223/2017

(Refer Annexures E1 and E2 of the comprehensive land development application for copies of the relevant Deeds of Transfer)

## 2.4 AREA

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

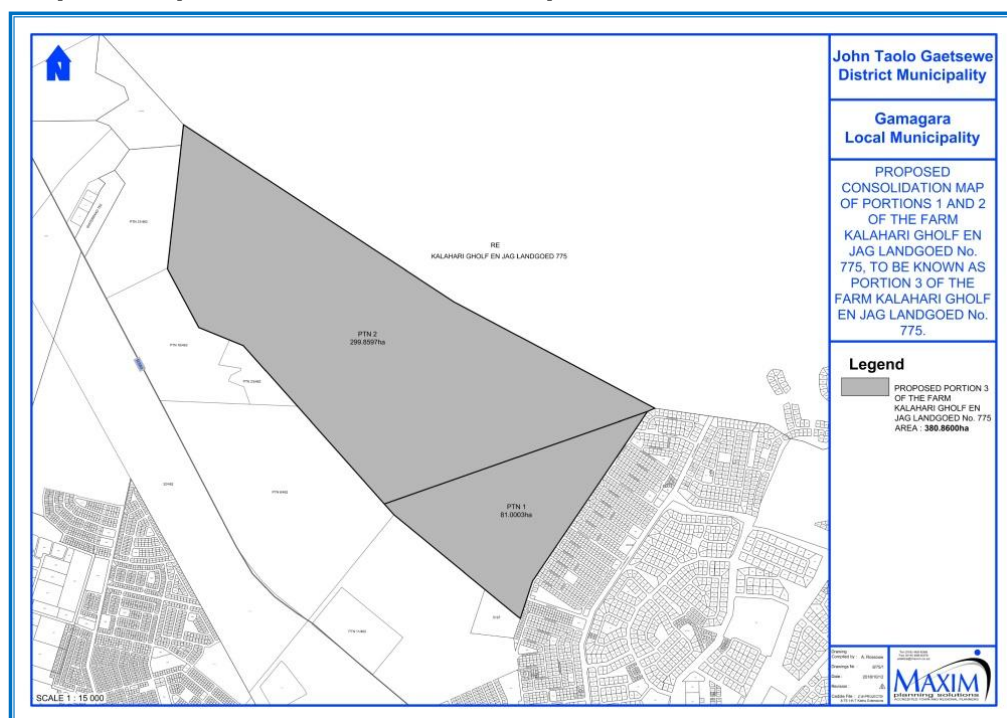
**Table 4: Property Areas**

Property Description	Area
Portion 1 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province	81,0003 Hectares
Portion 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province	299,8597 Hectares
<b>TOTAL</b>	<b>380,8600 Hectares</b>

The proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10 will comprise a combined total area of 380,8600 hectares.

This land development application also seeks to obtain the necessary approval in respect of the consolidation of Portions 1 and 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province to simplify the registration arrangements in respect of the various township areas. The proposed consolidation map is attached as **Annexure N** to the comprehensive land development application. The consolidation of Portions 1 and 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province will be known in future as Portion 3 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province (refer **Annexure X** of the comprehensive land development application for the confirmation from the Surveyor-General (Bloemfontein) in respect of the reservation of the fore-mentioned parcel number).

**Map 6: Proposed Consolidation Map**



The proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10 will respectively be located on portions of Portions 1 and 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province (refer **Table 2** – Section 2.1 supra). The consolidated farm portions (to be known as Portion 3 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province) will subsequently also be subdivide into the following five (5) portions that will comprise the small scale diagrams of the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10:

**Table 5: Proposed description, size and purpose of proposed subdivided portions**

Proposed property description	Area	Purpose
Erf 26729, Kathu	128,5096 Hectares	Small scale diagram of the proposed township Kathu Extension 6
Erf 17970, Kathu	77,6984 Hectares	Small scale diagram of the proposed township Kathu Extension 7
Erf 19137, Kathu	68,8836 Hectares	Small scale diagram of the proposed township Kathu Extension 8
Erf 20165, Kathu	44,2350 Hectares	Small scale diagram of the proposed township Kathu Extension 9
Erf 20850, Kathu	61,5334 Hectares	Small scale diagram of the proposed township Kathu Extension 10

## 2.5 EXISTING LAND USE AND ZONING

The proposed development area is currently predominantly vacant and until recently formed part of the game farm on the adjacent Remaining Extent of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province. Due to the recent erection of a game fence between the proposed development area and the Remaining Extent of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province, the game farm is now restricted to the fore-mentioned property.

**Plate 4: View of development area**



**Plate 5: View of development area**

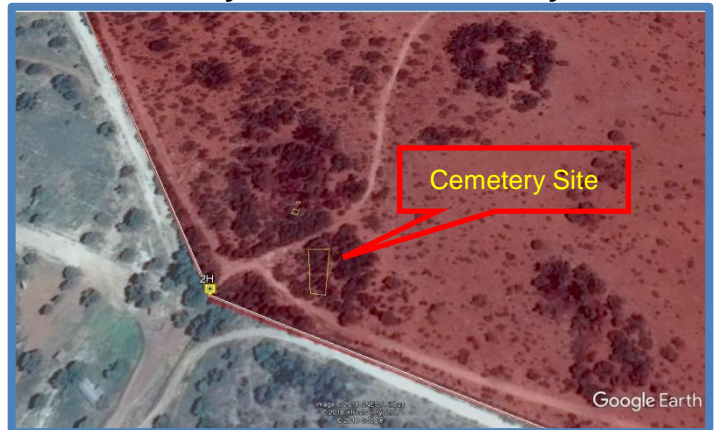


The only notable features (excluding topographic features that will be addressed in detail in Section 3.1), is existing sewer lines located along the south-eastern boundary of the development area, the tar road surface of the former Kuruman-Sishen road that traverses the central part of the development area from north to south as well as existing graves that were discovered within the western part of the development area and adjacent to the south-western boundary of the development area.

**Plate 6: View of sewer infrastructure along south-eastern boundary**      **Plate 7: View of informal cemetery**



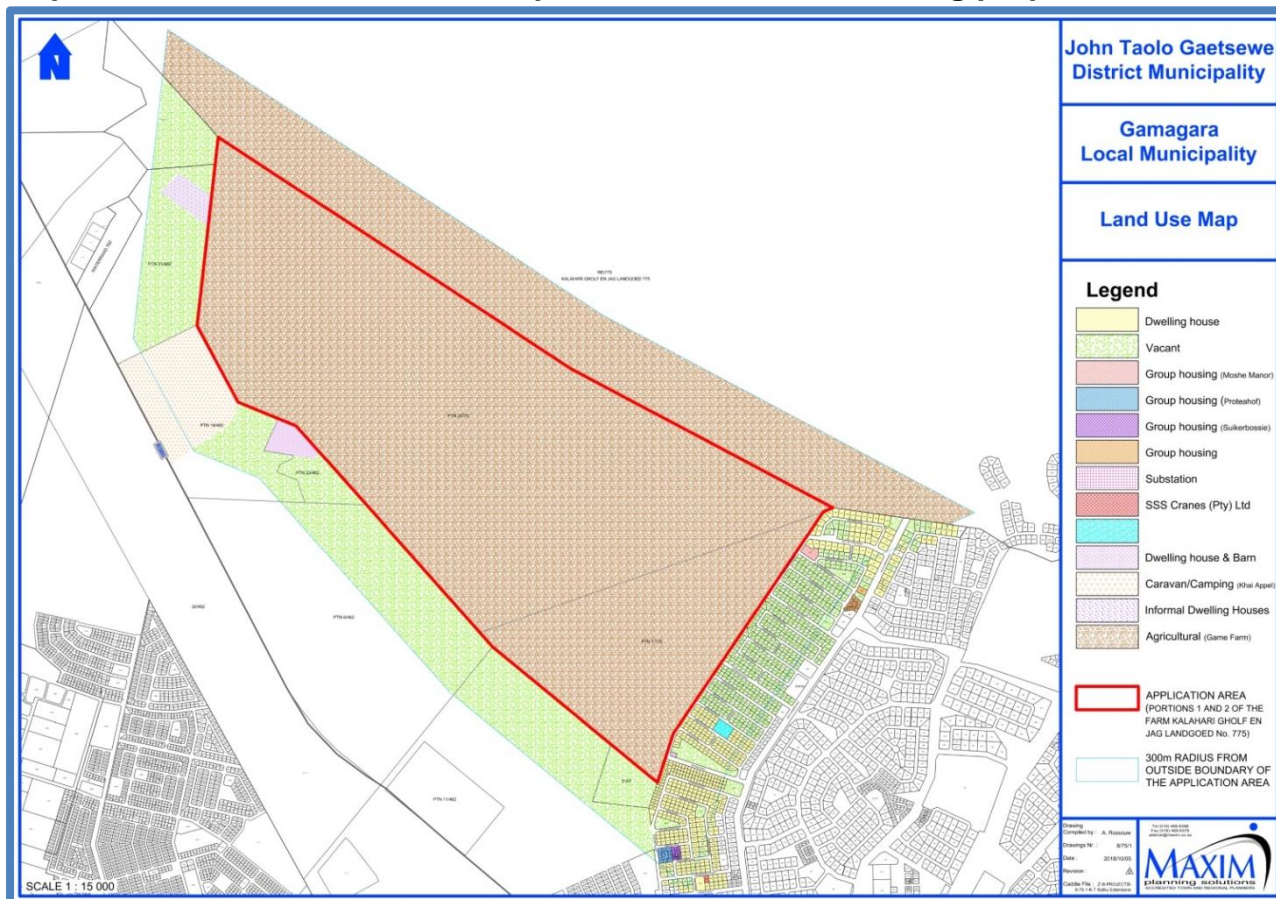
**Plate 8: Locality of informal cemetery**



The land uses of the properties surrounding the proposed development area within a 300m radius are reflected on **Map 7** (attached as **Annexure J** to the comprehensive land development application).

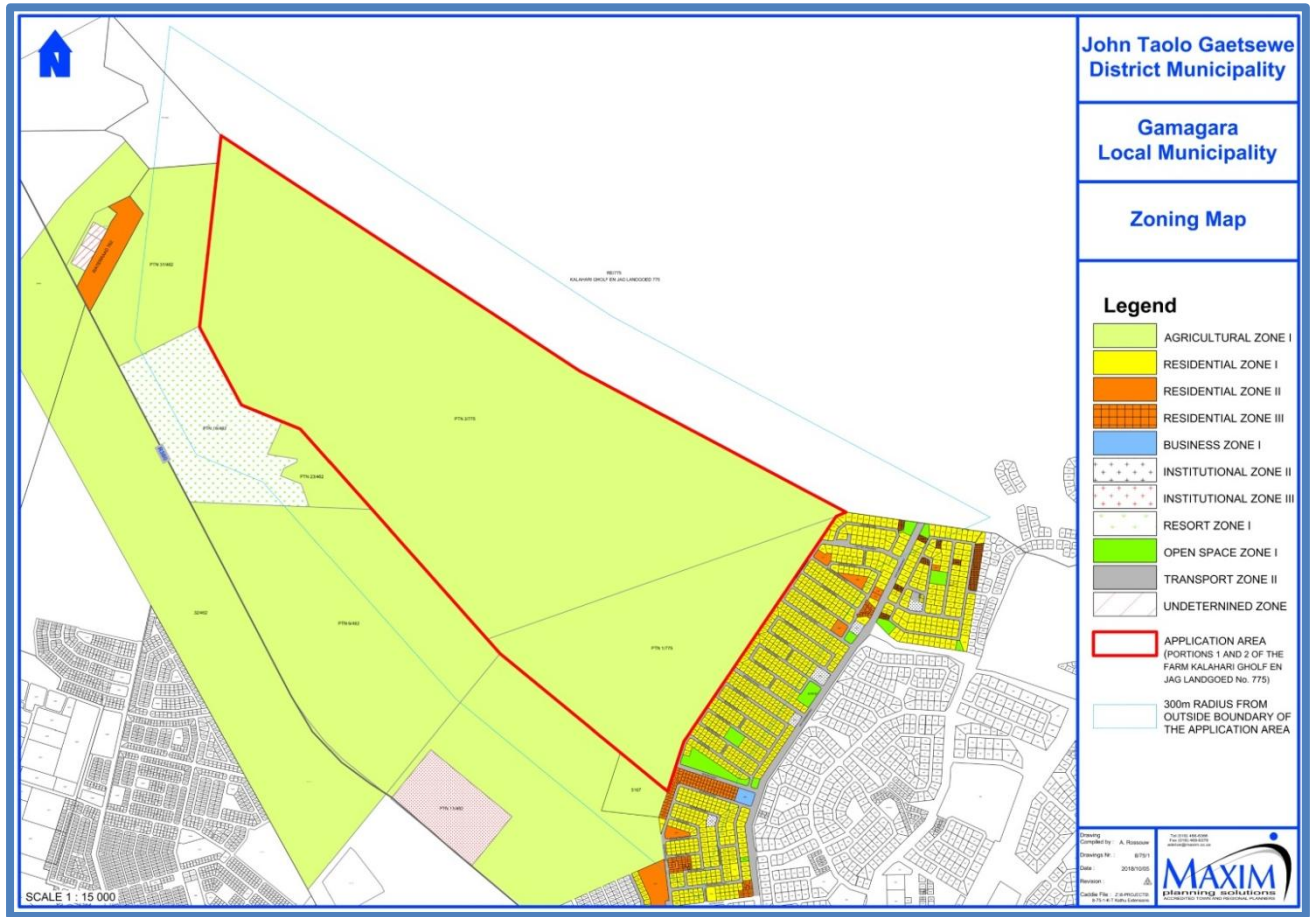
The proposed development area is bordered to the south-east by the existing residential township area of Kathu Extension 3 and is partially bordered to the south-west by the (now dysfunctional) Khai Appel Recreational Resort/Caravan Park.

### Map 7: Current Land Use of development area and surrounding properties



Portions 1 and 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province are currently zoned “Agricultural Zone 1” in terms of the Zoning Map of the Gamagara Local Municipality Land Use Management Scheme (2003) as depicted on **Map 8** below (also attached as **Annexure I** to the comprehensive land development application). The current zoning of the subject properties are also confirmed in terms of the Zoning Certificate (attached to the comprehensive land development application as **Annexure Y**).

**Map 8: Existing zoning of development area and surrounding properties**



As is evident from the fore-mentioned map, the proposed development area is predominantly surrounded by properties zoned as “Agricultural Zone 1” and “Residential Zone 1”.

## 2.6 MINERAL RIGHTS

According to Deed of Transfer T1989/2007, the rights to gold, silver and precious stones found or discovered at any time on or in Portion 1 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province, have been reserved in favour of the State as indicated in the following extract from Deed of Transfer T1989/2007:

**“A. DIE voorwaardes vervat in GRONDBRIEF NR T 2130 – V Q 19/2, Nrs VI en IX waarvan as volg lui:**

VI *“THAT all rights to gold, silver and precious stones found or discovered at any time on or in the said land shall be reserved to the State, together with a right of ingress to and egress from any mines or works undertaken for mining or prospecting purposes by any person or persons authorised by the Minister; but subject always to the provisions of any law for the time being regulating the prospecting and mining for precious atones and minerals”.*

In terms of Deed of Transfer T3223/2017, the rights to minerals in respect of Portion 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province have not been separated from the property rights (refer **Annexure G** to the comprehensive land development application).

Cognisance should however be taken of the fact that during scrutiny of the subdivision diagram in respect of Portion 1 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province i.e. SG No. 972/2006 (refer **Figure 10** – Section 2.2 supra) it was noted that a recent inscription was made on the concerned diagram referencing a “min right” area and a reference to SG diagram No. 703/2017 (diagram included as **Annexure O1** to the comprehensive land development application). The fore-mentioned diagram was approved by the Surveyor-General on 06 February 2018 and relates to a Mining Right Diagram over an area of 29 778,3986 hectares that was framed for the purpose of registering a mining right in terms of the Mining Titles Registration Act, 1967 (Act 16 of 1967) in favour of Sishen Iron Ore Company (Pty) Ltd (2000/011085/07)

Scrutiny of the subdivision diagram of Portion 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province i.e. SG No. 837/2009 also indicated the inscription referencing a “min right” area and a reference to SG diagram No. 703/2017 (refer **Annexure O1** to the comprehensive land development application).

Due to the averred mining right referenced on Mining Right Diagram SG No. 703/2017 which incorporates the properties to which this application applies, notice of the proposed land development application will also be given to Sishen Iron Ore Company (Pty) Ltd for its consent in respect of the establishment of the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10 on Portions 1 and 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province (should they be the mining right holder). The letter addressed to Sishen Iron Ore Company (Pty) Ltd is attached as **Annexure O2** to the comprehensive land development application.

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 Transfer T1989/2007 (attached as **Annexure E1** to the comprehensive land development application), Portion 1 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province is subject to the following title conditions, which will be dealt with as indicated:



**“A. DIE voorwaardes vervat in GRONDBRIEF NR T 2130 – V Q 19/2, Nrs VI en IX waarvan as volg lui:**

**VI. “THAT all rights to gold, silver and precious stones found or discovered at any time on or in the said land shall be reserved to the State, together with a right of ingress to and egress from any mines or works undertaken for mining or prospecting purposes by any person or persons authorised by the Minister; but subject always to the provisions of any law for the time being regulating the prospecting and mining for precious atones and minerals”.**

Condition A.VI relates to the reservation of rights to minerals and will be addressed as detailed in Section 2.6 supra.

**“A. DIE voorwaardes vervat in GRONDBRIEF NR T 2130 – V Q 19/2, Nrs VI en IX waarvan as volg lui:**

**IX. THAT the Government reserves the right:-**

- 1) To enter upon the land hereby granted and to sink for the public use and benefit, wells or boreholes within 274,32 metres of any existing road without compensation to the Proprietor except for improvements on land so entered upon.**
- 2) To reserve or resume in connection with any such well or borehole:**
  - (a) An extent of land falling within a radius of 45,72 metres around such well or borehole, and**
  - (b) An approach thereto not exceeding 15,24 metres in width without compensation to the Proprietor except for improvements on the land so reserved or resumed.**

This condition relates to the right reserved by the Government to enter upon the land and sink wells and boreholes within 274,32 metres from any existing road as well as the reservation of land (within a radius of 45,72 metres) surrounding such borehole or well and an approach road not exceeding 15,24 metres in width. This condition is not reconcilable with the use of the subject property for township establishment purposes and application is hereby further made in terms of Sections 3(2)(c) and 15(1) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016 for the removal of this condition from Deed of Transfer T1989/2007. The redundancy of this title condition is further supported by the fact that no boreholes or wells exist on the subject properties that are utilized for public water purposes. Due to the fact that the proposed development area will be divided in its entirety into erven, it is inconceivable that boreholes or wells for public water

abstraction will be developed on the private properties or that an area of 45,72 metres surrounding such borehole can be reserved for such borehole or well.

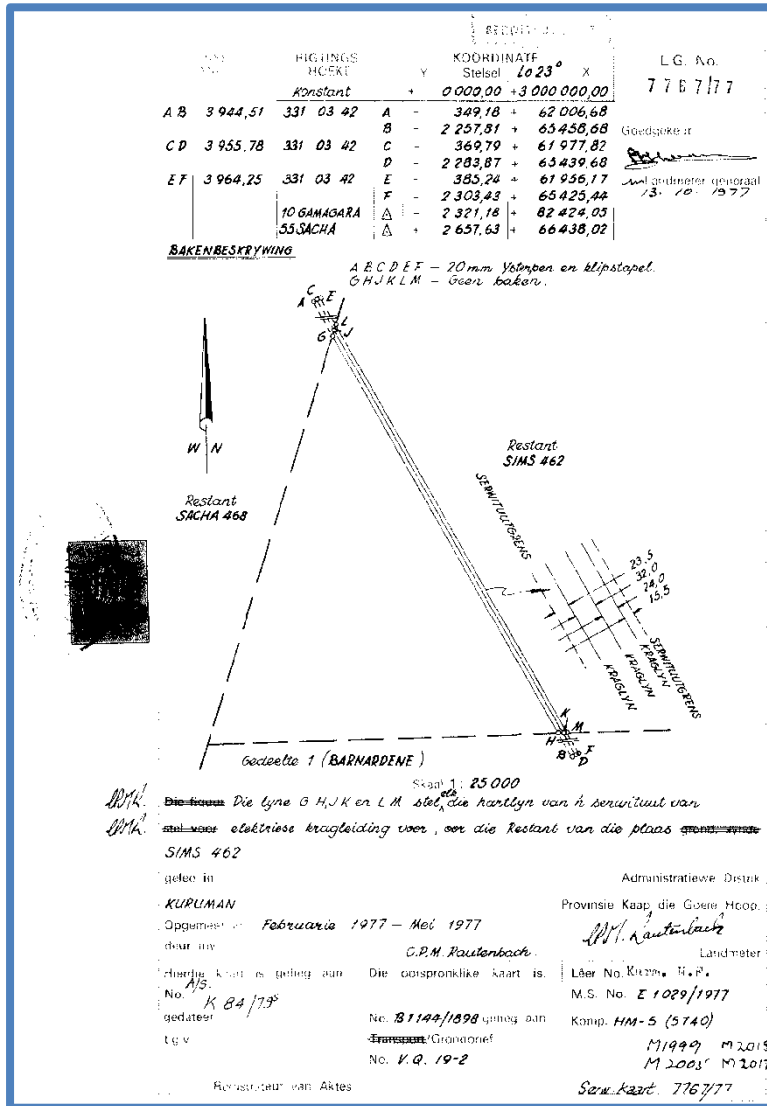
**“B. ‘n Gedeelte groot ongeveer 13,1521 hektaar van die binnegemelde eiendom is oteien deur die Kaapse Provinsiale Administrasie kragtens Artikel 130 van Ordonnansie 15/1952 saamgelees met Artikel 8 van Ordonnansie 28/1960 kragtens Onteiningskennisgewing EX Nr 13/1966 en Kaart Nr 20 daarby geliasseer.”**

Preliminary indications are that fore-mentioned expropriation possibly relates to the former Kuruman – Sishen road that traversed Portion 1 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province. Extensive searches have been made to locate the concerned expropriation notice to establish the exact location of the concerned portion of land that has been expropriated. These searches have not yielded any information to date. In terms of the Conveyancer Certificate compiled by Coetzer & Steyn Attorneys, the applicability of this expropriation on the development area will have to be further investigated in collaboration with the Department of Public Works and Roads. For this purpose the land development application will also be referred to the Department of Public Works and Roads for comments.

**“C. “BY virtue of Notarial Deed No K84/1979S dated 3 May 1979 and registered this day, the right has been granted so ESCOM to convey electricity across the Remaining Extent of the farm SIMS 462, Division Kuruman, Province Northern Cape, in extent 1398,7908 (One Three Nine Eight comma Seven Nine Nought Eight) hectares by means of wires and/or cables or other accessories above ground or underground, as will more fully appear from the said Notarial Deed with ancillary rights.**

The location of the Eskom powerline servitude referenced in the above-mentioned title condition is reflected on Servitude Diagram SG No. 7767/1977 (attached as **Annexure F3** to the comprehensive land development application) and it was ascertained from this diagram that the servitude does not affect the proposed development area due to the location thereof in relation to the proposed development area (refer also to **Figure 14** below). Notwithstanding this fact, cognisance should be taken of the fact that this servitude also contains ancillary rights. In accordance with the prescriptions of Registrar’s Circular 3/2015 (refer paragraph 6.3.6.4 of Circular), application will be made to Eskom for consent in respect of the transfer of the erven in the proposed township area free of this servitude.

Figure 14: Servitude Diagram SG No. 7767/1977

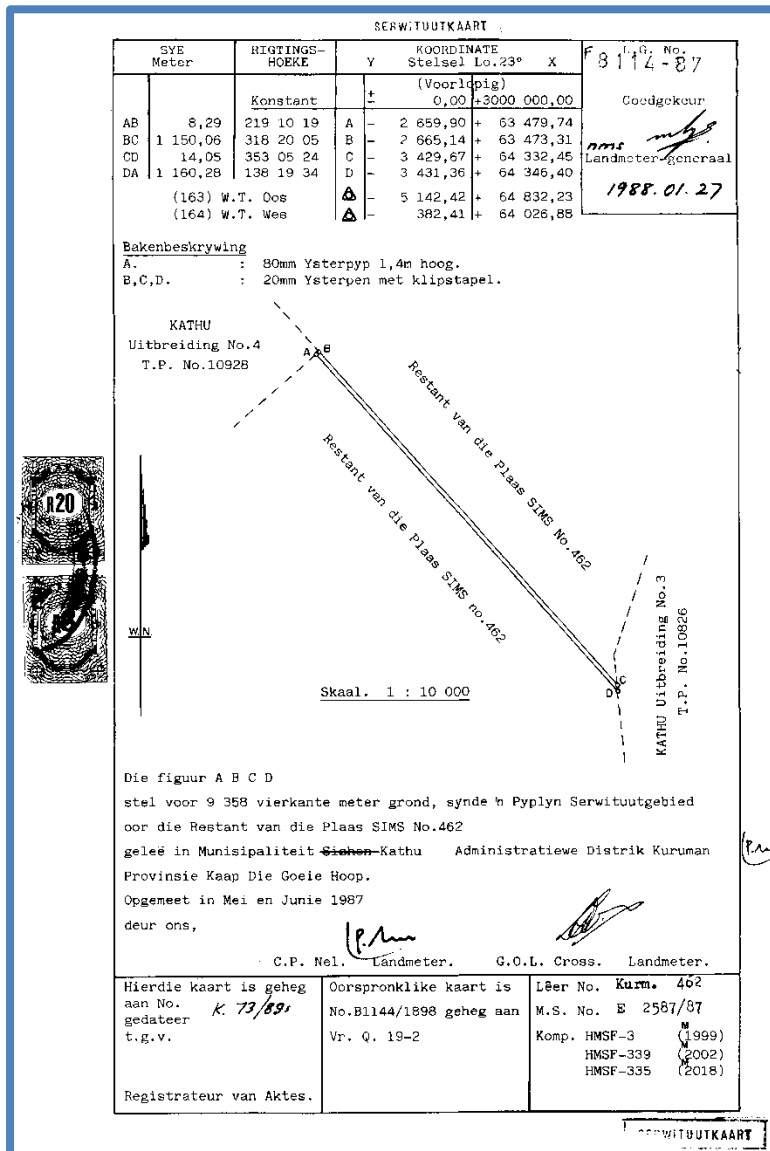


“D. By virtue of Notarial Deed No K 73/1989S dated 8 September 1989 the Remaining Extent of the farm SIMS 462, Division Kuruman, Province Northern Cape, in extent 1222,2124 (One Two Two comma Two One Two Four) hectares is subject to a pipeline servitude 9 358 square metres which is indicated by the figure ABCD on diagram L G 8114/87 attached to the above mentioned Notarial Deed with ancillary rights in favour of the Municipality Gamagara as will more fully appear from reference to the said Notarial Deed.”

This pipeline servitude is reflected on Servitude Diagram SG No. 8114/1987 (attached as **Annexure F4** to the comprehensive land development application) and does not affect the proposed development area due to the location thereof in relation to the proposed development area (refer **Figure 15** below). Notwithstanding this fact, cognisance should be taken of the fact that this servitude also contains ancillary rights. In accordance with the prescriptions of Registrar’s Circular 3/2015 (refer paragraph 6.3.6.4 of Circular), the holder of the servitude must consent to the transfer of the erven in the proposed township area free of this servitude. Due to the fact that this servitude is registered in favour of the

Gamagara Local Municipality, provision will be made in the Conditions of Establishment of the proposed township areas for the transfer of the erven free of this servitude.

**Figure 15: Servitude Diagram SG No. 8114/1987**

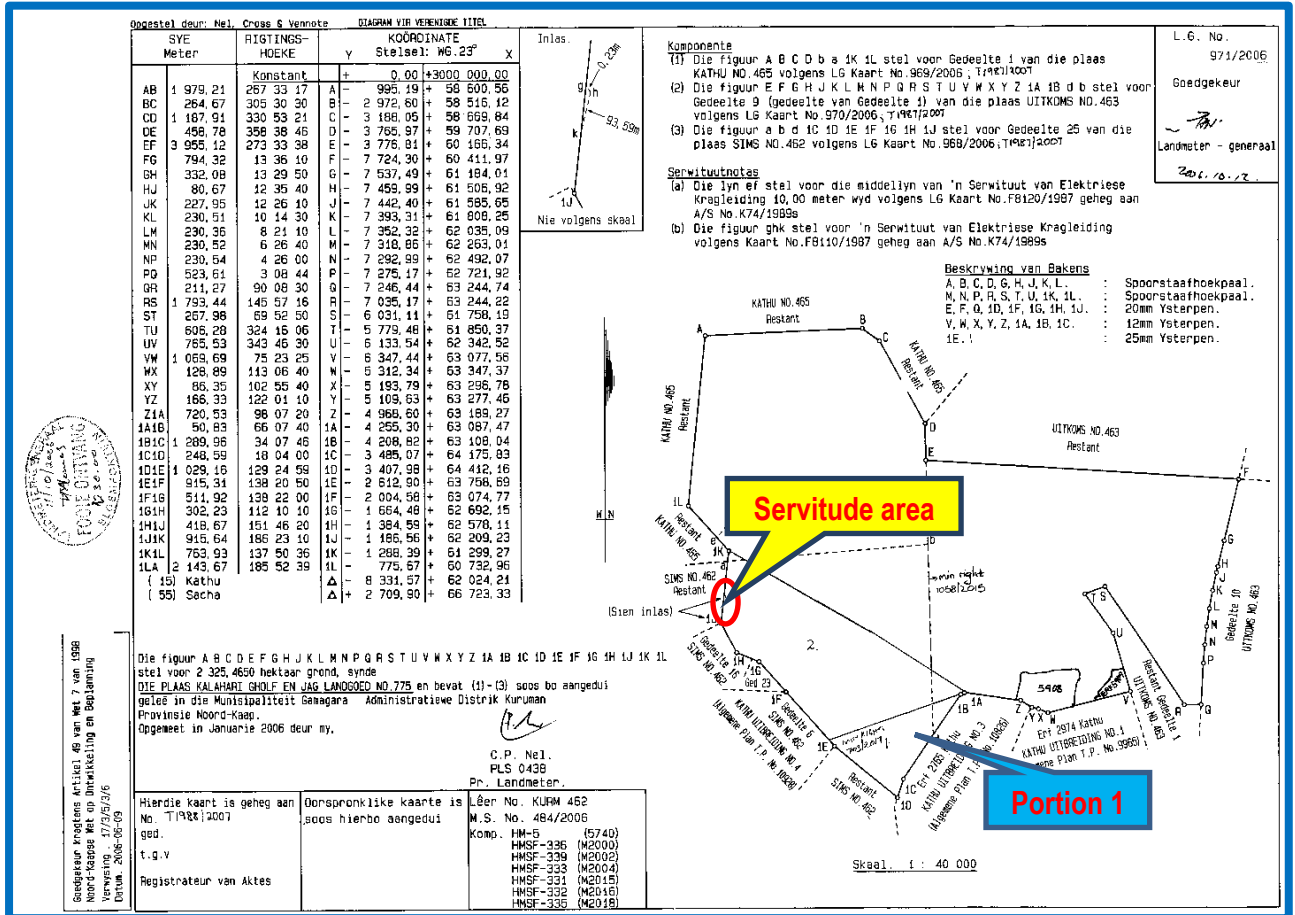


**“E. Kragtens Notariële Akte Nr K 74/1989S gedateer 8 Februarie 1989 is Gedeelte 25 van die plaas SIMS 462, Afdeling Kuruman, Provinsie Noordkaap, groot 566,1473 (Vyf Ses Ses komma Een Vier Sewe Drie) Hektaar onderhewig aan ‘n Serwituut vir elektriese kragleiding soos aangetoon deur die figuur ghk op Kaart LG 971/2006 hierby aangeheg met bykomende regte ten gunste van die Munisipaliteit Gamagara en soos meer volledig sal blyk uit die gemelde Notariële Akte”.**

The powerline servitude registered by virtue of Notarial Deed K74/1989S is reflected on Consolidation Diagram SG No. 971/2006 (attached as **Annexure F5** to the comprehensive land development application) and actually does not affect Portion 1 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province (refer **Figure**

16 below). This condition was included in the Deed of Transfer of Portion 1 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province i.e. T1989/2007 due to the ancillary rights attaching to this servitude.

Figure 16: Consolidation Diagram SG No. 971/2006



According to Deed of Transfer 3223/2017 (attached as Annexure E2 to the comprehensive land development application), Portion 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province is subject to the following title conditions, which will be dealt with as indicated:

**“With regard to the former PORTION 25 of the farm SIMS 462, indicated by the figure a b d 1C 1D 1E 1F 1G 1H 1J on diagram L.G. No. 971/2006 annexed to Certificate of Consolidated Title Number T1989/2007 the following conditions will be applicable:**

**A. The conditions contained in Deed of Grant F.T.2013 – VQ. 19/2, No: IX whereof read as follows:**

**IX. “That the Government reserves the right:-**

**(1) To enter upon the land hereby granted and to sink for the public use and benefit, wells or boreholes within 274.32 metres of any existing**

**road without compensation to the Proprietor, except for improvements on land so entered upon.**

**(2) To reserve or resume in connection with any such well or borehole:-**

**(a) An extent of land falling within the radius of 45,72 metres around such well or borehole;**

**and**

**(b) An approach thereto not exceeding 15,24 metres width without compensation to the Proprietor except for improvements on the land so reserved or resumed.”**

This condition relates to the right reserved by the Government to enter upon the land and sink wells and boreholes within 274,32 metres from any existing road as well as the reservation of land (within a radius of 45,72 metres) surrounding such borehole or well and an approach road not exceeding 15,24 metres in width. This condition is not reconcilable with the use of the subject property for township establishment purposes and application is hereby further made in terms of Sections 3(2)(c) and 15(1) of the Gamagara Spatial Planning and Land Use management By-Law, 2016 for the removal of this condition from Deed of Transfer T1989/2007. The redundancy of this title condition is further supported by the fact that no boreholes or wells exist on the subject properties that are utilized for public water purposes. Due to the fact that the proposed development area will be divided in its entirety into erven, it is inconceivable that boreholes or wells for public water abstraction will be developed on the private properties or that an area of 45,72 metres surrounding such borehole can be reserved for such borehole or well.

**B. “n Gedeelte groot ongeveer 13,1521 hektaar van die binnegemelde eiendom is onteien deur die Kaapse Provinsiale Administrasie kragtens Artikel 130 van Ordonnansie 15/1952 saamgelees met Artikel 7 van Ordonnansie 28/1960 kragtens Onteieningskennisgewing EX Nr. 13/1966 en Kaart Nr. 20 daarby geliasseer.”**

Preliminary indications are that fore-mentioned expropriation possibly relates to the former Kuruman – Sishen road that traversed Portion 1 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province. Extensive searches have been made to locate the concerned expropriation notice to establish the exact location of the concerned portion of land that has been expropriated. These searches have not yielded any information to date. In terms of the Conveyancer Certificate compiled by Coetzer & Steyn Attorneys, the applicability of this expropriation on the development area will have to be further investigated in collaboration with the Department of Public Works and Roads. For this purpose the land development application will also be referred to the Department of Public Works and Roads for comments.

**“C. By virtue of Notarial Deed No. K84/1979S dated 3 May 1979 and registered this day, the right has been granted to ESCOM to convey electricity across the Remaining Extent of the farm SIMS 462, Division KURUMAN, province NORTHERN CAPE, in extent: 1 398,7908 (ONE THREE NINE EIGHT comma SEVEN NINE NOUGHT EIGHT) hectares by means of wires and/or cables or other accessories above ground or underground, as will more fully appear from the said Notarial Deed with ancillary rights”.**

The location of the Eskom powerline servitude referenced in the above-mentioned title condition is reflected on Servitude Diagram SG No. 7767/1977 (attached as **Annexure F3** to the comprehensive land development application) and it was ascertained from this diagram that the servitude does not affect the proposed development area due to the location thereof in relation to the proposed development area (refer also to **Figure 14** above). Notwithstanding this fact, cognisance should be taken of the fact that this servitude also contains ancillary rights. In accordance with the prescriptions of Registrar’s Circular 3/2015 (refer paragraph 6.3.6.4 of Circular), application will be made to Eskom for consent in respect of the transfer of the erven in the proposed township area free of this servitude.

**“D. By virtue of Notarial Deed No. K73/1989S dated 8 September 1989 the Remaining Extent of the farm SIMS 462, Division KURUMAN, Province NORTHERN CAPE, in extent: 1 222,2124 (ONE TWO TWO TWO comma TWO ONE TWO FOUR) hectares is subject to a pipeline servitude area 9 358 square metres which is indicated by the figure ABCD on diagram LG8114/87 attached to the abovementioned Notarial Deed with ancillary rights in favour of the Municipality of GAMAGARA as will more fully appear from reference to the said Notarial Deed”.**

This pipeline servitude is reflected on Servitude Diagram SG No. 8114/1987 (attached as **Annexure F4** to the comprehensive land development application) and does not affect the proposed development area due to the location thereof in relation to the proposed development area (refer **Figure 15** above). Notwithstanding this fact, cognisance should be taken of the fact that this servitude also contains ancillary rights. In accordance with the prescriptions of Registrar’s Circular 3/2015 (refer paragraph 6.3.6.4 of Circular), the holder of the servitude must consent to the transfer of the erven in the proposed township area free of this servitude. Due to the fact that this servitude is registered in favour of the Gamagara Local Municipality, provision will be made in the Conditions of Establishment of the proposed township areas for the transfer of the erven free of this servitude.

**“E. “Kragtens Notariële Akte No. K74/1989S gedateer 8 Februarie 1989 is Gedeelte 25 van die plaas SIMS 462, Afdeling KURUMAN, Provinsie NOORD KAAP, groot: 566,1473 (VYF SES SES komma EEN VIER SEWE DRIE) hektaar onderhewig aan ‘n serwituuat vir elektriese kragleiding soos aangetoon deur die figuur abd op kaart L.G. No. 837/2009 hierby aangeheg met bykomende regte**

***ten gunste van die Munisipaliteit van GAMAGARA en soos meer volledig sal blyk uit die gemelde Notriële Akte.”***

The powerline servitude registered by virtue of Notarial Deed K74/1989S is reflected on Subdivision Diagram SG No. 837/2009 (attached as **Annexure F2** to the comprehensive land development application) (refer also **Figure 13** – Section 2.2 above) and affects Erven 20851 to 20857, 21980 (Park) and Kemmone Bos Avenue (as reflected on the layout plan of the proposed township Kathu Extension 10). This servitude will not negatively affect the development of the erven detailed above, as the extent of the servitude is at its widest less than 20mm wide and is located along the south-western boundaries of the subject erven. The erven affected by this servitude will, in terms of the Conditions of Establishment of the proposed township Kathu Extension 10, be subject to this servitude. Notwithstanding this fact, cognisance should be taken of the fact that this servitude also contains ancillary rights. In accordance with the prescriptions of Registrar’s Circular 3/2015 (refer paragraph 6.3.6.4 of Circular), the holder of the servitude must consent to the transfer of the erven in the proposed township area free of this servitude. Due to the fact that this servitude is registered in favour of the Gamagara Local Municipality, provision will be made in the Conditions of Establishment of the proposed township area for the transfer of the remainder of the erven (excluding the erven affected by this servitude) free of this servitude.

***“WITH regards to the farm PORTION 1 of the farm KATHU 465, indicated by the figure A B C D b a 1K 1L on diagram L.G. No. 971/2006 annexed to Certificate of Consolidated Title Number T1988/2007 the following conditions will be applicable:***

***(a) The conditions contained in Deed of Transfer F.T.2191 – V.Q. 19/14, Nos: V and IX whereof read as follows:***

***V. “That the Governor shall at all times have the right of resuming the whole portion or a portion of land hereby granted if required by public purposes on payment to the Proprietor of such sum of money in compensation as may be mutually agreed upon by the parties concerned, or failing such agreement, as may be determined by Arbitration.”***

In terms of the Conveyancer Certificate compiled by Coetzer & Steyn Attorneys (attached as **Annexure K** to the comprehensive land development application), it was indicated that this condition is not reconcilable with the use of the land for township establishment purposes and application is hereby further made in terms of Sections 3(2)(c) and 15(1) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016 for the removal of this condition from Deed of Transfer T3223/2017. The reconcilable nature of this condition is highlighted against the fact that the erven in the proposed township areas will be transferred to the beneficiaries/purchasers thereof which renders the resuming and use of the property for public purposes as impossible as it will encroach on the right of the inhabitants to security of tenure.



***“WITH regards to the farm PORTION 1 of the farm KATHU 465, indicated by the figure A B C D b a 1K 1L on diagram L.G. No. 971/2006 annexed to Certificate of Consolidated Title Number T1988/2007 the following conditions will be applicable:***

***(a) The conditions contained in Deed of Transfer F.T.2191 – V.Q. 19/14, Nos: V and IX whereof read as follows:***

***IX. “That the Government reserves the right:-***

***(1) To enter upon the land hereby granted and to sink for the public use and benefit, wells and boreholes within 274.32 metres of any existing road without compensation to the Proprietor, except for improvements on land so entered upon.***

***(2) To reserve or resume in connection with any such well or borehole:-***

***(a) An extent of land failing within the radius of 45,72 metres around such well or borehole;***

***and***

***(b) An approach thereto not exceeding 15,24 metres in width without compensation to the Proprietor except for improvements on the land so reserved or resumed.”***

This condition relates to the right reserved by the Government to enter upon the land and sink wells and boreholes within 274,32 metres from any existing road as well as the reservation of land (within a radius of 45,72 metres) surrounding such borehole or well and an approach road not exceeding 15,24 metres in width. This condition is not reconcilable with the use of the subject property for township establishment purposes and application is hereby further made in terms of Sections 3(2)(c) and 15(1) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016 for the removal of this condition from Deed of Transfer T3223/2017. The redundancy of this title condition is further supported by the fact that no boreholes or wells exist on the subject properties that are utilized for public water purposes. Due to the fact that the proposed development area will be divided in its entirety into erven, it is inconceivable that boreholes or wells for public water abstraction will be developed on the private properties or that an area of 45,72 metres surrounding such borehole can be reserved for such borehole or well.

***“WITH regards to the farm PORTION 1 of the farm KATHU 465, indicated by the figure A B C D b a 1K 1L on diagram L.G. No. 971/2006 annexed to Certificate of Consolidated Title Number T1988/2007 the following conditions will be applicable:***

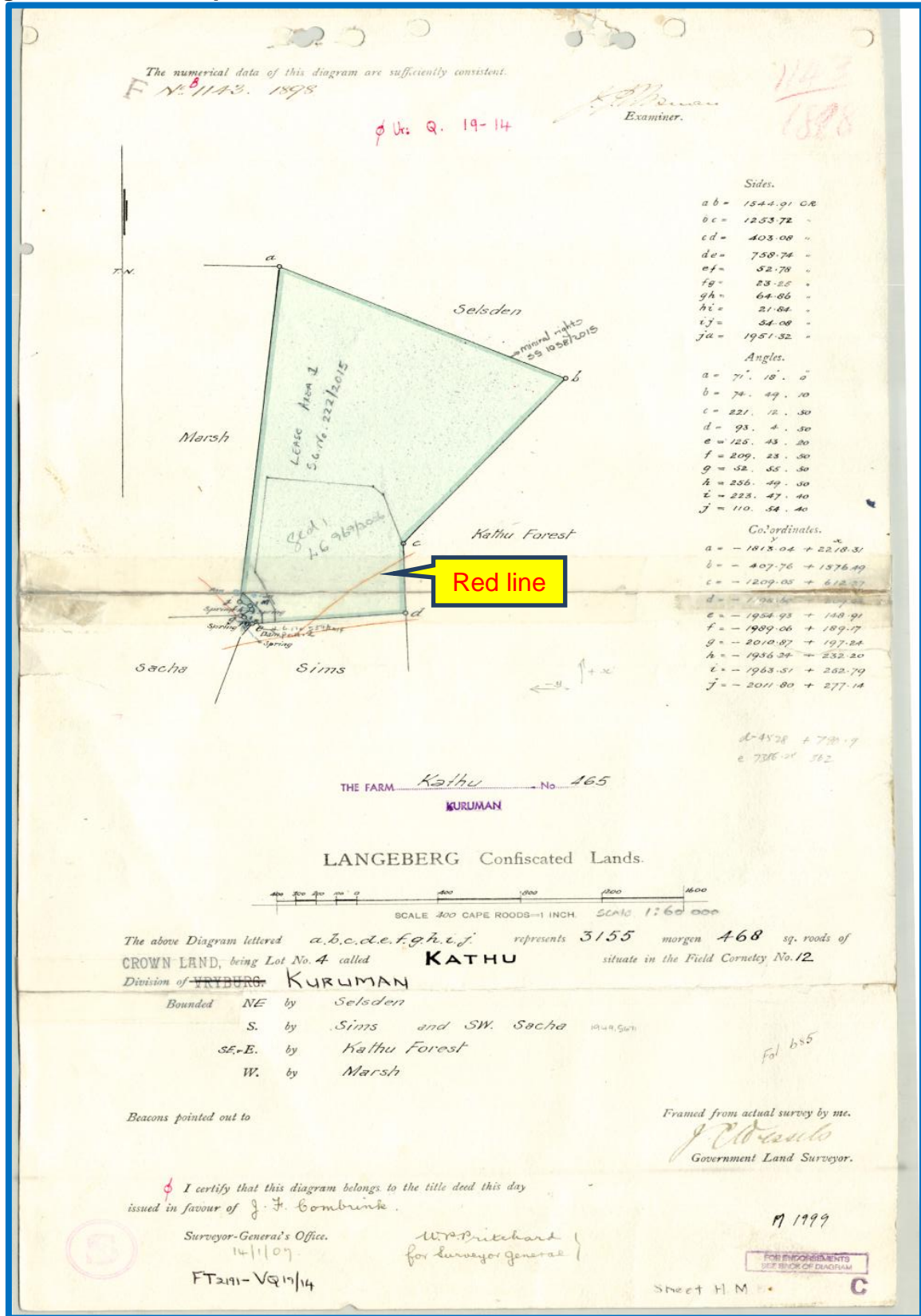
**(b) “Kragtens Notariële Akte No. K74/1989S gedateer 8 Februarie 1989 is die hierinvermelde eiendom onderhewig aan ‘n serwituut vir elektriese kragleiding 10 meter wyd, die middellyn van welke serwituut voorgestel word deur die lyn abd op die aangehegte kaart L.G. No. 837/2009, met bykomende regte ten gunste van die Munisipaliteit van GAMAGARA soos meer volledig sal blyk uit gemelde Notariële Akte.”**

The powerline servitude registered by virtue of Notarial Deed K74/1989S is reflected on Subdivision Diagram SG No. 837/2009 (attached as **Annexure F2** to the comprehensive land development application) (refer also **Figure 13** – Section 2.2 above) and affects Erven 20851 to 20857, 21980 (Park) and Kemmone Bos Avenue (as reflected on the layout plan of the proposed township Kathu Extension 10). This servitude will not negatively affect the development of the erven detailed above, as the extent of the servitude is at its widest less than 20mm wide and is located along the south-western boundaries of the subject erven. As indicated in the Conveyancer Certificate (attached as Annexure K to the comprehensive land development application) this servitude qualification is regarded as incorrect as the wording of this servitude incorrectly refers to the line abd on diagram SG No. 837/2009 reflecting the “centre line” of the powerline servitude whereas the figure abd actually reflects the extent of the powerline servitude. This issue will have to be corrected in terms of Section 4(1)(b) of the Deeds Registries Act, 1937 (Act 47 of 1937) during the opening of the township register in respect of the township area of Kathu Extension 10. The erven affected by this servitude will, in terms of the Conditions of Establishment of the proposed township Kathu Extension 10, be subject to this servitude. Notwithstanding this fact, cognisance should be taken of the fact that this servitude also contains ancillary rights. In accordance with the prescriptions of Registrar’s Circular 3/2015 (refer paragraph 6.3.6.4 of Circular), the holder of the servitude must consent to the transfer of the erven in the proposed township area free of this servitude. Due to the fact that this servitude is registered in favour of the Gamagara Local Municipality, provision will be made in the Conditions of Establishment of the proposed township area for the transfer of the remainder of the erven (excluding the erven affected by this servitude) free of this servitude.

