

# MEMORANDUM

27 August 2019

Committed to  
**Maximum** Impact  
in finding  
**Planning & Development**  
Solutions

## PROPOSED TOWNSHIP ESTABLISHMENT, SUBDIVISION AND EXTENSION OF THE BOUNDARIES OF AN APPROVED TOWNSHIP: HUHUDI EXTENSION 1

- Portion of the Remaining Extent  
of Portion 8 of the farm Rosendal  
No. 673, Registration Division  
I.N., North West Province

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

UNIT 35 CORPUS NOVEM OFFICE PARK  
35 DR. YUSUF DADOO AVENUE  
WILKOPPIES 2571  
P.O. BOX 6848  
FLAMWOOD  
2572  
TEL: (018) 468 6366  
FAX: (018) 468 6378

**MAXIM**  
planning solutions  
Accredited Town and Regional Planners  
Reg no. 2002/017393/07  
VAT no. 4740202231

Directors: M.A. Mbakaca (Executive Chairman), D.J. Bos (Dr.) (CEO), C. Grobbelaar, K. Raubenheimer (CFO / Company Secretary), J.G. Benadé, P. Booysen (Mrs.)

# INDEX

|   |           |
|---|-----------|
| <b>CHAPTER 1: INTRODUCTION</b>                                | <b>1</b>  |
| 1.1 INTRODUCTION  | 1         |
| 1.2 BACKGROUND OF NALEDI LOCAL MUNICIPALITY                   | 3         |
| 1.2.1 REGIONAL LOCALITY                                       | 3         |
| 1.2.2 DEMOGRAPHICS  | 4         |
| 1.2.2.1 POPULATION & HOUSEHOLD                                | 4         |
| 1.2.2.2 AGE PROFILE   | 5         |
| 1.2.2.3 EDUCATION PROFILE                                     | 6         |
| 1.3.2.4 MACRO-ECONOMIC AND LOCAL ECONOMIC DEVELOPMENT OUTLOOK | 6         |
| 1.3.2.5 HOUSING   | 7         |
| 1.3.2.6 ACCESS TO SERVICES                                    | 7         |
| 1.3 INTEGRATED HUMAN SETTLEMENT PLANNING                      | 9         |
| 1.4 APPLICATION   | 10        |
| 1.5 PUBLIC PARTICIPATION                                      | 11        |
| 1.6 STUDY AREA DELINEATION                                    | 12        |
| 1.7 REPORT OUTLINE  | 12        |
| <b>CHAPTER 2: PARTICULARS OF THE DEVELOPMENT AREA</b>         | <b>13</b> |
| 2.1 LOCALITY  | 13        |
| 2.2 SG DIAGRAM  | 14        |
| 2.3 OWNER   | 14        |
| 2.4 AREA  | 15        |
| 2.5 EXISTING LAND USE AND ZONING                              | 17        |
| 2.6 MINERAL RIGHTS  | 18        |
| 2.7 RESTRICTIVE TITLE CONDITIONS                              | 19        |
| 2.8 SERVITUDES  | 21        |
| <b>CHAPTER 3: PHYSICAL ASPECTS</b>                            | <b>23</b> |
| 3.1 TOPOGRAPHY  | 23        |
| 3.2 CLIMATE   | 24        |
| 3.3 FRESHWATER SYSTEM / DRAINAGE                              | 25        |
| 3.4 WETLANDS AND PANS   | 25        |
| 3.5 FAUNA AND FLORA ASSESSMENT                                | 26        |
| 3.6 GROUNDWATER   | 27        |
| 3.7 GEOLOGY   | 27        |
| 3.7.1 SITE EVALUATION   | 28        |
| 3.7.2 SITE ZONATION   | 28        |
| 3.7.3 FOUNDATION RECOMMENDATIONS AND SOLUTIONS                | 30        |
| 3.8 ENVIRONMENTAL IMPACT ASSESSMENT                           | 31        |
| 3.9 CULTURAL HERITAGE AREAS                                   | 33        |
| <b>CHAPTER 4: PROPOSED DEVELOPMENT</b>                        | <b>37</b> |
| 4.1 LAND USES   | 37        |
| 4.2 FACTORS INFLUENCING THE LAYOUT PLAN                       | 49        |
| 4.3 ACCESS  | 50        |