**“(c) “n Ewigdurende Serwituut van Waterleiding ingevolge die Waterwet Nr. 54/1956 op en oor die binnegemelde eiendom 9,14 meter breed soos aangedui in rooi op afdruk van Plaaskaart nr. 1143/1898 daaraan geheg, gesedeer aan die Republiek van Suid-Afrika kragtens Akte van Sessie Nr. 22/1973.”**

The water line servitude ceded to the Republic of South Africa in terms of Deed of Cession Nr. 22/1973, is reflected on farm map SG diagram No. 1143/1898 with a red line (refer **Figure 17** below) (refer also to **Annexure F6** of the comprehensive township establishment application for a copy of the fore-mentioned farm map).

Figure 17: Farm Map SG No. 1143/1898



The red line indicated on SG diagram No. 1143/1898 (refer Figure 17 above) does indeed affect the proposed development area. Due to the fact that no evidence is present on site in respect of the existence of this servitude, it was concluded that this servitude has

possibly gone into disuse. In terms of the Conveyancer Certificate (attached as **Annexure K** to the comprehensive land development application) this servitude is not reconcilable with the use of the subject property for the purposes of a township and application is hereby further made in terms of Sections 3(2)(c) and 15(1) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016 for the removal of this condition from Deed of Transfer T3223/2017.

**“WITH regards to the farm PORTION 9 (a portion of Portion 1) of the farm UITKOMS 463, indicated by the figure E F G H J K L M N P Q R S T U V W X Y Z 1A 1B d b on diagram L.G. No. 971/2006 annexed to Certificate of Consolidated Title Number T1988/2007 the following conditions will be applicable:**

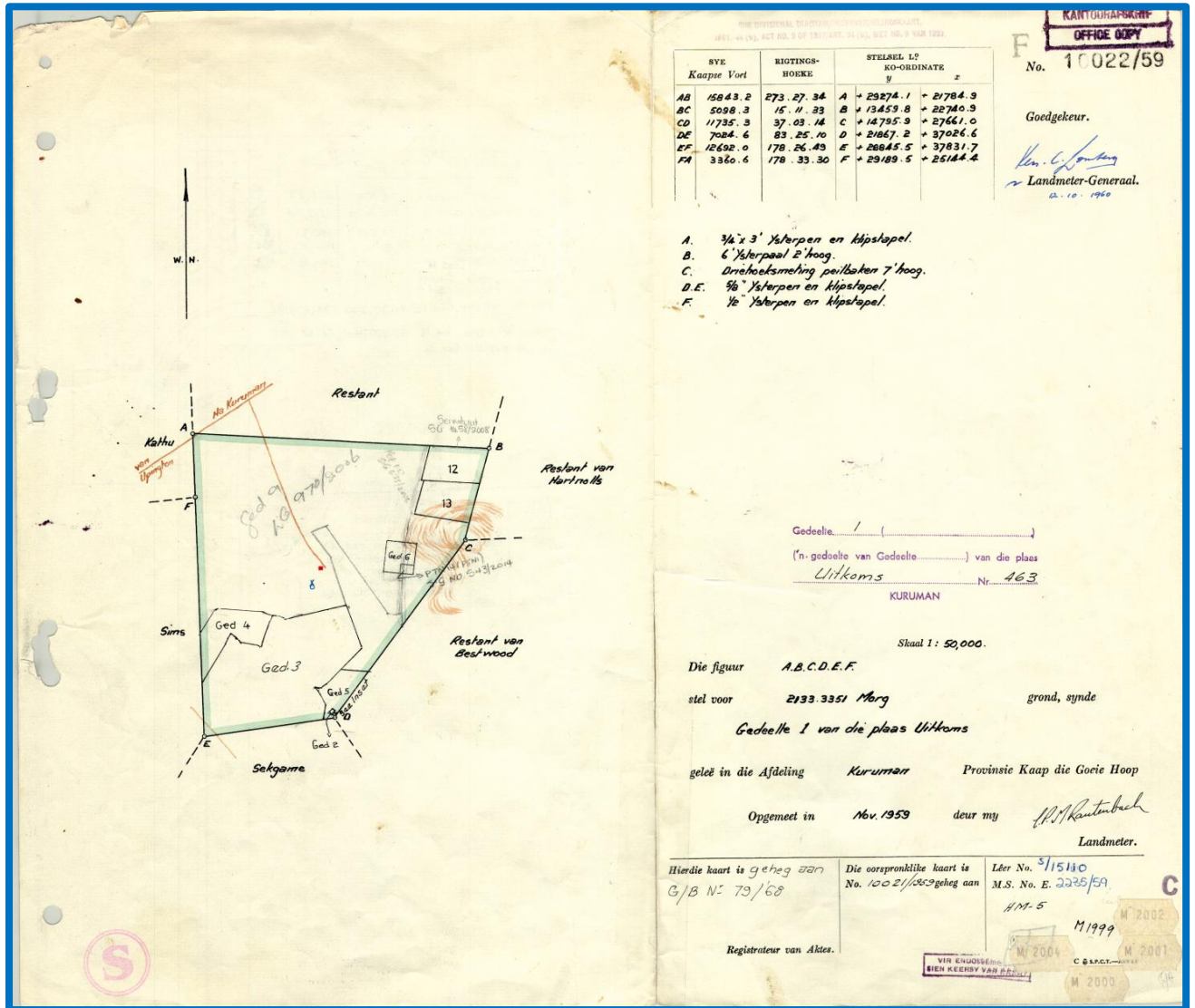
**A. “Kragtens Notariële Akte nr. K97/1976S gedateer 20 Julie 1976, is die reg aan ESKOM verleen om elektrisiteit te lei oor die binnegemelde eiendom deur middle van drade en/of kables en ander toebehore, bo-oor of onderdeur, soos meer volledig sal blyk uit die gemelde Notariële Akte.”**

Notarial Deed of Servitude K97/1976S granted Eskom the right to convey electricity over the former Portion 9 of the farm Uitkoms No. 463. This condition affects a very small portion of the development area with no evidence of any powerlines traversing the concerned portion. Following receipt of the comments from Eskom in respect of the land development application it is proposed that the consent be obtained from Eskom in respect of the transfer of the erven affected by the ancillary rights attaching to this servitude free of this servitude.

**“B. “Kragtens Notariële Akte van Sessie K79/1978S is (1) ‘n permanente serwituut vir okkupasie oor ‘n strook grond 27 meter in blou aangedui op afskrif van die kaart LG10022/59 en (2) ‘n permanente serwituut van reg oor ‘n strook grond 1 900 meter by 5 meter in rooi aangedui op afskrif van Kaart LG10022/59 geheg aan die ondergemelde Akte van Sessie van Serwituut ten gunste van die Republiek van Suid-Afrika gesedeer.”**

The occupation servitude registered by virtue of Notarial Deed of Cession K79/1978S is referenced in blue on Diagram SG No. 10022/1959 (attached as **Annexure F7** to the comprehensive land development application). The only blue line on Diagram SG No. 10022/1959 (refer **Figure 18** below) comprises a highlighting of the outside boundary of the subject farm portion. If it is assumed that this highlighted line does indeed refer to this servitude of occupation, this servitude does affect a small portion of the development area and it was recommended in the Conveyancer Certificate (refer **Annexure K** to the comprehensive land development application) that this condition be removed from the relevant Deed of Transfer. Application is hereby made in terms of Sections 3(2)(c) and 15(1) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016 for the removal of this condition from Deed of Transfer T3223/2017.

Figure 18: Subdivision Diagram SG No. F10022/1959



“C. “Kennisgewing van Onteïening Nr. 3/1981 gedateer 7 Januarie 1981, met kaart daaraan gehêg, waar kragtens ‘n gedeelte groot ongeveer 9,52 hektaar oneien is deur die Kaapse Provinsiale Administrasie Departement van Paaië.”

Preliminary indications are that fore-mentioned expropriation possibly relates to the Kathu-Dibeng/Hotazel road that traverses the former Portion 9 of the farm Uitkoms No. 463, Division Kuruman, Northern Cape Province. Extensive searches have been made to locate the concerned expropriation notice to establish the exact location of the concerned portion of land that has been expropriated. These searches have not yielded any information to date. In terms of the Conveyancer Certificate compiled by Coetzer & Steyn Attorneys, the applicability of this expropriation on the development area will have to be further investigated in collaboration with the Department of Public Works and Roads. For this purpose the land development application will also be referred to the Department of Public Works and Roads for comments.

**“D. With regards to the whole of the property , subject to the following conditions imposed by Kalahari Golf en Jag Proprietary Limited on favour of the NORTHERN CAPE DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS (COGHSTA):**

- 1. The property may not be sold, alienated or transferred without the prior written consent of COGHSTA MEC.**
- 2. The property may not be used for any other purpose than the development of residential housing in pursuance of the COGHSTA mission to facilitate and manage integrated sustainable human settlements and infrastructure development”.**

Condition D was imposed by the Northern Cape Department of Co-operative Governance, Human Settlements and Traditional Affairs (COGHSTA) during the transfer of the land to the Gamagara Local Municipality and restricts the alienation of the land as well as the use thereof for any other purpose other than the development of a residential township. This condition need not be transferred to the erven in the proposed township area but will remain on the Deed of Transfer of the relevant farm portion.

## **2.8 SERVITUDES**

As alluded to in Section 2.7 supra, preliminary indications are that Portions 1 and 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province is subject to the powerline servitude registered by virtue of Notarial Deed No. 74/1989S which affects a few erven in the proposed township area. This servitude was taken into consideration and properly accommodated in the layout plan of the proposed township area of Kathu Extension 10. The erven affected by this servitude will be made subject to such servitude in the Conditions of Establishment of the proposed township area.

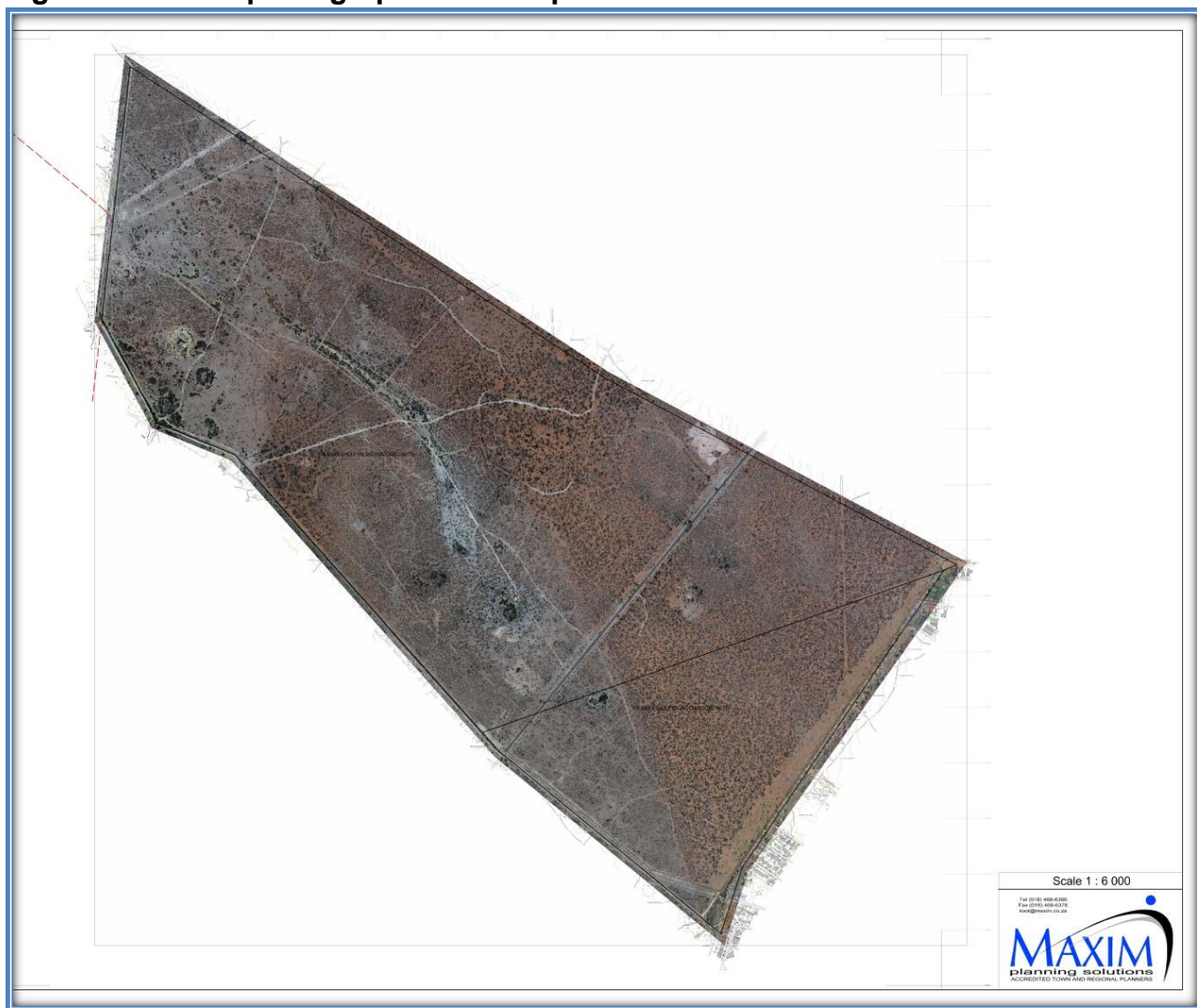
With regard to the servitudes in favour of Eskom and the Gamagara Local Municipality where ancillary rights apply, the consent of Eskom and the Gamagara Local Municipality will be obtained in respect of the transfer of the erven in the proposed township areas free from these servitudes.

## CHAPTER 3: PHYSICAL ASPECTS

### 3.1 TOPOGRAPHY

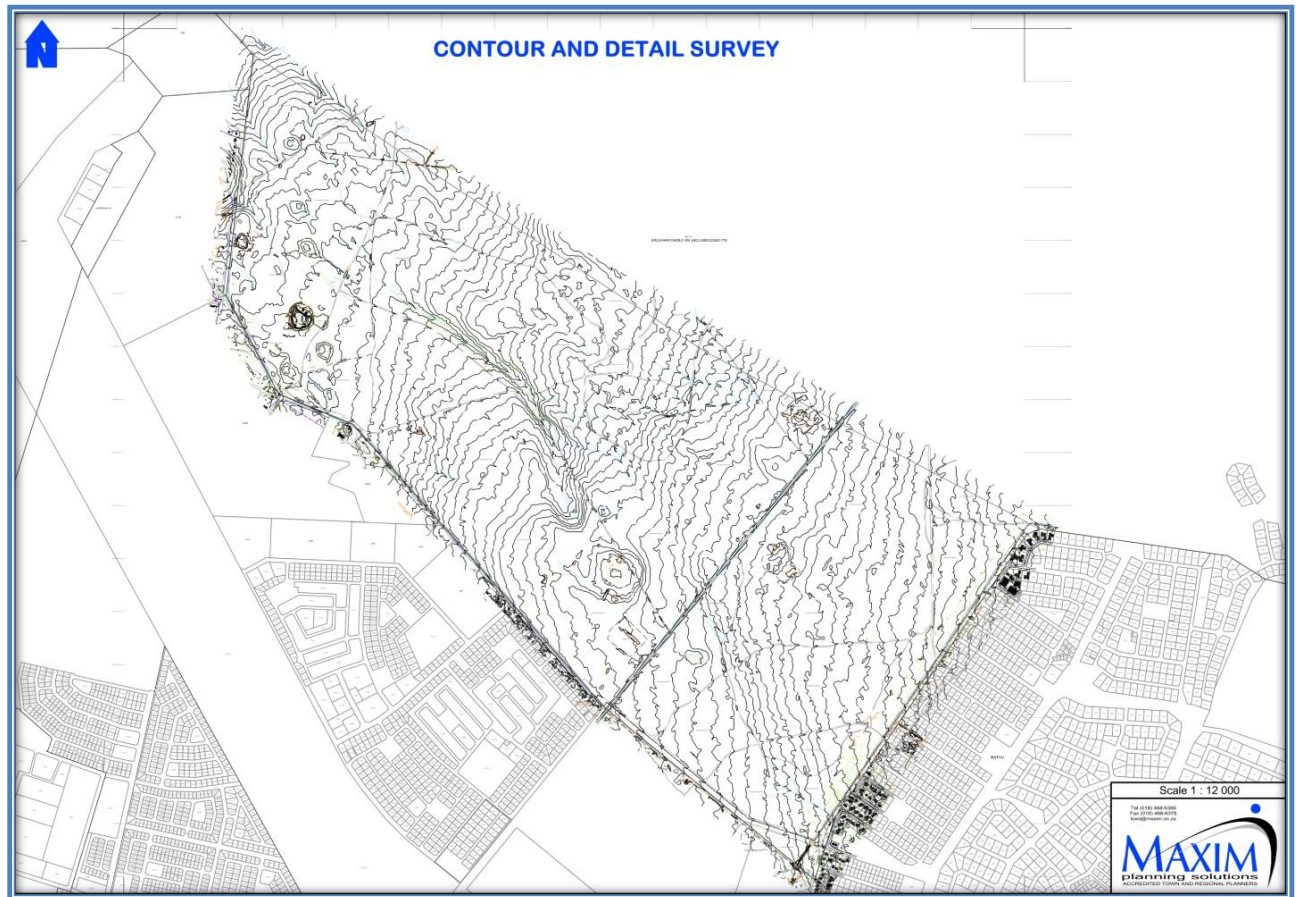
As part of the pre-planning studies that were conducted in respect of the development area, an aerial survey was conducted by Azur Aerial Work CC (refer **Figure 19**). This survey was supplemented by a physical survey of prominent features that could affect the planning of the concerned development area that was conducted by TMK Professional Land Surveyors (refer **Map 4**).

**Figure 19: 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 in **Figure 20** below. In addition to the aerial and contour survey that was conducted in respect of the development area, a detail survey was also conducted by the appointed Land Surveyor i.e. TMK Professional Land Surveyors to further identify any existing topographical or man-made features not identified during the aerial and contour survey.

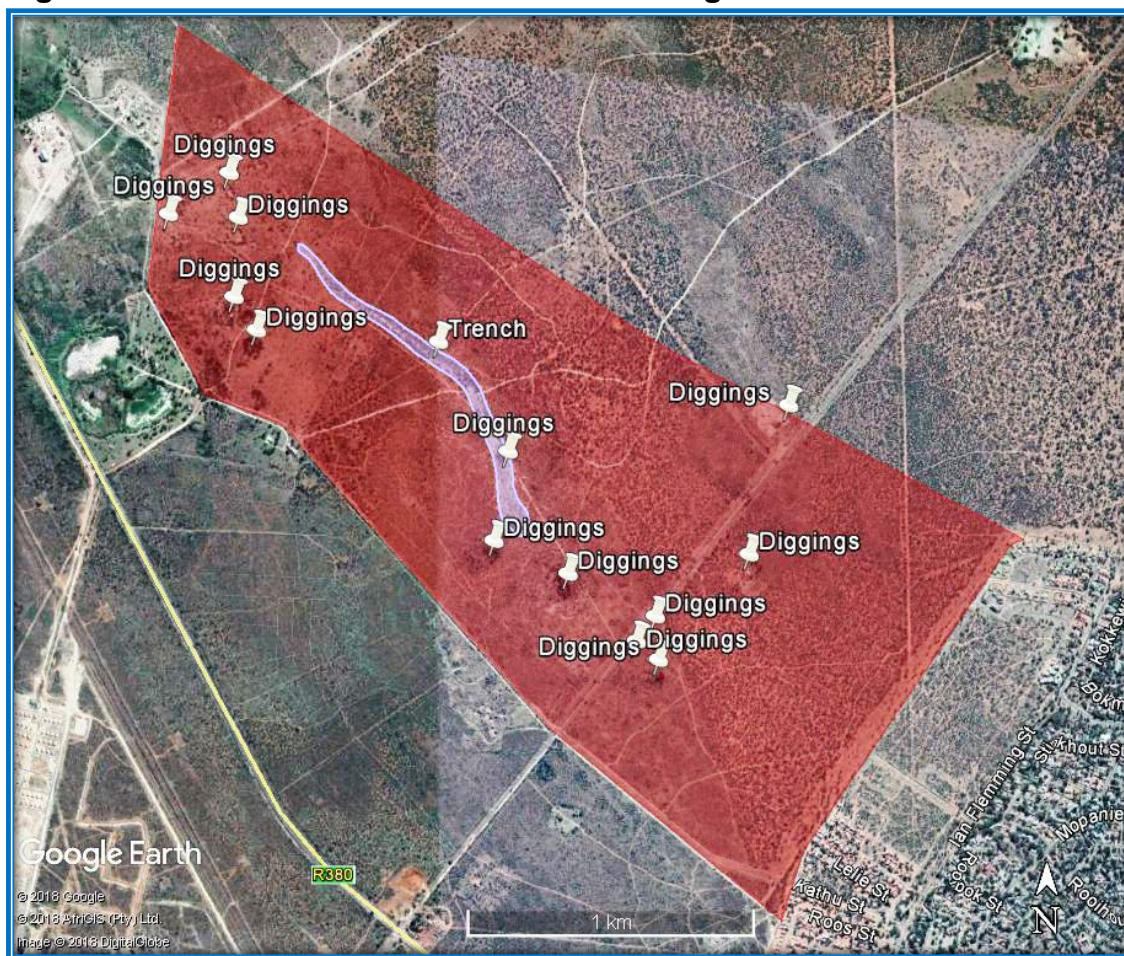
Figure 20: Contour survey of development area



The site is located on a shallow north-western slope of 1187 to 1220,5 MASL, the lowest point towards the perennial Vlermuislaagte River. An old dry drainage feature runs roughly from east to west through the area, while a section of the old (tarred) Sishen-Kuruman road from north to south within the central eastern portion of the development area. A number of old dry pans are located in the area as well as recent quarries for various materials in some areas. The development area is affected by a number of existing excavations/quarries located within the central portion of the development area (refer **Figure 21** below).



**Figure 21: Location of excavations and drainage feature**



In order to determine the rehabilitative potential of the fore-mentioned quarried areas, Civilsense Consulting was approached prior to the layout planning process to determine which quarried areas can be easily and economically rehabilitated to avoid the unnecessary loss of developable land. Civilsense Consulting identified four (4) quarries that can be economically rehabilitated and which areas were included in the layout plan. The remaining three (3) quarried areas were deemed non-economical to rehabilitate for residential development purposes and these even will either be integrated in the stormwater management system of the township areas or can be rehabilitated and utilized for active and passive recreational purposes. The identified quarried areas that were identified in the geotechnical investigation that were earmarked for rehabilitation are reflected on **Map 11** – refer Section 3.7.2 below.

### **3.2 CLIMATE**

The site is situated within the Northern Cape Province which lies within the summer rainfall region of South Africa. Statistics obtained from the closest Class 1 weather station are that of Kuruman (station number - 0393/778A5). The temperature statistics is for the period 1945 – 1984, while the rainfall records is for the period 1932 - 1984.

These statistics gives a good indication of the climatic conditions that may be expected at Kathu.

The average yearly precipitation for Kuruman is 455 mm/year. The absolute yearly maximum received was 964 mm during 1974, while the year with the lowest rainfall was 1965 when only 172mm was received. The maximum 24 hr precipitation received was 127 mm on 15 April 1955. The rainy season reaches its maximum during January through to March (with averages in excess of 80 mm). Thunder occurs on average 33,8 days per year.

The variability of rainfall as well as high intensity events can influence the project. Prolonged wet spells may affect the proposed development as excess water may accumulate on uneven portions. During extremely dry spells, the possibility of dust generation, as well as the detrimental effects on vegetation, will have to be taken into consideration. Droughts occur as part of the long-term climatic cycles throughout the country.

Summers are hot. A maximum of 40°C was recorded on the 9<sup>th</sup> of January 1940, while the winters are mild during the day. Frost regularly occurs during the night (minimum temperatures of below 0°C have already been recorded during the months April through to September). A minimum of –10 °C was recorded on the 12<sup>th</sup> of June 1979. In general the daily average maximum (for the year) is 25,9°C, while the average daily minimum for the year is 9,6°C.

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 decomposition, and shallow soil horizons will be expected in areas of poor drainage, underlain by igneous rocks.

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

### **3.3 FRESHWATER SYSTEM / DRAINAGE**

Drainage occurs in a southerly direction towards the perennial Vlermuislaagte River, a tributary to the GaMagara River and later the Kuruman and Molopo Rivers.

Plate flow is the dominant drainage pattern on site, and a prominent drainage channel intersects the site.

The permanent or perched water table on site is deeper than 1,5m below ground surface.

Special care must be taken to ensure adequate surface drainage to prevent the accumulation of water next to structures, especially within these relative flat areas.

Storm water diversion measures such as ponding pools are recommended to control peak

flows during thunderstorms.

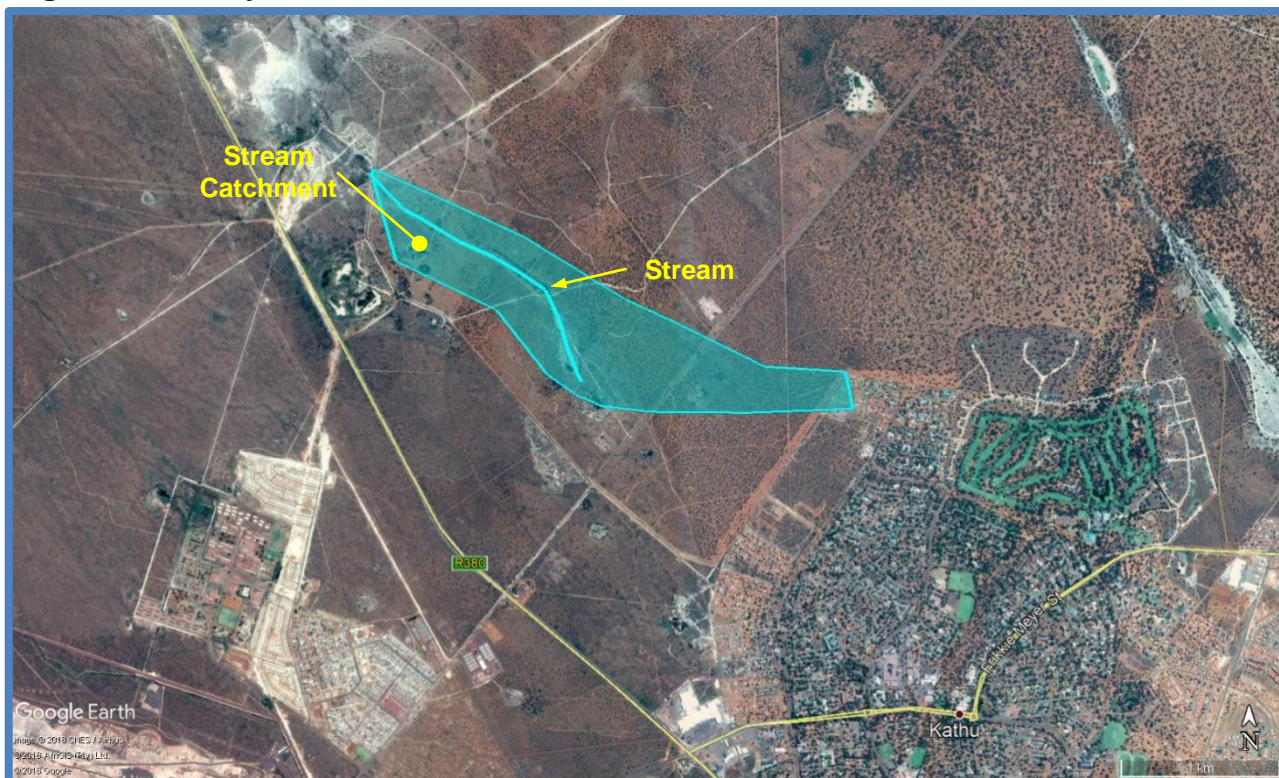
All embankments must be adequately compacted and planted with grass to stop any excessive erosion and scouring of the landscape.

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

Due to the presence of the drainage feature that traverses the central portion of the development area from east to west, CWT Water Technology was commissioned to determine the 1:100 year floodline applicable to this non-perennial drainage feature. The comprehensive 1:100 year floodline study is attached to the comprehensive land development application as **Annexure T** and contains the following results:

The study area and the catchment draining to this portion of the drainage feature are shown in **Figure 22**.

**Figure 22: Study Area and Catchment**



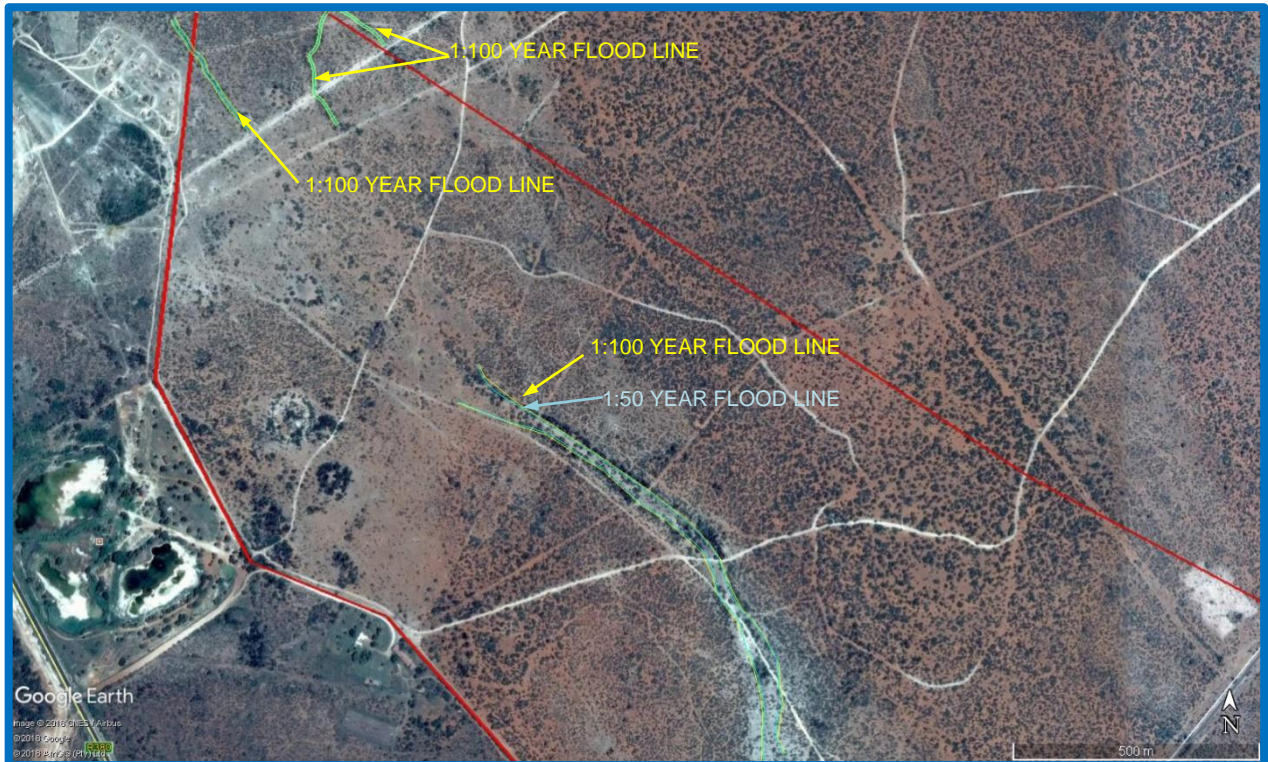
- **Characteristics of the catchment**

Area of catchment:	0,6	km <sup>2</sup>
Length of longest watercourse:	1,98	km
Equal area height difference:	13,3	m

10 – 85 slope height difference:	10,7	m
Distance to catchment centroid:	1,98	km
Time of concentration	0,75	hour

The flooded area and the 1:00 year floodlines are shown in **Figure 23** below.

**Figure 23: Flooded area and 1:100 year floodline**



The areas affected by the 1:100 year floodline were accommodated in the layout plan of the proposed township areas as part of the open space system as well as for passive and active recreational purposes.

### **3.4 WETLANDS AND PANS**

As detailed in section 3.3 supra, the development area is affected by the 1:100 year floodline of an unnamed non-perennial drainage feature. To ascertain whether any wetlands are present on site, Reineir F Terblanche was appointed to conduct a wetland assessment of the proposed development area (Wetland Assessment attached as **Annexure P4** to the comprehensive land development application). The Wetland Assessment concluded as follows in respect of the presence of wetlands on the development area:

**“A trench and diggings are present at the site where *Vachellia karroo* (Sweet Thorn) trees are often conspicuous. Wetlands such as floodplain wetlands, channelled valley-bottom wetlands, unchannelled valley-bottom wetlands, depressions, seeps and wetland flats appear to be absent at the site.**

**As a precaution the diggings (including the trench) at the site where water may gather during high rainfall events, are excluded from the proposed developments so that these could serve as part of a stepping stone conservation corridor in an increasingly developed area”.**

### **3.5 FAUNA AND FLORA ASSESSMENT**

To establish the possibility that threatened flora and fauna known to occur in Northern Cape Province are likely to occur within the proposed development site (and the immediate surrounding area) or not, an Ecological Fauna and Flora Habitat Survey was commissioned and said survey was conducted by Reineir F Terblanche (refer **Annexure P3** to the comprehensive land development application). Assessment Species which are not threatened but of conservation concern, for example near threatened, data deficient or declining species also received attention in the survey. The Ecological Fauna and Flora Habitat Survey concluded as follows:

- Terrestrial vegetation at much of the site is characterized by shrub-height *Senegalia mellifera* (Black Thorn) savanna on flat terrain (gentle slopes). Other indigenous small trees at the site include *Tarchonanthus camphoratus* (Vaalbos) and *Grewia flava* (Velvet Raisin). Few medium-sized *Vachellia erioloba* trees (Camel Thorn) are sparsely distributed in parts where *Senegalia mellifera* is visibly abundant such as at central and western parts of the site. *Vachellia erioloba* (Camel Thorn) increases noticeably in the south-eastern, eastern and north-eastern parts of the site. A concentration of fairly large *Vachellia erioloba* trees is found at an area in the eastern part of the site. Only a few individuals of *Boscia albitrunca* (Shepherd's Tree) are found at the site.
- In broad terms the site contains a *Senegalia mellifera* (Black Thorn) savanna largely in the western parts and a *Vachellia erioloba* (Camel Thorn) mixed savanna largely in the eastern parts.
- A trench and diggings are present at the site where *Vachellia karroo* (Sweet Thorn) trees are often conspicuous.
- Roads and tracks are found at the site. Bush-encroachment characterized by dense covers of *Senegalia mellifera* (Black Thorn) is encountered at some parts of the site whereas in other parts vegetation appears sparse and degraded.
- The vegetation type representing the Savanna Biome at the site is Kathu Bushveld (SVk 12). Kathu Bushveld is not listed as threatened according to the National List of Threatened Ecosystems (2011).
- Trench and diggings at the site could be conservation corridors of particular conservation concern whether as linked or stepping stone corridor systems.

- Ecological sensitivity at the site is medium-low at the flat areas where a visible high cover of *Senegalia mellifera* is present. Ecological sensitivity at the concentration of fairly large *Vachellia erioloba* trees at an area at the eastern part of the site is medium to medium-high.
- No Threatened or Near Threatened plant or animal species appear to be present at site.
- Two plant species which are not threatened but listed as Declining, *Boophone disticha* and *Vachellia erioloba* are present at the site.
- If the development is approved individuals of the Declining plant species *Boophone disticha* need to be relocated to a suitable site nearby before the construction phase. *Boophone disticha* (Poison Bulb) contains highly poisonous substances and the translocation operation should be done with necessary care.
- Two protected tree species *Vachellia erioloba* (Camel Thorn) and *Boscia albitrunca* (Shepherd's Tree) are found at the site. In terms of a part of section 15(1) of the National Forests 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. When the development is approved, such a permit should be applied for.
- Establishment of exotic weeds should be monitored and exotic weeds at the site should be eradicated. A declared invader such as the mesquite tree (*Prosopis* species), should not be planted or allowed to spread from adjacent areas to the proposed footprint.
- No bird's nests of particular conservation concern such as nests of large raptors or nests of sociable weavers, have been found at the site.
- Three sample plots KT1, KT2 and KT3 of 50 m x 50 m were deliberately placed where conspicuous densities of *Vachellia erioloba* is present to gain an idea of the densities and height class distribution of *Vachellia erioloba* in the eastern half of the site where *Vachellia erioloba* is conspicuous in the mixed *Vachellia erioloba* savanna at the site. **Table 6** indicates densities and height classes of Camel Thorn trees, *Vachellia erioloba* (= *Acacia erioloba*) at the site.

**Table 6: Total number of Camel Thorn trees (*Vachellia erioloba*) at each Sample Plot as well as distribution of total number of individuals in height classes >2m-3m; >3m-5m; >5m-10m and >10m.**

Sample Plot Number	Total number of <i>Vachellia erioloba</i> taller than 2 m	Total number of <i>Vachellia erioloba</i> per height class			
		> 2m-3m	> 3m-5m	> 5m-10m	> 10 m
KT1	24 (equivalent to 96/ ha)	2	2	20	zero
KT2	13 (equivalent to 52/ ha)	3	2	8	zero
KT3	21 (equivalent to 84/ ha)	2	9	10	zero

No camel thorn trees taller than 10 m are found at the site (this is in contrast to other areas north and north-east of Kathu where such larger Camel Thorn trees are found). A relatively high density of Camel Thorn trees > 2 m of up to 96/ ha is present at the central-eastern part of the site. In other areas where conspicuous densities of *Vachellia erioloba* are found the density of individuals taller than 2 m ranges from 52/ ha to 84/ ha. Overall the density of *Vachellia erioloba* individuals taller than 2 m ranges from 0/ ha at the *Senegalia mellifera* savanna at the western parts of the site to around 54/ ha, 84/ha in eastern parts of the site and then at its most dense around 96/ ha at the central-eastern parts of the site.

- Once the development is approved, the key would be to conserve and cultivate as many as practical locally indigenous tree species at the urban area so that an urban conservation corridor could be created for the Kathu Forest which is further to the east outside the site.
- The site falls outside the Kathu Forest and its buffer zone. The conservation of *Vachellia erioloba* (a protected tree species that is also listed as Declining) should therefore receive special attention. Once the development is approved, special effort should be made (apart from applying for the necessary permits) to conserve and cultivate *Vachellia erioloba* (Camel Thorn) trees to enhance the conservation of these magnificent trees in the larger area.

Ms. J. Mans, Chief Forester of the Northern Cape: Department Agriculture, Forestry & Fisheries was consulted by the Environmental Practitioner in relation to the extent of the Kathu Forest Protected Woodland and buffer area. It was confirmed that the proposed development site falls outside the Kathu Forest and its buffer zone in her e-mail of 2018/03/27:

“Dear Mr. de Villiers

According to my colleague in Pretoria, Mr. Izak van der Merwe, the proposed residential area falls outside of the proposed buffer. See map attached. Therefore there are no land-use restrictions, but should any individual protected tree be affected (i.e. *Boscia albitrunca*; *Vachellia erioloba* or *Vachellia haematoxylon*), the developer must apply for and obtain a valid Forest Act License prior to disturb of such specimens. Trees with bird nests may not be damaged or disturbed without a valid Fauna Permit from Nature Conservation.

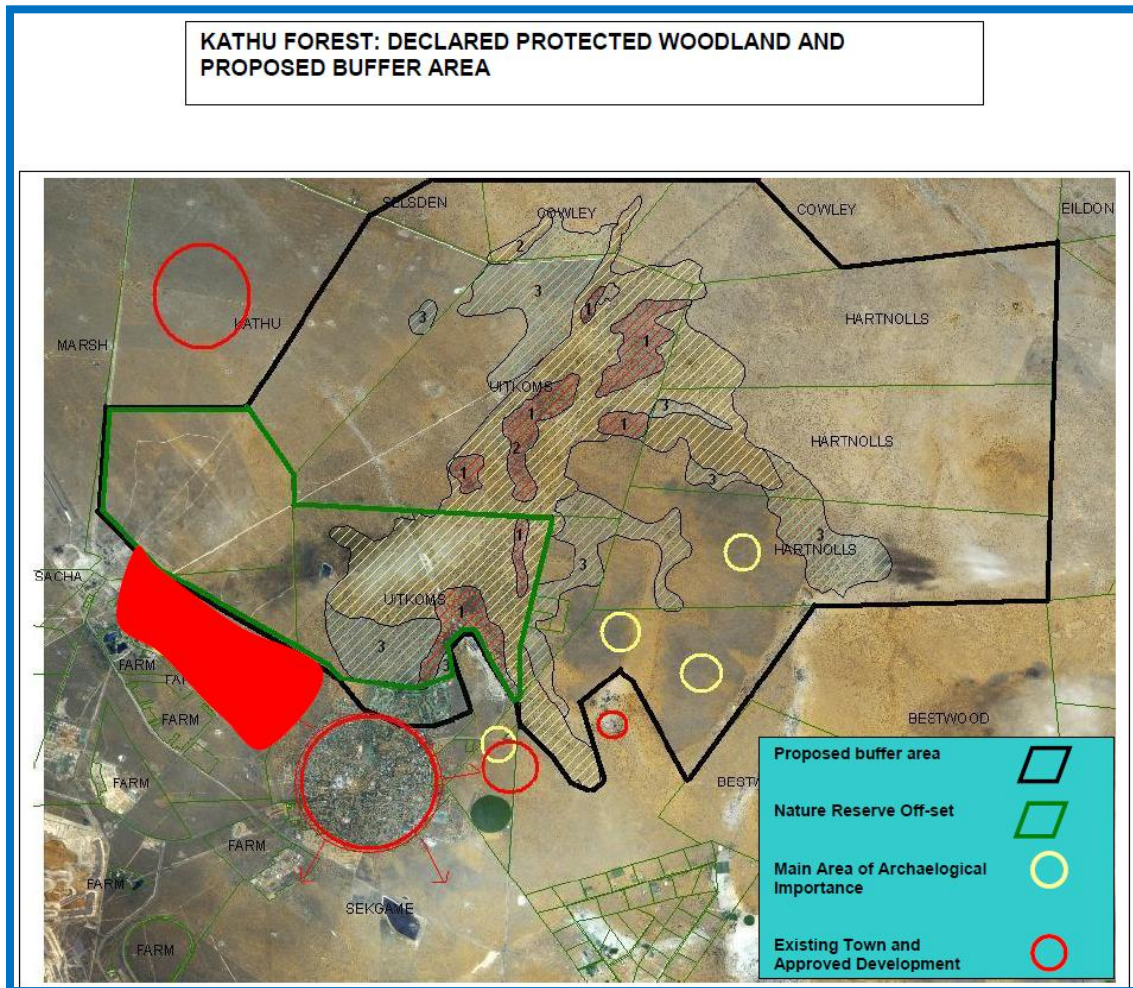
Kind Regards,

**Jacoline Mans**

Designation: Chief Forester (NFARegulation)  
Directorate: Forestry Management (Other Regions) Northern Cape  
Department of Agriculture, Forestry and Fisheries  
Tel: 054 338 5909  
Fax: 054 334 0030  
Web: [www.daff.gov.za](http://www.daff.gov.za)  
E-mail: [JacolineMa@daff.gov.za](mailto:JacolineMa@daff.gov.za)

The locality of the proposed development area (indicated in red) in relation to the Kathu Forest: Declared Protected Woodland and Proposed Buffer Area is indicated on **Map 9**.

**Map 9: Kathu Forest – Declared Protected Woodland and Proposed Buffer Area**





To ensure the greatest degree of protection of protected plant species on site once the development commences and to prevent the indiscriminate removal of plant material, the botanical specialist Mr. Reinier F Terblanche will be responsible for the detail identification of trees that will first of all be impacted on by the installation of engineering services and the necessary permit applications will be submitted to the Department Agriculture, Forestry & Fisheries. Prior to the construction of housing structures and non-residential facilities on the erven in the proposed township areas, each site will be assessed in detail to ensure the most beneficial positioning of building structures to ensure that the greatest number of trees are preserved (and to limit the number of permit applications to a minimum).

**Plate 9: Part of site where bush-encroachment by shrub-height *Senegalia mellifera* (Black Thorn) is conspicuous**



**Plate 10: Disturbed open vegetation at part of the site**



**Plate 11: Open, disturbed vegetation at the site.**



**Plate 12: Vegetation near the southern boundary of the site. *Vachellia erioloba* (Camel Thorn) individuals of 5-10 m are scattered throughout this area.**



Plate 13: A conspicuous concentration of *Vachellia erioloba* (Camel Thorn) individuals is found at the central eastern part of the site. These *Vachellia erioloba* trees are in the >5-10 m height class but many are over 7.5 m.

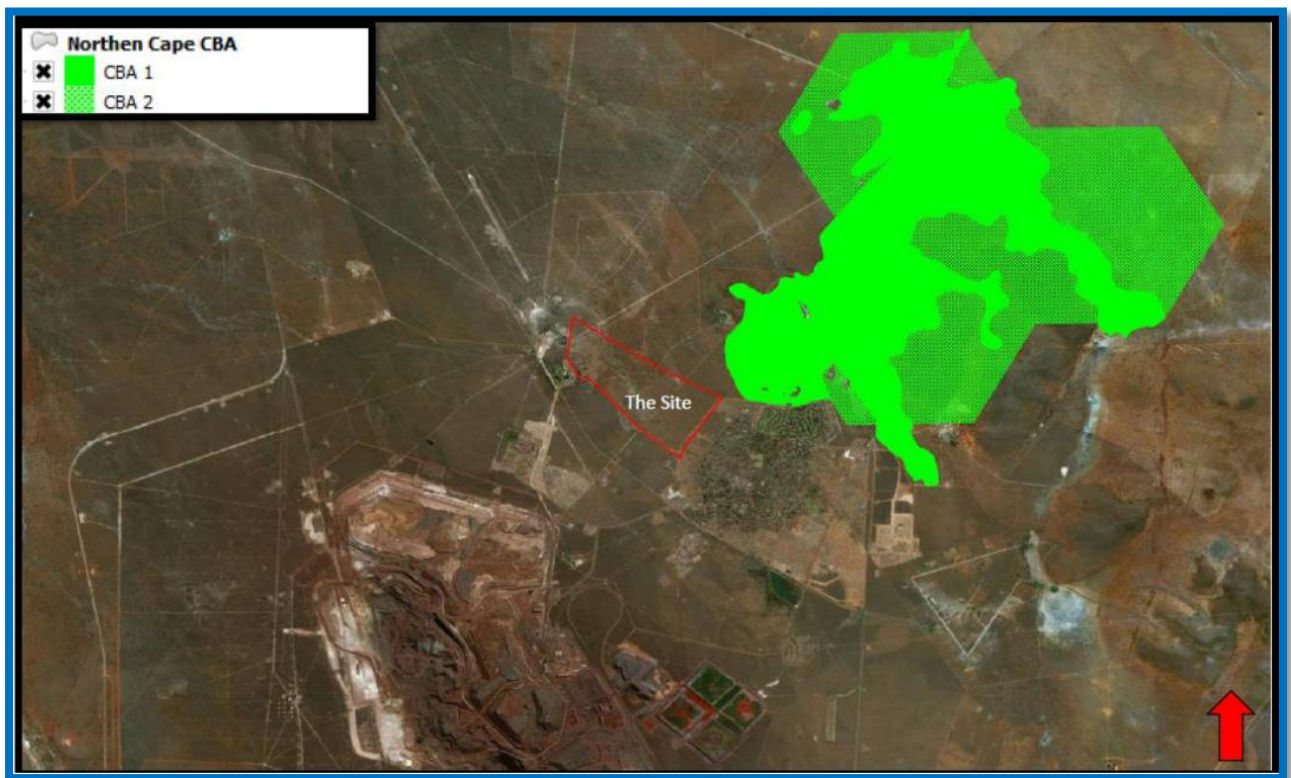


Plate 14: Shallow non-perennial streambed and noticeable concentration of *Vachellia karroo* (Sweet Thorn).



Based on the information contained in the draft Environmental Impact Assessment Report (DEIAR) (refer **Annexure P1** of the comprehensive land development application), it was further indicated that the proposed development area is located outside the designated CBA1 or CBA2 areas as indicated on **Map 10** below.

**Map 10: Sensitivity Map of Portions 1 and 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province**



### **3.6 GROUNDWATER**

No seepage or the presence of perennial fluctuations of ground water was encountered on site, but a seasonal perched water table may exist.

The permanent or perched water table on site is deeper than 1,5m below ground surface.

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

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

The majority of the site is underlain by tholeitic and calc-alkaline basaltic and andesitic lava, tuff and pyroclastic breccia of the Allanridge Formation (Va), Ventersdorp Supergroup, but is covered by recent alluvium (m) in the form of Aeolian red sand (Qw) and calcrete (T-Qc). It is indicated on the geology map as T-Qk/Va.

The site is covered by recent Aeolian red sand with calcrete covering the lava.

#### **3.7.1 SITE EVALUATION**

The site contains highly collapsible soil but with limited thickness of less than 0,75m, and foundations will need special treatment to withstand movement associated with the variable moisture content of the soil.

Some severe problems regarding excavatability can be expected almost across the site and large calcrete boulders were encountered almost across the site, with shallow rock calcrete and calcrete outcrop.

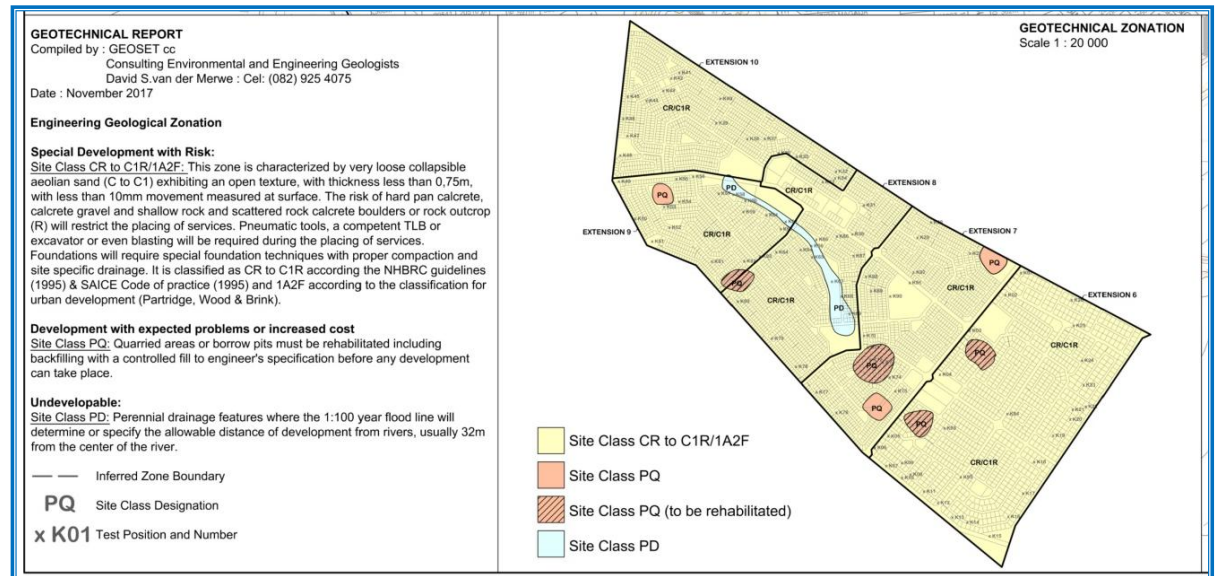
Retaining walls as well as slope stabilization measures are recommended on all constructed embankments exceeding 1,5m.

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 11**.

## Map 11: Geotechnical Site Zonation



### **Special Development with Risk:**

#### **Site Class CR to C1R/1A2F:**

This zone is characterized by very loose collapsible aeolian sand (C to C1) exhibiting an open texture, with thickness less than 0,75m, with less than 10mm movement measured at surface. The risk of hard pan calcrete, calcrete gravel or boulders presented as outcrop, scattered outcrop and shallow rock calcrete (R) will restrict the placing of services. Pneumatic tools, a competent TLB or excavator and even blasting will be required during the placing of services. Foundations will require special foundation techniques with proper compaction and site specific drainage. It is classified as CR on a portion of the farm Kalahari Gholf en Jag Landgoed 775 to C1R according to the NHBRG guidelines (1995) & SAICE Code of practice (1995) and 1A2F according to the classification for urban development (Partridge, Wood & Brink).

### **Development with expected problems or increased cost**

#### **Site Class PQ:**

Quarried areas or borrow pits must be rehabilitated including backfilling with a controlled fill to engineers specification before any development can take place.

### **Undevelopable:**

#### **Site Class PD:**

Perennial drainage features where the 1:100 year flood line will determine or specify the allowable distance of development from rivers, usually 32m from the center of the river.

Special foundation techniques and construction, such as proper standard compaction techniques and strip footing foundations with drainage provision will be required 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

### **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 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 7: 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 <sup>2</sup> :
GN.R. 327, 7 April 2017	23	The development of a cemetery of 5 323 square metres in size.
GN.R. 325, 7 April 2017	15	The clearance of 380,8600 hectares of indigenous vegetation, in order to establish a township on Portion 1 and 2 of the farm Kalahari Gholf en Jag Landgoed No. 775 (to be known as Kathu Extensions 6-10), Gamagara Local Municipality, Northern Cape Province.

The project was registered with the Department Environment and Nature Conservation (DENC) on 28 May 2018 by virtue of NC/EIA/05/JTG/GAM/KAT1/2018 (refer **Annexure P5**) and the Draft Environmental Impact Assessment Report (DEIAR) was submitted to the fore-mentioned Department on 12 October 2018.

The information contained in this DEIAR 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 Draft Environmental Impact Assessment (DEIAR) is attached to the comprehensive land development application as **Annexure P1**). 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.

This is based on the fact that the social and economic benefits to the region will greatly outweigh the negative environmental and social impacts. The proposed application and development of the land as being applied for, is consistent with the institutional planning policy adopted for the area by the Provincial and Local Authorities.

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. It is suggested that a suitably qualified Environmental Control Officer (ECO) be appointed for the construction phase, as this will have the largest potential impact

### 3.9 CULTURAL HERITAGE AREAS

A Pelsers Archaeological Consulting was commissioned to conduct a Cultural Heritage Resources Impact Assessment in respect of the proposed development area. The fore-mentioned assessment contained the following results:

A total of 9 sites were found during the assessment of the area, with 8 of these Stone Age and 1 a recent historical grave site. Three (3) of the Stone Age sites are actually found around the old Sishen-Kuruman tar road periphery/in the road reserve and on the surface of a smaller graded dirt road in the area and the Tar Road material might come from a secondary source. This will be discussed later on in this section. Furthermore, the number of sites and finds dating to the Stone Age might be more than those identified and recorded during the assessment, as it is clear that the area could contain many more similar sites and scatters of material of varying density throughout. This aspect will also be discussed in more detail later. The old streambed that runs in the area also contained some scattered tools from the MSA/LSA, and the whole streambed section will be indicated as a potential area for the presence of Stone Age sites.

- ***Sites 1, 2, 5 & 6 – Stone Age Surface finds along old Sishen-Kuruman Tar Road; Dirt Road & Old Streambed.***

Sites 1 & 2 are very close to each other and are situated next to the old tar road and in the road reserve. Stone tools are scattered amongst gravel used for the road construction and include cores, handaxes, possible choppers, broken blades, flakes and waste. When the rest of the tar road section was assessed it became clear that these types of tools are located only close to and in the road reserve (an approximately 15m section both sides). Beyond that hardly any material occurs. It is highly likely that this Stone Age material comes from a secondary source (i.e a quarry from which the road building material was sourced) and is not in situ (knapping sites). **However, the range of material found here makes the “road site” relatively significant and if the road is to be impacted (re-used/removed) then it is recommended that possible surface sampling of representative material is undertaken. The source of the material should also be traced and the Stone Age material mapped along the road.**

**Plate 15: A view of Site 1.**



**Plate 16: Site 2.**



**Plate 17: Hand axe in area around Site 1.**



**Plate 18: Another stone tool from Site 1.**



**Plate 19: A view of a section of the old Sishen-Kuruman Road in the study area. Stone tools are found along the edge of the road and in the reserve on both sides.**



**Plate 20: Another hand axe found along the old tar road section**





Site 5 is located along another road in the study area. This is a dirt road that has been graded through a section of red aeolian sands and MSA & LSA artifacts (scrapers, blades, flakes) have been exposed in the road and next to it. The area around the road (in the red sands) most likely also contain scatters of tools that will be exposed eventually through natural erosion and care should be taken should development occur here that if material is uncovered an expert be called in to investigate.

**Plate 21: The graded road where Site 5 is located. Stone tools are found scattered in and along this road.**



**Plate 22: One of the stone tools from Site 5.**



Site 6 is located in the old dry streambed in the area. Scattered/individual Stone tools are found throughout the area. The material has been heavily rolled (water working) and includes MSA/LSA flakes, blades, scrapers and other artifacts. It is recommended that the streambed area be avoided by the development.



**Plate 23: A view of a section of the dry streambed in the area (Site 6). Stone tools are found scattered throughout this streambed.**



**Plate 24: Some weathered/rolled tools from the streambed.**

- **Sites 3, 4, 8 & 9 – Stone Age surface sites**

Sites 3, 4, 8 & 9 are all surface sites containing single or denser scatter of MSA/LSA tools (blades, scrapers, cores, flakes and waste) on them. One of these sites (Site 9) falls outside the footprint of the study area and is located in an old dry pan area. There might be similar sites in the study area that were however missed during this assessment.

It is highly likely that many more similar surface sites and scatters of Stone Age material are located in the study area but might not be visible at this current stage. Material is covered by the red aeolian sands and will erode out over time. It is therefore also possible that development actions could uncover more sites and material. **It is recommended that a more detailed mapping and assessment of the Stone Age of the study area be undertaken.**

**Plate 25: MSA/LSA tools from Site 4.**



**Plate 26: Stone tools from Site 8.**



**Plate 27: A view of the Site 8 location.**



**Plate 28: The Site 9 dry pan location.**



- **Site 7 – Grave Site**

This site is located close to the fence with the Khai Appel Resort/Caravan Park and contains between 12 and 15 graves. Most of the graves are stone-packed and with cement borders, while a few have cement headstones with inscriptions. Three individuals could be identified and include (1) Beney Konieng who was born in April 1959 and died on 5 April 1960; (2) Mrs. Ross Hugo who died on the 20<sup>th</sup> of October 1961 and (3) Mrs. L. Sebege who was born in 1889 and died in 1965.

Graves always carry a High Cultural Significance rating and should not be impacted if possible and be left intact. If the site cannot be avoided then the graves can be exhumed and relocated after all due processes (social consultation/getting

consent/permits have been obtained) have been successfully completed. The best would be however to keep the site fenced-off and protected.

**Plate 29: A view of Grave Site 7.**



**Plate 30: A view of one of the graves on Site 7.**



**Plate 31: Close-up of the headstone.**

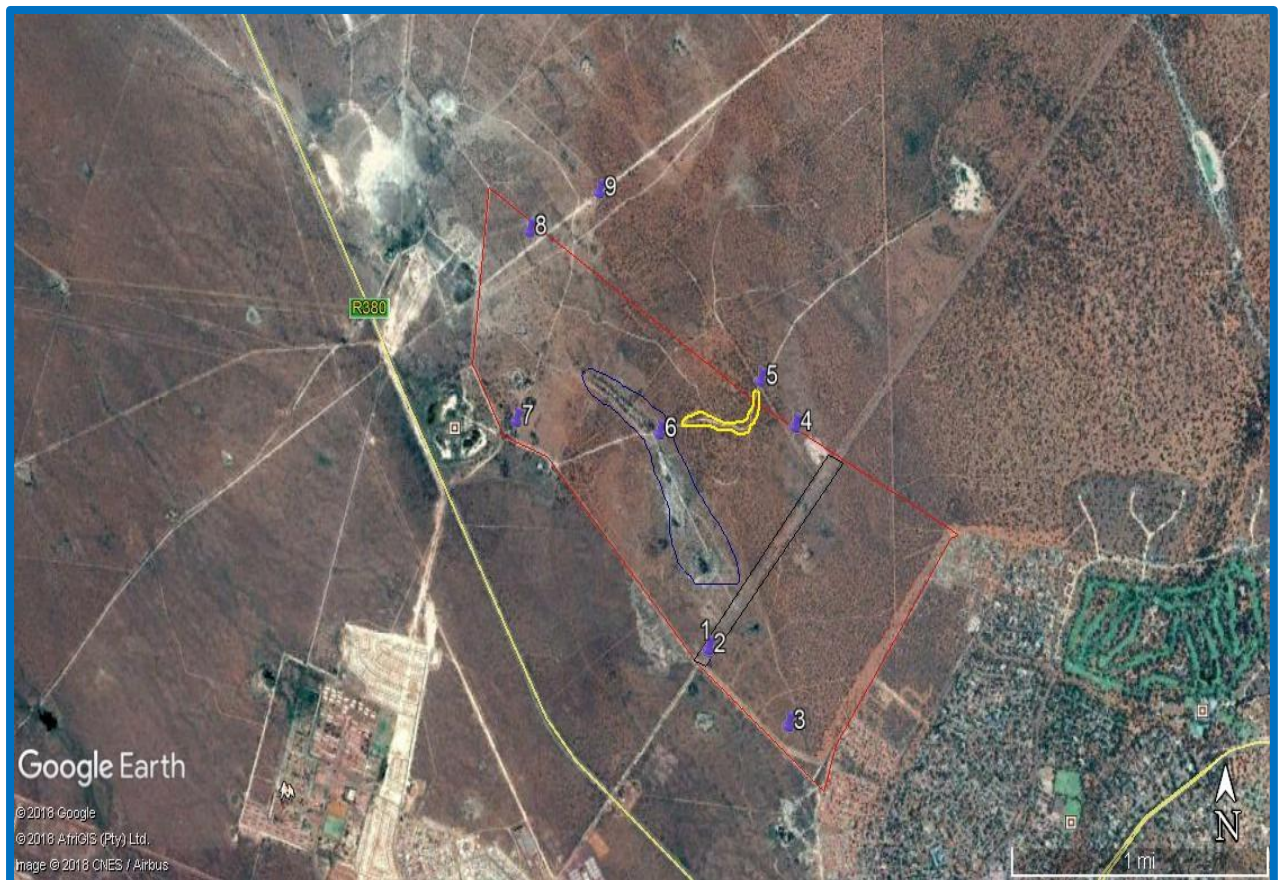


**Plate 32: More graves on Site 7 with headstones.**



The locality of the various sites detailed in the preceding paragraphs is reflected on **Map 12** below.

**Map 12: Aerial view of study area (red polygon) & Sites found. The old tarred road between Sishen & Kuruman is demarcated in black; while the dry streambed has been demarcated in blue and the Site 5 road in yellow (Google Earth 2018).**



The Heritage Resources Impact Assessment concluded that although all efforts are made to locate, identify and record all possible cultural heritage sites and features (including archaeological remains) there is always a possibility that some might have been missed as a result of grass-cover and other factors. The subterranean nature of these resources (including low stone-packed or unmarked graves) should also be taken into consideration. Should any previously unknown or invisible sites, features or material be uncovered during any development actions then an expert should be contacted to investigate and provide recommendations on the way forward.

The Heritage Consultant concluded that ***“from a cultural heritage point of view the development can therefore continue, taking cognizance of the above recommendations”***.

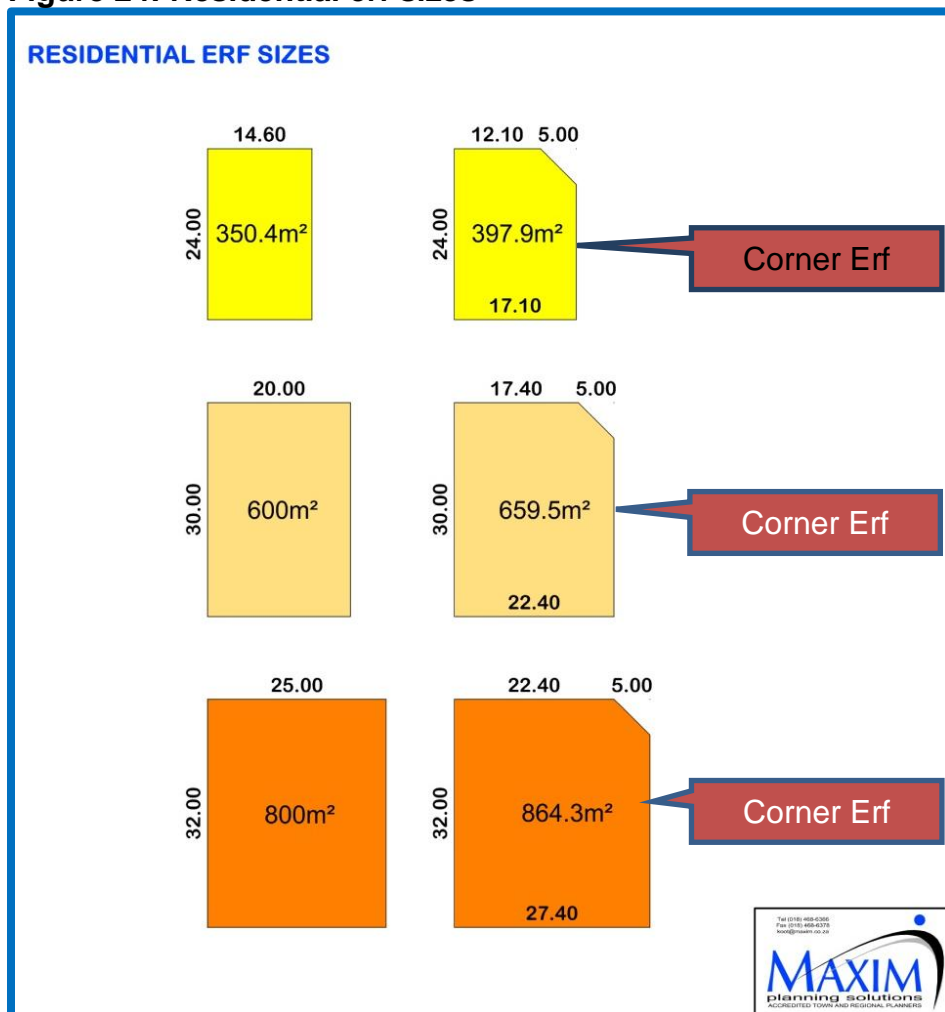
# CHAPTER 4: PROPOSED DEVELOPMENT

## 4.1 LAND USES

The intentions of the township applicant i.e. the Gamagara Local Municipality is to utilize the concerned properties for the establishment of a proper integrated human settlement comprising the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10. The aim of this township establishment process is not only to address the short term need for erven that can be utilized for 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, social housing, bonded housing and middle-high 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 24: Residential erf sizes**



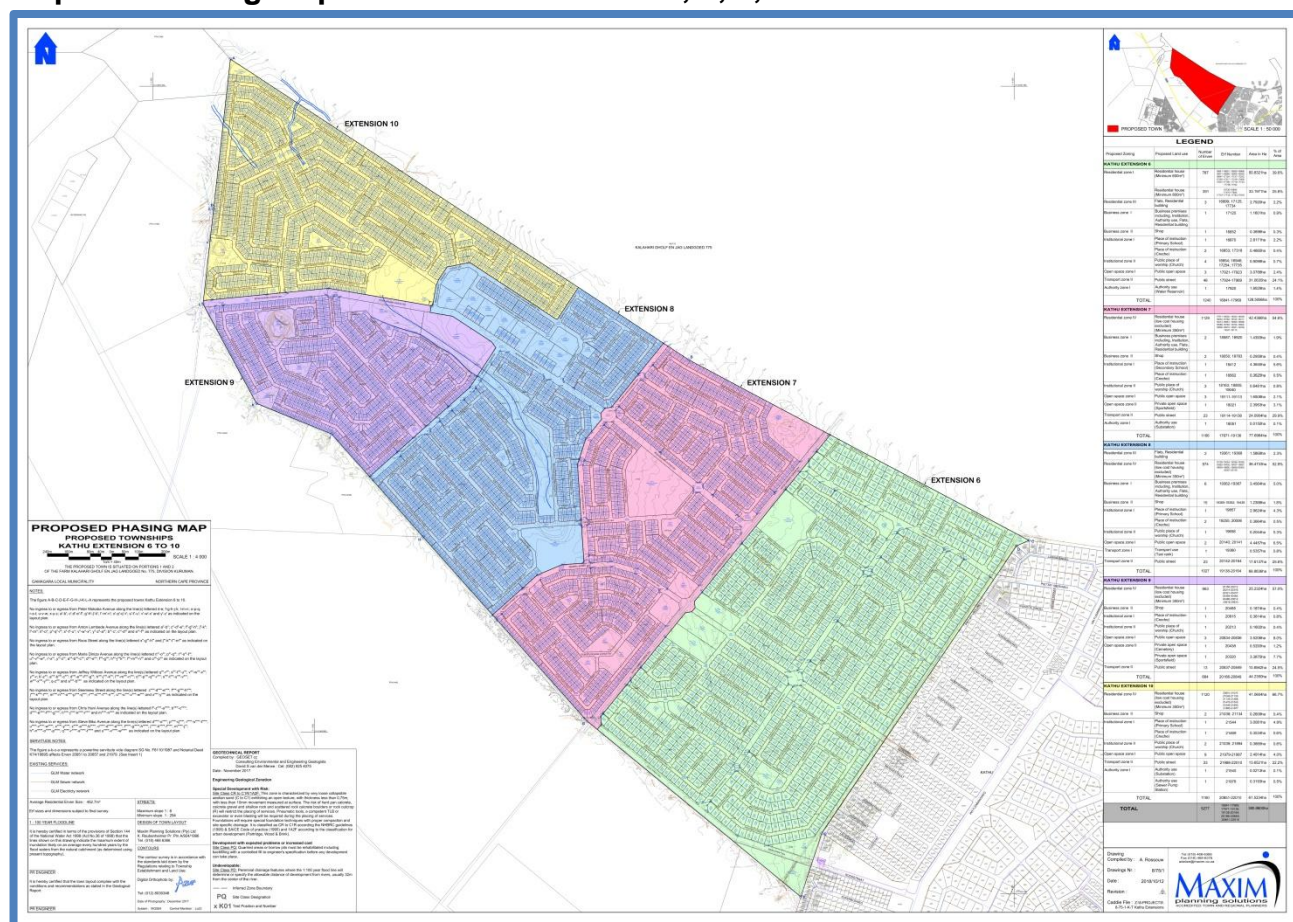
As alluded to in Section 1.1, the planning of the proposed new integrated human settlement area at Kathu was conducted in an integrated manner and focussed on the entire designated development area. This integrated planning yielded a township area comprising 5 069 residential erven (earmarked for a variety of different housing typologies) together with an additional 208 erven earmarked for non-residential support functions (inclusive of streets). The integrated layout plan compiled in respect of the proposed township area on Portions 1 and 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province makes provision for the following erven/land uses:

**Table 8: Detail analysis of the proposed township Kathu Extensions 6 - 10**

Proposed Zoning	Proposed Land Use	Number of Erven	Area in Ha	% of Area
Residential zone I	Residential house (Minimum 600m <sup>2</sup> )	787	50.8321ha	13.3%
	Residential house (Minimum 800m <sup>2</sup> )	391	33.1971ha	8.7%
Residential zone III	Flats, Residential building	5	4.3788ha	1.2%
Residential zone IV	Residential house (low cost housing excluded)(Minimum 350m <sup>2</sup> )	3886	145.1941ha	38.1%
Business zone I	Business premises including, Institution, Authority use, Flats, Residential building	9	6.0558ha	1.6%
Business zone II	Shop	21	2.3525ha	0.6%
Institutional zone I	Place of instruction (Secondary School)	1	4.3381ha	1.1%
	Place of instruction (Primary School)	3	8.8089ha	2.3%
	Place of instruction (Crèche)	7	1.9102ha	0.5%
Institutional zone II	Public place of worship (Church)	11	2.2891ha	0.6%
Open Space zone I	Public open space	20	15.1873ha	4.0%
Open Space zone II	Public open space(Cemetery)	1	0.5293ha	0.1%
	Public open space(Sports field)	2	5.7828ha	1.5%
Transport zone I	Transport use (Taxi rank)	1	0.5357ha	0.1%
Transport zone II	Public Street	128	97.2759ha	25.6%
Authority zone I	Authority use (Substation)	1	0.0701ha	0.1%
	Authority use (Water Reservoir)	1	1.8029ha	0.5%
	Authority use (Sewer Pump Station)	1	0.3193ha	0.1%
<b>TOTAL</b>		<b>5276</b>	<b>380.8600ha</b>	<b>100%</b>

As per the procedural requirements of the Surveyor-General (Bloemfontein), it was indicated that the office of the Surveyor-General (Bloemfontein) restricts the number of erven included on a General Plan to a maximum of approximately 1200 erven to expedite the examination of the survey records and General Plans. Due to the fore-mentioned requirement, it was necessary to divide the proposed integrated human settlement into five (5) separate township areas i.e. Kathu Extensions 6, 7, 8, 9 and 10. The phasing of the initial integrated human settlement layout plan into five (5) phases is reflected on **Map 13**.

**Map 13: Phasing map of Kathu Extensions 6, 7, 8, 9 and 10**



The layout plans of the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10 respectively make provision for the following land uses as indicated in Tables 9, 10, 11, 12 and 13.

**Table 9: Kathu Extension 6 proposed land uses**

Proposed Zoning	Proposed Land Use	Number of Erven	Area in Ha	% of Area
Residential zone I	Residential house (Minimum 600m <sup>2</sup> )	787	50.8321ha	39.6%
	Residential house (Minimum 800m <sup>2</sup> )	391	33.1971ha	25.8%
Residential zone III	Flats, Residential building	3	2.7920ha	2.2%
Business zone I	Business premises	1	1.1601ha	0.9%



	including, Institution, Authority use, Flats, Residential building			
Business zone II	Shop	1	0.3896ha	0.3%
Institutional zone I	Place of instruction (Primary School)	1	2.8171ha	2.2%
	Place of instruction (Crèche)	2	0.4665ha	0.4%
Institutional zone II	Public place of worship (Church)	4	0.9099ha	0.7%
Open Space zone I	Public open space	3	3.0788ha	2.4%
Transport zone II	Public Street	46	31.0635ha	24.1%
Authority zone I	Authority use (Water Reservoir)	1	1.8029ha	1.4%
<b>TOTAL</b>		<b>1240</b>	<b>128.5096ha</b>	<b>100%</b>

**Table 10: Kathu Extension 7 proposed land uses**

Proposed Zoning	Proposed Land Use	Number of Erven	Area in Ha	% of Area
Residential zone IV	Residential house (low cost housing excluded)(Minimum 350m <sup>2</sup> )	1129	42.4280ha	54.6%
Business zone I	Business premises including, Institution, Authority use, Flats, Residential building	2	1.4393ha	1.8%
Business zone II	Shop	2	0.2758ha	0.4%
Institutional zone I	Place of instruction (Secondary School)	1	4.3381ha	5.6%
	Place of instruction (Crèche)	1	0.3625ha	0.5%
Institutional zone II	Public place of worship (Church)	3	0.6481ha	0.8%
Open Space zone I	Public open space	3	1.6508ha	2.1%
Open Space zone II	Public open space(Sports field)	1	2.3953ha	3.1%
Transport zone II	Public Street	23	24.0904ha	31%
Authority zone I	Authority use (Substation)	1	0.0701ha	0.1%
<b>TOTAL</b>		<b>1166</b>	<b>77.6984ha</b>	<b>100%</b>

**Table 11: Kathu Extension 8 proposed land uses**

Proposed Zoning	Proposed Land Use	Number of Erven	Area in Ha	% of Area
Residential zone III	Flats, Residential building	2	1.5868ha	2.3%
Residential zone IV	Residential house (low cost housing excluded)(Minimum 350m <sup>2</sup> )	974	36.4733ha	52.9%
Business zone I	Business premises including, Institution, Authority use, Flats, Residential building	6	3.4564ha	5.0%

Business zone II	Shop	15	1.2388ha	1.8%
Institutional zone I	Place of instruction (Primary School)	1	2.9624ha	4.3%
	Place of instruction (Crèche)	2	0.3664ha	0.5%
Institutional zone II	Public place of worship (Church)	1	0.2044ha	0.3%
Open Space zone I	Public open space	2	4.4457ha	6.5%
Open Space zone II	Public open space(Sports field)	1	2.3953ha	3.1%
Transport zone I	Transport use (Taxi rank)	1	0.5357ha	0.8%
Transport zone II	Public Street	23	17.6137ha	25.6%
<b>TOTAL</b>		<b>1027</b>	<b>68.8836ha</b>	<b>100%</b>

**Table 12: Kathu Extension 9 proposed land uses**

Proposed Zoning	Proposed Land Use	Number of Erven	Area in Ha	% of Area
Residential zone IV	Residential house (low cost housing excluded)(Minimum 350m <sup>2</sup> )	663	25.2324ha	57.0%
Business zone II	Shop	1	0.1874ha	0.4%
Institutional zone I	Place of instruction (Crèche)	1	0.3614ha	0.8%
Institutional zone II	Public place of worship (Church)	1	0.1602ha	0.4%
Open Space zone I	Public open space	3	3.5206ha	8.0%
Open Space zone II	Public open space(Cemetery))	1	0.5293ha	1.2%
	Public open space(Sports field)	1	3.3875ha	7.7%
Transport zone II	Public Street	13	10.8562ha	24.5%
<b>TOTAL</b>		<b>684</b>	<b>44.2350ha</b>	<b>100%</b>

**Table 13: Kathu Extension 10 proposed land uses**

Proposed Zoning	Proposed Land Use	Number of Erven	Area in Ha	% of Area
Residential zone IV	Residential house (low cost housing excluded)(Minimum 350m <sup>2</sup> )	1120	41.0604ha	66.7%
Business zone II	Shop	2	0.2609ha	0.4%
Institutional zone I	Place of instruction (Primary School)	1	3.0294ha	4.9%
	Place of instruction (Crèche)	1	0.3534ha	0.6%
Institutional zone II	Public place of worship (Church)	2	0.3665ha	0.6%
Open Space zone I	Public open space	9	2.4914ha	4.0%
Transport zone II	Public Street	23	13.6521ha	22.3%
Authority zone I	Authority use (Sewer Pump Station)	1	0.3193ha	0.5%
<b>TOTAL</b>		<b>1159</b>	<b>61.5334ha</b>	<b>100%</b>

The following should be noted in respect of the land uses mentioned above:

▪ **Residential Zone I**

The layout plan of the proposed township Kathu Extensions 6 makes provision for 787 residential erven with a minimum erf size of 600m<sup>2</sup> as well as 391 residential erven with a minimum erf size of 800m<sup>2</sup>. These erven will be sold to potential buyers how intend erecting their own houses through own funding or through bond financing. It is therefore conceived that these erven will be utilized for middle-high income residential development purposes. Cognisance should further be taken of the fact that the positioning of the proposed “Residential Zone I” erven was to a large extent dictated by the fact that they will be located in the area with the greatest concentration of Camel Thorn trees. This fact was relevant as the larger sizes of the erven proposed in this area allows for a greater degree of preservation of the Camel Thorn trees as a larger erf size creates more opportunities to manipulate the positioning of the housing structure on the site to accommodate the greatest number of Camel Thorn trees whist similarly reducing the number of trees that need to be removed. The proposed ”Residential Zone I” erven will also fit in with the housing typologies already found in the existing adjacent urban area of Kathu.

The “Residential Zone I” erven will be subject to the following development parameters as imposed in terms of the Scheme Regulations for Gamagara Municipality, 2003:

**Table 14: “Residential I” development parameters**

Development parameter	Development Parameter Detail
Primary Use	Residential house
Consent Uses	<ul style="list-style-type: none"> <li>▪ Second residential unit</li> <li>▪ Crèche</li> <li>▪ Animal hospital</li> <li>▪ Animal clinic</li> <li>▪ Guest house</li> <li>▪ Bird or animal cages</li> </ul>
Coverage	At most 50%
Height	At most 8m above natural ground level directly beneath any particular point or portion of the building
Building lines	<ul style="list-style-type: none"> <li>▪ 4,5m to any street boundary</li> <li>▪ 3m to any rear boundary</li> <li>▪ If the frontage of an erf exceeds 22m in length, 2m to any side boundary, provided that the total side space shall be not less than 6m</li> <li>▪ If the frontage of an erf is less than 19m in length, 1m to any side boundary, provided that the total side space shall be not less than 3,5m and further that no doors or windows are permitted in any wall which is less than 1,5m from any side boundary.</li> </ul>

▪ **Residential Zone III**

The layout plans of the proposed township areas of Kathu Extensions 6 and 8 make provision for five (5) “Residential Zone III” erven with a total area of 4,3788 hectares that can be utilized for flats or residential buildings. These erven were specifically provided to allow opportunities for the development of residential rental stock in the form of social housing or community residential units (CRU).

A key model for the delivery of affordable housing is social housing, which provides medium density, affordable, rental housing to low and middle income households. Social Housing contributes to transforming urban spatial patterns as it promotes integration and densification in close proximity to economic and social amenities. Social Housing projects offer well-located rentals to households earning between R1500 to R15 000 per month. These rentals are subsidized by Government, making them much lower than market rates. For any given social housing project the recipients are divided into two groups: primary households with an income of R1500 to R5500 per month, and secondary households earning R5501 to R15000 per month. Primary households must make up at least 30% of the beneficiaries for the housing project to qualify for both the government grants that can be provided. Most of these households (those with R3500 to R12500 monthly income) fall into what is called the “gap” market; they earn too much to qualify for RDP Housing and they can’t afford to rent privately. So rent-based social housing is often their best option.

Government outsources the development and management of social housing projects to Social Housing Institutions (SHI’s). SHI’s are companies accredited by SHRA (Social Housing Regulatory Authority). In general SHI’s are not-for-profit companies that receive government subsidies for a specific housing project.

It is important to note that people can qualify to be accommodated in a social housing project even if that person has already benefitted from other housing projects in the past but does not currently own property.

In studying the locality of the erven designated for “Residential Zone III” purposes, it is evident that these erven will promote integration and densification and that they are positioned in close proximity to economic and social amenities.

The proposed “Residential Zone III” erven will be subject to the following development parameters imposed in terms of the Scheme Regulations for Gamagara Municipality, 2003:

**Table 15: “Residential Zone III” development parameters**

Development parameter	Development Parameter Detail
Primary Use	<ul style="list-style-type: none"> <li>▪ Flats</li> <li>▪ Residential Building</li> </ul>
Consent Uses	<ul style="list-style-type: none"> <li>▪ Institution</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Group Housing</li> <li>▪ Residential House</li> <li>▪ Public Place of Worship</li> </ul>
Coverage	50% (covered parking not included)
Height	At most 16m above natural ground level directly beneath any particular point or portion of the building
Building lines	<ul style="list-style-type: none"> <li>▪ Street building line of 4,5m</li> <li>▪ Rear and side boundaries building line shall be 4,5m or half the height of the building, whichever is the greatest</li> </ul>
Parking	<ul style="list-style-type: none"> <li>▪ One covered parking bay per residential unit (flat)</li> <li>▪ One parking bay for every two residential units (flats)</li> <li>▪ One parking bay per four bedrooms in the case of other residential buildings</li> </ul>
Open space	<ul style="list-style-type: none"> <li>▪ In the case of a block of flats at least 15% of the site area should be reserved as an uninterrupted unit for gardening or recreation</li> </ul>

▪ **Residential Zone IV**

The layout plans of the proposed township areas of Kathu Extensions 7, 8, 9 and 10 make provision for the following number of erven to be zoned as “Residential Zone IV”:

**Table 16: Number of “Residential Zone IV” erven per township area**

Proposed township area	Number of “Residential Zone IV” erven
Kathu Extension 7	1 129
Kathu Extension 8	974
Kathu Extension 9	663
Kathu Extension 10	1 120
<b>TOTAL</b>	<b>3 886</b>

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, bonded housing and FLISP projects.

A housing subsidy is a grant by government to qualifying beneficiaries for housing purposes. This is one of the Department of Human Settlement’s areas of responsibility in the delivery of human settlements to the bottom-most end of the market, where it provides housing subsidies to the poor. This is where the bulk of the housing backlog exists, affecting mainly those who earn below R3500 a month. The following subsidy programmes are available from the Department of Human Settlements:

- **Integrated Residential Development Programme**

The Integrated Residential Development Programme replaced the Project Linked Subsidy Programme. The programme provides for planning and development of integrated housing projects. Projects can be planned and developed in phases and provides for holistic development orientation:

  - Phase 1: Land, Services and Township Proclamation
  - Phase 2: Housing Construction (this also includes the sale of stands to non-qualifying beneficiaries and to commercial interests)
- **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**

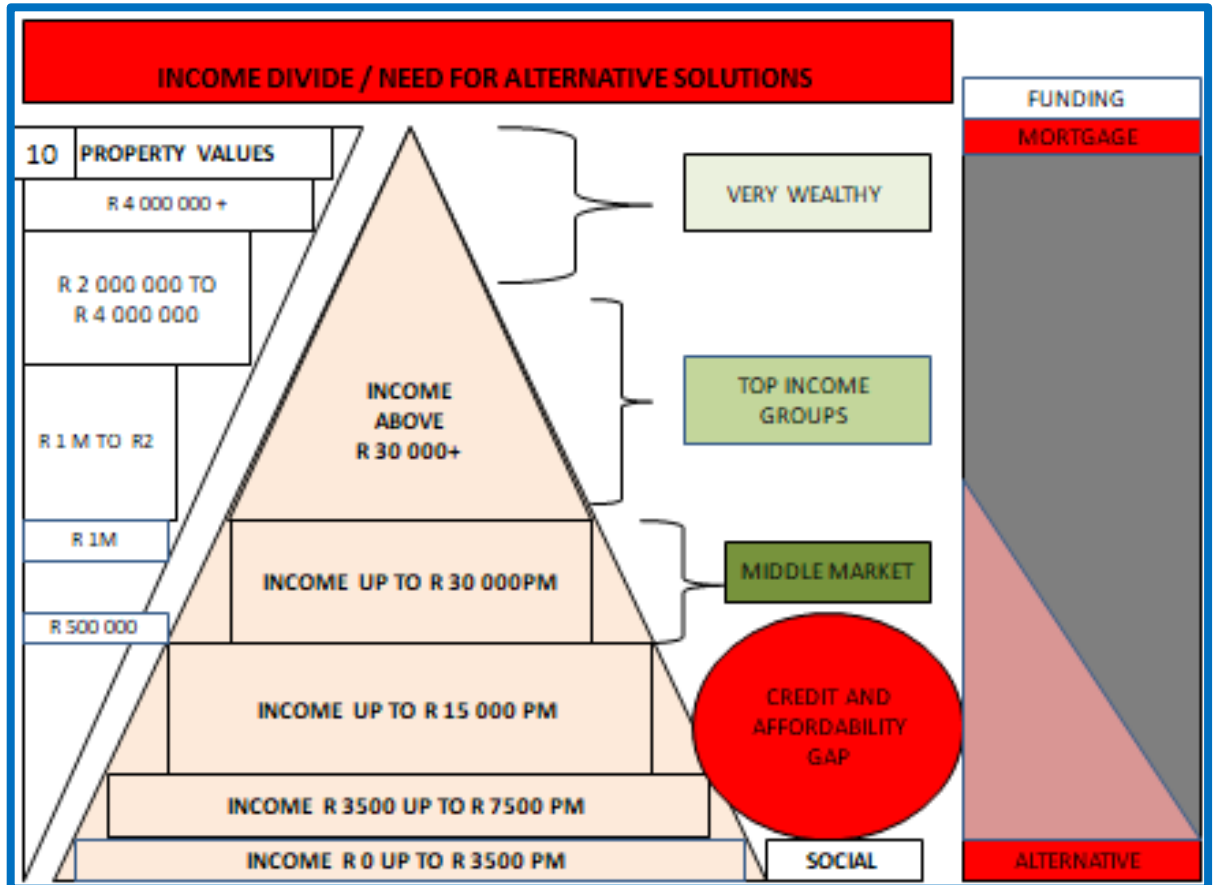
The Enhanced People’s Housing Process aims to support households who wish to enhance their housing subsidies by funding their own homes. The Enhanced People’s Housing process can be accessed through the Integrated Residential Development Programme, Project Linked Consolidation or Institutional Subsidies.
- **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 25: 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 3 886 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 Gamagara Local Municipality to build their own house.