|                |   |           |
|----------------|---|-----------|
| <b>4.3.1</b>   | <b>STUDY AREA</b>   | <b>51</b> |
| <b>4.3.2</b>   | <b>SURROUNDING ROAD NETWORK</b>                                 | <b>51</b> |
| <b>4.3.2.1</b> | <b>N14</b>  | <b>51</b> |
| <b>4.3.2.2</b> | <b>N18</b>  | <b>51</b> |
| <b>4.3.3</b>   | <b>TRAFFIC FLOW AND TRIP GENERATION</b>                         | <b>52</b> |
| <b>4.3.3.1</b> | <b>TRIP GENERATION</b>  | <b>52</b> |
| <b>4.3.3.2</b> | <b>EXPECTED TRIP DISTRIBUTION</b>                               | <b>53</b> |
| <b>4.3.4</b>   | <b>TRAFFIC IMPACT AND CAPACITY ANALYSIS</b>                     | <b>53</b> |
| <b>4.3.4.1</b> | <b>FUTURE 2023 TRAFFIC</b>                                      | <b>53</b> |
| <b>4.3.4.2</b> | <b>MARKET STREET (N14) AND MOFFAT STREET (N18) INTERSECTION</b> | <b>53</b> |
| <b>4.3.4.3</b> | <b>N18 AND SUID STREET INTERSECTION</b>                         | <b>54</b> |
| <b>4.3.4.4</b> | <b>N18 AND NELSON MANDELA STREET INTERSECTION</b>               | <b>55</b> |
| <b>4.3.4.5</b> | <b>N18, AIRSTRIP ROAD AND LIQUID SILVER STREET</b>              | <b>56</b> |
| <b>4.3.4.6</b> | <b>N18 AND COLLEN COLANE STREET INTERSECTION</b>                | <b>57</b> |
| <b>4.3.4.7</b> | <b>N14 AND SUID STREET INTERSECTION</b>                         | <b>58</b> |
| <b>4.3.5</b>   | <b>PUBLIC TRANSPORT AND NON-MOTORISED TRANSPORT</b>             | <b>58</b> |
| <b>4.3.5.1</b> | <b>PUBLIC TRANSPORT</b>   | <b>58</b> |
| <b>4.3.5.2</b> | <b>NON-MOTORISED TRANSPORT (NMT)</b>                            | <b>59</b> |
| <b>4.3.6</b>   | <b>CONCLUSION AND RECOMMENDATIONS</b>                           | <b>59</b> |
|                | <b>CHAPTER 5: PROVISION OF ENGINEERING SERVICES</b>             | <b>60</b> |
| <b>5.1</b>     | <b>INTRODUCTION</b>   | <b>60</b> |
| <b>5.2</b>     | <b>CIVIL ENGINEERING SERVICES</b>                               | <b>60</b> |
| <b>5.2.1</b>   | <b>BULK WATER</b>   | <b>60</b> |
| <b>5.2.1.1</b> | <b>WATER DEMAND</b>   | <b>60</b> |
| <b>5.2.1.2</b> | <b>BULK WATER INFRASTRUCTURE</b>                                | <b>61</b> |
| <b>5.2.1.3</b> | <b>BULK WATER SUPPLY</b>  | <b>63</b> |
| <b>5.2.1.4</b> | <b>CONCLUSION ON BULK WATER SUPPLY VS. DEMAND</b>               | <b>66</b> |
| <b>5.2.1.5</b> | <b>BULK WATER STORAGE</b>                                       | <b>67</b> |
| <b>5.2.1.6</b> | <b>PROPOSED WATER INFRASTRUCTURE UPGRADING</b>                  | <b>68</b> |
| <b>5.2.2</b>   | <b>BULK WATER</b>   | <b>69</b> |
| <b>5.2.2.1</b> | <b>SEWER GENERATION</b>   | <b>69</b> |
| <b>5.2.2.2</b> | <b>BULK SEWER INFRASTRUCTURE</b>                                | <b>70</b> |
| <b>5.2.2.3</b> | <b>BULK SEWERAGE TREATMENT CAPACITY</b>                         | <b>71</b> |
| <b>5.2.2.4</b> | <b>PROPOSED BULK SEWER INFRASTRUCTURE AUGMENTATION</b>          | <b>72</b> |
| <b>5.2.3</b>   | <b>STORM WATER</b>  | <b>73</b> |
| <b>5.2.4</b>   | <b>SOLID WASTE</b>  | <b>75</b> |
| <b>5.2.5</b>   | <b>INTERNAL SERVICES</b>  | <b>75</b> |
| <b>5.2.5.1</b> | <b>WATER</b>  | <b>75</b> |
| <b>5.2.5.2</b> | <b>SEWER</b>  | <b>76</b> |
| <b>5.2.5.3</b> | <b>ROADS AND STORMWATER</b>                                     | <b>76</b> |
| <b>5.2.5.4</b> | <b>REFUSE REMOVAL</b>   | <b>77</b> |
| <b>5.3</b>     | <b>ELECTRICAL ENGINEERING SERVICES</b>                          | <b>77</b> |
| <b>5.3.1</b>   | <b>LOAD ESTIMATION</b>  | <b>77</b> |
| <b>5.3.2</b>   | <b>BULK SUPPLY</b>  | <b>78</b> |
| <b>5.3.2.1</b> | <b>GENERAL</b>  | <b>78</b> |
| <b>5.3.2.2</b> | <b>EXISTING NETWORK ANALYSIS</b>                                | <b>79</b> |
| <b>5.3.3</b>   | <b>BULK SUPPLY PROPOSAL</b>                                     | <b>80</b> |