As part of the vision of the Gamagara Local Municipality in respect of the development of the Kathu Extensions 6-10 integrated human settlement, it is essential that this area not be utilized for the creation of yet another informal human settlement where people are allowed to reside in backyards and in informal housing structures. To achieve this goal the development rights in respect of the “Residential Zone IV” erven excludes the use of the properties for “low cost housing” purposes. In terms of the Scheme Regulations for Gamagara Municipality, 2003 “low cost housing” is defined as “*a housing unit that does not comply with the standards of durability, as envisaged by the National Building Regulations, as are applicable in the Council’s jurisdiction*”. This exclusion was specifically imposed to prevent the erection of informal structures or informal dwelling units on any of the erven zoned for “Residential Zone IV” purposes.

**Table 17: “Residential Zone IV” development parameters**

Development parameter	Development Parameter Detail
Primary Use	<ul style="list-style-type: none"> <li>▪ Residential house</li> <li>▪ Low-cost housing – not permitted</li> </ul>
Consent Uses	<ul style="list-style-type: none"> <li>▪ Place of Instruction</li> <li>▪ Public place of worship</li> <li>▪ Guest House</li> <li>▪ Bird or animal cages</li> </ul>
Coverage	At most 80%
Height	At most 8m above natural ground level directly beneath any particular point or portion of the building
Building lines	<ul style="list-style-type: none"> <li>▪ No building or any part thereof, excluding a garage with a roll-up door, boundary walls or boundary fences shall be erected on a site nearer than 1m to any street boundary, in to the rear and one side boundary and no doors or windows shall be placed in any wall closed than 1,5m from any side or rear boundary.</li> </ul>



▪ **Business Zone I**

The layout plans of the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10 make provision for the following number of erven to be zoned as “Business Zone I” (including Institution, Authority use, Flats, Residential buildings):

**Table 18: Number of “Business Zone I” erven per township area**

Proposed township area	Number of “Business Zone I” erven
Kathu Extension 6	1
Kathu Extension 7	2
Kathu Extension 8	6
<b>TOTAL</b>	<b>9</b>

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 areas of Kathu Extensions 6, 7 and 8 make 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 land use rights applied for in respect of these erven also incorporates land use rights in respect of the use of the erven for Institutions, Authority Use, Flats and Residential Buildings. Whereas the “Institutional” and “Authority use” land use rights will be required to accommodate the social support facilities listed above, provision was also made for the use of the subject erven for the purposes of flats and/or residential buildings. This permutation will afford the Gamagara Local Municipality the greatest degree of flexibility in establishing proper mixed land use zones where the “Business Zone I” erven can also be utilized for flats or social housing units (based on the market demand). The “Business Zone I” 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 large number of business erven provided aims at stimulating economic growth and providing opportunities for job creation.

The proposed “Business Zone I” erven will be subject to the following development parameters imposed in terms of the Scheme Regulations for Gamagara Municipality, 2003:

**Table 19: “Business Zone I” development parameters**

Development parameter	Development Parameter Detail
Primary Use	▪ Business premises

	<ul style="list-style-type: none"> <li>▪ Institution (applied for as primary land use right in this application)</li> <li>▪ Authority use (applied for as primary land use right in this application)</li> <li>▪ Flats (applied for as primary land use right in this application)</li> <li>▪ Residential Building (applied for as primary land use right in this application)</li> </ul>
Consent Uses	<ul style="list-style-type: none"> <li>▪ Bottle Store</li> <li>▪ Tavern</li> <li>▪ Institution</li> <li>▪ Place of entertainment</li> <li>▪ Service station</li> <li>▪ Drive-in restaurant</li> <li>▪ Service industry</li> <li>▪ Funeral parlour</li> <li>▪ Animal clinic</li> <li>▪ Animal hospital</li> <li>▪ Warehouse</li> </ul>
Coverage	100%
Height	At most 12m above natural ground level directly beneath any particular point or portion of the building
Building lines	<ul style="list-style-type: none"> <li>▪ Business buildings, flats and residential buildings on top of business buildings may be erected on the street boundary. All other buildings must maintain a building line of 4,5m from the street boundary</li> <li>▪ With regard to rear and side boundaries, buildings in this zone may be erected on such boundaries provided that no windows, doors or ventilation openings are let into any wall on such boundary</li> <li>▪ Notwithstanding these building line regulations for side and rear boundaries, in cases where these boundaries form the division between the business zone and any other zone, a building line on both sides of the communal boundary shall be applicable, which is equal to the relevant building line on the adjoining zone.</li> </ul>
Parking	<ul style="list-style-type: none"> <li>▪ At least one parking bay for every 25m<sup>2</sup> of the total floor area of the building (excluding any section of the building that is used for residential purposes).</li> <li>▪ One parking bay per two bedrooms in the case of hotels and residential buildings.</li> <li>▪ Parking for visitors shall be provided in the following cases: <ul style="list-style-type: none"> <li><input type="checkbox"/> 1 parking bay for every four residential units</li> <li><input type="checkbox"/> 1 parking bay for every five bedrooms in the case of residential buildings</li> <li><input type="checkbox"/> 20 parking bays in the case of a licenced hotel</li> </ul> </li> </ul>

▪ **Business Zone II**

The layout plans of the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10 make provision for the following number of erven to be zoned as “Business Zone II”:

**Table 20: Number of “Business Zone II” erven per township area**

Proposed township area	Number of “Business Zone II” erven
Kathu Extension 6	1
Kathu Extension 7	2
Kathu Extension 8	15
Kathu Extension 9	1
Kathu Extension 10	2
<b>TOTAL</b>	<b>21</b>

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 areas of Kathu Extensions 6, 7, 8, 9 and 10 make provision for the establishment of 21 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 14 smaller business erven that can be developed as integral part of the greater business development and which will afford smaller entrepreneurs the opportunity 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 Zone II” 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 Zone II” erven will be subject to the following development parameters imposed in terms of the Scheme Regulations for Gamagara Municipality, 2003:

**Table 21: “Business Zone II” development parameters**

Development parameter	Development Parameter Detail
Primary Use	▪ Shop
Consent Uses	▪ Residential House ▪ Flats
Coverage	At most 80 %
Height	At most 8m above natural ground level directly beneath any particular point or portion of the building

Building lines	<ul style="list-style-type: none"> <li>▪ Shops and flats on top of shop may be erected on the street boundary. All other buildings must maintain a building line of 4,5m from the street boundary</li> <li>▪ With regard to rear and side boundaries, buildings in this zone may be erected on such boundaries provided that no windows, doors or ventilation openings are let into any wall on such boundary</li> <li>▪ Notwithstanding these building line regulations for side and rear boundaries, in cases where these boundaries form the division between the business zone and any other zone, a building line on both sides of the communal boundary shall be applicable, which is equal to the relevant building line on the adjoining zone.</li> </ul>
Parking	<ul style="list-style-type: none"> <li>▪ At least one parking bay for every 25m<sup>2</sup> of the total floor area of the building (excluding any section of the building that is used for residential purposes).</li> <li>▪ One parking bay per two bedrooms in the case of hotels and residential buildings.</li> <li>▪ Parking for visitors shall be provided in the following cases:             <ul style="list-style-type: none"> <li><input type="checkbox"/> 1 parking bay for every four residential units</li> <li><input type="checkbox"/> 1 parking bay for every five bedrooms in the case of residential buildings</li> <li><input type="checkbox"/> 20 parking bays in the case of a licenced hotel</li> </ul> </li> </ul>

▪ **Institutional Zone I**

The layout plans of the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10 make provision for the following number of erven to be zoned as “Institutional Zone I”:

**Table 22: Number of “Institutional Zone I” erven per township area**

Proposed township area	Number of “Institutional Zone I” erven	Proposed land use as “Place of Instruction”	Combined area
Kathu Extension 6	1	Primary School	2,8171 hectares
	2	Crèche	0,4665 hectares
Kathu Extension 7	1	Secondary School	4,3645 hectares
	1	Crèche	0,3625 hectares
Kathu Extension 8	1	Primary School	2,9624 hectares
	2	Crèche	0,3664 hectares

Kathu Extension 9	1	Crèche	0,3614 hectares
Kathu Extension 10	1	Primary School	3,0081 hectares
	1	Crèche	0,3665 hectares
<b>TOTAL</b>	<b>11</b>		<b>15,0754 hectares</b>

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 23: 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	6.1 – 7.7	7
Primary School	1 per 7000 inhabitants	2.6	3
Secondary School	1 per 12 500 inhabitants	1.5	1

(Based on estimated 5414 households, 3,4 average household size and total estimated inhabitants of 18 407)

The erven earmarked for use as primary schools were 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. The primary and secondary school erven were positioned adjacent to Class 3 roads. To prevent any conflict in land use and ensure the safety of learners, the primary and secondary school erven were positioned in such a manner to limit the number of residential erven bordering onto such primary and secondary school erven.

The proposed “institutional Zone I” erven will be subject to the following development parameters imposed in terms of the Scheme Regulations for Gamagara Municipality, 2003:

**Table 24: “Institutional Zone I” development parameters**

Development parameter	Development Parameter Detail
Primary Use	Place of instruction
Consent Uses	Place of assembly

Coverage	At most 50 %
Building lines	8m on all boundaries
Parking	As determined by Council

▪ **Institutional Zone II**

The layout plans of the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10 make provision for the following number of erven to be zoned as “Institutional Zone I”:

**Table 25: Number of “Institutional Zone II” erven per township area**

Proposed township area	Number of “Institutional Zone II” erven	Proposed land use as “Public Place of Worship”	Combined area
Kathu Extension 6	4	Church	0,9099 hectares
Kathu Extension 7	3	Church	0,6481 hectares
Kathu Extension 8	1	Church	0,2044 hectares
Kathu Extension 9	1	Church	0,1602 hectares
Kathu Extension 10	2	Church	0,3665 hectares
<b>TOTAL</b>	<b>11</b>		<b>2,2891 hectares</b>

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 religious facilities.

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

**Table 26: CSIR Guideline for educational facilities (18 407**

Proposed facility	CSIR Guideline	Number of erven required	Number of erven provided
Church	1 per 3000 – 6000 inhabitants	3.1 to 6.1	7

(Based on estimated 5414 households, 3,4 average household size and total estimated inhabitants of 18 407)

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

The proposed “Institutional Zone I” erven will be subject to the following development parameters imposed in terms of the Scheme Regulations for Gamagara Municipality, 2003:

**Table 27: “Institutional Zone II” development parameters**

Development parameter	Development Parameter Detail
Primary Use	Public place of worship
Consent Uses	Place of assembly
Coverage	At most 60 %
Height	At most two storeys, provided that any storey shall not be limited to 4m and church towers shall not be considered as part of a storey in this case
Building lines	6m on all boundaries with regard to all buildings except a parsonage, which shall be subject to the same building lines as applicable to the “Residential Zone I”
Parking	On-site parking must be provided at a minimum requirement of one parking bay for every 20 seats provided in all buildings on the site, excluding the parsonage

▪ **Open Space Zone I**

The layout plans of the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10 make provision for the following number of erven to be zoned as “Open Space Zone I”:

**Table 28: Number of “Open Space Zone I” erven per township area**

Proposed township area	Number of “Open Space Zone I” erven	Proposed land use	Combined area
Kathu Extension 6	3	Public Open Space	3,0788 hectares
Kathu Extension 7	3	Public Open Space	1,6508 hectares
Kathu Extension 8	2	Public Open Space	4,4457 hectares
Kathu Extension 9	3	Public Open Space	3,5206 hectares
Kathu Extension 10	9	Public Open Space	2,4914 hectares
<b>TOTAL</b>	<b>20</b>		<b>15,1873 hectares</b>

In the case of Kathu Extension 6, the three “Open Space Zone I” erven will, in addition to providing a movement and services corridor adjacent to the existing township area of Kathu Extension 3, also accommodate existing water and sewer lines that are located within this area.

In terms of the results of the geotechnical investigation that was conducted in respect of the development area (refer **Annexure S** of the comprehensive land development application), seven (7) quarried areas were identified. These quarried areas are also reflected on the contour map of the development area (refer **Figure 18** – Section 3.1 and attached as **Annexure G2** to the comprehensive land development application). In order to determine the rehabilitative potential of the fore-mentioned quarried areas, Civilsense Consulting was approached prior to the layout planning process to

determine which quarried areas can be easily and economically rehabilitated to avoid the unnecessary loss of developable land. Civilsense Consulting identified four (4) quarries that can be economically rehabilitated and said areas were included in the layout plan. The remaining three (3) quarried areas were deemed non-economical to rehabilitate for residential development purposes and these erven will either be integrated in the stormwater management system of the township areas or can be rehabilitated and utilized for active and passive recreational purposes. Two of these quarried areas that can be utilized for passive or active recreational purposes are located in Kathu Extension 7 and are included in three (3) “Open Space Zone 1” erven.

In terms of the 1:100 year floodline determination that was done in respect of the drainage feature that traverses the central portion of the development area from east to west, provision was made in the layout plan of the proposed township Kathu Extension 8 for this area to be accommodated in an “Open Space Zone I”. The width of the floodline area was increased to ensure that a functional open space is established. The second “Open Space Zone I” erf in the township area of Kathu Extension 8 was created at the request of the Department of Agriculture, Forestry & Fisheries and was created to accommodate a mature Camel Thorn tree.

The “Open Space Zone I” erven included on the layout plan of the proposed township Kathu Extension 9 will, as in the case of Kathu Extensions 7 and 8, be utilized to accommodate two (2) remaining quarried areas that were deemed uneconomical to rehabilitate for residential development purposes but which can still be rehabilitated for active and passive recreational purposes. The remaining one (1) “Open Space Zone I” erf will accommodate the 1:100 year floodline area and will integrate with the open space system created in the adjacent township area of Kathu Extension 9.

In the proposed township area of Kathu Extension 10, nine (9) “Open Space Zone I” erven were incorporated in the layout plan of this township area. The largest open space erf coincides with the last quarried area and will form an integral part of the stormwater management system of the township and will function as a retention pond. The size of the open space erf was increased to include a portion of land adjacent to the western boundary of the proposed township area to allow for the passage of stormwater to the proposed retention pond. Based on the inputs received from Civilsense Consulting, provision was also made for an additional open space erf in the south-western portion of the proposed township area that will accommodate a proposed 5m wide open V-channel that will transfer stormwater from the remaining township areas south-east thereof to the retention pond detailed above. The remaining seven (7) erven designated for public open space purposes coincides with the 1:100 year floodline areas of two drainage features located in the far north-western corner of the proposed township area.



The proposed “Open Space Zone I” erven will be subject to the following development parameters imposed in terms of the Scheme Regulations for Gamagara Municipality, 2003:

**Table 29: “Open Space Zone I” development parameters**

Development parameter	Development Parameter Detail
Primary Use	Public open space
Consent Uses	None

▪ **Open Space Zone II**

The layout plans of the proposed township areas of Kathu Extensions 7 and 9 make provision for the following number of erven to be zoned as “Open Space Zone II”:

**Table 30: Number of “Open Space Zone II” erven per township area**

Proposed township area	Number of “Open Space Zone II” erven	Proposed land use	Combined area
Kathu Extension 7	1	Private Open Space (Sports field)	2,3953 hectares
Kathu Extension 9	1	Private Open Space (Sports field)	3,3875 hectares
	1	Private Open Space (Cemetery)	0,5293 hectares
<b>TOTAL</b>	<b>2</b>		<b>6,3121 hectares</b>

Two (2) of the erven proposed for “Open Space Zone II” purposes will be utilized for the provision of active recreational facilities in the form of sports grounds.

As mentioned in Section 3.9 supra, an estimated 12 to 15 graves were discovered during the Heritage Impact Assessment. Most of the graves are stone-packed and with cement borders, while a few have cement headstones with inscriptions. To allow for the protection and preservation of these graves, the layout plan incorporates a site of 5 293 m<sup>2</sup> to accommodate the graves on a cemetery site. It is not proposed that any further burials be allowed within this cemetery site and it will be used solely to preserve the existing graves.

The proposed “Open Space Zone II” erven will be subject to the following development parameters imposed in terms of the Scheme Regulations for Gamagara Municipality, 2003:

**Table 31: “Open Space Zone II” development parameters**

Development parameter	Development Parameter Detail
Primary Use	Private open space
Consent Uses	Racecourse

▪ **Transport Zone I**

The layout plan of the proposed township Kathu Extension 8 incorporates one (1) “Transport Zone I” 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-high income households. The taxi rank will comprise a total area of 0,5293 hectares.

The proposed “Transport Zone I” erf will be subject to the following development parameters imposed in terms of the Scheme Regulations for Gamagara Municipality, 2003:

**Table 32: “Transport Zone I” development parameters**

Development parameter	Development Parameter Detail
Primary Use	Transport use
Consent Uses	None
Coverage	At most 80%
Height	At most 8m above natural ground level directly beneath any particular point or portion of the building
Building lines	No street building line is required, while side and rear building lines may also be zero, except when the transport zone abuts another zone, in which case the side and rear building lines of the other zone shall apply to both sides of the communal boundary

▪ **Transport Zone II**

The layout plans of the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10 make provision for the following number of erven to be zoned as “Transport Zone II”:

**Table 33: Number of “Transport Zone II” erven per township area**

Proposed township area	Number of “Transport Zone II” erven	Proposed land use	Combined area
Kathu Extension 6	46	Public Street	31,0635 hectares
Kathu Extension 7	23	Public Street	24,0904 hectares
Kathu Extension 8	23	Public Street	17,6137 hectares
Kathu Extension 9	13	Public Street	10,8562 hectares
Kathu Extension 10	23	Public Street	13,6521 hectares
<b>TOTAL</b>	<b>128</b>		<b>97,2759 hectares</b>

As per the operational requirements of the Surveyor-General (Bloemfontein), the public streets in the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10 will be reflected as “erven” on the General Plans of the fore-mentioned township areas.

The proposed “Transport Zone II” erven will be subject to the following development parameters imposed in terms of the Scheme Regulations for Gamagara Municipality, 2003:

**Table 34: “Transport Zone II” development parameters**

Development parameter	Development Parameter Detail
Primary Use	Public street
Consent Uses	none

▪ **Authority Zone I**

The layout plans of the proposed township areas of Kathu Extensions 6, 7 and 10 make provision for the following number of erven to be zoned as “Authority Zone I”:

**Table 35: Number of “Authority Zone I” erven per township area**

Proposed township area	Number of “Authority Zone I” erven	Proposed land use	Combined area
Kathu Extension 6	1	Authority use (water reservoir)	1,8029 hectares
Kathu Extension 7	1	Authority use (substation)	0,0701 hectares
Kathu Extension 10	1	Authority use (sewer pump station)	0,3193 hectares
<b>TOTAL</b>	<b>128</b>		<b>97,2759 hectares</b>

As part of the civil and electrical engineering services investigations that were conducted by Civilsense Consulting and Motla Consulting Engineers, inputs were received to reserve three (3) erven in the proposed integrated human settlement area for the accommodation of bulk services infrastructure. For this purpose the layout plan of the proposed township area of Kathu Extension 6 makes provision for a water reservoir site in the south-eastern corner of the proposed township area and at the highest elevation in the proposed development area. Provision was also made for a substation site located centrally within the proposed township area of Kathu Extension 7 from where the entire development area is envisaged to be serviced with electricity. To allow for the collection of sewer effluent from the proposed development area and the passage thereof to the waste water treatment works, provision was also made at the recommendation of the Consulting Civil Engineers for a site in the north-western corner of the development area and at the lowest elevation for a sewer pumpstation site.

The proposed “Authority Zone I” erven will be subject to the following development parameters imposed in terms of the Scheme Regulations for Gamagara Municipality, 2003:

**Table 36: “Authority Zone I” development parameters**

Development parameter	Development Parameter Detail
Primary Use	Authority use
Consent Uses	none

**Annexure W2** to the comprehensive land development application contains a list of the erven in the proposed township areas, the proposed zoning thereof, the proposed land use to be established on such erf, the estimated area of all erven and the proposed street address thereof.

## **4.2 FACTORS INFLUENCING THE LAYOUT PLAN**

The layout plans of the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10 were influenced by the following factors:

- ★ Providing erven to accommodate a variety of residential housing typologies ranging from subsidized housing, FLISP housing, GAP housing, Social Housing, bonded housing as well as middle-high income erven;
- ★ Accommodating the topographical features (quarried areas) present on site into the layout plan
- ★ Accommodating the 1:100 year floodline applicable to the drainage feature traversing the central part of the development area from east to west as well as in the far western corner of the development area;
- ★ Accommodating the existing services infrastructure located along the eastern boundary of the proposed development area and adjacent to the western boundary of the existing township area of Kathu Extension 3;
- ★ Extension of the street network from the adjacent township area of Kathu Extension 3 to enhance accessibility to the proposed township area whilst similarly enhancing mobility for the inhabitants of the proposed development area to reach the existing facilities offered in the existing urban area of Kathu;
- ★ Incorporating the road surface and alignment of the former Kuruman–Sishen tar road into the street network of the proposed township area;
- ★ Accommodating the existing powerline servitude located along the south-western boundary of the proposed development area;
- ★ Accommodating the existing cemetery on an erf in the proposed township area;
- ★ Aligning the layout plan with other bulk infrastructure traversing the development area;
- ★ Providing the larger bonded and middle-high income erven in the eastern portion of the development area in the area where the greatest density of Camel Thorn trees are present on site to limit the number of trees that will have to be removed during building

operations on the even as the size of the erf allows greater freedom to manipulate the placement of the housing structure;

- ✦ Providing a site in the area with the highest elevation to allow for the erection of the necessary bulk water infrastructure (ground and elevated storage reservoirs) to service the proposed township area;
- ✦ Providing a site in the area with the lowest elevation to allow for the erection of a sewer pump station;
- ✦ Providing a site located centrally within the development area for the establishment of a substation that will services the entire development area;
- ✦ Utilizing the topographic features on site as integral part of the stormwater management system (retention ponds);
- ✦ Providing access to possible future development to the north-east;
- ✦ Providing a line of no access along the boundary of the erven bordering onto the Class 3 and 4 roads to enhance mobility and traffic flow in the township area;

### 4.3 **ACCESS**

Access to the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10 will primarily be provided from the existing tar road (former Kuruman-Sishen road) that traverses the central portion of the development area in a north-south orientation.

**Plate 33: View of Former Kuruman-Sishen tar road where it enters the proposed development area from the south**



In addition to this access road, access to the proposed township area will also be provided from the existing street network of the adjacent township area of Kathu Extension 3 through the extension of the road reserves of Roos Street and Piet-my-vrou Street as well as the construction of Seemeeu Street to link onto Ian Flemming Road.

The street network adopted for the proposed township areas comprises a network of 25, 20, 16, 13m and 12m streets and were designed to ensure proper surface stormwater drainage.

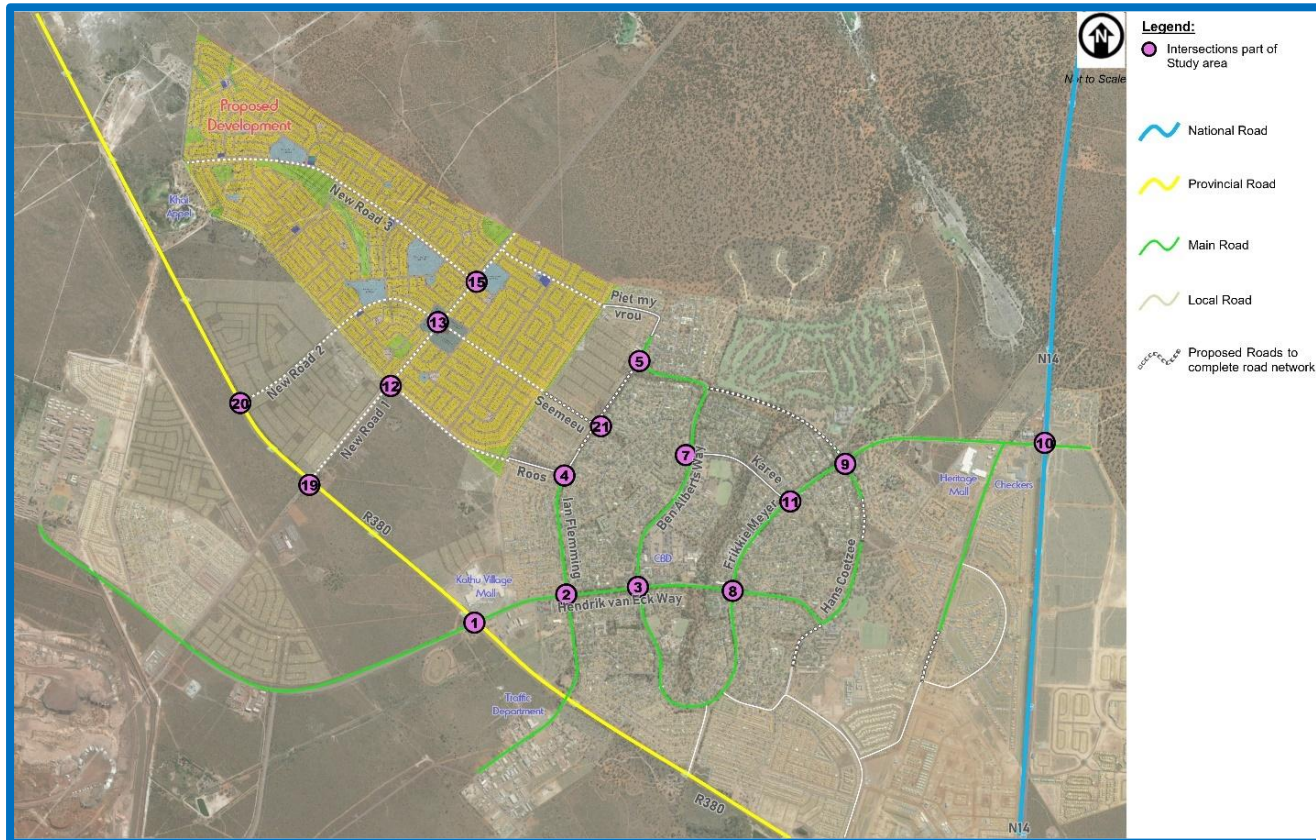
In order to assess the impact of the proposed township area on the surrounding road network, AC<sup>2</sup> (Pty) Ltd was commissioned to conduct a Traffic Impact Assessment in respect of the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10. The results of the Traffic Impact Study will focus on all the fore-mentioned township areas combined (refer **Annexure R1** to the comprehensive land development application for the Traffic Impact Assessment). The initial Traffic Impact Study was prepared during July 2018 based on the land use mix and development layout prepared at that point in time. It was envisaged that the development will be implemented in five (5) phases with the first phase implementation to commence during the first quarter of 2020, assuming the necessary approvals are granted. However, the land use mix changed since and the implementation phasing changed from implementation of Phase 1 in 2025 to the implementation of Phase 1 - 3 to commence during 2020 with full development and occupation in 2025. The amendments effected which impacted on the Traffic Impact Study entailed inter alia the relocation of the proposed taxi rank facility from the eastern mixed land use node to the western mixed land use node and the increase in the extent of the western mixed land use node. To accommodate the fore-mentioned changes, an Addendum to the Traffic Impact Study was compiled and same is attached as **Annexure R2** to the comprehensive land development application.

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

#### **4.3.1 STUDY AREA**

The proposed development will gain access to the wider road network through the R380, Roos-, Seemeeu-, Piet-my-vrou- and Ian Flemming Street. A road network of Class 3 and 4 roads within Kathu Extensions 6-10, will link the proposed development with the roads mentioned, to facilitate movement to and from the proposed development (refer **Figure 26**).

**Figure 26: Traffic Impact Assessment - Study Area**



### 4.3.2 ROAD NETWORK PLANNING

#### 4.3.2.1 Municipal Planning

In terms of the Gamagara Local Municipality Integrated Development Plan (IDP) for 2017-2022, the construction of 1km of Hans Coetzee Road that currently has missing sections was identified as one of the new road infrastructure projects which will then all link up to the surrounding main roads including Rooisand Road via Landgoed Street.

#### 4.3.2.2 Provincial Planning

The R380 is in the study area and falls under provincial jurisdiction. No information could be obtained on road planning by the Northern Cape Department of Roads and Public Works (NCDRPW).

The R380 connects Kathu with the Botswana border at McCarthy's Rest via Hotazel. From the border, it heads south-east to Hotazel where it crosses the R31 south passing Dibeng, before reaching its southern terminus at the N14 at Kathu.

### 4.3.2.3 National Planning

The N14 is a national road that falls under the jurisdiction of the South African National Road Agency Limited (SANRAL). The area surrounding Kathu falls in the Western Region of SANRAL which has been planning maintenance and upgrade projects in the area of which more detail is provided in the following paragraph. These projects are already in construction and were observed during the site visit and when the traffic surveys were conducted as shown in **Figure 27**.

The work on the N14 near Kathu involves the upgrading of three intersections and a section of the R380 will also be resurfaced with minor shoulder improvements as indicated in **Figure 27**. The project entails the following:

- N14/Frikkie Meyer Street intersection where a traffic circle will be constructed;
- N14/R380 intersection where a traffic circle will be constructed;
- N14/R325 intersection at Olifantshoek where a slip lane will be constructed;
- The R380 from the N14 to Ian Flemming Street intersection will be resurfaced with minor shoulder improvements; and
- Street lighting will also be installed between the R380 and Frikkie Meyer Street.

**Figure 27: SANRAL Construction Underway**

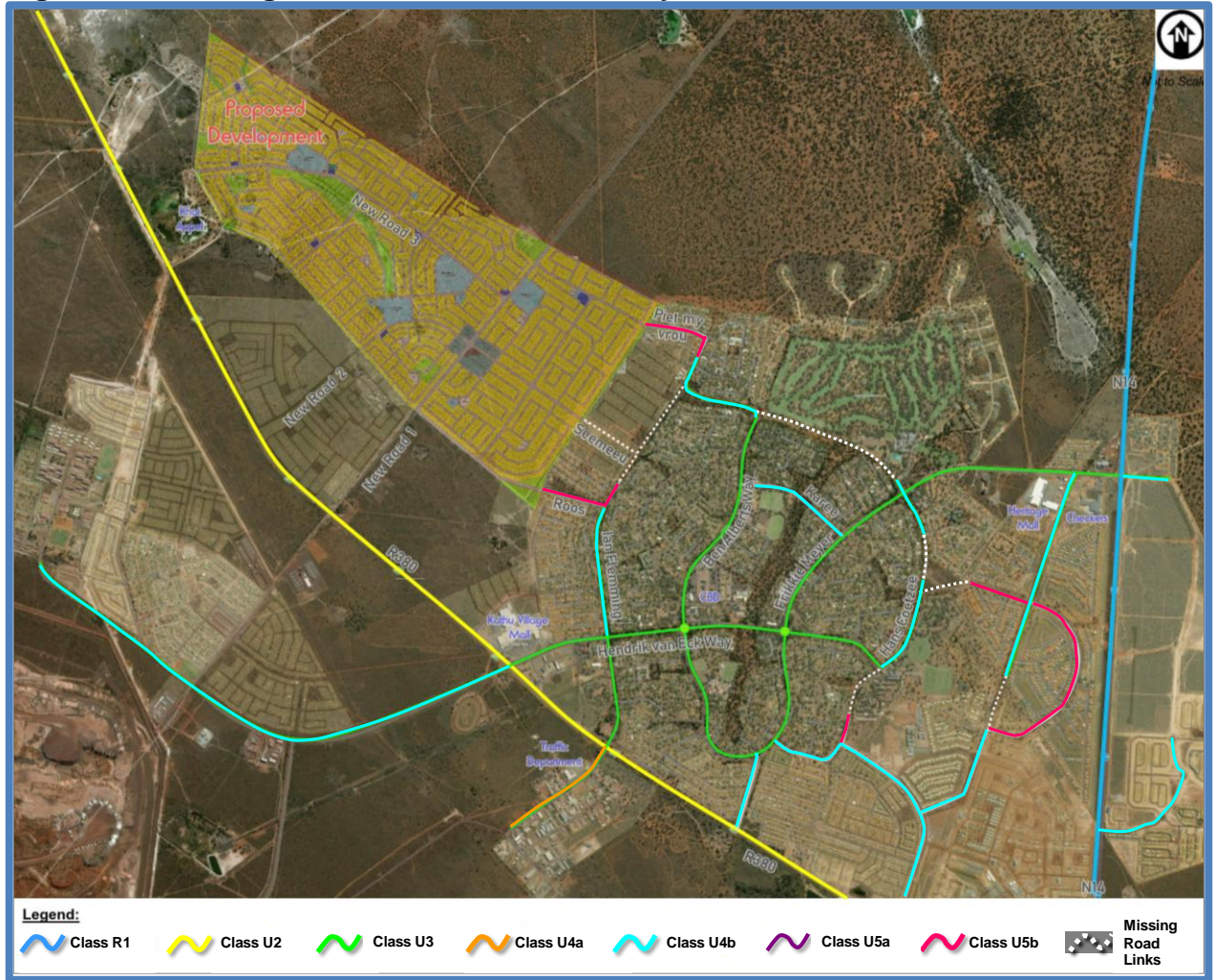




### 4.3.3 EXISTING ROAD NETWORK HIERARCHY

The functional road hierarchy of the existing road network is indicated in **Figure 28**. The missing links in the road network is also indicated. Considering the location of these missing links in the context of the total road network of Kathu, it is clear what their function would be by providing mobility and circulation in the town to vehicles. It is therefore essential that these links be planned and constructed in the medium term as the future capacity demand of the latent rights will require it.

**Figure 28: Existing Functional Road Hierarchy**



### 4.3.4 DEVELOPMENT PHASING

For the purpose of the Traffic Impact Study, it was necessary to estimate a possible development phasing scenario based on the release of a mixture of different erf sizes per development phase (refer **Figure 29**). It should be noted that the implementation phasing of the proposed township areas differs from that of the extension phasing. The implementation phasing set out to identify pockets of erven, with a mixture of erf sizes across township extension boundaries, that are envisaged to be developed in the following ten (10) years.

The proposed development will be developed in five phases, with the first phase implementation (first houses/commercial development occupied) to commence in 2020. The 2020 commencement date takes into consideration that several approvals are still required and will be obtained during 2018 and 2019. It is estimated that Phase 1-3 will reach full development stage within 5-years. The June 2018 TIS implementation years per phase is provided in **Table 37** and the revised implementation years are provided in **Table 38**. The significant change is the implementation of Phase 1-3 by 2025. Full development stage remains in 2030 and analysis of this scenario is provided in the June 2018 TIS.

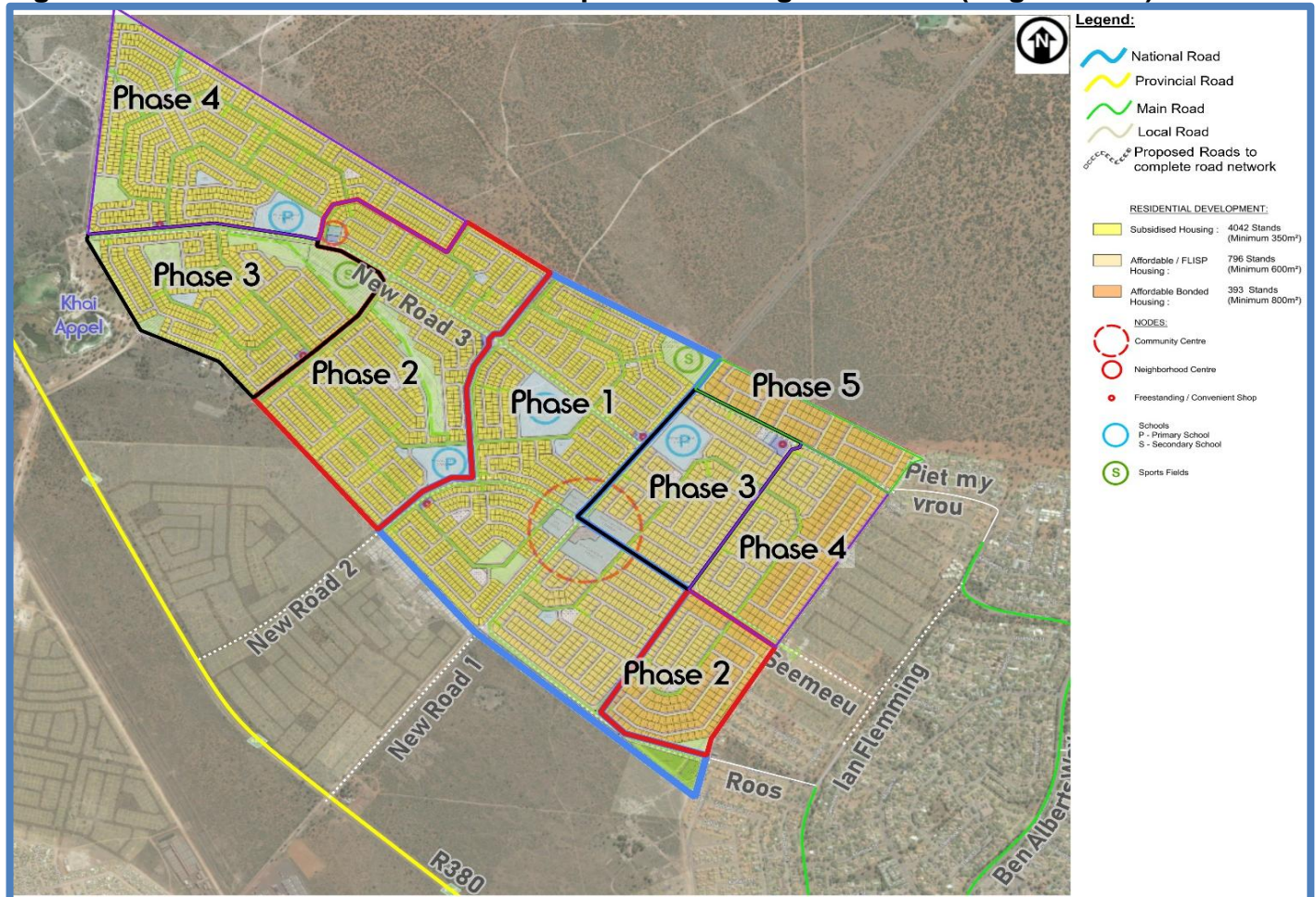
**Table 37: Development Phasing and Anticipated Implementation Years – June 2018**

Phases	Base Year (Traffic Counts)	Implementation Start Year	Full Development Stage Year	TIS Horizon Year Analysis
Phase 1	2018	2020	2025	2025
Phase 2	2018	2025	2030	2030
Phase 3	2018	2030	2035	2030
Phase 4	2018	2035	2040	2030
Phase 5	2018	2038	2040	2030

**Table 38: Development Phasing and Anticipated Implementation Years – Revision (August 2018)**

Phases	Base Year (Traffic Counts)	Implementation Start Year	Full Development Stage Year	TIS Horizon Year Analysis
Phase 1	2018	2020	2025	2025
Phase 2	2018	<b>2022</b>	<b>2025</b>	<b>2025</b>
Phase 3	2018	<b>2023</b>	<b>2025</b>	<b>2025</b>
Phase 4	2018	2025	2030	2030
Phase 5	2018	2025	2030	2030

**Figure 29: Kathu Extensions 6-10 Development Phasing – Revision (August 2018)**



### 4.3.5 TRAFFIC ANALYSIS

#### 4.3.5.1 Trip generation

The trip generation rates and trip reduction factors used for the calculation of the total number of trips generated by the development are derived from trip generation rates provided in TMH 17 - Volume 1, 2012 (COTO - Committee of Transport, September 2012).

A total of 3 545 AM - and 2 684 PM peak hour trips will be generated by Phases 1-3 of the proposed development.

**Table 39: Trips Generation per Development Phase – Revision (August 2018)**

Phases	AM			PM			Friday PM		
	In	Out	Total	In	Out	Total	In	Out	Total
1	503	847	<b>1350</b>	678	347	<b>1025</b>	650	650	<b>1300</b>
2	404	694	<b>1099</b>	563	287	<b>850</b>	508	508	<b>1016</b>
3	415	681	<b>1096</b>	520	288	<b>809</b>	208	208	<b>417</b>
4	287	687	<b>974</b>	606	278	<b>884</b>	80	80	<b>161</b>
5	25	75	<b>100</b>	70	30	<b>100</b>	0	0	<b>0</b>
<b>Total</b>	<b>1634</b>	<b>2985</b>	<b>4619</b>	<b>2437</b>	<b>1231</b>	<b>3668</b>	<b>1447</b>	<b>1447</b>	<b>2894</b>

### 4.3.6 CAPACITY ANALYSIS

#### 4.3.6.1 Introduction

For the capacity analysis, the intersections presented in **Figure 30** were assessed in terms of current and future traffic operations and capacity. The existing intersection control is presented in **Figure 31** and the existing intersection configuration **Figure Figures 32 and 33**

For the capacity analyses and per previous discussion, the full development was analysed for the horizon year 2030, 12-years from the base year as part of the *June 2018 TIS*. The scenarios analysed as part of the June 2018 TIS are:

1. 2018 Base Year (Background Traffic)
2. 2018 Base Year (Background Traffic) with Latent Land-use Rights and Kathu Extensions Phase 1 Development Traffic
3. 2025 Projected Background Traffic (Horizon Year) with Latent Land-use Rights and Kathu Extensions Phase 1 Development Traffic
4. 2030 Projected Background Traffic (2<sup>nd</sup> Horizon Year) with Latent Land-use Rights and Kathu Extensions Full Development Stage Traffic

The capacity analysis scenario evaluated as part of the addendum to the June 2018 TIS for both the AM - and PM peak hours is:

1. 2025 Projected Background Traffic (Horizon Year) with Latent Land-use Rights and Kathu Extensions Phase 1-3 Development Traffic.

**Figure 30: Intersections part of Capacity Analysis**

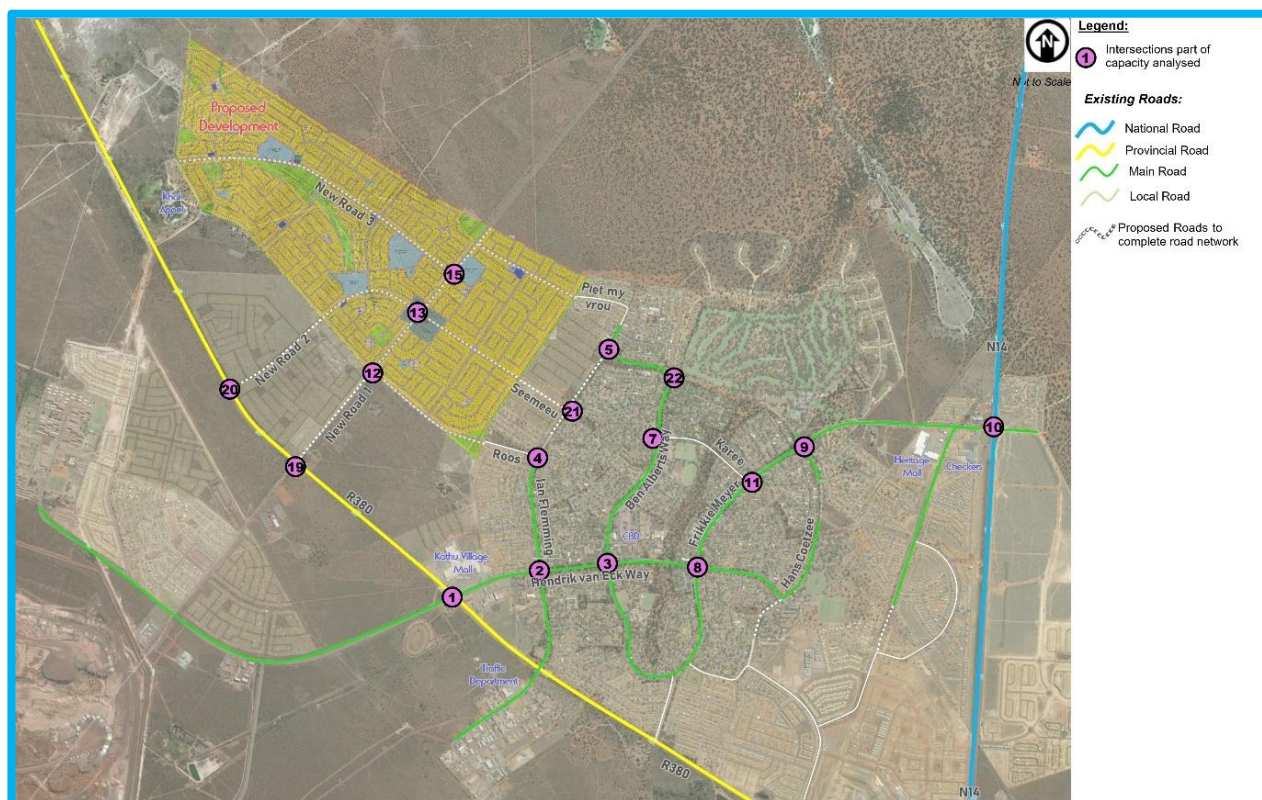


Figure 31: Existing Intersection Control

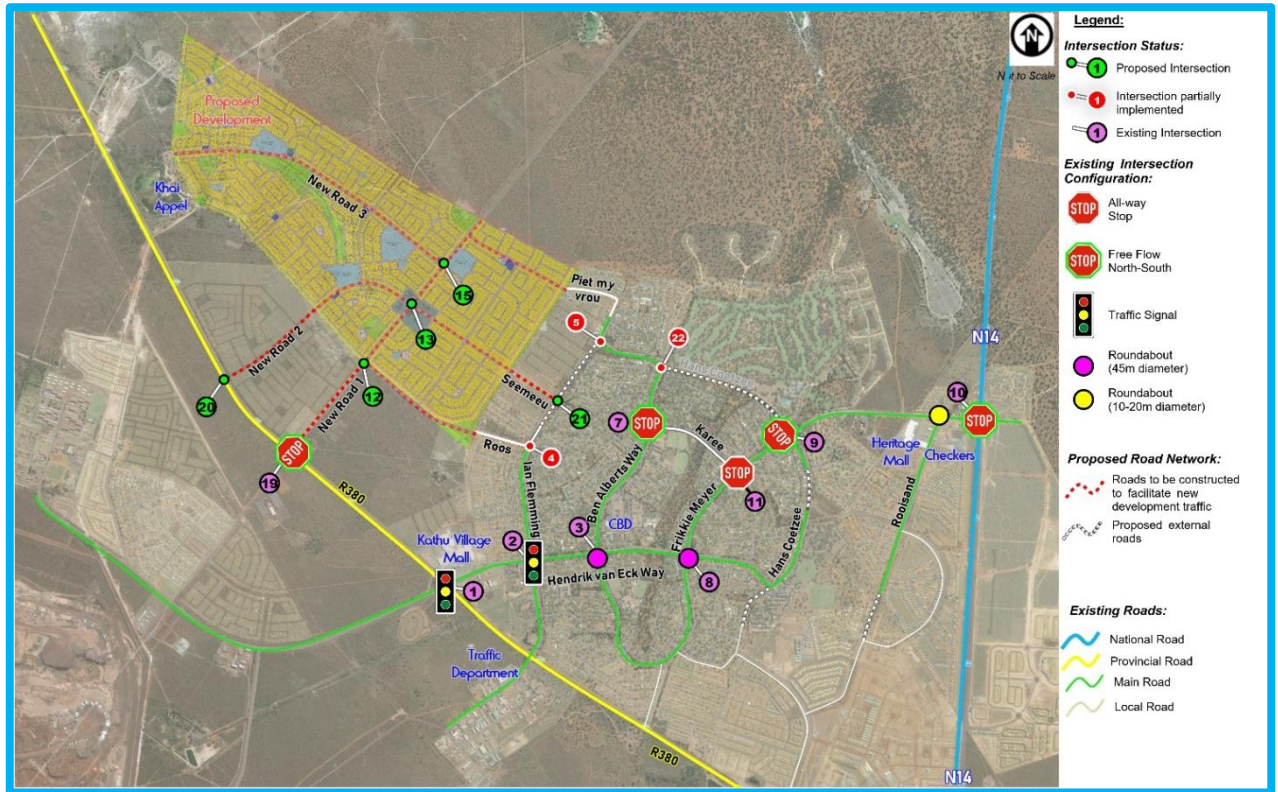
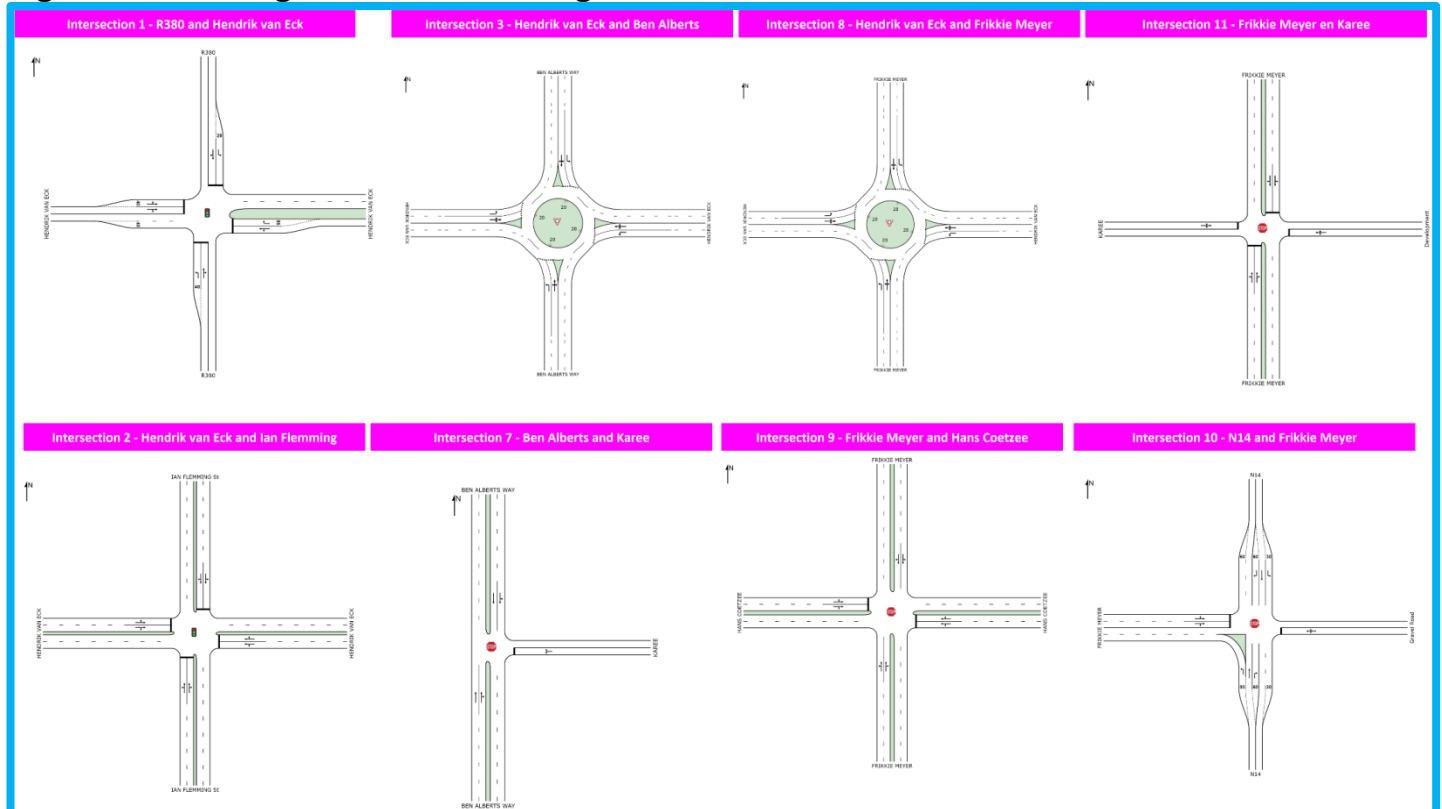
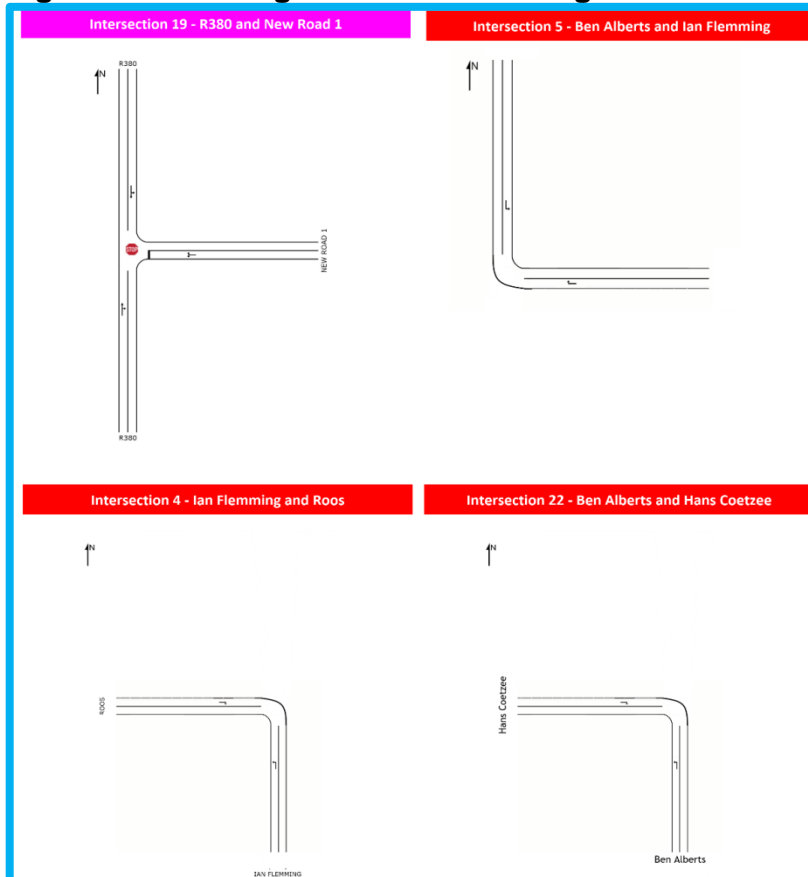


Figure 32: Existing Intersection Configuration – Part 1



**Figure 33: Existing Intersection Configuration – Part 2**



#### 4.3.6.2 Capacity Analysis Results

##### **2025 Future Year with Phase 1, 2 and 3 Development**

The intersection capacity upgrades recommended as part of the base year analysis was not included as part of intersection upgrades for the base year 2025 with development. The SIDRA analysis is thus the result of existing intersection configuration with horizon traffic and development Phase 1-3 traffic. The intersection upgrades recommended in the base year will be distinguished from 2025 development recommended upgrades.

The new intersections required as part of Phase 1-3 of the development implementation were included in the capacity analysed. The intersection configuration of the required proposed development intersections and the configuration of existing intersections are indicated in **Figure 32**, **Figure 33** and **Figure 35**.

The peak hour with the worst capacity analysis results at the intersections and where upgrades are required is presented in **Figure 34**. A summary and the detail output of the SIDRA analysis per intersection is attached as **Annexure D** to the Addendum Traffic Impact Study – refer **Annexure R2** of the comprehensive land development application.

These intersections require capacity upgrades to accommodate existing traffic and development traffic. The recommended intersection capacity upgrades per intersection as presented in **Figure 36** and **Figure 37** and detail pertaining to existing intersection upgrades are:

**A. Intersection 1 (Hendrik van Eck St/R380):**

- Northern approach:
  - two exclusives through lanes are required as well as an exclusive left turn lane with a slipway;
  - dedicated right turn lane is required and one through lane and shared through and left-turn lane are required and therefore an additional right turn lane needs to be constructed;
- Eastern approach:
  - an exclusive additional right turn lane and through lane is required;
  - a shared left turn and through lane needs to be constructed to allow for the implementation of an exclusive right turn lane
- Southern approach:
  - an additional through lane, extension of exclusive right-turn lane to 90m storage and additional exit lane;
  - an exclusive left turn lane with a slipway is required and an exclusive right turn lane needs to be constructed;
- Western approach:
  - additional exclusive right turn, through traffic lanes, an exclusive left turn lane and additional exit lane;
  - exclusive left-turn lane needs to be constructed; and
  - The traffic signal must be optimised accordingly.

**B. Intersection 2 (Hendrik van Eck St/ Ian Flemming St):**

- Northern approach – an exclusive right turn lane is required.

**C. Intersection 3 (Hendrik van Eck St/ Ben Alberts Way):**

- Northern approach – an exclusive left turn lane is required;
- Southern approach – an exclusive left turn lane is required; and
- No other approaches need upgrades.

**D. Intersection 11 (Frikkie Meyer St/ Karee St):**

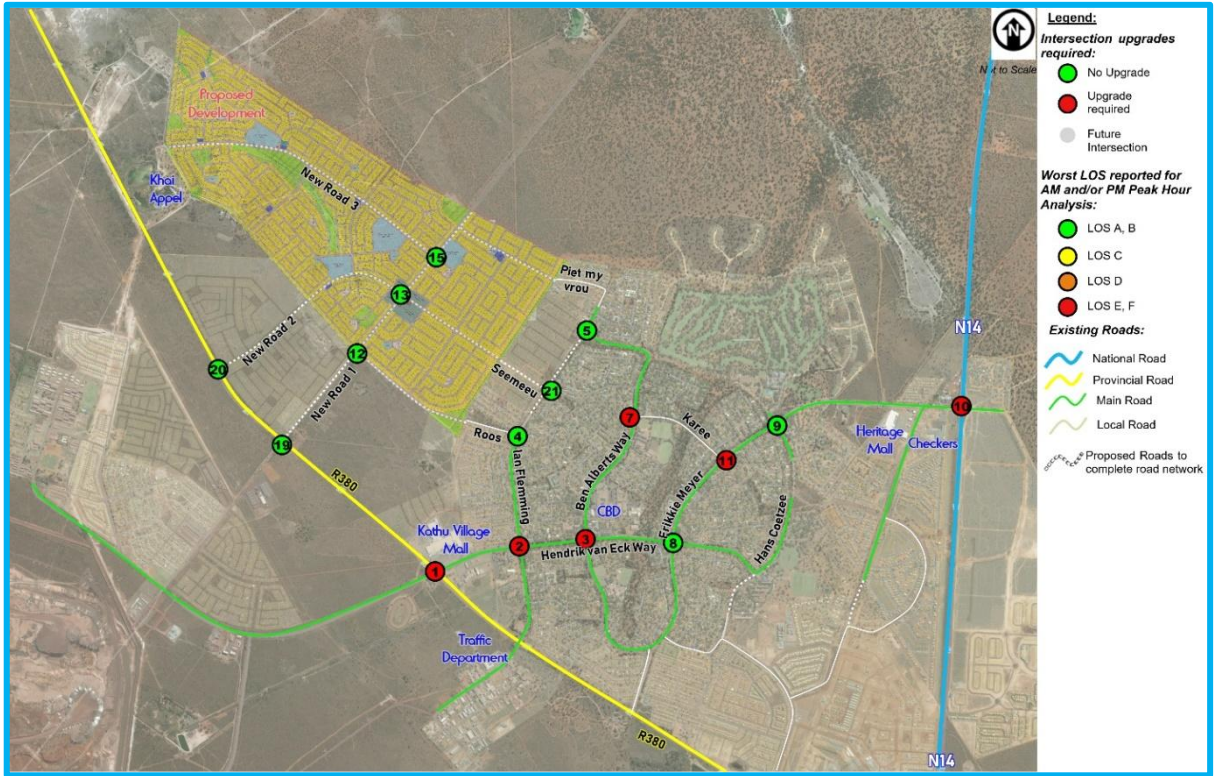
- Western approach – an exclusive continuous left turn movement is required and therefore a right turn and through traffic lane must be constructed; and
- A queue length study is required to determine if the recommended traffic signal is warranted.

**E. Intersection 7 (Ben Alberts and Karee St):**

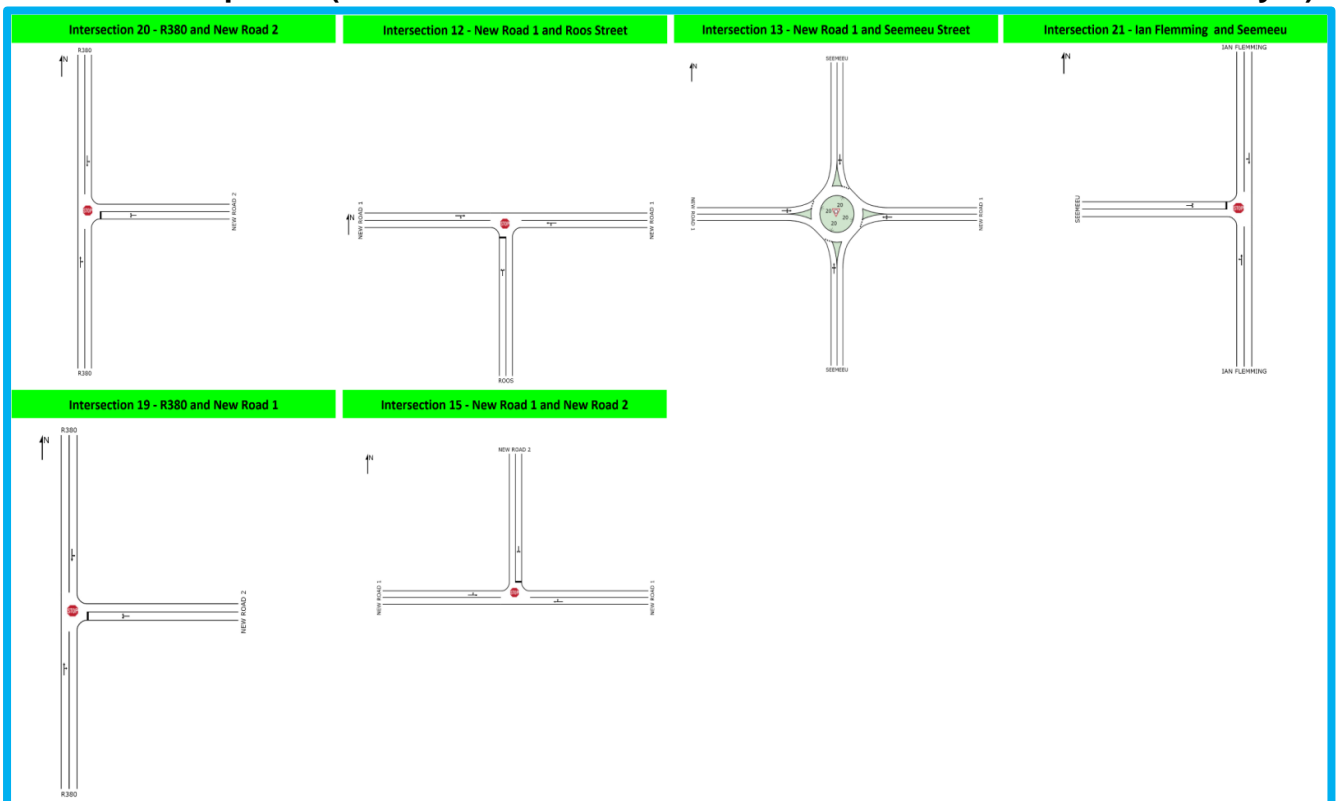
- Eastern approach – shared right and left short lane (60m); and

- A queue length study is required to determine if the recommended traffic signal is warranted.

**Figure 34: Worst Peak Hour 2025 (with Phase 1-3 Development) Intersection LOS**

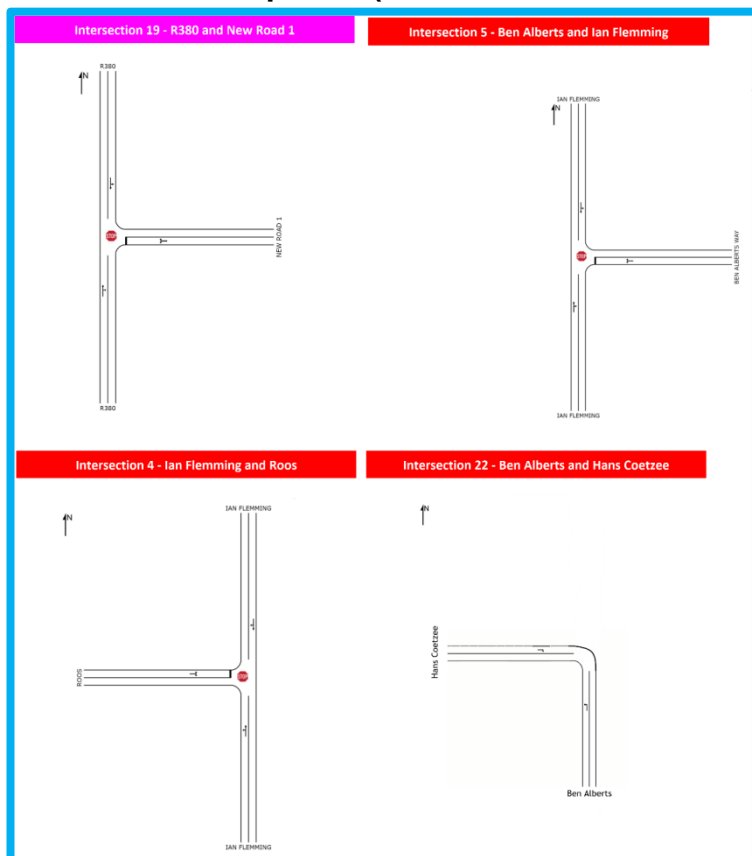


**Figure 35: Development Intersection Upgrades Recommended - with Phase 1-3 development (Without Hans Coetzee St between Ben Albert and Frikkie Meyer)**

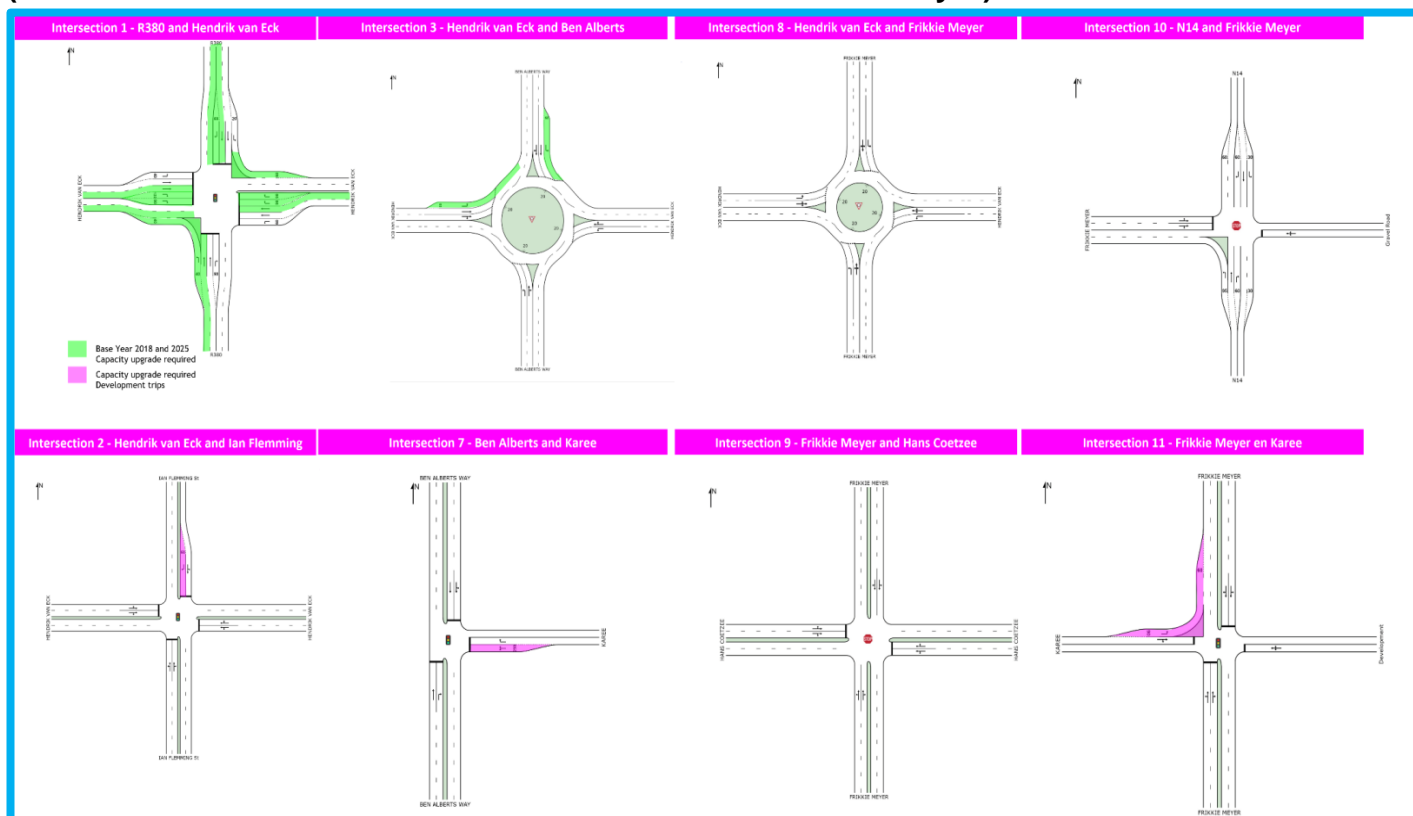




**Figure 36: Existing and Partial Implemented Intersection Upgrades Recommended - with Phase 1-3 development (Without Hans Coetzee St between Ben Albert and Frikkie Meyer)**



**Figure 37: Existing Intersection Upgrades Recommended - with Phase 1-3 development (Without Hans Coetzee St between Ben Albert and Frikkie Meyer)**

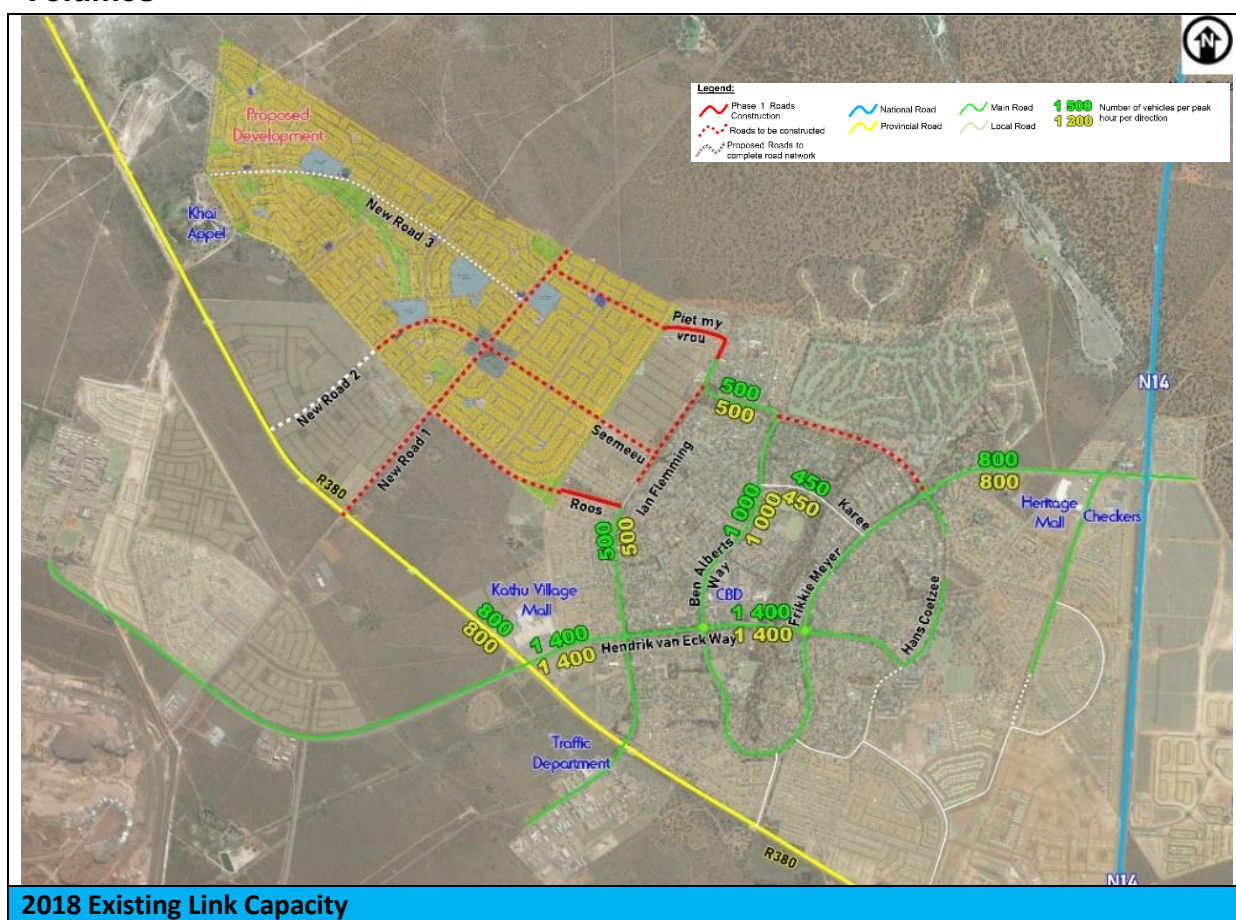


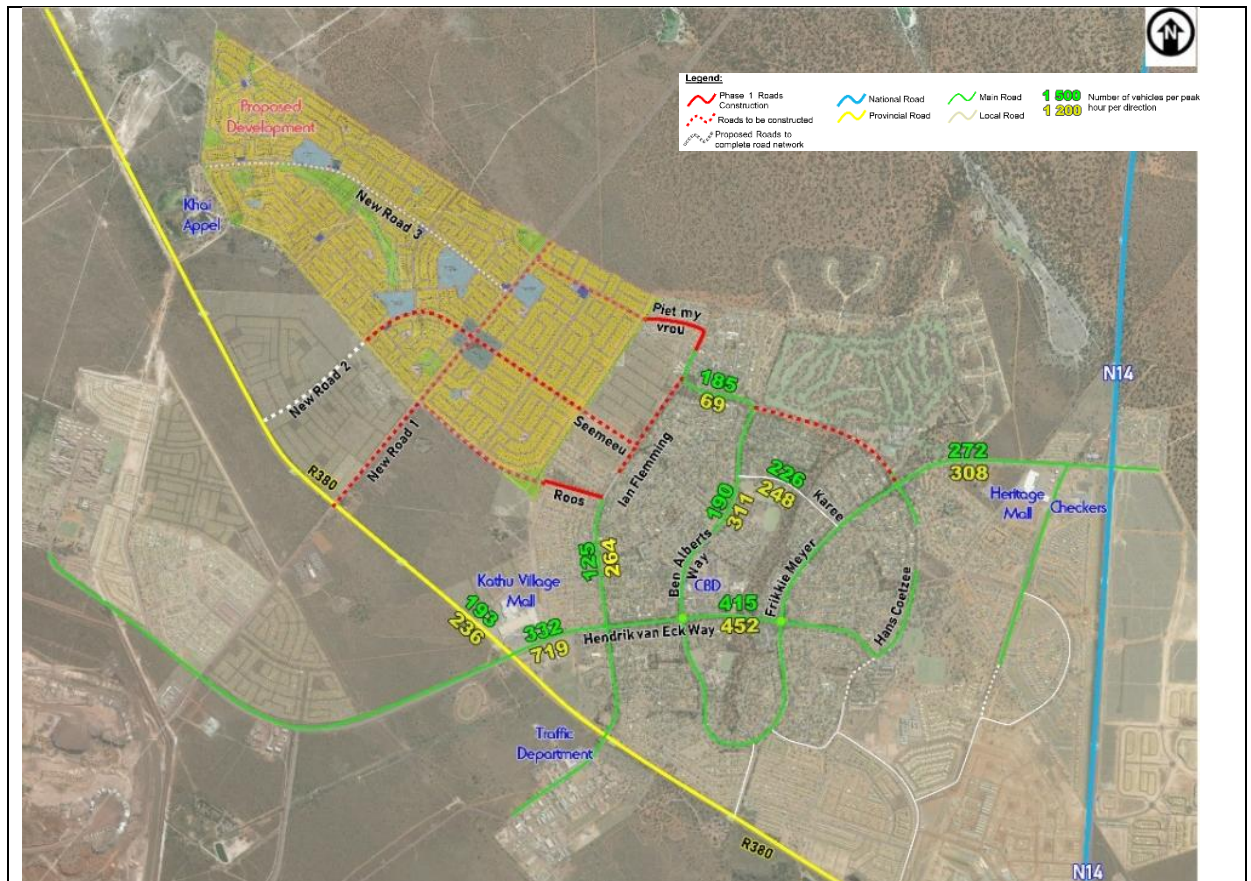
### 4.3.6.3 Link Capacity Analysis

The normal capacity of a single carriageway road is 1800 to 2600 vehicles per hour per direction. This is a variable value that can differ substantially based on the local circumstances e.g. gradients, passing opportunities, speed and vehicle population composition (e.g. percentage of heavy vehicles present, etc.).

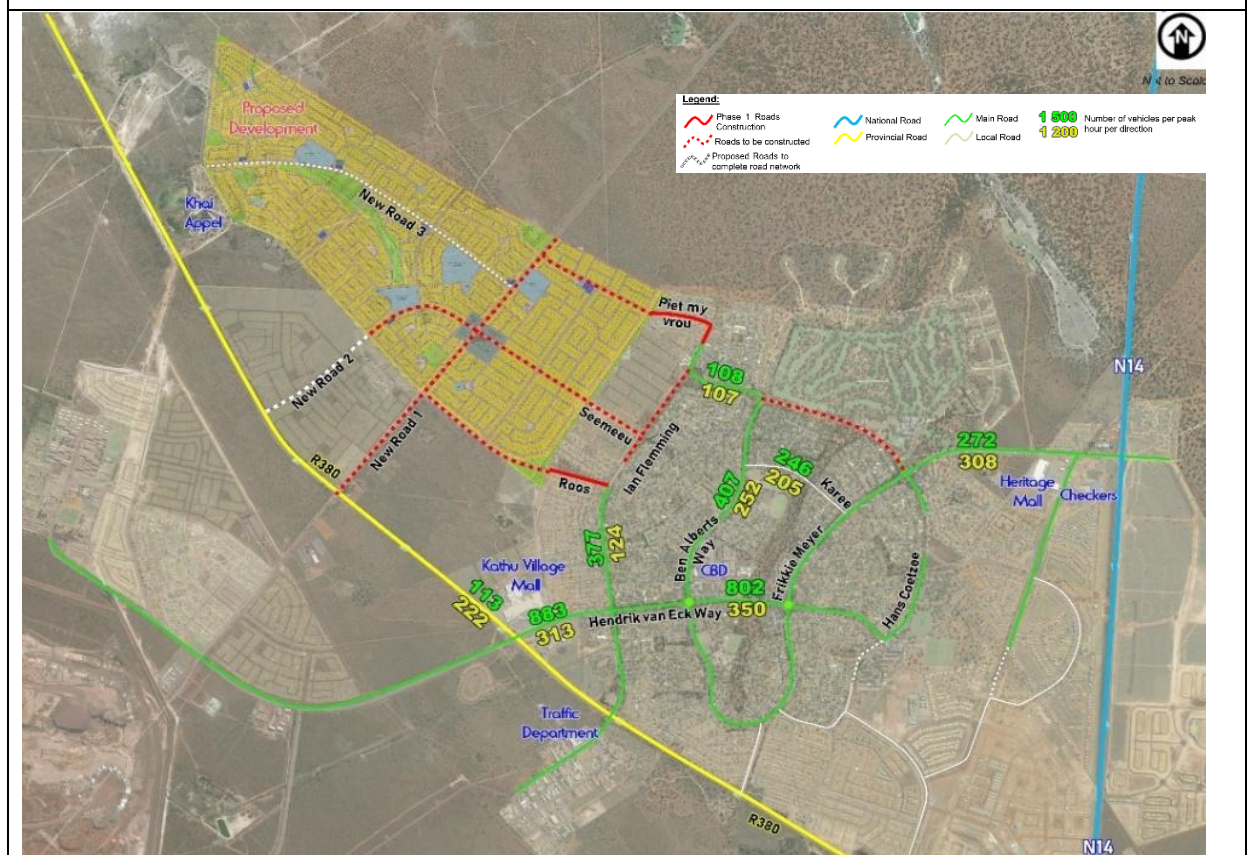
As mentioned earlier, the capacity of a roadway can dramatically be reduced by various elements. However, given the environment and traffic composition, the estimated link capacity along the roads that form part of the study is presented in **Figure 38**.

**Figure 38: Existing Link Capacity VS 2018 AM - and PM Peak Hour Link Volumes**





2018 AM Peak Hour Link Volume



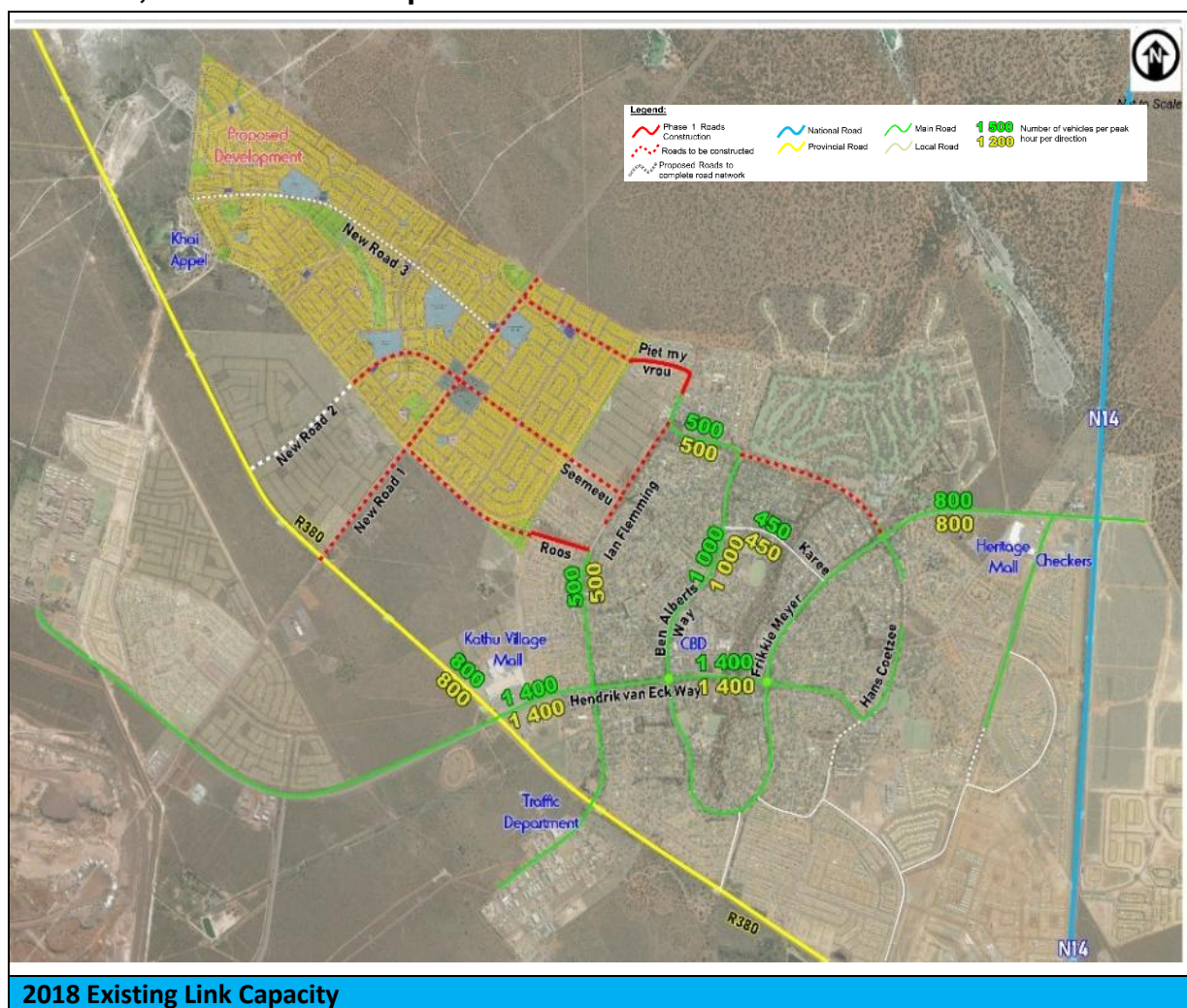
2018 PM Peak Hour Link Volume

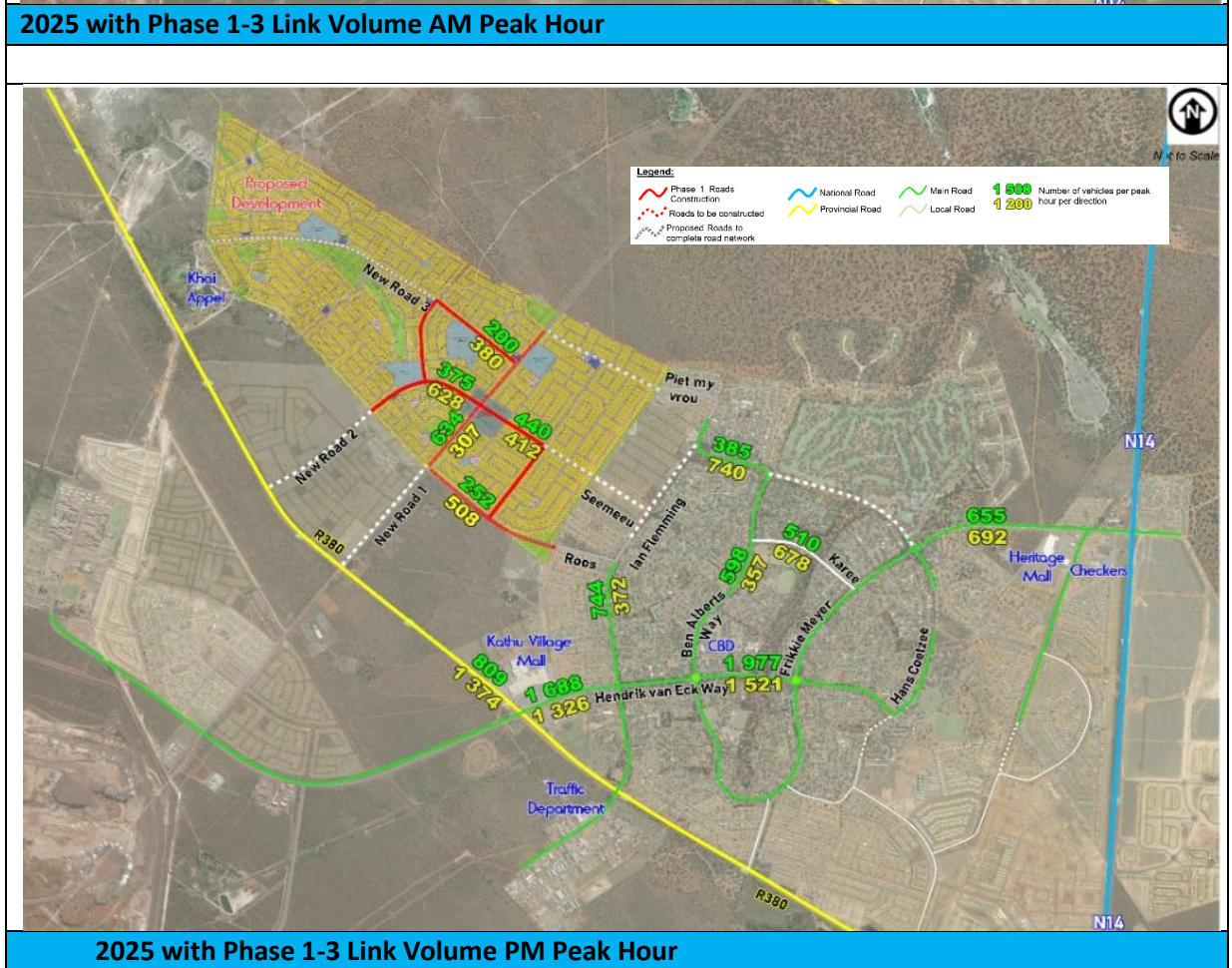
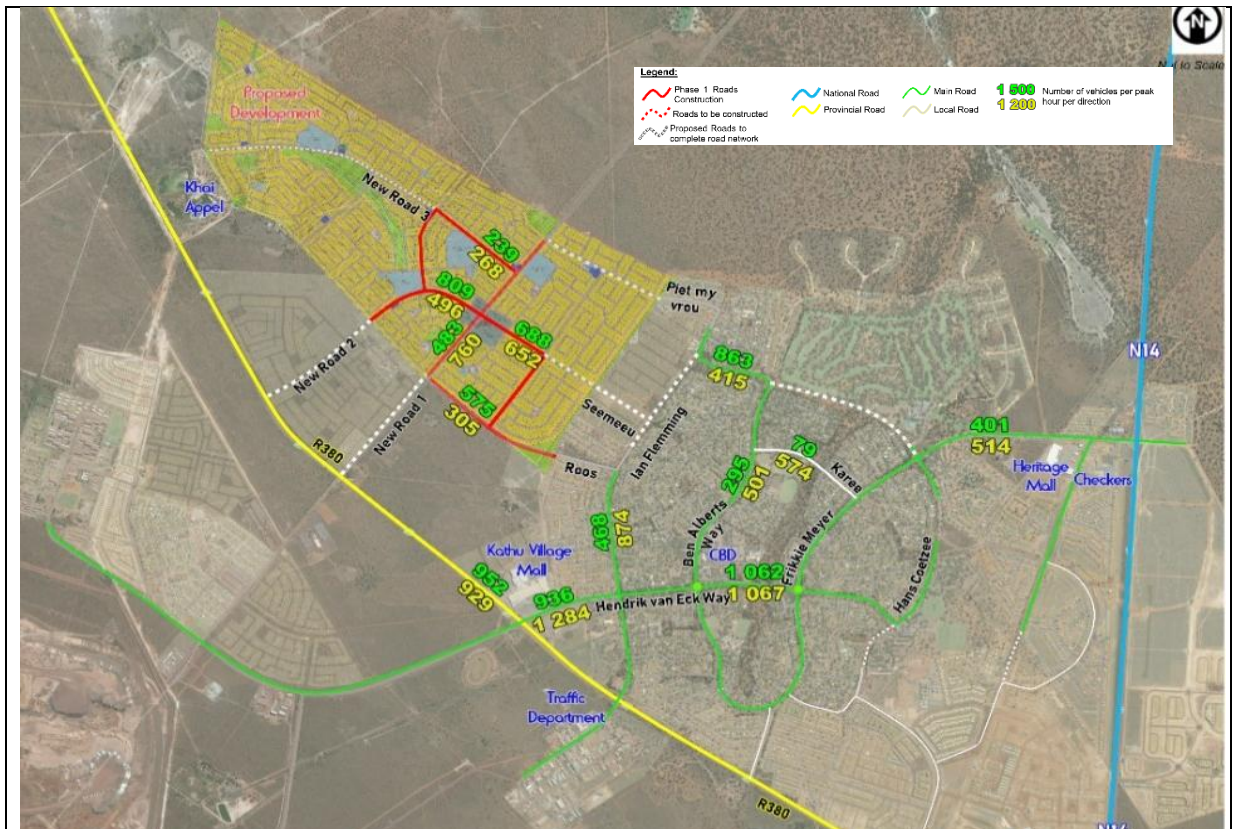
The Traffic Impact Study concluded as follows in respect of **Figure 39**:

**Conclusion:** Comparing the 2018 AM- and PM peak hour link volume with the link capacity, spare capacity is available along all roads in the study area”.

In order to determine when the link capacity will become a problem, considering the future year analysis, the existing road network link capacity is compared with the peak hours of the 2025 Phase 1-3 development implementation in **Figure 39**

**Figure 39: Existing Link Capacity VS 2025 AM – and PM Peak Hour Link Volumes, Phase 1-3 development Traffic**





The Traffic Impact Study concluded as follows in respect of **Figure 39**:

**Conclusion:** Comparing the 2025 AM- and PM peak hour plus Phase 1-3 development traffic link volumes with the 2018 existing link capacity, spare capacity is available along most of the roads although the following road links are near or at full capacity:

- Hendrick van Eck St between the R380 and Ian Flemming St;
- Hendrick van Eck St between Ian Flemming St and Ben Alberts Way; and
- Frikkie Meyer St between Hans Coetzee St and the access to the Heritage Mall (Rooisand St).

The Traffic Impact Study further recommended that the:

***“The construction of Hans Coetzee between Ben Alberts and Frikkie Meyer is imperative to facilitate traffic from the proposed development Phase 1-3 to the east of Kathu town”.***

#### **4.3.7 IMPLEMENTATION PLAN**

The intersection and link capacity analysis presented in the preceding sections present the recommended mitigation measures required to accommodate the existing, latent and proposed development traffic. However, for the purpose of summary and implementation per development phase the minimum intersection capacity upgrades and road links to be constructed/upgraded is presented per development phase. For the implementation of the proposed development it is recommended that the Hans Coetzee link between Frikkie Meyer Street and Ben Alberts Way is constructed.

##### **4.3.7.1 Phase 1-3 Implementation Plan**

The new Class 3 and 4 roads and main intersections associated with Phase 1 implementation are indicated in **Figure 40**. The external road link upgrades and intersection upgrade required in order to accommodate existing, latent and development traffic form part of **Figure 40**. The detail intersection configuration and lane capacity required are:

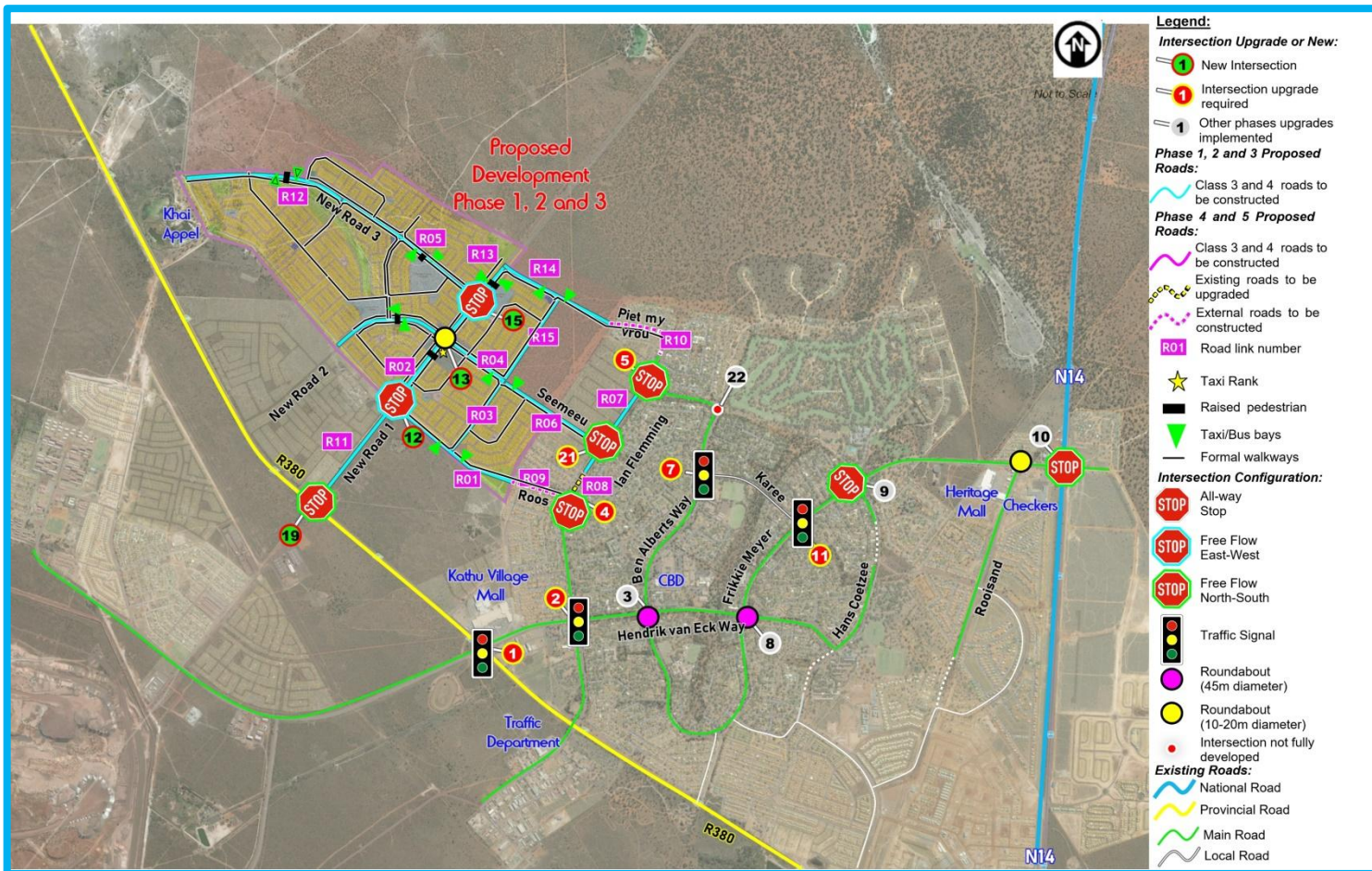
- **Existing road link capacity upgrades recommended:**
  - None
- **External road links to be constructed:**
  - Ian Flemming from Roos Street to Hans Coetzee Street. Refer to **Figure 40** where road link R07 and R08 represent the extent of the construction;
  - Depending on the date of Phase 2 actual implementation the existing section of Ian Flemming will require rehabilitation.
  - R09 - Piet-my-vrou Street from the boundary with the proposed development to Ian Flemming will require maintenance/rehabilitation during the implementation of Phase 3.

- R10 - Roos Street from the boundary with the proposed development to Ian Flemming will require maintenance/rehabilitation during the implementation of Phase 3.
- R11 – New Road 2 from the boundary of the development to the R380 form part of the external new links that needs to be constructed.
- Refer to **Figure 3-9** of the June 2018 TIS (attached as **Annexure R1** to the comprehensive Land Development Application) for the concept cross section for Class 3 roads.
- **Existing intersection base year and latent rights upgrades recommended:**
  - Intersection 1 – Hendrik van Eck and R380. Detail intersection configuration provided in **Figure 37**;
  - Intersection 2 – Hendrik van Eck and Ian Flemming Street. Detail intersection configuration provided in **Figure 37**;
  - Intersection 3 – Hendrik van Eck and Ben Alberts Way. Detail intersection configuration provided in **Figure 37** ;
  - Intersection 7 – Ben Alberts and Karee Street. Detail intersection configuration provided in **Figure 37**;
  - Intersection 11 – Frikkie Meyer and Karee Street. Detail intersection configuration provided in **Figure 37**;
  - Intersection 4 – Ian Flemming and Roos Street. Detail intersection configuration provided in **Figure 36**;
  - Intersection 5 – Ian Flemming and Hans Coetzee. Detail intersection configuration provided in **Figure 36**;
  - Intersection 19 – R380 and New Road 1. Detail intersection configuration provided in **Figure 36**.
- **New external intersection to be constructed:**
  - Intersection 21 – Seemeeu Street and Ian Flemming. Detail intersection configuration provided in **Figure 36**.
- **Development road links required to facilitate traffic from the development to the wider road network are:**
  - R01, R02, R03, R04, R05.
  - R06 and R06a.
  - R12, R13, R14 and R15.
  - Refer to **Figure 3-9** in June 2018 TIS (attached as **Annexure R1** to the comprehensive Land Development Application) for typical cross section for above mentioned road links.
- **Development intersection construction required:**
  - Intersection 13 – Seemeeu Street and New Road 1. Detail intersection configuration provided in **Figure 35**;
  - Intersection 12 – Roos Street and New Road 1. Detail intersection configuration provided in **Figure 35**;
  - Intersection 15 – New Road 3 and New Road 1. Detail intersection configuration provided in **Figure 35**.

- **Development of public transport infrastructure implementation / construction required:**
  - It is recommended that the taxi rank is constructed in phases to accommodate public transport trips associated with a specific phase.
  - It is recommended that at least three loading bays are provided and a holding area.
  - The implementation of six public transport bays along the development Class 4 roads indicated in **Figure 40** will be required for the implementation of Phase 1.
  - These bays are located along Roos Street, New Road 2 and New Road 3.
  - It is recommended that the taxi rank is not expanded during Phase 2 of implementation.
  - The implementation of two public transport bays along the development Class 4 roads indicated in **Figure 40** will be required for the implementation of Phase 2.
  - These bays are located along Seemeeu Street.
  - It is recommended that at least three additional loading bays are provided, and a holding area associated with the expansion of the rank during Phase 3.
  - The implementation of eight public transport bays along the development Class 4 roads indicated in **Figure 40** will be required for the implementation of Phase 3.
  - These bays are located along Seemeeu Street, Piet-my-vrou Street, New Road 1 to the east of New Road 3, New Road 3 near to the northern boundary of Phase 3.
- **Development Non-motorised Transport Infrastructure required:**
  - The recommended roads where NMT facilities need to be implemented for Phase 1-3 are presented in **Figure 40**.
  - These facilities can be provided on one side or both sides of the indicated roads for Phase 1. Design guidelines are provided in **Table 3-6** of the June 2018 TIS (attached as **Annexure R1** to the comprehensive land development application).
  - However, at full development stage the full network presented in **Figure 3-14 of the June 2018 TIS** (attached as **Annexure R1** to the comprehensive land development application) is required.
- **Development Traffic Calming required:**
  - Traffic calming measures are proposed where high pedestrian volumes are anticipated.
  - Phase 1 require three raised pedestrian crossings near the commercial developments and schools.
  - Phase 2 require no raised pedestrian crossings.
  - Phase 3 require two raised pedestrian crossings near the bus/taxi bays.Refer to **Figure 40** for positions of these facilities.



Figure 40: Phases 1-3 Implementation Plan



#### 4.3.8 CONCLUSION

The Traffic Impact Assessment concluded as follows:

- **The detail intersection and road link upgrades and construction required to implement for the Phase 1-3 phase of the proposed development is presented in the Implementation section. Given that all the recommendations are implemented the proposed development can be approved.**
- **It needs to be emphasised that several of the proposed road links in the existing road network external to the proposed development is required to facilitate existing traffic and traffic from the proposed development. Without these links complete to provide mobility in the existing road network, traffic will divert to local roads and the residential character of areas will be impacted.**
- **The critical road links that needs to be complete are Hans Coetzee Street.**

## CHAPTER 5: PROVISION OF ENGINEERING SERVICES

### 5.1 INTRODUCTION

Civilsense Consulting was appointed to investigate and report on the provision of civil engineering services to the proposed township area whereas Motla Consulting Engineers were appointed to investigate and report on the provision of electrical engineering services..

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 Civilsense Consulting (attached as Annexure Q1 to the comprehensive land development application))**

#### 5.2.1 WATER – STATUS QUO

##### 5.2.1.1 Water Source

Sishen Mine, located in Kathu has a historical association with the town Kathu. The Mine is the net exporter of water to Kathu.

- **Sishen Mine**

Sishen Mine abstracts water from boreholes within the mining area as a dewatering process to allow mining to take place. This water is pumped through a 450mm diameter steel pipe from Sishen Mine to Kathu where it splits into three to supply raw water to:

- Water Treatment Works (Municipal Softener Plant)
- Directly to Kathu Central Reservoir's raw water chamber
- The Raw water dam (Lategan Dam) adjacent to the R380 roadway for temporary storage

It should be noted that this is not a constant supply, and depends on the mining operations, and there have been times when no surplus water was available from the mine for supply to Kathu.

- **Sedibeng Water**

Sedibeng Water is a Water Service Providing Authority which operates the Vaal-Gamagara Water Supply Scheme. This scheme is the main water supply

to Kathu East and is also used to supplement the potable water supply from the local Softener Plant to Kathu Central Reservoir if required.

According to the Reconciliation Strategy for Kathu, the town has an authorised allocation from the Vaal Gamagara Scheme of 500 000m<sup>3</sup>/annum (equivalent to 57m<sup>3</sup>/h or 15,8ℓ/s). This allocation is not nearly enough. An agreement of 80 l/s has been frequently discussed and is sometimes provided by Sedibeng Water, but this authorisation was never formalised. Sedibeng Water is in process to improve the supply capacities and pressures in the Vaal Gamagara System, which will improve the supply to Kathu. The exact timeframes for completion of these upgrades are uncertain.

- **Borehole Abstraction**

Kathu is also supplied with ground water abstracted from boreholes situated in the Kathu and Khai Appel aquifers. The boreholes located in the Kathu aquifer pump directly into the 6.8 ML reservoir at Kathu Central. The Khai-Appel boreholes feed the Khai-Appel resort and Sesheng Reservoir.

Five municipal production boreholes (KM) and two Sishen Mine boreholes (SW) allocated to the Gamagara Municipality are located in the Khai Appel Aquifer. If all boreholes are in operation they could yield 284 m<sup>3</sup>/h, primarily to Sesheng.

On the Kathu Aquifer, three municipal boreholes (KM) and the Bestwood Housing Development boreholes could collectively yield 218 m<sup>3</sup>/h. The boreholes providing water directly to the town of Kathu only yield 78m<sup>3</sup>/h of this total. The boreholes at Bestwood, which yield the more significant difference supply water primarily to the Bestwood Housing Development. Whilst an agreement is in place to provide surplus water to the Kathu East Reservoir over the short term whilst Bestwood is being developed, it will ultimately utilise all of the water abstracted at the Bestwood boreholes. Any Supply of water from Bestwood to Kathu will then cease.

**Table 40: Summary of boreholes**

REFERENCE	BH No.	BOREHOLE INFORMATION			SUPPLY	
		Depth (mbgl)	Water Level (mbgl)	Yield (ℓ/s)	(m <sup>3</sup> /h)	(m <sup>3</sup> /year)
Kathu Pump Station	G270NC	60	20	30	11	94 673
<b>North of Khai Appel Sub-total</b>	<b>1 no. BH</b>			<b>3</b>	<b>11</b>	<b>94 673</b>
Khai Appel Aquifer	SW400	unknown	27	23	83	725 825
Khai Appel Aquifer	KM14	92	26	14	50	441 806
Khai Appel Aquifer	SW371	55	20	10.5	38	331 355
Khai Appel Aquifer	KM19	90	29	9.5	34	299 797

Khai Appel Aquifer	KM16	102	26	5	18	157 788
Khai Appel Aquifer	KM13	130	9	3.5	13	110 452
Khai Appel Aquifer	KM15	92	33	3.5	13	110 452
<b>Khai Appel Aquifer Sub Total</b>	<b>7 no. BH's</b>			<b>69</b>	<b>248</b>	<b>2 177 474</b>
Kathu Central	KM1	76	28	7.5	27	236 682
Kathu Central	KM2	100	27	3	11	94 673
Kathu Central	KM4	98	32	11	40	347 134
Bestwood Housing	SW387	122	21	18	65	568 037
Bestwood Housing	G32440	57	22	15	54	473 364
Bestwood Housing	SW390	65	24	6	22	189 346
<b>Kathu Aquifer Sub Total</b>	<b>6 no. BH's</b>			<b>60.5</b>	<b>218</b>	<b>1 909 235</b>

All boreholes are assumed to have a duty that runs 24 hours per day.

The following table summarises the existing water resources relevant to the study.

**Table 41: Summary of Existing Water Sources**

Reference	Potable Water Supply (m <sup>3</sup> /hr)	Raw Water Supply (m <sup>3</sup> /hr)
Khai-Appel Boreholes	248	-
Kathu Central Boreholes	78	-
Sedibeng Water	57	-
Sishen Mine (via Lategan Dam)	-	800
Sishen Mine (via Softener Plant)	174	-
<b>Total</b>	<b>557</b>	<b>800</b>

### 5.2.1.2 Water Treatment Works – Municipal Softener Plant

The Municipal Softener Plant receives raw water from Sishen Mine. The plant has an upstream concrete reservoir with a capacity of 1.7ML for the storage of raw water. The raw water is then passed through a softener (treatment) plant with the capacity of 174 m<sup>3</sup>/hr and stores potable water in a downstream concrete reservoir with a capacity of 3.4ML for further distribution.

### 5.2.1.3 Water Storage and Distribution

- **Kathu**

The water supply in the town of Kathu is currently serviced from two reservoirs within the town, namely Kathu Central Reservoir, and Kathu East Reservoir. The elevated tower at Kathu Central is dual purpose which separate potable and untreated (garden) water. The reservoir receives water via 3 primary feeds, namely:

- **Kathu Central Reservoir** – fed via two (2) 200mm diameter steel pipes from the Municipality Softener Plant. This reservoir can also be fed from

the main Vaal-Gamagara pipeline via an existing 355mm diameter uPVC pipeline. This pipeline connects onto the two 200mm diameter steel pipes from the Softener Plant near the Kathu Mall. From Kathu Central Reservoir, water is pumped into the potable water section of the elevated tower. Both reservoirs are owned and operated by Gamagara Municipality and store water for the adjacent elevated towers from where water is gravity fed into the network.

- **Kathu East Reservoir** – fed via a 355mm diameter uPVC, class 9 pipe from the Vaal-Gamagara pipeline. The Vaal-Gamagara pipeline is operated by Sedibeng Water. The 355mm diameter uPVC line is owned by Gamagara Municipality.

It is also possible to supply the smaller reservoir with water from the main Kathu Central 6.8 ML Reservoir, although this is not done under normal operation.

- **Sesheng**

Sesheng is served by a 2 ML concrete reservoir and concrete elevated split tower. The elevated tower is split into separate treated (potable) and untreated (garden) water compartments.

The Sesheng Reservoir fed via one (1) 100 mm diameter steel pipe from the municipal Softener Plant. The Softener Plant is supplied with ground water extracted from the Sishen Mine. The Sesheng Reservoir is also supplied with water from the Khai Appel boreholes via a 160 mm mPVC pipeline.

The Sesheng Reservoir can also be fed from the main Vaal-Gamagara pipeline via an existing 355mm diameter class 9, uPVC pipeline. This pipeline has a branch connection onto the 160 mm diameter uPVC pipe from Khai Appel to the reservoir. This link is normally closed and only used in emergencies. The main supply to Sesheng remains from Khai Appel. From Sesheng Reservoir water is pumped into the potable water section of the elevated tower for further distribution.

- **Raw Water Earth Dam**

Lategan Dam, also referred to as the “Gronddam” or Raw Water Dam, is an existing 400 ML earth dam owned by the Gamagara Municipality. Surplus water from the Sishen Mine is transferred out of the normal supply and stored in the dam for garden water use when required. When water is required within the Kathu garden water network from Lategan Dam, water is pumped to the Kathu Central distribution tower from where it is supplied under gravity to the reticulated garden water system.

The dam is unlined and experiences high losses through leakage and surface evaporation.

**Table 42: Summary of existing Reservoir Capacities.**

REFERENCE	DESCRIPTION	CAPACITY (MI)
A1	Softener Plant – upstream reservoir (raw water)	1.7
A2	Softener Plant – downstream reservoir (treated water)	3.4
B1	Kathu Central Reservoir	6.5
B2	Kathu Central Elevated Tower - treated	0.7
B3	Kathu Central Elevated Tower - untreated	0.7
C	Lategan Dam	400
D1	Kathu East Reservoir	14
D2	Kathu East Elevated Tower	2.5
E	Khai Appel Reservoir	0.3
F	Sesheng Reservoir	2
G1	Sesheng Elevated Tower – treated	0.3
G2	Sesheng Elevated Tower – untreated	0.3

### **5.2.2 WATER – DEMAND ANALYSIS**

According to the Gamagara Municipality the minimum level of service in Kathu is connection points per stand. The overall objective is therefore to supply reliable potable water to all areas and communities in the municipal area with formal and metered house connections.

The water demand calculation as per land use analysis is summarized in the table below:

**Table 43: Study Area Kathu Extensions 6 to 10 AADD**

Proposed Township Area	Number of Erven	ℓ/d	Kℓ/d	Mℓ/day
<b>Kathu Extension 6: AADD</b>	<b>1 194</b>	<b>809 599</b>	<b>809.60</b>	<b>0.810</b>
<b>Kathu Extension 7: AADD</b>	<b>1 143</b>	<b>603 725</b>	<b>603.73</b>	<b>0.604</b>
<b>Kathu Extension 8: AADD</b>	<b>1 004</b>	<b>797 828</b>	<b>797.83</b>	<b>0.798</b>
<b>Kathu Extension 9: AADD</b>	<b>671</b>	<b>319 616</b>	<b>319.62</b>	<b>0.320</b>
<b>Kathu Extension 10: AADD</b>	<b>1 136</b>	<b>516 670</b>	<b>516.67</b>	<b>0.517</b>

The table above indicates that the water demand (average annual daily demand) for the five extensions combined is 3 940 516 ℓ/day.

To determine the impact in terms of overall storage capacity (48 hours) needed the following steps are followed:

Average Annual Daily Demand (AADD)		= 3 940 516 ℓ/day
Add 1.5 summer peak factor	: 3 940 516 x 1.5	= 5 910 774 ℓ/day
Add 10% water losses	: 5 910 774 x 1.1	= 6 501 851 ℓ/day
Add fire flow (6 hours @ 15ℓ/s)	: 6 501 851 + 324 000	= 6 825 851 ℓ/day
Total low-level storage	: 6 825 851 x 2	= 13 651 702 //day

**The total low level storage should therefore be 13,7 Mℓ/day**

To determine the impact in terms of the peak storage (4 or 2 hour @ peak flow) needed following steps are followed:

Average Annual Daily Demand (AADD)		= 3 940 516 ℓ/day
Add 1.5 summer peak factor	: 3 940 516 x 1.5	= 5 910 774 ℓ/day
Add 1.25 daily peak factor	: 5 910 774 x 1.25	= 7 388 468 ℓ/day
Add 3.0 instantaneous peak factor	: 7 388 468 x 3.0	= 22 165 403 ℓ/day
Add 10% water losses	: 22 165 403 x 1.1	= 24 381 943 ℓ/day
Peak flow	: 24 381 943 ℓ/day	= 282 ℓ/s
The total peak storage (4 hours @ peak flow) is power		= 4 Mℓ/day without back up
<b>The total peak storage (2 hours @ peak flow) is power</b>		<b>= 2 Mℓ/day with back-up</b>

## **5.2.3 WATER – BULK INFRASTRUCTURE REQUIREMENTS**

### **5.2.3.1 Source**

As stated under section 5.2.1.1 the main sources of water for Kathu are:

- Vaal Gamagara Pipeline (Sedibeng Water)
- Dewatering from mining activities (Kumba Iron Ore)

➤ Municipal boreholes

The study area will be part of Kathu West. In accordance with the Kathu Water Management Plan of 2012 the main water source for Kathu West to be the Vaal Gamagara pipeline.

○ **Potable water from Vaal Gamagara Water Pipeline**

The Vaal Gamagara Pipeline is in process of upgrading. The current allocation of the Vaal Gamagara Scheme to Kathu is 500 000 m<sup>3</sup>/annum (equivalent to 57m<sup>3</sup>/h or 15,8l/s). The current projected allocation for Kathu (post upgrading of scheme) in accordance with the *Royal Haskoning/Sedibeng Water regional water scheme design report dated 18 January 2016* is 239 l/s (7 537 104 m<sup>3</sup>/annum).

The design peak flow for the study area is 1.5 x AADD (same as summer peak) which is 5 910 774 l/day or 68.4l/s. It is therefore evident that sufficient potable water supply to the study area is only feasible once the Vaal Gamagara Water Scheme has been upgraded and the desired performance achieved.

However, with the rest of Kathu, especially the East also heavily dependent on the Vaal Gamagara Pipeline, augmentation of water supply to the West should also be considered. This will also reduce the cost of water for the Municipality as potable water from Sedibeng is currently the most expensive available water resource for Gamagara Municipality.

○ **Mine Dewatering and Municipal Borehole fields**

Additional options for augmentation of water supply to the study area are mine dewatering and municipal boreholes. Raw water from Sishen Mine is transferred via a 250 mm steel pipe to the Municipal Softener Plant (water treatment works). Raw water is stored in a 1.7ML concrete reservoir before it is passed through a softener (treatment) plant with the capacity of 174 m<sup>3</sup>/hr or 4.2 ML/day (based on 24 operational hours). Potable water from the plant is stored in a downstream concrete reservoir with a capacity of 3.4ML from which distribution to various supply points manifests. One of the points is the Sesheng 2ML reservoir which is fed by a 100mm diameter steel pipeline from the Softener Plant. Water from the Khai Appel borehole fields also supplies the Sesheng 2ML reservoir via a 160mm diameter pipe line. A direct feed from the Sesheng elevated tower to the proposed Kathu West reservoir complex can therefore be done.



### 5.2.3.2 Water Treatment

The Vaal Gamagara Water Scheme distributes potable water to Kathu. The main source for the study area therefore does not need any treatment. However, because of the costs, the Gamagara Municipality insisted in augmenting the study area with supply from their other sources namely Mine Dewatering and Municipal boreholes.

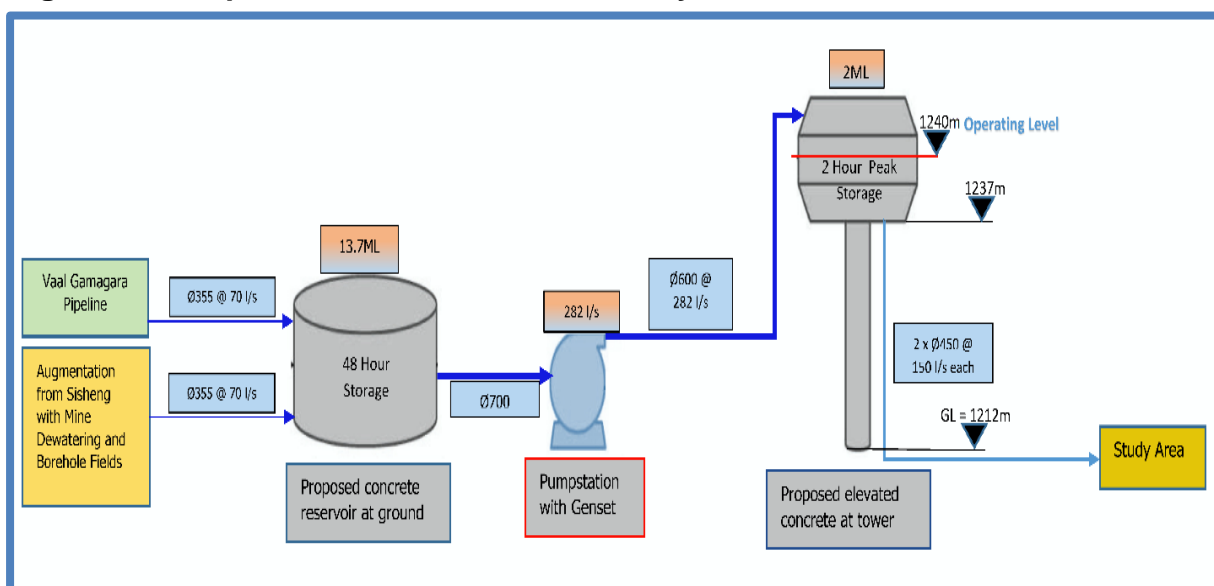
The municipal boreholes in the vicinity of the study area currently supply to the Sesheng 2ML reservoir. More boreholes are also envisaging to be explored in the vicinity of the study area.

Mine dewatering passes via the water treatment works (softener plant) for treatment and reaches the Sesheng 2ML reservoir. If the Sesheng reservoir complex and the proposed reservoir complex of the study area are to be linked, the Municipality's objective to augment from own sources in all Sedibeng/Vaal Gamagara supply areas can be realised. This will trigger other secondary upgrades such as the water treatment works, Sesheng reservoir complex and the related link lines.

### 5.2.3.3 Storage and Distribution

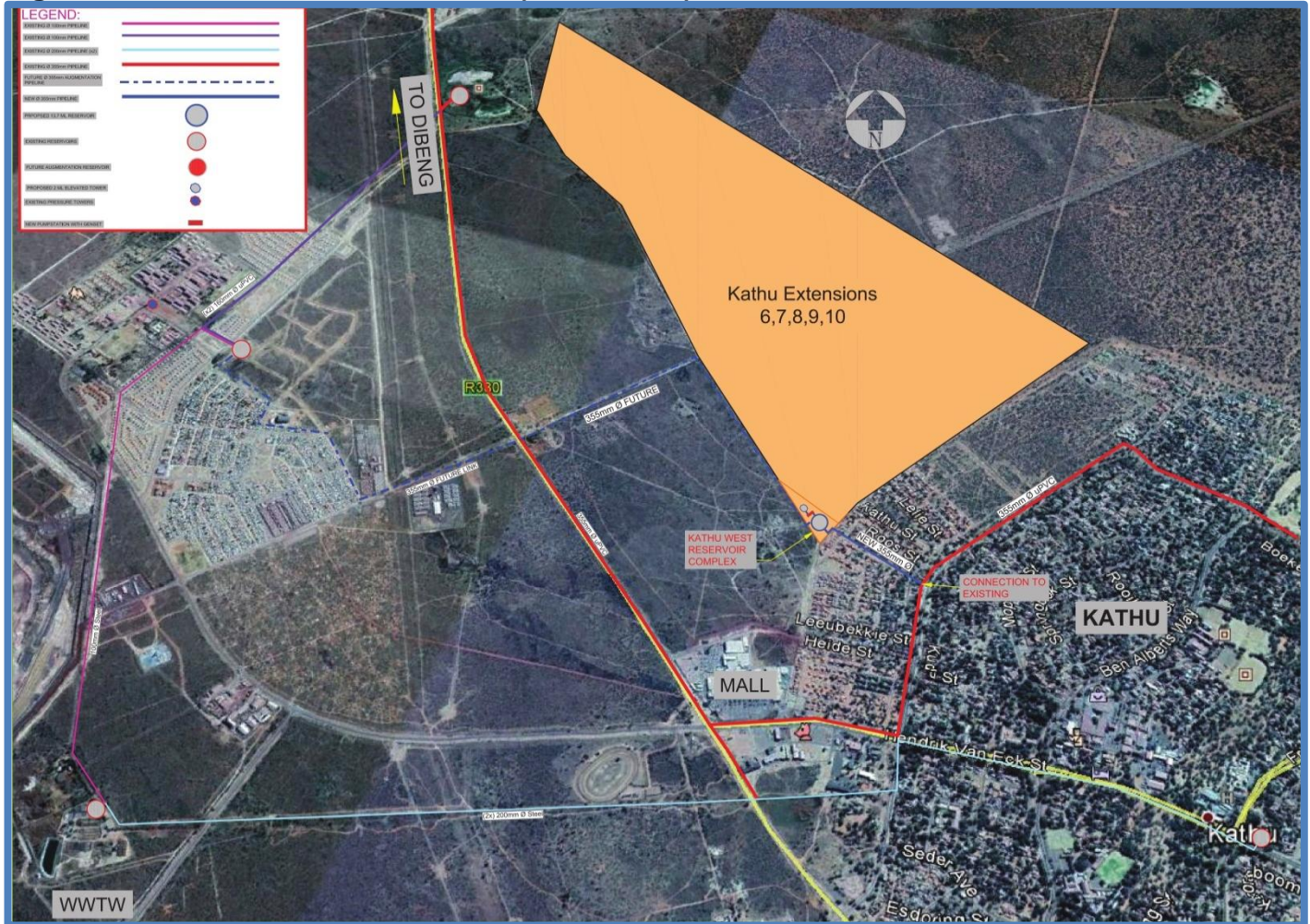
In accordance with the water demand calculations, the study area will need at least a 13.7ML (48-hour storage capacity) low level reservoir. It also needs a 2ML (2-hour peak storage capacity) elevated reservoir to cater for peak demand. A pump station with back-up power generator to lift water from the low-level reservoir to the elevated reservoir at a rate of 282 l/s completes the system (Refer **Figure 41** for schematic illustration).

**Figure 41: Proposed Water Scheme for study Area**



The aerial view of the bulk water infrastructure is reflected on **Figure 42**.

**Figure 42: Bulk Water Infrastructure (Aerial View)**



### 5.2.4 SANITATION – STATUS QUO

A desk top study was done to confirm the status quo of the Kathu bulk sewer system for:

- Kathu Central (CBD)
- Kathu East
- Kathu West (location of study area)
- Sesheng
- Industrial Area

Kathu makes use of full waterborne sanitation that primarily consists of sewer reticulation networks, main outfall lines, lifting sewer pump stations and 3 collector pump stations which transfers sewage to the Waste Water Treatment Works.

- **Kathu East Outfall Line:**

The Eastern Outfall lines have varying pipe sizes with the most predominant size being 400mm Ø which increases to a 450mm Ø for the last 320m to the Deben Crossing Pump Station. The outfall lines consist of two main branches flowing in a north-south and east-west directions. These lines collect sewage

from residential areas such as Bestwood, Rooisand, Uitkoms, Kathu old town, Kathu business stands, LHC Phase 1 to 4 and other smaller areas in the east and central Kathu.

- **Kathu West Outfall Line:**

The Western Outfall line which flows from a north-eastern to a south-western direction is 350mm in diameter and collects sewage from the Kalahari Golf and Jag development, Extension 3, current Kathu western surrounding residential areas, the Mall and the Mall residential development. This outfall line confluences with the Kathu East Outfall Sewer line at the Dibeng crossing.

- **Deben Crossing Pump station**

The Dibeng Crossing pump station is the main pump station of Kathu. The above-mentioned outfall lines enter the wet sump of the pump station as separate 450mm diameter outfall lines. The pump station has two (2) pumps (one standby and one duty) with alternating configurations each capable of delivering 140 l/s via a 355mm diameter pump line to the Kathu Waste Water Treatment Works.

This pump station operates at maximum capacity. Gamagara Municipality confirmed that service providers have been appointed for the refurbishment of the pump station, but no upgrades are foreseeable.

- **Sesheng Pump Station**

Sesheng has a dedicated sewer reticulation system that gravitates to a pump station called Ext 7. Lifting pump stations, pump lines and outfall sewer lines from smaller surrounding areas also displace sewage to this pump station. A dedicated pump line transfers sewage to the Kathu waste water treatment works.

- **Kathu Industrial Area**

The Industrial area is also serviced by a dedicated waterborne reticulation network that gravitates to a pump station which transfers sewage directly to the waste water treatment works.

- **Waste Water Treatment Works**

The master plan for the upgrade of the Kathu Waste Water Treatment Works of 2011 entailed the decommissioning of the old 4.4 Ml/d Pasveer ditch plant and the phasing in of three (3) activated sludge modules of 6.8Ml/day each. The implementation of the phases should mostly be in accordance with the growth of the mines, which is the primary drivers of the population growth of Kathu. A 6.8Ml/day activated sludge module with MLE process configurations was implemented and commissioned in 2014 as a first phase. This module accommodates sewage generated by 35 000 people and comprises of the following components:

- **Inlet Works**  
The inlet works makes use of a mechanical screen digester, degritter, a bypass channel and ultrasonic flow meters. The hydraulic capacity of the inlet works is 314ℓ/s (PWWF). It also has tanker discharge facilities.
- **Activated Sludge Reactor (ASR):**
  - The Anoxic Zone which has a total volume of ± 2 280m<sup>3</sup> and was equipped with 5 off 4kW submersible mixers.
  - The Aerobic Zones with a total volume of approximately 3 420m<sup>3</sup> and equipped with Mechanical Surface Aeration which consists of 5 aerators that have a total energy input of 275kW
- **Secondary Settling Tanks (SST):**
  - Secondary Settling Tanks consist of two 24m diameter clarifiers and were designed for a PDWF of 254ℓ/s
- **Disinfection**  
The treated effluent flows to the chlorine contact channel where it is chlorinated and pumped to the mine for re-use as process water.
- **Scum and Sludge Drying Beds**  
The current size of the sludge drying beds is ± 2030 m<sup>2</sup>. The sludge drying beds are operating on a 20-day drying period, and any excess scum is removed manually from site. The dry beds are too small for the current works and should handle a 14-day drying period at a loading rate of 4kg/m<sup>2</sup>. To achieve the aforementioned an additional ±2200m<sup>2</sup> of sludge drying beds are required.

The Kathu Waste Water Treatment Works is operating on full capacity and cannot accommodate additional inflow without an upgrade.

### 5.2.5 SANITATION – DEMAND ANALYSIS

The sewer outflows calculation as per land use analysis is summarized per extension in the table below:

**Table 44: Study Area Kathu Extensions 6 to 10 ADWF (Average Dry Weather Flow)**

Proposed Township Area	Number of Erven	ℓ/d	Kℓ/d	Mℓ/day
Kathu Extension 6 : ADWF	1 194	1 106 799	1 107	1.107
Kathu Extension 7 : ADWF	1 143	756 903	756.90	0.757
Kathu Extension 8 : ADWF	1 004	952 518	952.52	0.953
Kathu Extension 9 : ADWF	671	342 920	342.92	0.343
Kathu Extension 10 : ADWF	1136	703 160	703.16	0.703

The table above indicates that the sewer outflow (average dry weather flow) for the five extensions is 3 047 438 ℓ/day. From the above outflows the Peak Dry Weather Flow and Peak Wet Weather Flow can be determined as follows:

To determine the Peak Dry Weather Flow and Peak Wet Weather Flow:

Average Dry Weather Flow (ADWF)	=	3 047 438ℓ/day
Add 1.8 Peak Factor for Peak Dry Weather Flow (PDWF)	=	3 047 438 x 1.8 = 5 485 389ℓ/d
Add 15% for Stormwater for Peak Wet Weather Flow (PWWF)	=	5 485 389 x 1.15 = 6 308 197ℓ/d Or = 73.01 ℓ/s

To determine the required pump delivery rate:

Peak Wet Weather Flow (ADWF)	=	73.01 ℓ/s
Add 1.25 Pump Factor for Pump Delivery Rate	=	73.01 x 1.25 = 91.26ℓ/s

A pump with a delivery capacity of 91.26 ℓ/s will be required to displace sewage to the WWTW. The required pipe to accommodate the delivery will be a 355mm Ø uPVC pipe line over a distance of 7.54km.

**5.2.6 SANITATION – BULK INFRASTRUCTURE REQUIREMENTS**

The existing Kathu bulk sewer infrastructure cannot accommodate the calculated/estimated sewer inflows from the study area. The study area will therefore need a dedicated reticulation with main outfall sewer lines and a pump station plus rising main (pump line) to the waste water treatment works. The existing waste water treatment works is also operating at full capacity which means a significant upgrade will also be needed.

**5.2.6.1 Main Outfall Pipelines**

It is envisaged that the entire internal sewer network will require main collectors ranging from 200mm Ø to 355mm Ø to handle the PWWF of 6 308 197ℓ/d or 73.01ℓ/s. With relatively flat terrain sloping to the north-west it is expected that all outfall sewer lines to confluence at this lowest point.

The following outfall sewer pipe sizes and lengths have been identified for the Study Area:

1. 200mm Ø PVC-U 400KPa = 825m
2. 250mm Ø PVC-U 400KPa = 3837m
3. 355mm Ø PVC-U 400KPa = 905m

### **5.2.6.2 Pump Station and Rising Main**

In accordance with the analysis and calculations it can be deduced that a new pump station and rising main with a capacity to accommodate a pumping flow rate of 91.26ℓ/s will be required to transfer sewer from this lowest point of the study area to the WWTW.

The following infrastructure has been identified for the Study Area:

1. Dry well pump station capable of a delivery rate of at least 91.26 ℓ/s
2. 355mm Ø PVC-U class 12 = 7 540m

### **5.2.6.3 Waste Water Treatment Works**

In 2014 the Kathu WWTW's capacity was increased to 6.8 Mℓ/d. The study area of 5 148 stands (extension 6 to 10) was not part of the consideration during the planned upgrade of 2014. It is expected that the study area will have an addition loading of 4.38 Mℓ/d on the waste water treatment works. As the works have no spare capacity currently an additional upgrade similar in magnitude to the 6.8Mℓ/d module done in 2014 is required.

During the 2014 upgrades, the old pasveer ditch module was decommissioned via a mothballing method. The decommissioned pasveer ditches is equivalent to 4.4Mℓ/d which can be utilised as a temporary measure whilst the new upgrades are being initiated. The capacity of the old system is just about adequate to accommodate the services demand of the study area. Please note, further investigation should be undertaken to determine what the cost implications will be to recommission the pasveer ditch modules and to review whether the old technology is still able to achieve the appropriate standard of effluent in accordance with the Water Use License of the Works.

The aerial view of the bulk sewer infrastructure is reflected on **Figure 43**.

**Figure 43: Bulk Sewer Infrastructure (Aerial View)**



**5.2.7 STORMWATER - STATUS QUO**

The region is characterized by summer rainfall with thunderstorms with an annual average precipitation of 550mm recorded at the nearest weather station. Winters are very dry with common frost. December to January is normally the warmest period while June to July are the coldest.

According to the Geoset’s geotechnical investigation a Weinert’s N-value of approximately 6 is confirmed. The mechanical disintegration of rocks will therefore be dominant over chemical decomposition and shallow soil horizons will be expected in areas of poor drainage, underlain by igneous rocks.

The landscape is on a shallow north western slope of between 1187 to 1220,5 MASL with the lowest point towards the perennial Vlermuislaagte River.

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

No formal storm water infrastructure exists in the study area. A natural storm water retention pond is located near Khai Appel in the north-west.

## **5.2.8 STORMWATER – BULK INFRASTRUCTURE REQUIREMENTS**

### **5.2.8.1 Surface Drainage**

All minor stormwater will be accommodated on the surfaced streets and bus and taxi routes. Unsurfaced streets will make use of concrete side drains drifts. Underground systems such as culverts and storm water pipes will be used to convey storm water underneath roads at crossings or to convey water to retention ponds.

### **5.2.8.2 Retention Ponds**

The natural contours of the study area fall from a south-eastern to a north-western direction. A natural retention pond is situated near Khai Appel in the north- west. Storm water will drain naturally in the direction of the pond at Khai Appel. Formal storm water infrastructure will also be provided to facilitate storm water drainage to the Khai Appel retention pond or the perennial Vlermuislaagte River.

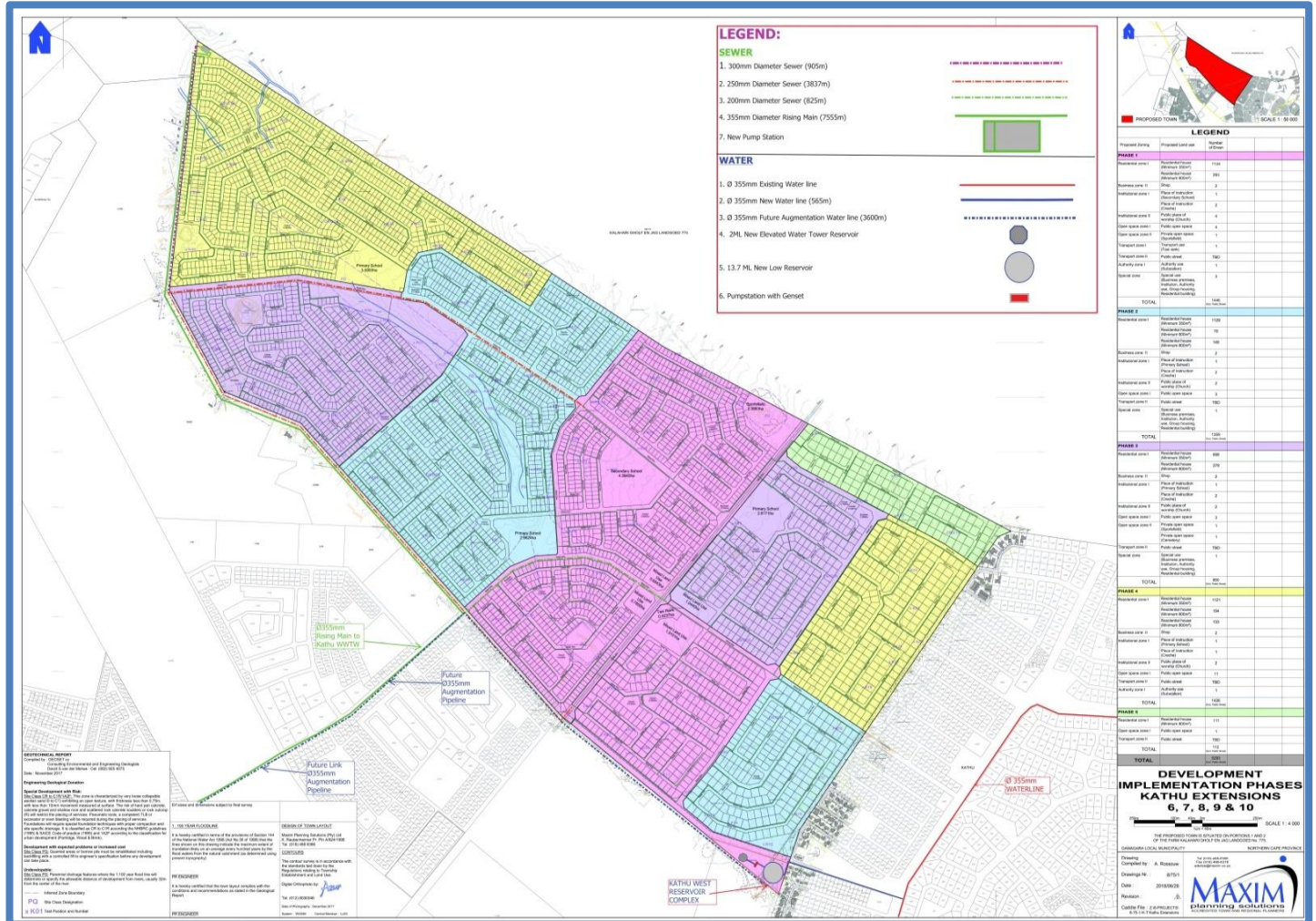
## **5.2.9 SOLID WASTE**

Solid waste removal is a function of the Gamagara Local Municipality.

The bulk water and sewer infrastructure requirements (overview) are represented on **Figure 44** below.



Figure 44: Bulk water and sewer infrastructure requirements (overview)



### 5.3 ELECTRICAL ENGINEERING SERVICES

(Extract from the electrical engineering services report compiled by Motla Consulting Engineers - attached as Annexure Q2 to the comprehensive land development application)

#### 5.3.1 DESIGN PARAMETERS

##### 5.3.1.1 Design Requirements

All the relevant standards and equipment types have been verified with the Supply Authority inclusive of the following guidelines that will be taken into consideration:

- a) All electrical services shall be designed in terms of the standards, specifications and equipment types and ranges of the Supply Authority by a Professional Electrical Consulting Engineer.
- b) The electrical infrastructure will be designed to comply with the standards and requirements of the Supply Authority, where appropriate, in accordance with (but not limited to) NRS 034-1:1999 Electricity Distribution – Guidelines for the provision of electrical distribution networks in residential areas, SANS 10142-1

The Wiring of Premises – Low Voltage Installations & SANS 10142-2. The Wiring of Premises – Medium Voltage Installation above 1kV not exceeding 22kV. The electricity distribution system will be designed for the anticipated maximum load to avoid the need for future upgrading of the electricity distribution system.

- c) The maximum demand will be calculated in accordance with (but not limited to) SANS 204 Energy Efficiency in Building, SANS 10142-1. The Wiring of Premises – Low Voltage Installations & SANS 10400 Part X & XA Application of the National Building Act – Energy Usage.
- d) The Developer will provide street lighting, designed to comply with the standards and requirements of the Supply Authority, where appropriate, in accordance with (but not limited to) SANS 1098: Part 1–2: Public Lighting.
- e) Where applicable, the Developer will provide traffic lights, designed to comply with the standards and requirements of the Supply Authority, where appropriate, in accordance with (but not limited to) SANS 1459 Traffic Lights.

### 5.3.1.2 Design Parameters

The following design parameters have been verified with the Supply Authority.

**Table 45: Design parameters**

Item	Description	Unit	Parameters
<b>1</b>	<b>System</b>		
	Source	ea	Gamagara 132/11 SS
	Nominal System Voltage	kV	11/0.4
	Frequency	Hz	50
	Nominal Voltage @ Source	%	0.98
	3 Phase fault Level @ Source	kA	25
<b>2</b>	<b>Design Limits</b>		
	Voltage Drop	%	±10%
	MV & LV Cable Thermal Loading	%	80%
	TRF Thermal Loading	%	80%
<b>3</b>	<b>ADMD</b>		
	Method	ea	Empirical
	Diversity	ea	AMEU
	Unbalance	ea	AMEU
	ADMD / Stand CB	kVA	4
<b>4</b>	<b>Equipment Range</b>		<b>Size</b>
	MV Switchgear	ea	Vacuum/SF6
	MSS	ea	500kVA 11/0.4kV Dyn11

Item	Description	Unit	Parameters
	MV Cable	ea	95/185 mm <sup>2</sup> , 3 Core, Table 19
	LV Cable	ea	16-95 mm <sup>2</sup> , 4 Core, Cu
	LV Service Cable	ea	10/16 mm <sup>2</sup> , 3/4 Core
	Metering Kiosks	ea	3/6/9/12 Way
	Streetlights	ea	LED
<b>5</b>	<b>Metering</b>		
	Below 100A T/P		Prepaid
	Above 100A T/P		Bulk Elster A1700
<b>6</b>	<b>Earthing</b>		
	Substations	ea	Earthing System < 1Ω.
	Miniature Substation	ea	Earthing System < 1Ω.
	Kiosks	ea	Earth Rod + BCEW Continuity Conductor.
	Customers	ea	Separate Earth

### 5.3.2 MAXIMUM DEMAND

#### 5.3.2.1 Demand Estimation

Maximum demand for the proposed development is based on the comprehensive layout plan of the proposed township areas of Kathu Extensions 6-10 and calculated in accordance with the requirements as set out in SANS 204 and SANS 10142-1.

The following table summarizes the maximum demand estimation:

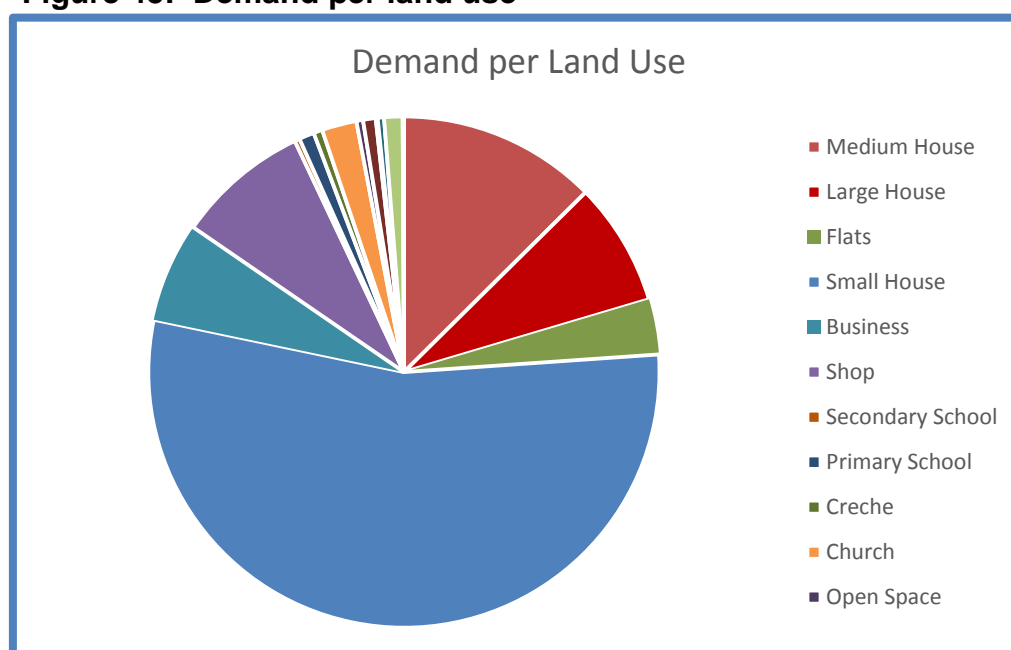
**Table 46: Maximum demand estimation**

Proposed Zoning	Proposed Land Use	Short Name	Number of Erven	kVA per Erf	Total Demand (kVA)
Residential Zone I	Residential House (Minimum 600m <sup>2</sup> )	Medium House	787	4	3 148
	Residential House (Minimum 800m <sup>2</sup> )	Large House	391	5	1 955
Residential Zone III	Flats, Residential building	Flats	5	175	875
Residential Zone IV	Residential House (excluding low cost housing) (Minimum 350m <sup>2</sup> )	Small House	3 886	3,5	13 601

Business Zone I	Business premises including, Institution, Authority Use, Flats, Residential building	Business	9	175	1 575
Business Zone II	Shop	Shop	21	100	2 100
Institutional Zone I	Place of Instruction (Secondary School)	Secondary School	1	80	80
	Place of Instruction (Primary School)	Primary School	3	80	240
	Place of Instruction (Crèche)	Crèche	7	20	140
Institutional Zone II	Public Place of Worship (Church)	Church	11	50	550
Open Space Zone I	Public Open Space	Open Space	21	5	105
Open Space Zone II	Private Open Space (Sports field)	Sports field	2	100	200
	Private Open Space (Cemetery)	Cemetery	1	30	30
Transport Zone I	Transport Use (Taxi Rank)	Taxi Rank	1	100	100
Transport Zone II	Public Street	Street	TBD	0	292
Authority Zone 1	Authority Use (Substation)	Substation	1	10	10
<b>Total</b>					<b>25 001</b>

The load estimation in **Table 46** can be visualised as seen in **Figure 45**, to indicate the contribution of each land use type to the total demand.

**Figure 45: Demand per land use**



### 5.3.3 BULK SUPPLY

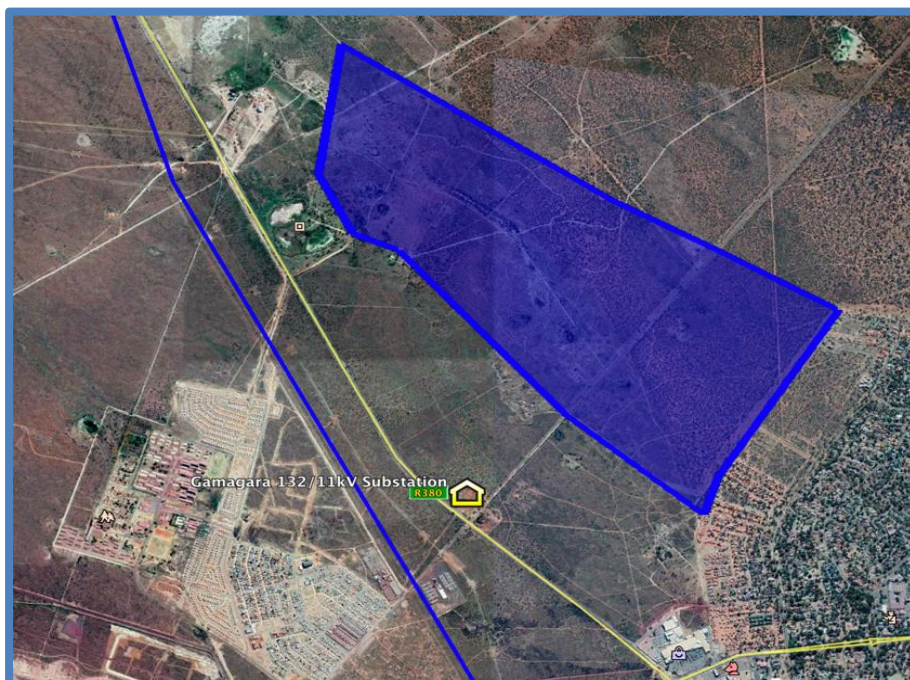
#### 5.3.3.1 Existing Network Analysis

Eskom is currently in the process of constructing a new 132/11 kV Substation (Gamagara) for the Gamagara Municipality. This substation will be connected to the existing 132 kV line (blue) that is passing to the West of Kathu. The position of this infrastructure can be seen in **Figure 46** below. The new substation will be built to deliver a total of 40 MVA with a 20 MVA firm capacity. Thus, having ample capacity to service the new development.

**Plate 34: View of proposed new 132/11kV substation (Gamagara)**



**Figure 46: New services – Location**

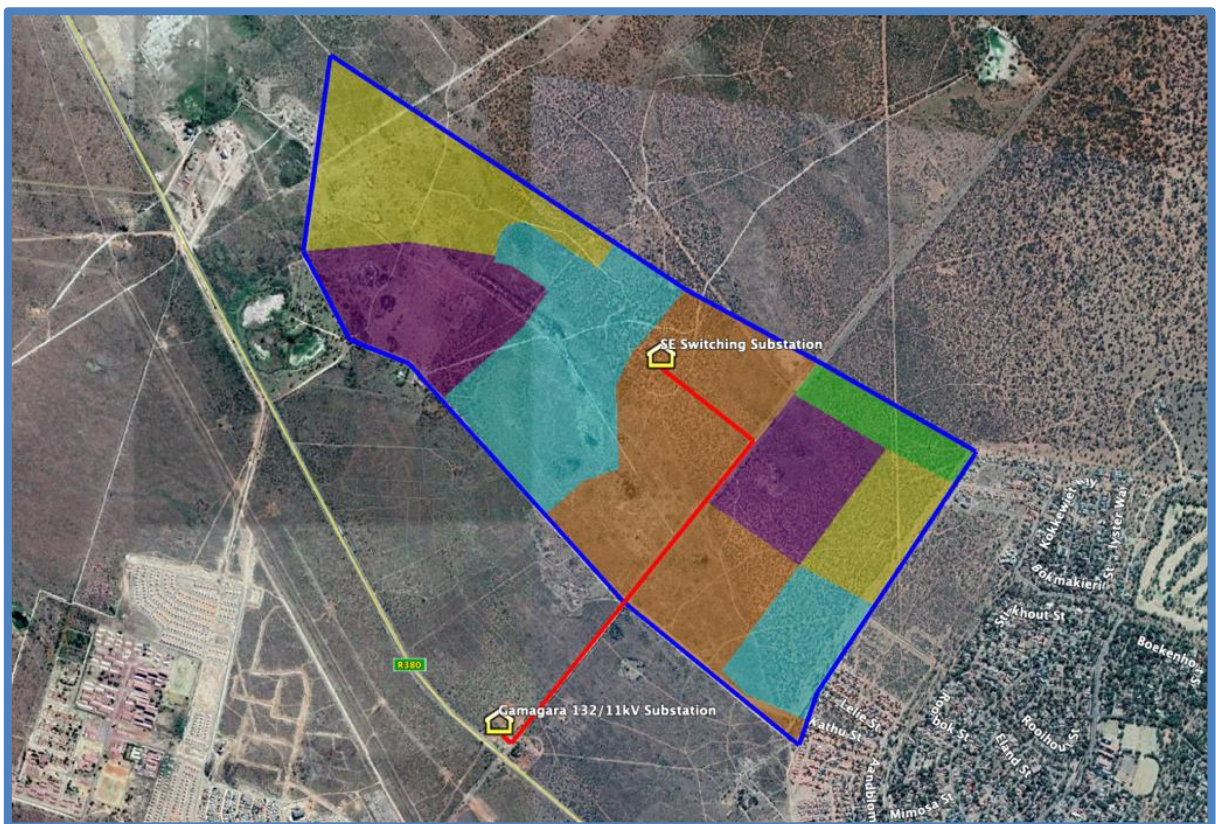


### 5.3.3.2 Bulk Supply Proposal

A new 11 kV Switching Substation will have to be built by Gamagara Local Municipality to distribute the power provided by the Eskom 11 kV supply point. This substation will be located adjacent to the Eskom substation.

To supply the electrical demand for the new development it is proposed that one new switching substation should be built to allow for the distribution of electricity throughout the new development. This switching station will be fed from the new Gamagara 11 kV Switching Substation. The location of the new substation and its cables can be seen in **Figure 47** below.

**Figure 47: Bulk Supply Proposal**



The switching substation will be able to deliver the complete projected load of 25 MVA. It is therefore proposed that five (5) 185mm<sup>2</sup> 11kV PILC cables should be installed between the Gamagara 11kV Substation and the Switching Station, as per the calculation in the table below.

**Table 47: Primary Cable Calculation**

Cable Size (mm <sup>2</sup> )	Amp Rating	Voltage (kV)	Capacity (kVA)	Derating	Derated Capacity kVA	Load (kVA)	Cable Capacity (kVA)	Loading (%)
185	320	11 000	6 097	92%	5 609	25 011	28 045	89%

This will allow for the secure supply of power to the new development even in the case where one of the cables is lost.

**Table 48: Primary Cable Contingency**

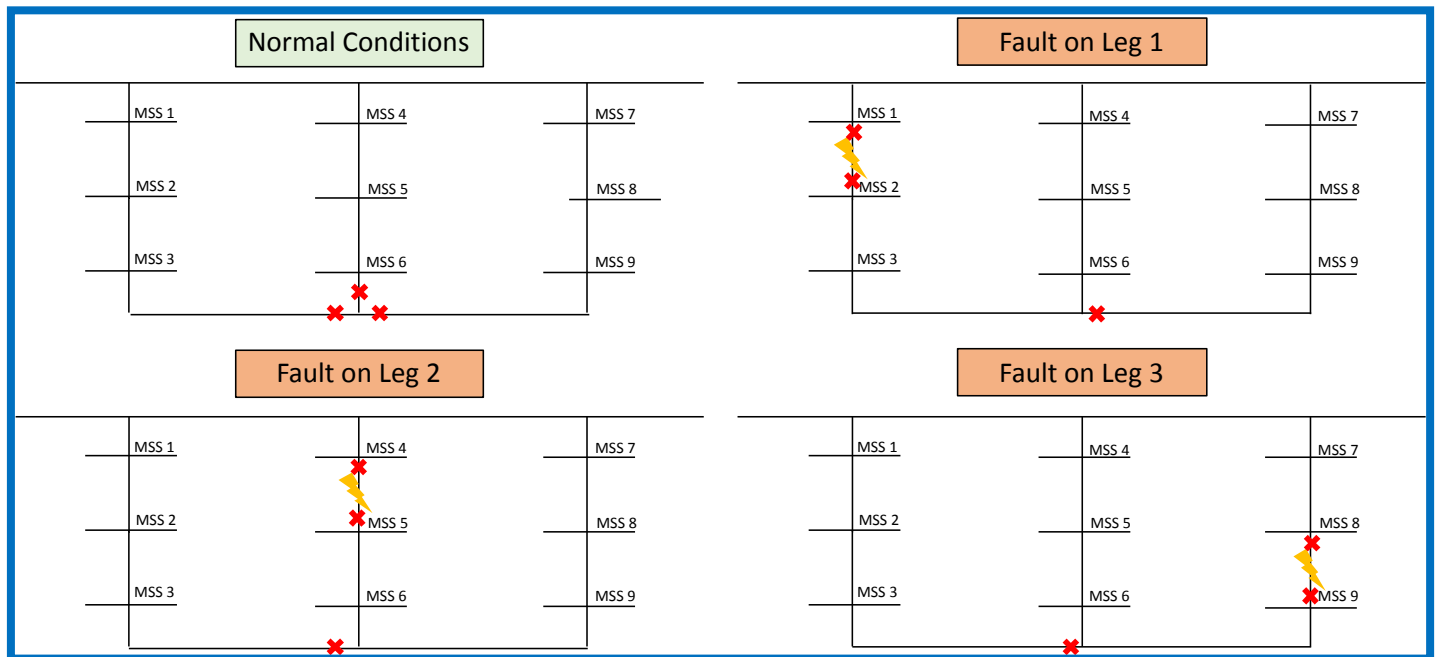
Contingency Loading	22 436	25 011	111%
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**5.3.4 PROPOSED ELECTRICAL SERVICES**

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 three-legged ring design philosophy as shown in the figure below. All MV distribution cables will be underground with miniature-substations.

**Figure 48: Ring Design Philosophy**



- c) **LV Reticulation:** Electricity will be distributed throughout the development by way of an underground LV radial network and associated Distribution Kiosks.
- d) **LV Connections:** LV connections (10/16mm<sup>2</sup>, 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 Metering Kiosks.
- e) **Street & Area Lighting:** Residential roads and public areas will make use of LED type luminaires installed on steel poles.
- f) The detail of the above will be determined during the detail design phase of the project, dependent on the final SDP and will be submitted for review and approval.

## CHAPTER 6: MOTIVATION

### 6.1 INTRODUCTION

This need and desirability in respect of the application for the establishment of the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10 as well as the removal of the restrictive title conditions, consolidation and subdivision of Portions 1 and 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province will, in addition to the motivational statements already discussed in Sections 1 to 5 above, be motivated based on the following criteria:

- National Development Plan: Vision for 2030
- Constitution of the Republic of South Africa (Act 108 of 1996)
- National Housing Code, 2006
- A Comprehensive Plan for the Development of Sustainable Human Settlement (BNG)
- Urban (UDF) and Rural Development (RDF) Frameworks, 1997
- White Paper on Local Government, 1998
- Municipal Demarcation Act, 1998 (Act 27 of 1998)
- Municipal Systems Act, 2000 (Act 32 of 2000)
- National Housing Act, 1997 (Act 107 of 1997)
- Rental Housing Act, 1999
- White Paper on Wise Land Use, 2001
- Millennium Development Goals (MDG)
- National Spatial Development Perspective, 2006
- Northern Cape Provincial Spatial Development Framework, 2012
- John Taolo Gaetsewe District Spatial Development Framework, 2017
- Gamagara Local Municipality Fourth Reviewed Integrated Development Plan 2016-2017
- Gamagara Spatial Development Framework
- Distressed Mining Towns
- Housing Market Overview – Human Settlements Mining Town Intervention 2008-2013
- Demographic Profile
- Outcome 8 - 2014-2019 Medium Term Strategic Framework (MTSF)
- Spatial Planning and Land Use Management Act Development Principles
- General

In terms of section 9(1) of the National Housing Act (107 of 1997), every municipality must, as part of the municipality's process of integrated development planning (IDP) take all reasonable and necessary steps to ensure that the inhabitants within its area of jurisdiction have access to adequate housing on a progressive basis by setting housing



delivery goals, identifying suitable land for housing development and planning, facilitating, initiating and co-coordinating 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 Gamagara 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 6.23 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 areas of Kathu Extensions 6-10 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, state 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)

In terms of the provisions of the Constitution (Schedule 4), housing is a functional area of concurrent national and provincial competence. This provision of legislative and administrative powers necessitates alignment between all spheres of government in terms of the IDP process and especially the preparation of the SDF and thus the Housing Chapter.

In this specific project, collaboration between the Department of Co-Operative Governance, Human Settlements and Traditional Affairs (COGHSTA) and the Gamagara Local Municipality gave rise to the acquisition of a portion of the proposed development area i.e. Portion 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province by the Department of Co-Operative Governance, Human Settlements and Traditional Affairs on behalf of the Gamagara Local Municipality (NC453). It is further the objective of this project to provide opportunities for people to access proper housing either through one of Government's subsidized housing programmes, by accessing bond finance or through the utilization of own funding. The proposed township areas makes provision for a multitude of erven to allow for the provision of the full spectrum of social, educational and health facilities that may be required by the concerned community. As will be alluded to in further sections below, one of the objectives of this project is specifically to address the immediate short term need for proper housing to alleviate the plight of people currently residing in squalid conditions without basic services as enshrined in the Bill of Rights.

#### **6.4 NATIONAL HOUSING CODE (2006)**

The National Housing Code (2006) identified the primary role of the municipality as taking all reasonable and necessary steps, within the framework of national and provincial legislation and policy, to ensure that the inhabitants within its area of jurisdiction have access to adequate housing. This entails the following:

- Initiating, planning, facilitating and coordinating appropriate housing development.
- Promoting private sector development and playing the role of developer.
- Preparing a housing delivery strategy and setting up housing development goals.
- Setting aside, planning and managing land for housing.
- 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 Gamagara 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 flats or rental housing as well as those aspiring to building their own house.

The Gamagara Local Municipality will also promote private sector development as the proposed township areas make 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 and high income households that wish to acquire a preferred stand from the Gamagara local Municipality and erect their own home on the concerned site. In this manner the Gamagara 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 Gamagara Local Municipality has initiated, planned and is facilitating and coordinating the establishment of this integrated human settlement project. This process already commenced as far back as 2007 when Portion 1 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province was acquired by the Gamagara Local Municipality. Setting aside, planning and managing the land for housing further attained momentum during 2011 when the subject properties were earmarked for future residential development purposes in terms of the Spatial Development Framework of the Gamagara Local Municipality (this matter will be addressed in detail in Section 6.18 below).

The Department of Co-Operative Governance, Human Settlements and Traditional Affairs has further pledged its support of this project through the allocation of funding for the installation of services to the proposed township areas. Further financial assistance is expected from Government in respect of the provision of bulk infrastructure (as detailed in Section 5 supra).

## **6.5 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 Gamagara that live in informal settlement areas and in squalid conditions. The informal occupation of vacant land and backyard shacks are especially prevalent in the

Sesheng/Mapoteng area where multiple informal structures (up to ten) are present on sites within the proclaimed township area. Large scale occupation of the land adjacent to Mapoteng has also taken place. This area is intended to accommodate and estimated 1265 household (in terms of the planning that was already done in respect of this area). The number of potential erven in the Mapoteng area that can accommodate the existing informal structures is however far less than that which is needed. This matter will be addressed in greater detail in the sections to follow.

- The layout plans of the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10 not only address the issue of the densification in respect of the size of the erven provided, but also make provision for a number of erven that can be developed at a higher density (in the form of flats and residential buildings). The location of the proposed township area directly adjacent to the existing urban area of Kathu further enhances integration and will offer inhabitants the opportunity to access the multitude of business, social and educational facilities on offer in the existing Kathu urban area.
- This project is a clear example of spatial restructuring and a decisive intervention in the land market whereby funding was allocated and where these well-located properties were specifically acquired for housing development purposes.
- The Kathu Extensions 6-10 township development projects specifically aim at addressing the entire housing spectrum whilst similarly ensuring that current inhabitants of the Gamagara Local Municipality area that were previously excluded from owning a house as a result of the construction of dwelling units that they cannot afford, also have opportunities to access housing which is within their financial means. Ample provision has also been made in the layout plans of the various township areas for erven that can be utilized for social housing purposes to also address the need for rental housing.
- The development of the Kathu Extensions 6, 7, 8, 9 and 10 township areas is a definitive move away from providing housing-only township areas and towards the provision of a proper integrate human settlement that offers a magnitude of social, educational and commercial support facilities and infrastructure in close proximity to the inhabitants.

## **6.6 URBAN (UDF) AND RURAL DEVELOPMENT (RDF) FRAMEWORKS (1997)**

The UDF aims to promote a consistent urban development policy approach for effective urban reconstruction and development, to guide development policies, strategies and actions of all stakeholders in the urban development process and to steer them towards the achievement of a common vision. The UDF is engaged in four key programmes, namely integrating the city, improving housing and infrastructure, building habitable and safe communities and promoting urban economic development.

The RDF co-ordinates integration of government programmes in rural areas and is aimed at: poverty alleviation through institutional development; investment in basic infrastructure

and social service; improving income and employment opportunities; restoration of basic economic rights to marginalized rural areas; and finally justice, equity and security.

## **6.7 WHITE PAPER ON LOCAL GOVERNMENT (1998)**

The White Paper on Local Government adopts development policy guidelines and principles and advocates the developmental role of local government.

The guidelines and principles can be summarized as follows:

- Orientation towards people's needs;
- Poverty alleviation with special consideration of marginalized and disadvantaged groups and gender equity;
- Environmentally sustainable development and a safe and healthy environment;
- Economic growth with creation of income and employment opportunities;
- Involvement of residents, communities and stakeholders;
- Sustainability of services, municipalities and settlements.

The development of the proposed integrated human settlement comprising the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10 addresses the majority of the guidelines and principles set forth in the White Paper on Local Government (1998) as:

- The proposed development is specifically aimed at addressing the needs of the people of Gamagara and specifically the most vulnerable of the community;
- Due to the non-availability of vacant serviced erven that can be made available to the community for housing purposes, sporadic informal settlement on vacant municipal land and in backyards has taken (specifically in the Sesheng/Mapoteng area). As is evident from the housing backlog register, many of these inhabitants will be able to qualify for participation in one of government's subsidized housing programmes which will uplift their living conditions and restore human dignity.
- The community residing in informal structures specifically in backyards run the ever present danger of sporadic fires that have left many families destitute and in grief due to the loss of family members. In addition to addressing the safety concerns of the community through the provision of proper durable housing structures, this project will also ensure a sustainable healthy environment for the inhabitants through the provision and availability of proper engineering services offering safe drinking water, proper sanitary infrastructure and facilities and a safer environment to live in.
- This development will also give rise to economic growth through the creation of income and employment opportunities. This will not only be attained as a result of the provision of a large number of erven that can be utilized for commercial development purposes but also through the provision of erven that can be utilized for social- and educational purposes. These facilities also require staff to function properly and will lead to additional jobs being created.

- The development of the subject properties has been in the public domain since the compilation of the Gamagara Spatial Development Framework as far back as 2011 when the properties were already earmarked for future residential development purposes. To ensure that the community is involved in this project, the Gamagara Local Municipality convened public meetings on 14 and 15 August 2018 where the community was afforded the opportunity to voice their opinions and concerns in respect of this development. The feedback received from the public meetings was duly addressed in the investigations and studies that were conducted. Cognisance should further be taken of the fact that the residents, community and stakeholders will have a further opportunity to participate in this process during the prescribed public participation process. This process will include the publication of notices in a local newspaper and the Northern Cape Provincial Gazette, 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.

## **6.8 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:

- The provision of services to the communities in an equitable and sustainable manner.
- The promotion of social and economic development.
- The promotion of a safe and healthy environment.
- Enable effective local governance.
- Enable integrated development.
- Have a tax base as inclusive as possible for the user of municipal services in the municipality.

## **6.9 MUNICIPAL SYSTEMS ACT, 2000 (ACT 32 OF 2000)**

Chapter 5 of the Local Government Municipal Systems Act, 2000 calls upon municipalities to undertake developmentally-orientated planning so as to ensure that it:

- Strives to achieve the objectives of local government set out in Section 152 of the Constitution;



- Gives effect to its development duties as required by section 153 of the Constitution; and
- Together with other organs of state contribute to the progressive realisation of the fundamental rights In respect of, among others, housing.

In the spirit of our democratic dispensation no development can take place without the effective participation of the communities it affects. Section 29(1) (b) of the Local Government: Municipal Systems Act 32 of 2000 requires municipalities to follow certain procedures to consult with communities and procure their participation in the planning process. As these structures have to be in place, they will be available and should be used to involve the relevant communities in the process of upgrading of informal settlements.

## **6.10 NATIONAL HOUSING ACT, 1997 (ACT 107 OF 1997)**

The National Housing Act (NHA) sets out three general principles, namely: giving priority to the needs of the poor in respect of housing development; consultation with individuals and communities affected by housing development; and ensuring that housing development is economically, fiscally, socially and financially affordable and sustainable.

The NHA lays down general principles applicable to housing development in all spheres of government, defines the functions of national, provincial and local governments in respect of housing development, and promotes the role of the state as a facilitator of housing development.

National government must establish and facilitate a sustainable national housing development process, provincial government must do everything in its power to promote and facilitate the provision of adequate housing in its province within the framework of national housing policy, while municipalities must take reasonable and necessary steps 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 Kathu Integrated Human Settlement comprising the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10 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 such as rental housing or social housing. This will ensure that the right of access to adequate housing is realised on a progressive basis.

## **6.11 RENTAL HOUSING ACT, 1999**

The stated purpose of the RHA reveals that government regards rental housing as an available alternative to homeownership, especially for poor people and historically disadvantaged people.

The layout plans of the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10 make ample provision for erven that are suitably located within identified urban nodes and in close proximity to transport, social and commercial facilities to be developed for social / rental housing.

As indicated in Section 6.17, it is significant to note that the majority of people residing in the municipal area are renting those properties, followed by those that have fully paid their properties (refer **Figure 51**- Section 6.17 below). The opportunity is characterised by the migrant labour system and few industrial developments around Kathu. Also considering the property prices which are very high due to high economic boom in the area, most people cannot afford to buy houses in Kathu. There appears to be a huge market for rental properties in the Gamagara Local Municipality.

## **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.

### **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.

## **6.15 NORTHERN CAPE PROVINCIAL SPATIAL DEVELOPMENT FRAMEWORK, 2012**

The Northern Cape Provincial Growth and Development Strategy (PGDS) states that social and economic development is imperative in order to address the most significant challenge facing the Northern Cape, i.e. poverty, and that the only effective means by which poverty can be reduced is long-term sustainable economic growth and development.

Accordingly, the PSDF responds and gives practical effect to the overarching objective stipulated in the Northern Cape PGDS, i.e. to ensure integration of development processes and, in particular, to facilitate sustainable development throughout the province. Sustainable development is generally referred to as development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. NEMA defines sustainable development as the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations.

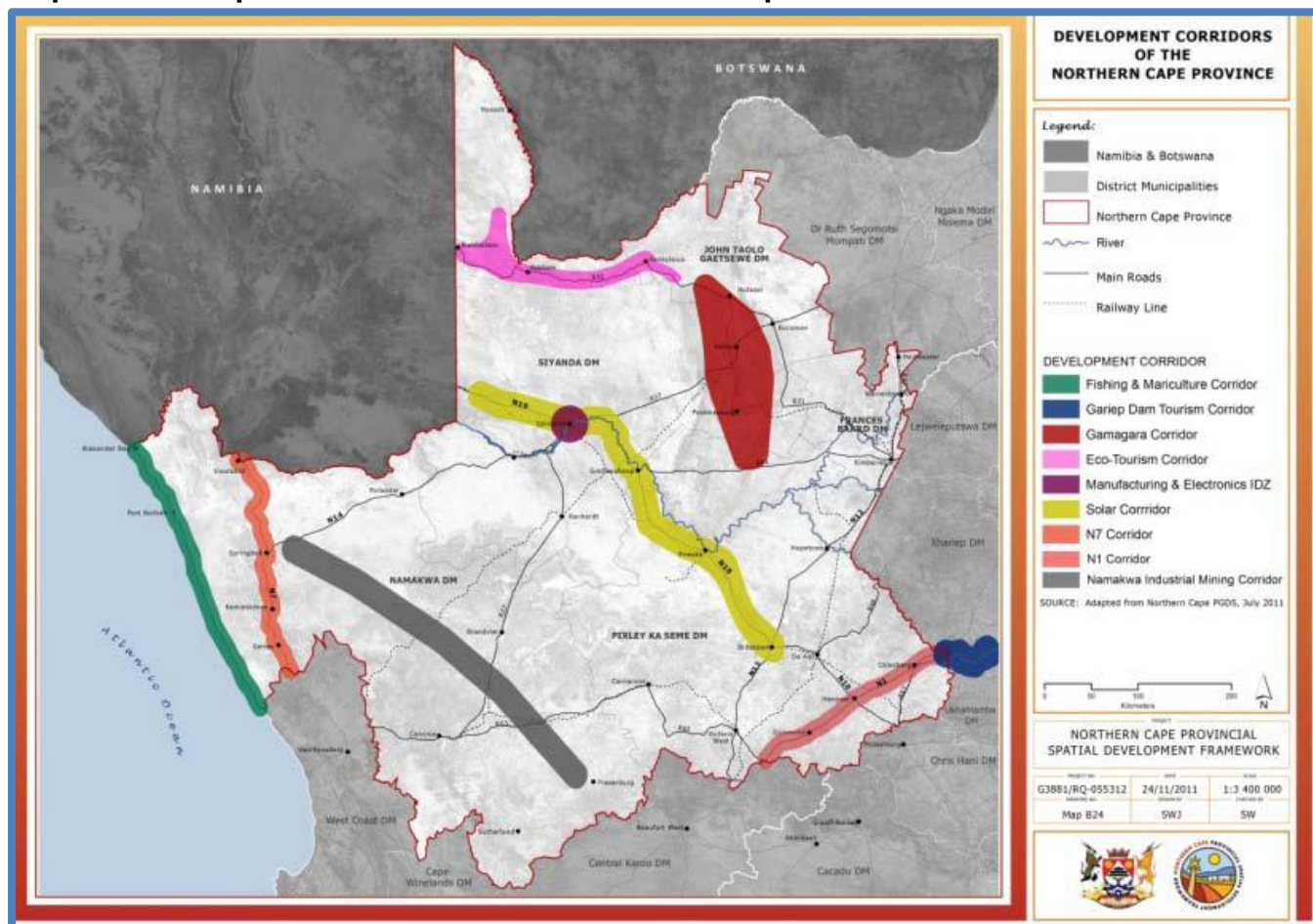
The alleviation of poverty is one of the key challenges for economic development. Higher levels of economic growth are a key challenge for poverty eradication. Investment in people is pivotal to the eradication of poverty and inequality. Investment in people is also, to a large extent, about delivering 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 have 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 14** and **Table 50** summarise and illustrate the spatial context of the current development regions and corridors of the Northern Cape.

**Map 14: Development Corridors of the Northern Cape Province**



**Table 50: Development regions and corridors of the Northern Cape**

REGION AND	DESCRIPTION
<b>FISHING AND MARICULTURE</b>	The Namaqualand coast is the centre of the fishing and mariculture sector. This corridor has its primary node at Port Nolloth and secondary nodes at Hondeklip Bay and Alexander Bay.
<b>GAMAGARA CORRIDOR</b>	This corridor comprises the mining belt of the John Taolo Gaetsewe and Siyanda districts and runs from Lime Acres and Danielskuil to Hotazel in the north. The corridor focuses on the mining of iron and manganese.
<b>KIMBERLEY FOOD CORRIDOR</b>	This corridor constitutes the food producing area from Hartswater and Jan Kempdorp through to Prieska, Hopetown and Douglas.
<b>NAMAQUA INDUSTRIAL MINERALS CORRIDOR</b>	The Namakwa district has a multitude of industrial minerals such as granite, slate, mica, clay, etc. The intention is to develop a central processing and logistics hub in the Springbok area for the mining industry and its synergies.
<b>SKA CORRIDOR</b>	This corridor centres on Carnarvon and Williston and extends to the proximity of De Aar and Upington.

<b>SOLAR CORRIDOR</b>	This corridor centres around Upington and extends from roughly Kakamas in the north to De Aar in the east.
<b>TOURISM: LAKE GARIEP</b>	This corridor centres around Lake Gariep and has significant tourism potential. It is a potential interprovincial hub for tourism which affects the Northern Cape, the Free State and the Eastern Cape.
<b>TOURISM: N1</b>	This corridor connects Gauteng, Free State, Eastern Cape and Western Cape. Colesburg, Richmond and the other settlements along this route are the key beneficiaries and tourism hubs along this route.
<b>TOURISM: N7</b>	This corridor stretches from Cape Town through Namaqualand up to Namibia. It is renowned for its unique aesthetic appeal and periodic natural spring flower displays.
<b>UPINGTON MANUFACTURING AND ELECTRONICS IDZ (INDUSTRIAL DEVELOPMENT ZONE)</b>	The Upington Airport has been earmarked as a cargo hub for manufacturing related to local agriculture production, electronic goods production, SKA-related and solar energy goods and services. The airport is already a facility that exports large amounts of agricultural produce.

An important element of the Northern Cape Provincial Spatial Development Framework is that it gives official recognition to the Gamagara Corridor as a mining belt across the JTG and ZF Ncgawu districts. Furthermore, while requiring the development of these districts' mineral wealth, the framework calls for a parallel process of socio-economic development that will provide for the larger community after the demise of mines in 30 to 50 years.

To ensure the sustainability of urban development it is important to achieve a balance between the conflicting interests of land-use planning. In this regard, a key objective of the PSDF is to promote rehabilitation of existing settlements and to ensure that any future developments are sustainable (i.e. supportive of environmental integrity, human well-being and economic efficiency). Standard town planning criteria applicable in the evaluation and assessment of development applications, building plan approval, change of land-use, etc. are still relevant and will not be replaced by this policy. These criteria relate to *inter alia* taking due cognisance of natural and/or unique resources and land and coastal elements, prevention of urban sprawl, preference for strengthening and densification of existing nodes, and taking into consideration the cumulative impact of development.

The settlement system in the Northern Cape is characterised by small and often isolated urban and quasi-urban settlements scattered across the vast area of the province. Many of these settlements find it hard to provide basic services and sufficient income generating-opportunities to their inhabitants.

Sustainable rural development is closely bound to a vibrant and functional urban settlement system. Villages, settlements and cities are the 'engine rooms' that drive regional development and economic growth. Unfortunately not all urban settlements have the same growth potential. Growth trends fluctuate over time due to many influencing factors. In a large province such as the Northern Cape such 'engine rooms' make a special contribution towards meeting the general needs in both the settlements and the surrounding rural hinterland. Such 'engine rooms' also affect global links, the national spatial economy and sustainable regional development in the province.

It is generally accepted that public funds should be applied for the improvement of a small town's structure and functioning (e.g. investment in market support, provision of water and electricity, development of housing and new industrial areas) only if the basic rural development conditions are suitable. The basic driving force behind a town's growth is provided by its specific economic activities, which generate job opportunities, capital, buildings and infrastructure.

In terms of facilitating development of urban areas, the Northern Cape Provincial Spatial Development Framework set forth the following objectives in respect of establishing sustainable settlements:

- Develop sustainable settlements that would promote the well-being of the people of the Northern Cape, i.e. where they can live with dignity and pride.
- End the apartheid structure of urban settlements.
  - Prohibit further outward expansion of urban settlements that entrenches the current spatial apartheid pattern and results in urban sprawl.
  - Ensure that public funds are not spent in perpetuating segregated and unsustainable settlement patterns.
  - Use socio-economic gradients based on walking distance to create a higher level of integration than currently exists while remaining sensitive to community social norms and levels of living.
  - Use publicly-owned land and premises to spatially integrate urban areas and to give access for second economy operators into first economy spaces.
- Promote sustainable urban activities and public and non-motorised transport.
  - Use walking distance as the primary measure of accessibility.
  - Develop walking and cycling routes.
  - Densify urban settlements, especially along main transport routes, at nodal interchanges etc.
  - Identify areas of highest accessibility that can be designed to maximise safe social and economic activity, especially for participants in the second economy.
  - Restructure road networks to promote economic activity in appropriate locations.
  - Cluster community facilities together with commercial, transport, informal sector and other activities so as to maximise their convenience, safety and social economic potential.

The quality of subsidised settlements that could be achieved through innovative design and cross-subsidisation is visually represented in **Figure 49**.

**Figure 49: Quality of subsidised settlement that could be achieved through innovative design and cross-subsidisation.**

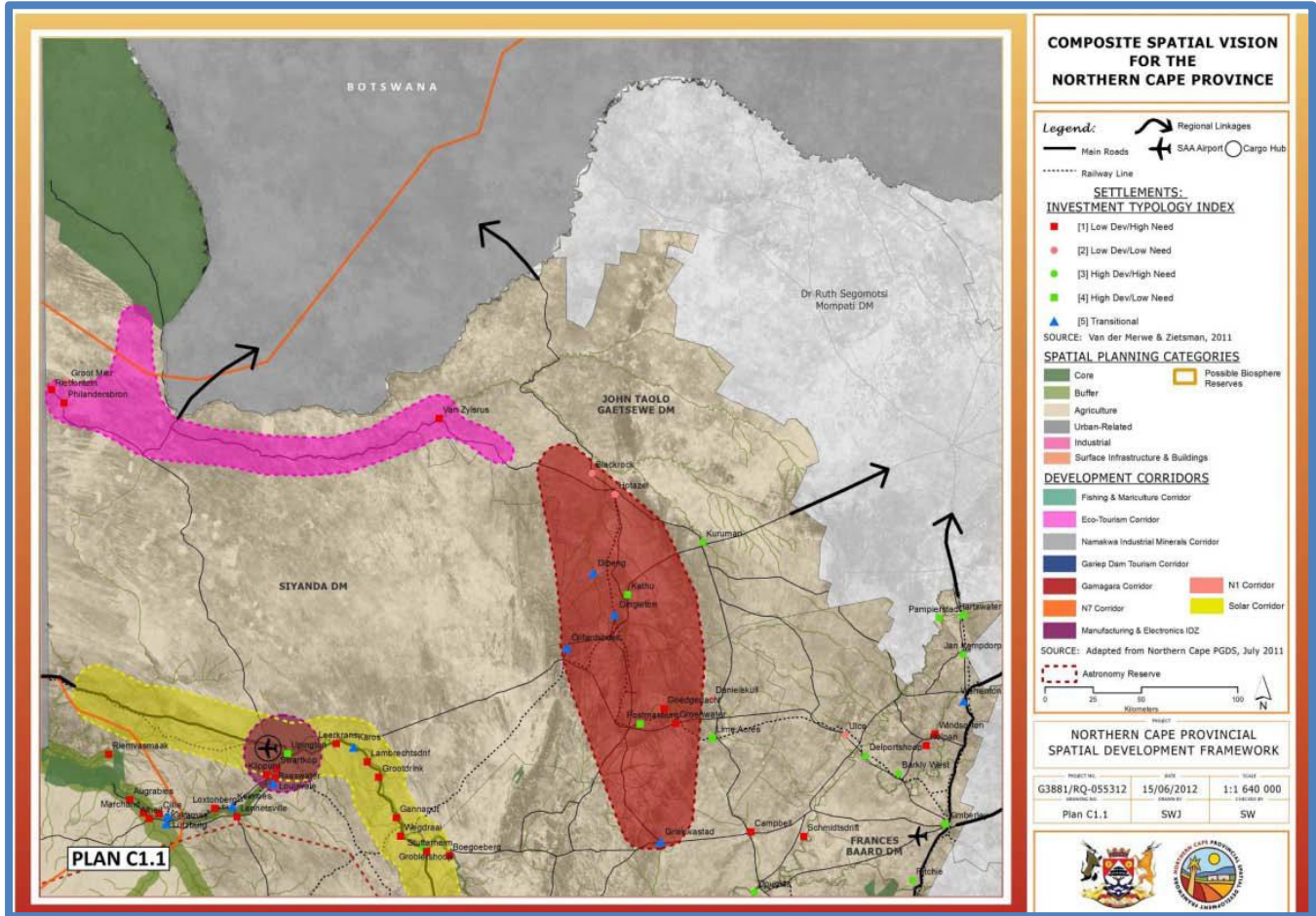


During the design of the Kathu Extensions 6, 7, 8, 9 and 10 integrated human settlement layout plan, specific attention was given to ensuring that the layout plan incorporates road reserves that will not only address vehicular access, but also allow for the creation of pedestrian walkways and bicycle routes.

In terms of the Composite Spatial Vision for the Northern Cape Province as contained in the Northern Cape Provincial Spatial Development Framework, it was indicated that Kathu has a high development potential/low level human need Settlements Investment Typology Index and forms part of the Gamagara Corridor (refer **Map 15**).



**Map 15: Composite Spatial Vision for the Northern Cape Province**



## 6.16 JOHN TAOLO GAETSEWE DISTRICT SPATIAL DEVELOPMENT FRAMEWORK, 2017

The Gamagara Development Corridor is part of the Strategic Integrated Projects (SIPs). The SIPs are a product of the National Infrastructure Projects (NIP). The NIP was initiated to provide a background on cabinet’s decision to establish a body to integrate and coordinate the long-term infra-structure build known as the Presidential Infrastructure Coordinating Council (PICC). The PICC presents the spatial mapping of infrastructure gaps which analyses future population growth, projected economic growth and areas of the country which are not served with water, electricity, roads, sanitation and communication.

Based on this work, eighteen (18) Strategic Integrated Projects (SIPs) have been developed and approved to support economic development and address service delivery in the poorest provinces.

The Gamagara Development Corridor constitutes the SIP 3 (South-Eastern node & corridor development – Increase manganese rail capacity in the Northern Cape) and SIP 5 (Saldanha-Northern Cape development corridor - Expansion of iron ore mining production and beneficiation).

Settlement hierarchy is a way of arranging settlements in order, i.e. according to the population or settlement, or the number of services and functions the settlement has, or the area the settlement covers. The John Taolo Gaetsewe District Spatial Development Framework, 2017 set forth the following settlement hierarchy:

- First Order Settlement – Areas of significant size, with the greatest range of services and facilities in the JTGDM, and in principle, the most sustainable locations for major growth, e.g. Towns.
- Second Order Settlement – Areas of residential dominance with availability of services and facilities within settlements, where its residents directly rely on First Order Settlement and which consist of community facilities, healthcare and education provision indicators, e.g. Townships.
- Third Order Settlement - Large villages which act as key service centres for the surrounding rural area by virtue of the range of services and facilities they possess, and, in principle, suitable for growth.
- Fourth Order Settlement - Small villages with few, if any, services and facilities, suitable only for development of single dwellings or small groups.

In the case of Kathu, the settlement hierarchy classified Kathu as a First Order Settlement.

According to the John Taolo Gaetsewe District Spatial Development Framework, 2017, the municipal housing backlog in the Gamagara Local Municipality increased between 1996 and 2001 with 8.79% and with 21.84% between 2001 and 2011. In 1996 the backlog was 543; 781 in 2001 and 2488 in 2011.

The John Taolo Gaetsewe District Spatial Development Framework, 2017 identified the following key issues as part of the spatial development guidelines and rationale in respect of settlements:

- Capital Funding for infrastructure development and upgrading should be priority in the district to cater for population increases.
- Development of Community Residential Units (CRUs) should be encouraged more in Gamagara Local Municipality and Ga-Segonyana Local Municipality considering the high percentage of household size between 1 – 3 people per household and also considering the higher percentage of males migrating to both municipalities for job opportunities. This should be implemented as part of the Framework Agreement for Sustainable Mining Towns. The Community Residential Units programme (CRU) aims to facilitate the provision of secure, stable rental tenure for lower income persons. Bulk services should also be available to enable this.
- Identification and acquisition of strategically located land for human settlements purposes that will cater for various housing delivery programmes
- Spatial integration (Kathu-Sishen and Kuruman-Wrenchville) should be encouraged

- The legacy of apartheid planning and poverty should be addressed according to the principles as set out in the National Spatial Development Perspective. Human Development Hub model (objective 6 of the JTG SDF 2012) should be implemented in densely populated settlements along transportation routes for areas such as Dithakong, Bothitong, Kagung, Loopeng, Heuningvlei and Cassel.

The John Taolo Gaetsewe Provincial Development Framework also identified the current overcrowding that is prevalent in Mapoteng:

***“Overcrowding is another challenge for effective sanitation in Mapoteng. The number of dwellers per erf/ stand far exceeds the current capacity to deliver service. Technically, the sanitation system, consisting of four pumps in Mapoteng and six pumping stations in Kathu, can accommodate five people per household. In reality, up to 20 people may reside on each erf/ stand or plot, by far exceeding the calculated capacity of the infrastructure. This explains the recurring problems being experienced with bulk services and the provisioning of internal services to attend to the problems”.***

The development of the proposed Kathu Extensions 7, 8, 9 and 10 integrated human settlement will specifically also aim to provide suitable housing infrastructure (both single dwelling units, rental stock and social housing) that will also address the overcrowding currently experienced in Mapoteng.

The following is stated in respect of the housing demand in the Johan Taolo Gaetsewe District:

- Residential influx and the mushrooming of informal settlements (**Kathu**, Promised Land and Thuli Madonsela) and sporadic expansion of rural areas (Magojaneng, Seoding Seven Miles, Mapoteng and Kagung) result in a demand for additional land for urban development,
- The reported increase in the percentage of informal settlements in the JTG district from 5.1% to 7.6% of the population is concerning, but the situation in **Kathu** has definitely worsened since Census 2011 data was collected. The housing backlog is also alarmingly high,
- Access to land in Gamagara is also a challenge as most of the land is privately owned
- To meet and address the housing demand, various housing delivery mechanisms should be implemented
- National Housing Agency should continue to identify the needs and delivery mechanism in this sector

## **6.17 GAMAGARA LOCAL MUNICIPALITY FOURTH REVIEWED INTEGRATED DEVELOPMENT PLAN 2016-2017**

According to the foreword by the then Municipal Manager, as contained in the Gamagara Local Municipality Fourth Reviewed Integrated Development Plan 2016-2017, ***“the Gamagara municipal area has experienced a lot of inward migration as a result of the economic opportunities brought about by the exploration of iron ore and manganese deposits within the John Taolo District municipal jurisdiction. The town of Kathu, which is the administrative and economic hub of the municipality, is in the centre of the Gamagara Mining Corridor. Due to this situation, the town bears the brunt of the needs of both ends of the economic conundrum.***

***The high population growth leads to a need for land for development (both commercial and residential) by developers whilst on the other hand, the job seekers and those who have found employment are in need of affordable residential accommodation. As a municipality, we are thus faced with a difficult task of managing conflicting interests and given the country’s past economic divide, the situation needs proper and apt management”***

In terms of the Revised Integrated Human Settlement Sector Plan, the housing needs in Gamagara has grown exponentially in a period of ten years (in between 2001 and 2011 census years). The in-migration has prompted a growth of 211% in the number of households. There were 833 informal households in Gamagara which constituted 15,7% of the total number of households and the 2011 census found that there was an increase of 1757 households leading to the total number of the informal households to 2 590 which constitute 24,4% of the total households in Gamagara. The Gamagara Integrated Human Settlement Sector Plan (GIHSSP) indicates that 98% of the informal settlements were found to be in the urban areas. Farm land housing need was recorded as 24 households (Gamagara Integrated Human Settlement Sector Plan: 2014).

The GIHSSP indicates further that 9,5% of the total households are backyard shacks which grew by 797% in the past ten years and 13,9% of the total households are stand-alone shacks which depict 124% growth in the past ten years. It further reveals that there are households that stay in caravans or tents which constitute 0,6% of the total households and indicates a growth of 136% during the past ten years.

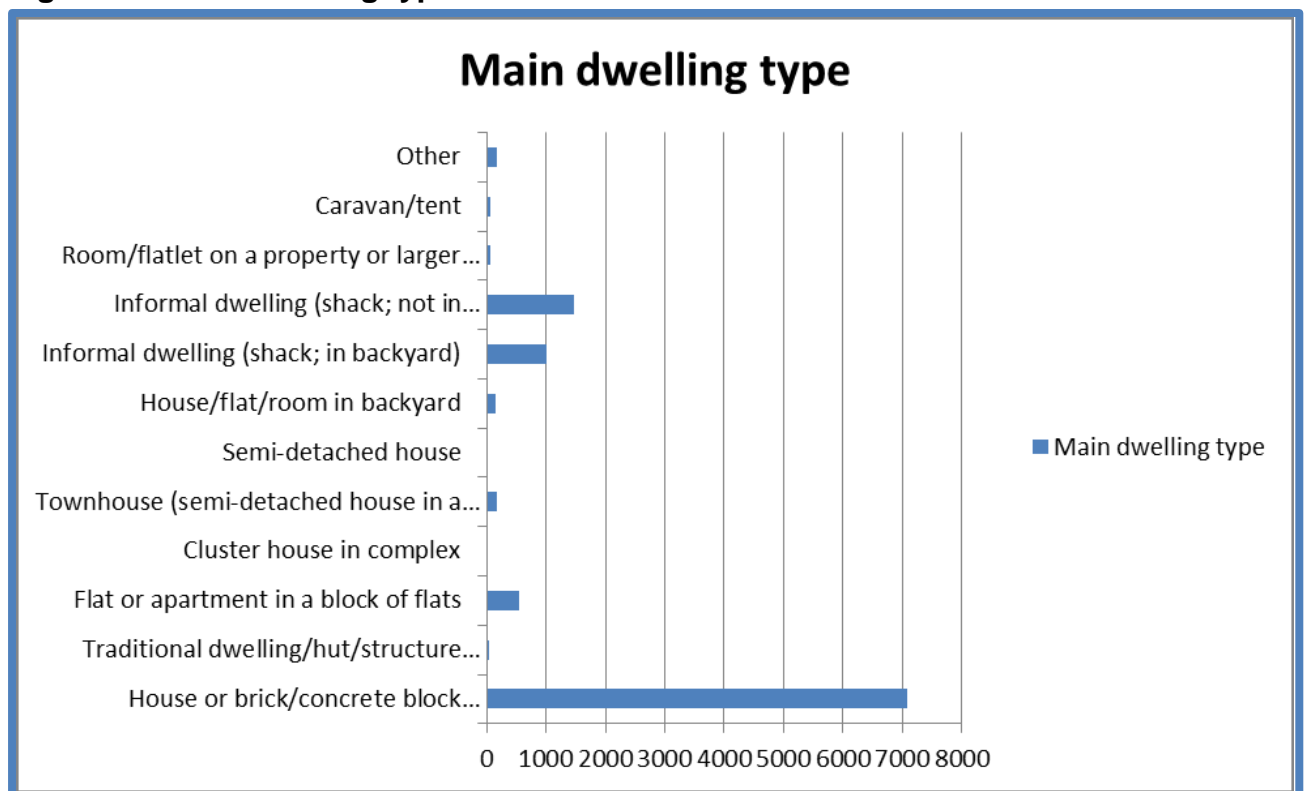
Approximately 76% of households resident in the Gamagara Municipality are resident in adequate housing. Although the number of households resident in adequate housing increased 80% from 2001 to 2011 (translating to 3,568 households), the portion of households resident in adequate housing decreased from 84% to 76% of Gamagara’s total households. In 2001 16% of Gamagara’s households were resident in inadequate housing which increased to 24% in 2011.

Although informal dwellings in an informal/squatter settlement represent the most significant portion of the inadequate housing (14% of Gamagara’s households), informal backyard dwellings (representing 9% of Gamagara’s households) grew from 112 in 2001 to 1,005 in 2011 (797%).

The Integrated Human Settlement Sector Plan has identified a housing backlog to be at 2 590 houses. The municipality has subsequently planned to fast track the institutional housing development in all areas of the municipality to deal with the housing backlog.

The main dwelling types found within the Gamagara area is reflected in **Figure 50**.

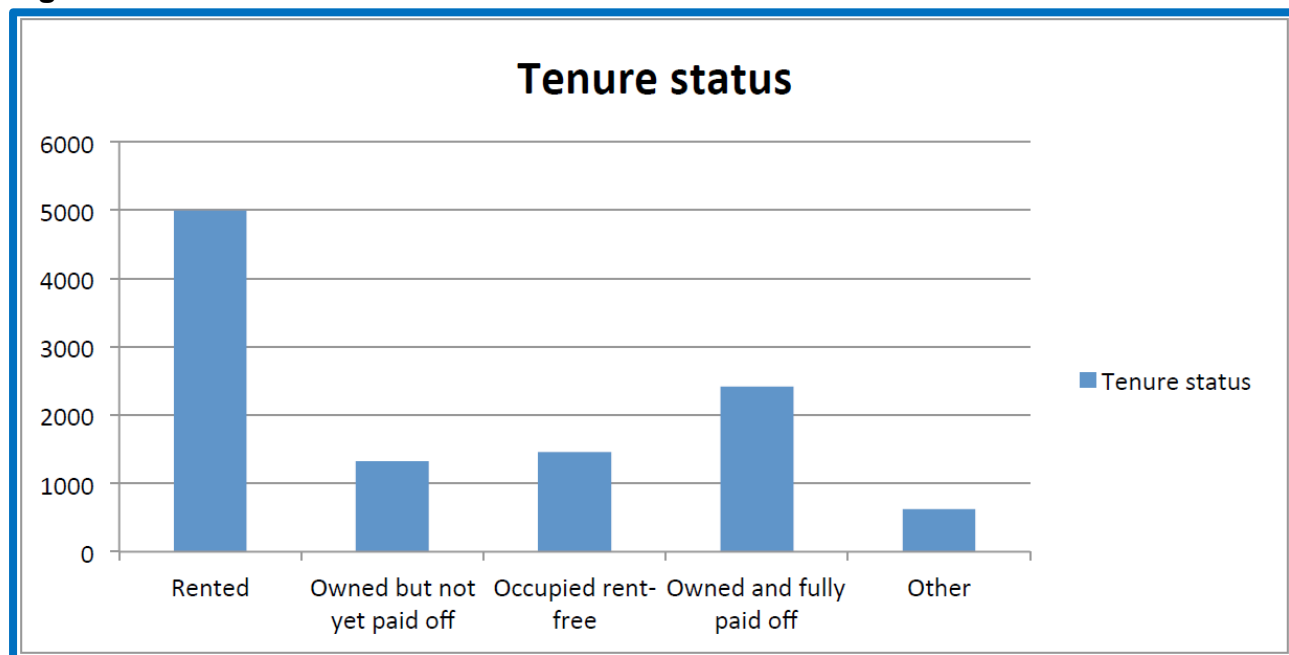
**Figure 50: Main dwelling type**



From **Figure 50** it is evident that a large proportion of the main dwelling types comprises of informal dwelling (either in backyards or not in backyards)

It is however significant to note that the majority of people residing in the municipal area are renting those properties, followed by those that have fully paid their properties (refer **Figure 51** below). The opportunity is characterised by the migrant labour system and few industrial development around Kathu. Also considering the property prices which are very high due to high economic boom in the area, most people cannot afford to buy houses in Kathu. There appears to be a huge market for rental properties in the Gamagara Local Municipality.

**Figure 51: Tenure Status**



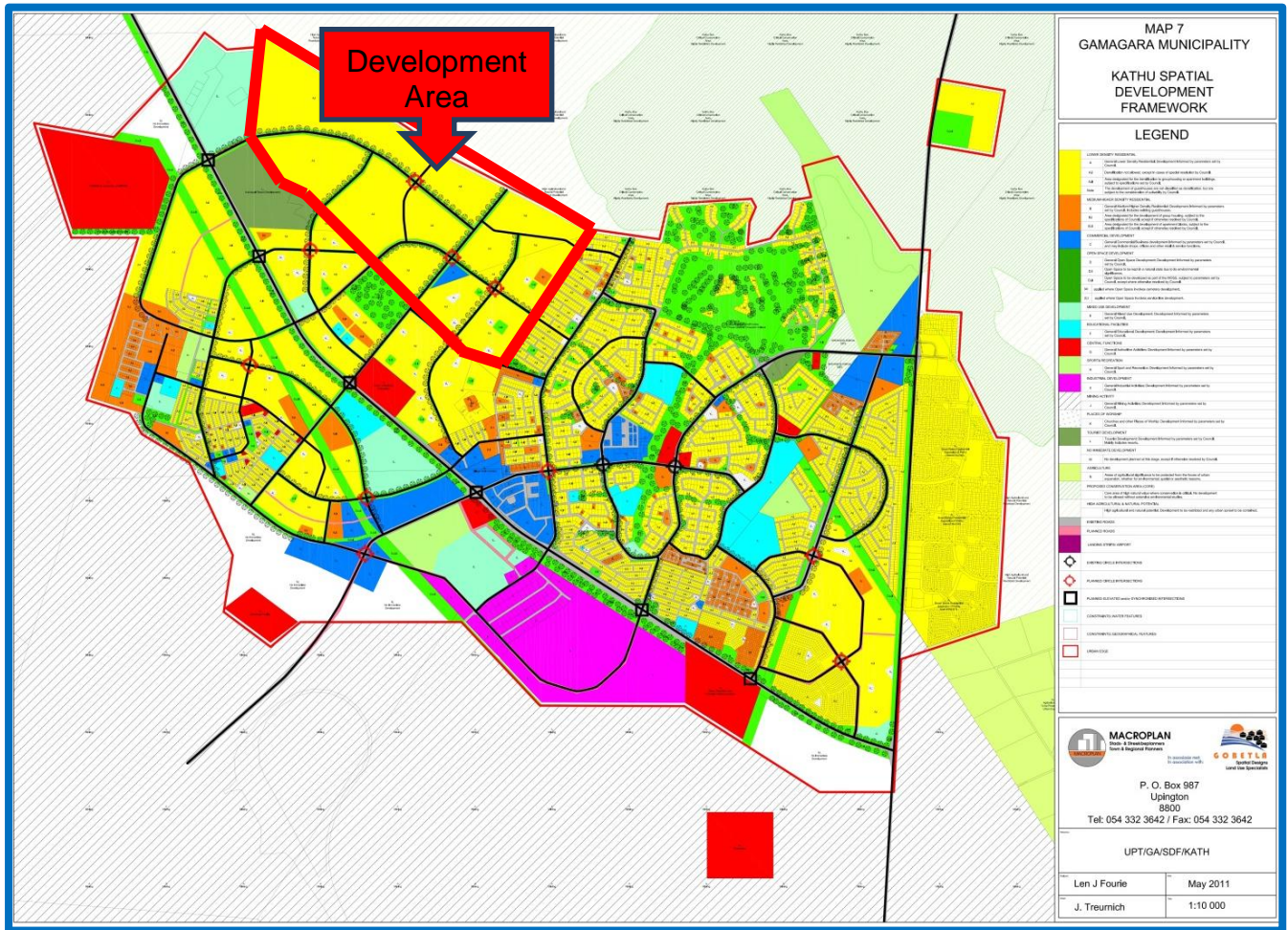
The following 5 pillars were identified as very important in the development of the Gamagara Local Municipality Strategic Framework:

- **Open Opportunity Society:** A society in which every person is free, secure and equal, where everyone has the opportunity to improve the quality of his/her life and pursue her/his dreams, and in which every language and culture has equal respect and recognition
- **Redress:** Addressing the imbalances of the past that has resulted in economic and spatial inequality in a sustainable manner that ensures that all benefit
- **Delivery:** Ensuring that everyone has equal access to basic services and resources under the mandate of government and the constitution
- **Transparency:** Communicating all the municipal developmental plans to all citizens and further promote the participation of different stakeholders in municipal developmental agenda
- **Economic Development:** Creating an enabling environment for economic growth and promote economic development for the benefit of all.

## **6.18 GAMAGARA SPATIAL DEVELOPMENT FRAMEWORK, 2012**

In terms of the Spatial Development Framework of the Gamagara Local Municipality, Portions 1 and 2 of the farm Kalahari Gholf en Jag Landgoed No. 775, Division Kuruman, Northern Cape Province are located inside the demarcated Urban Edge. The subject properties were also earmarked for “lower density residential development” and partially for “medium/high density residential development”, as reflected on **Map 16**.

**Map 16: Gamagara Spatial Development Framework (development area outlined in red)**



**6.19 DISTRESSED MINING TOWNS**

Fifteen mining areas were initially identified for fast-tracked human settlements development, using housing projects to stimulate local economies and create job opportunities for local residents. The interventions were conceptualised in 2012, when the former President Jacob Zuma formed an Inter-ministerial Committee for the Revitalisation of Distressed Mining Communities. The Framework Agreement for a Sustainable Mining Industry was signed in 2013, committing government and the mining industry to accelerate efforts to upgrade human settlements in mining towns, and improve the living and working conditions of mineworkers. In line with this, the National Department of Human Settlements is driving the revitalisation of distressed mining towns through a number of projects.

At the core of the plan is a new approach to co-ordinating the work of local and provincial government, local business, mining companies and other economic interest groups, with the active participation of communities and mineworkers.

Proposed interventions include:

- Upgrading informal settlements (providing interim services, upgrading, relocation)
- Basic service backlog connections
- Home ownership through support provided to households to purchase a site and build, or buy on the secondary market
- The provision of rental accommodation for migrant miners

The downturn in the mining sector has seen the number of distressed mining areas proclaimed by government climb to 19 located in six provinces.

The towns on the list receive special cross departmental support, either through technical support or grant transfer that is meant to diversify the local economy by developing other economic opportunities during and beyond the life of mines.

The 19 prioritised mining towns in the programme are Fetakgomo, Tubatse, Elias Motsoaledi in Sekhukhune district and Lephalale in Waterberg district in Limpopo; Westonaria, Randfontein, Mogale City and Merafong in Gauteng's West Rand; Rustenburg, Moses Kotane, Madibeng in Bojanala district in North West, as well as Matlosana in the same province; Mpumalanga's Nkangala district's Emalahleni and Steve Tshwete municipalities; the Free State's Matjhabeng municipality; and Ga-segonyana, **Gamagara**, Kgatelopele and Tsantsabane municipalities in the Northern Cape.

The municipalities chosen and prioritised experience different forms of distress. The old gold mining municipalities are experiencing a continuous decline in economic activity as gold reserves are diminishing and so are employment opportunities. These municipalities are therefore experiencing a sharp economic decline. At the same time, the newly growing mining municipalities that are predominantly concerned with the extraction of platinum group metals, coal and other mineral commodities are experiencing an influx of migrant workers searching for employment at the mines and other related industries. These municipalities are experiencing a different kind of distress, which is associated with the inadequate provision of decent housing and living conditions, bulk and reticulation infrastructure. The available amenities do not meet the demands of an ever increasing population in these localities.

## **6.20 HOUSING MARKET OVERVIEW – HUMAN SETTLEMENTS MINING TOWN INTERVENTION 2008-2013**

In terms of the Housing Market Overview – Human Settlements Mining Town Intervention 2008-2013 Report compiled by the Housing Development Agency, the following Housing Challenges and Strategies were set forth in the 2014/2015 IDP of the Gamagara Local Municipality:

- **Housing Challenges**
  - Provision of water and sanitation services to the informal areas
  - Lack of housing for young people



- There is a huge backlog due to the expansion of mines
- Provision of residential stands to backyard dwellers and people without housing
- Inadequate allocation of houses coupled with a slow pace in the delivery of houses
- Unavailability of adequate services like water and sewage in areas earmarked for housing development
- **Housing Strategies**
  - Ensure the development of quality housing delivery and eradicating housing backlog to maximum benefit by ensuring sustainable housing settlements
  - Building of proper houses through national and provincial housing scheme
  - Ordained building activities as prescribed by building regulations
  - Fast track the facilitation of rental housing
  - Ensure provision of housing for relocation of Dingleton
  - Develop and implement a land policy to the maximum benefit of housing development initiatives
  - Optimal usage of land
  - Negotiate with Kumba for provision of suitable land
  - Ensure proper planning and surveying of all suitable land according to the need of communities
  - Mobilisation of well-located public land for low income and affordable housing with increased densities on the land

The report made the following key findings in respect of the Housing Market overview:

- The Gamagara housing market is transitioning to a balanced level of growth. While demand has slowed in some areas, it has also increased slightly in other areas, which points towards a more stable market for both buyers and sellers. This is likely due to anticipated growth and expansion of the mining sector and jobs along the corridor, as well as the increasing development of one particular area in the municipality. Recent growth has stabilised a bit, creating an opportunity for markets to be carefully assessed in order to best position the next wave of growth.
- Gamagara's affordability is such that it takes more than double the average income to afford the average house. While this is below the national average of 3, despite a just above-average monthly income compared to all mining towns and the nation, there remain large disparities amongst incomes and affordable housing access within the municipality. This may prioritise housing strategies and solutions, which propose creative financing tools and techniques to reduce financial barriers (such as down payments, interest rates and principal repayments) as well as unlocking equity, rather than simply trying to push costs down.
- According to the deeds registry, about one quarter of all housing units in the mining towns are Government sponsored. 23% of all registered properties within Gamagara are Government-sponsored and represent an important opportunity to leverage that investment in affordable housing in the years ahead, as owners seek to sell and

move up the housing continuum, if opportunities are positioned properly. Average equity in these areas increases purchasing power, putting moderately priced housing within reach of lower income families. This situation can be used to drive developers to build more gap housing, and financiers to finance lower priced acquisition loans.

- The area has a limited range of diversity and integration of housing values and property types. Gamagara is predominantly freehold with most property values being under R250 000. Mixed-income housing development provides adequate profit for developers while providing lower income homes, and creates a market less reliant on Government and mining intervention.
- Gamagara has experienced a modest increase in non-traditional lenders. With the presence of existing RDP units, it will be an important strategy to encourage traditional and new lenders to develop creative loan programmes targeting those homeowners in order to make it easier for them to sell their homes, unlock the value of those homes, and allow owners to move up the housing continuum.
- With 46% of families renting in Gamagara, the opportunity for rental housing development within Gamagara is strong, especially within most areas along the corridor. Those areas with greater density, modest incomes, and affordability challenges are more likely to support quality, professionally managed and affordable rental housing. Rental housing also provides flexibility to employers and workers as mining markets expand and contract from time to time.

In terms of the key findings relating to the market size, Gamagara's housing market is essentially three markets: Government-sponsored housing built as part of the National Housing Initiative over the past 20 years, privately traded and financed homes, and informal settlements. Markets are highly segregated between higher-priced, actively selling private growing markets near the centre and west of the city, and further flung lower income, non-bonded Government sponsored developments and informal settlements (not on the deeds registry).

The implied demand for housing is high. The current estimated housing backlog represents about 40% of the town's current total formal residential properties, one of the highest of all mining towns. Demand creates opportunities for new housing supply to be positioned between the existing segregated markets to better integrate the town's spatial, income and housing markets.

Given this backlog, Government should focus on increasing housing supply. Existing Government investment in housing can be leveraged to guide new development opportunities, if and when those homes can be sold to new buyers and the proceeds then used to purchase new housing further up the housing continuum. Government can use its existing housing investment to identify areas of future development and entice private sector participation. For example, Government might prioritise new development between Government-dominated and private markets for more integration mixed-income sites, and fills spatial gaps within the town.

Encouraging the expansion of financing to lower income families will allow for those homes to be sold, and the proceeds used to support housing development further up the housing continuum.

Rapidly changing housing demand driven by mining activities makes a strong case for the prioritisation of quality rental housing. If rental housing is well-situated and convenient to transport and centrally located in dense areas, it can bring social and economic cohesion to housing markets over the longer term.

In terms of the policy implications relating to the issue of leverage:

- Policies should focus on enticing developers to build more housing in the gap market, and encourage lending to the RDP and other lower cost home markets. Sites could be prioritised, which connect RDP neighbourhoods to other more active housing markets to encourage mixed income development.
- To encourage an increase in the supply of gap housing, Government can unlock sites, supply infrastructure or grants, or hook-up fee discounts. Government can also reduce the cost of construction finance, which can all be passed down to the buyers in the form of lower sales prices.
- Government can create programmes using funds pooled from a range of Government and private sector partners, which provide bonds for small properties, and offset risks through loan guarantees, loan loss reserves, and interest rate discounts. Funds can also organise to implement homebuyer counselling, debt consolidation and moderate rehab costs of the existing home to ensure loan performance of the portfolio.
- These programmes would work together in the mining towns to create better social, housing and economic integration. In Gamagara, this might be areas between Dibeng and Welgelee, the higher priced more active markets, and Kathu.

## **6.21 DEMOGRAPHIC PROFILE**

The demographic profile detailed in Section 1.2.2 supra contained the following summary in respect of the sectoral composition (GVA) and employment trends, the population and households as well as household income:

- The local economy has experienced good, positive economic growth over the past decade (2008 – 2017). The average economic growth for this period was 3% per annum.
- The employment growth has had similar growth of 2.8% per annum (2008 – 2017).
- The mining sector is the main driver in the local economy and has remained the major driver of economic activity since 1993.
- The diversifying of the economy is evident in the employment per sector, where retail trade is employing more people than the mining sector.
- The level of employment has been very positive over the past decade and in 2017, the local economy has had the highest employment levels in its history.

- The economy is still at its peak and has been constantly high over the past four years.
- The municipal area experienced an increase in both population and household numbers of just over 78% from the 2001 total to 2011. The annual growth rate equates to 6% for the population and households during this period.
- From 2011 to 2016 the growth was still high, albeit slightly lower than the previous period, at 5.25% annual population growth and 5.7% annual household growth. This equates to an annual increase in households of 760 for the municipal area.
- The town of Kathu is the main economic and population node within the municipal area with various new real estate projects that have developed over the past decade. The town's population increased from 6 279 in 2001 to 11 510 in 2011 while the number of households have increased from 2 067 (2001) to 3 622 (2011). Based on population trends and supported by the community survey of 2016, the **town's population is still increasing and estimated to be approximately 16 427 with households at 5 336 in 2018.**
- The annual increase in the number of households in Kathu is estimated to be 245 per annum (2011 to 2018) while the annual increase in households for the municipal area is estimated at 806 (2011 to 2018).
- In estimating the population and households for the municipal area, the following two scenarios are proposed:
  - Scenario 1 assumes continued population and household growth at levels similar to the 2011 to 2016 survey results i.e. **±5.5% compound growth.**
  - Scenario 2 assumes that population and household growth have peaked and will stabilise at an **average of 806 new households and 2 540 people per annum.**
- The average annual household income for the municipal area shows that 60.1% of households earn below R76 800 per annum with 39.9% above R76 800.

According to the Municipal Profile of the Gamagara Local Municipality compiled by the Housing Development Agency (HDA) (2014), households in Gamagara Local Municipality are relatively poor with a large segment of the market that earn no income at all, representing 10.3% of all households. **76,02% of the households earn less than R12 800/month.** There has been significant growth in the income bracket earning between R3500 and R12 800/month—a clear signal for rental or gap market housing options.

The characteristic of the local economy is one where the primary sectors play a significant role in the growth and development of the economy. Although the employment in the other sectors provide some stability and buffer in fluctuations of the mining sector, the mining sector is still the main economic activity in the area, and changes in this sector is expected to influence growth locally.

The mining sector has already employed a lower number of people since the highs of 2008 to 2012. Even with the lower employment the local economy has increased the total level of employment with the other sectors responsible for the increase in employment. This

indicates that the local economy is able to absorb and create new employment irrespective if the mining sector increases its levels of employment.

Since 2012 the economy was able to create on average 342 new jobs, this in a period where mining employment decreased by an average of 144 jobs annually. A decrease in mining employment in the local economy has not led to a lower overall employment level and lower number of households, but in fact, the opposite

## **6.22 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.

## **6.23 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. As detailed in the preceding sections, the Kathu area is characterized by large scale informal occupation of vacant municipal land as well as large numbers of backyard informal dwelling units. 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 / social 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. In terms of current projects underway, the Gamagara Local Municipality aims at developing 1265 houses in the Mapoteng area to alleviate the plight of the landless community. Based on a desktop Google Earth assessment of the current number of informal dwelling units within the Mapoteng area and the vacant municipal land adjacent to the urban area, it was estimated that there is currently approximately 480 informal dwelling units on the vacant municipal land and approximately 1815 informal dwelling units in the backyards of residential erven in Mapoteng. This entails that there are in excess of 2295 informal residential units /households in the Mapoteng and surrounding area that are in need of proper housing. It is therefore imperative that the Gamagara Local Municipality act pro-actively in providing vacant erven for housing development purposes in an attempt to eradicate informal occupation of land where people reside in squalid conditions without basic services and proper shelter. This township establishment will afford the landless community residing in this area the opportunity to access a proper surveyed residential erf with the necessary services infrastructure and proper human shelter.

- (ii) spatial development frameworks and policies at all spheres of government must address the inclusion of persons and areas that were previously excluded, with an emphasis on informal settlements, former homeland areas and areas characterised by widespread poverty and deprivation;**

In terms of the Gamagara Local Municipality Spatial Development Framework, the area to which this application applies was already earmarked for residential development purposes. This was specifically done to limit further urban sprawl and to enhance integration. The proposed development area is also within the demarcated urban edge as defined in terms of the SDF.

- (iii) spatial planning mechanisms, including land use scheme, must incorporate provisions that enable redress in access to land by disadvantage communities and persons;**

The local municipality identified portions of land within the local municipal area, through the Spatial Development Framework, that will redress access to land by previously disadvantaged people whilst also providing housing opportunities for people that wish to acquire land to build their own home or those that do not qualify to participate in the subsidized housing programmes of government but still require proper housing (e.g. rental housing / social housing). The proposed development of Kathu Extensions 6, 7, 8, 9 and 10 will focus on a wide spectrum of housing typologies and providing a variety of erf sizes to accommodate the needs of the community. The proposed township areas will focus on subsidized-, bonded-, FLIPS-, rental-, social-, middle income and high income housing based on the requirements of the community.

- (iv) land use management systems must include all areas of a municipality and specifically include provisions that are flexible and appropriate for the management of disadvantaged areas, informal settlements and former homeland areas;**

Land uses within the Gamagara Local Municipality municipal area are governed by a functional land use management system. The proposed land uses in the township areas of Kathu Extensions 6, 7, 8, 9 and 10 will be regulated by the Gamagara Scheme Regulations, 2003. The opinion is held that the provisions of this scheme that will relate to this development will be totally appropriate for the management of the land uses to be provided within this development.

- (v) land development procedures must include provisions that accommodate access to secure tenure and the incremental upgrading of informal areas; and**

According to the Gamagara Human Settlement Sector Plan the number of informal housing structures was estimated at 2590 units in 2011, which constitutes 24,4 of the total households in Gamagara. Based on information supplied by the Gamagara Local Municipality, their housing register currently has in excess of 2000 registered beneficiaries. The township establishment process has at its core the intent to create additional residential erven that can, after proclamation of the township areas, be alienated to the beneficiaries thereof. This new township development will afford the community of Gamagara the opportunity to access land and secure tenure thereof.

- (vi) **A Municipal Planning Tribunal considering an application before it, may not be impeded or restricted in the exercise of its discretion solely on ground that the value of land or property is affected by the outcome of the application;**

This project entails the development of land that has been vacant for a number of years with no economic or social advantage for the community.

**7. (b) the principle of spatial sustainability, whereby spatial planning and land use management systems must –**

The principle of spatial sustainability should allow for flexibility in dealing with applications and proposals, which may not have been anticipated.

- (i) **promote land development that is within the fiscal, institutional and administrative means of the Republic;**

In terms of the sub-principle, the opinion is held that the Gamagara Local Municipality has sufficient fiscal, institutional and administrative capacity and resources to administer the development. The Gamagara Local Municipality will ensure that the development complies with the requirements contained in the Gamagara Scheme Regulations, 2003 and the Gamagara Local Municipality Spatial Development Framework. In this regard it is pertinent to also note that the fiscal capacity of the Gamagara Local Municipality is also enhanced through the assistance of the Department of Co-Operative Government, Human Settlements and Traditional Affairs (COGHSTA) who is currently funding this project

- (ii) **ensure that special consideration is given to the protection of prime and unique agricultural land;**

The area where the concerned properties are situated is not regarded as prime or unique agricultural land specifically due to the prevailing soil conditions.

- (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 affect 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 as the 1:100 year floodline has been adequately addressed in the layout plan. 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 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 imposed by the Department Environment and Nature Conservation and set out in the relevant Environmental Authorisation.

**(iv) promote and stimulate the effective and equitable functioning of land markets;**

The local municipality is in favour of on-going dialogue with private investors and relevant government departments, to promote integrated economic growth.

Principle 7 (b)(iv) recognizes the need for land development to be based on competition and the principle of a competitive economy. The development will contribute to the economic growth of the municipal area. The development represents a public sector initiative, planned and applied for in the context of open market competition. This development will further not be in competition with any other private sector development within the concerned area.

**(v) consider all current and future costs to all parties for the provision of infrastructure and social services in land developments;**

The local municipality needs to comply with the guidelines for the provision of emergency-, social-, education- and engineering services, in terms of the provision of infrastructure and social services.

The provision of services to the proposed development has been addressed in detail in Section 5 supra and it was indicated that the development can be provided with the necessary services subject to the bulk infrastructure upgrades proposed. The infrastructure details set out in Section 5 also prove that the Gamagara Local Municipality has sufficient capacity and resources to accommodate the development.

**(vi) promote land development in locations that are sustainable and limit urban sprawl; and**

The proposed development will take place within the demarcated urban edge as set out in the Gamagara Spatial Development Framework. This development will be sustainable and will limit further urban sprawl.

This development intends to promote a more compact city and to prevent the expansive provision of social and engineering services. The Spatial Development Framework addresses the scale of urban growth through planned extensions, infill and redevelopment strategies. In this regard it should be noted that the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10 are located within the demarcated urban edge as set out in the Gamagara Local Municipality Spatial Development Framework. The local municipality is aware of the need to integrate urban settlements, with a view to reduce travel distances to the areas of employment opportunities.

The planning practices of the past have resulted in sprawling urban areas that are uneconomical. Today, planning policies transformed to mainly focus on infill development on vacant land within an urban environment, in order to combat urban sprawl. The principle also calls for a balance in land development processes. The development is in line with the sub-principle and will combat urban sprawl. The development will also ensure maximum utilization of the concerned property.

**(vii) result in communities that are viable;**

For any development to be sustainable and viable to the community, land development and planning should ensure that communities are located close to job opportunities, social facilities and basic services. This development aims specifically at providing residential development opportunities that are closer to the economic activities of Kathu and the surrounding mining and industrial areas.

**(c) the principle of efficiency, whereby -**

**(i) land development optimizes the use of existing resources and infrastructure;**

The granting of development permissions should be coupled with the provision of adequate infrastructure. The efficient usage of existing resources can promote high density growth, alleviate urban sprawl and optimise the use of land.

The development will ensure the optimum utilization of one of the most valuable resources being land, if used to its full potential, and it was indicated in Section 5 that the development can be supplied with the full spectrum of infrastructure elements such as water, sewer, refuse removal, and access roads; thus reducing the effect of the development on the natural surrounding area.

**(ii) decision-making procedures are designed to minimize negative financial, social, economic or environmental impacts; and**

The opinion is held that the development will not have a negative financial, social, economic or environmental impact on the surrounding properties, as this development will be of a formal and non-noxious nature fitting in with the land uses surrounding the proposed development area.

**(iii) development application procedures are efficient and streamlined and timeframes are adhered to by all parties;**

This land development application in respect of the establishment of the proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10, the removal of restrictive title conditions, the consolidation of the land and the re-subdivision thereof will be processed in accordance with the prescriptions of the Gamagara Spatial Planning and Land Use Management By-Law, 2016. The processes prescribed in terms of this legislation make provision for the necessary community involvement through a 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 to middle and high income / bonded / FLISP / social and rental housing purposes. The provision of proper housing for the landless community of Gamagara 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 Gamagara 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 Gamagara Scheme Regulations, 2003 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 land development application will also be referred to the following government and non-government departments as integral part of the public participation process:

- ✧ Department of Public Works and Roads
- ✧ Openserve (former Telkom SA Limited)
- ✧ Eskom
- ✧ John Taolo Gaetsewe District Municipality
- ✧ Department of Minerals Resources
- ✧ Department of Agriculture, Forestry & Fisheries (DAFF)
- ✧ Department of Water and Sanitation
- ✧ Department of Co-Operative Governance, Human Settlements and Traditional Affairs

- ✘ Department of Education
- ✘ Department of Health
- ✘ South African Post Office
- ✘ Transnet Freight Rail
- ✘ South African Heritage Resources Agency (SAHRA)
- ✘ South African National Roads Agency Limited (SANRAL)
- ✘ Sedibeng Water
- ✘ South African Civil Aviation Authority (SACAA)
- ✘ Department of Agriculture, Land Reform and Rural Development
- ✘ National Department of Public Works

**(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:

- Publication of notices as contemplated in Section 27(2)(b) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016 in Afrikaans and English in a local newspaper i.e. Kathu Gazette (refer **Annexure C4** of the comprehensive township establishment application for pro-forma local newspaper notices);
- Publication of notices as contemplated in Schedule 2 – Section 8 of the Gamagara Spatial Planning and Land Use Management By-Law, 2016 in Afrikaans and English in the Northern Cape Provincial Gazette (refer **Annexure C4** of the comprehensive township establishment application for pro-forma Northern Cape Provincial Gazette notices);
- Posting of notices as contemplated in Section 27(2)(a) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016 in Afrikaans and English on the notice boards at all libraries (refer **Annexure C5** of the comprehensive township establishment application for pro-forma library notices);

- Posting a site notice as contemplated in Sections 28(2)(a) and 30(1)(d) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016 in Afrikaans and English on the development area (refer **Annexure C6** of the comprehensive township establishment application for pro-forma site notices);
- Giving notice to all adjacent property owners as contemplated in Section 28(2)(b) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016 (refer **Annexure C8** for pro-forma letters to adjacent property owners); and
- Giving notice to the following external organizations / departments as contemplated in Section 28(2)(a) read with Section 32(1) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016:
  - ✧ Department of Public Works and Roads
  - ✧ Openserve (Telkom SA Limited)
  - ✧ Eskom
  - ✧ John Taolo Gaetsewe District Municipality
  - ✧ Department of Minerals Resources (DMR)
  - ✧ Department of Agriculture, Forestry & Fisheries (DAFF)
  - ✧ Department of Water and Sanitation
  - ✧ Department of Co-Operative Governance, Human Settlements and Traditional Affairs
  - ✧ Department of Education
  - ✧ Department of Health
  - ✧ South African Post Office (SAPO)
  - ✧ Transnet Freight Rail
  - ✧ South African Heritage Resources Agency (SAHRA)
  - ✧ South African National Roads Agency Limited (SANRAL)
  - ✧ Sedibeng Water
  - ✧ South African Civil Aviation Authority (SACAA)
  - ✧ Department Agriculture, Rural Development and Land Reform
  - ✧ National Department of Public Works

The fore-mentioned organizations / departments will be afforded a period of sixty (60) days to comment in this matter in accordance with the prescriptions of Section 32(1) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016. The adjacent property owners and the general public will be afforded a period of thirty (30) days to lodge comments or objections in this matter as contemplated in Section 29(h) read with Section 32(2) of the Gamagara Spatial Planning and Land Use Management By-Law, 2016.

To ensure that the community of Kathu and surrounding areas are actively involved during the establishment of this integrated human settlement, three (3) additional community meetings were held on the dates and venues listed below:

- Siyathemba Community Hall on 14 August 2018;
- Kathu Municipal Hall on 14 August 2018; and
- Mapoteng Soup Kitchen on 15 August 2018.

**(v) policies, legislation and procedures must be clearly set in order to inform and empower members of the public;**

The procedures set out in the Gamagara Spatial Planning and Land Use Management By-Law, 2016 afford members of the public the opportunity to not only participate in this process but also to scrutinize the documentation relating to the application. Members of the public will be afforded a period of 30 days to scrutinize the documentation and the comment or object against this development.

## **6.24 GENERAL**

From a land use and town planning point of view the proposed development area is ideally suited for residential purposes due to the following:

- The purpose of this land development application is to provide for the establishment of a proper integrated human settlement that will not only address the short term need for residential erven to address the immediate housing backlog, but to also provide erven for the development over the medium term in order to eradicate informal occupation of land. This project will also allow for the development of various housing typologies to accommodate the housing needs of the community of Gamagara.
- The proposed development area is located directly adjacent to existing township areas and constitutes the logic extension of the existing built-up urban area of Kathu and constitutes infill development.
- The proposed township area is easily accessible through numerous connector roads linking the township area through the existing street network of the adjacent township areas of Kathu Extension 3 with the former Kuruman-Sishen tar road linking onto the R380 providing access from the mining and industrial area surrounding Kathu to the proposed township areas.
- The proposed township areas of Kathu Extensions 6, 7, 8, 9 and 10 will also be linked to the economic activities offered within the Kathu urban area through the

existing road network of Kathu which links with the proposed road network of the proposed township areas.

- The layout plans that were compiled in respect of the township areas 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 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.
  - 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**