|   |           |
|---|-----------|
| 5.3.3.1 EAST DEVELOPMENT  | 80        |
| 5.3.3.2 WEST DEVELOPMENT  | 81        |
| 5.3.4 PROPOSED ELECTRICAL SERVICES  | 82        |
| <b>CHAPTER 6: MOTIVATION</b>  | <b>84</b> |
| 6.1 INTRODUCTION  | 84        |
| 6.2 NATIONAL DEVELOPMENT PLAN: VISION 2030  | 85        |
| 6.3 CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA (ACT 108 OF 1996)                          | 86        |
| 6.4 NATIONAL FRAMEWORK FOR SUSTAINABLE DEVELOPMENT (NFSD)                                   | 87        |
| 6.5 NATIONAL HOUSING CODE (2006)  | 87        |
| 6.6 A COMPREHENSIVE PLAN FOR THE DEVELOPMENT OF SUSTAINABLE HUMAN SETTLEMENT (BNG STRATEGY) | 88        |
| 6.7 URBAN (UDF) AND RURAL DEVELOPMENT (RDF) FRAMEWORKS (1997)                               | 90        |
| 6.8 WHITE PAPER ON LOCAL GOVERNMENT (1998)  | 90        |
| 6.9 MUNICIPAL DEMARCATION ACT, 1998 (ACT 27 OF 1998)  | 92        |
| 6.10 MUNICIPAL SYSTEMS ACT, 2000 (ACT 32 OF 2000)   | 93        |
| 6.11 NATIONAL HOUSING ACT, 1997 (ACT 107 OF 1997)   | 93        |
| 6.12 WHITE PAPER ON WISE LAND USE (2001)  | 94        |
| 6.13 MILLENNIUM DEVELOPMENT GOALS (MDG)   | 95        |
| 6.14 NATIONAL SPATIAL DEVELOPMENT PERSPECTIVE (2006)  | 95        |
| 6.15 NATIONAL SPATIAL DEVELOPMENT PERSPECTIVE (2006)  | 96        |
| 6.16 NALEDI FINAL INTEGRATED DEVELOPMENT PLAN 2017-2022                                     | 99        |
| 6.17 NALEDI SPATIAL DEVELOPMENT FRAMEWORK, 2013   | 100       |
| 6.18 OUTCOME 8 – 2014-2019 MEDIUM TERM STRATEGIC FRAMEWORK (MTSF)                           | 101       |
| 6.19 SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 2013 (SPLUMA) DEVELOPMENT PRINCIPLES     | 101       |
| 6.20 GENERAL  | 110       |

## LIST OF FIGURES

|           |   |    |
|-----------|---|----|
| Figure 1  | POPULATION DISTRIBUTION OF MALES AND FEMALES AGAINST THE TOTAL POPULATION.  | 5  |
| Figure 2  | POPULATION DISTRIBUTION BY AGE GROUP.                                       | 5  |
| Figure 3  | MAIN SOURCE OF WATER AGAINST THE TOTAL NUMBER OF HOUSEHOLDS                 | 8  |
| Figure 4  | Diagram SG No. 9361/1992 (Sheets 1 and 2)                                   | 14 |
| Figure 5  | Diagram SG No. 9361/1992 (sheet 2)  | 20 |
| Figure 6  | AERIAL PHOTOGRAPH OF DEVELOPMENT AREA                                       | 23 |
| Figure 7  | Residential erf size  | 37 |
| Figure 8  | Income Divide / Need for alternative solutions                              | 40 |
| Figure 9  | Existing layout of Market Street (N14) and Moffat Street (N18) intersection | 53 |
| Figure 10 | EXISTING LAYOUT OF N18 AND SUID STREET INTERSECTION                         | 54 |
| Figure 11 | PROPOSED LAYOUT OF N18 AND SUID STREET INTERSECTION                         | 54 |
| Figure 12 | EXISTING LAYOUT OF N18 AND NELSON MANDELA STREET INTERSECTION               | 55 |
| Figure 13 | PROPOSED LAYOUT OF N18 AND NELSON MANDELA STREET INTERSECTION               | 55 |
| Figure 14 | EXISTING LAYOUT OF N18, AIRSTRIP ROAD AND LIQUID SILVER STREET              | 56 |



|           |  |    |
|-----------|--|----|
| Figure 15 | PROPOSED LAYOUT OF N18, AIRSTRIP ROAD AND LIQUID SILVER STREET   | 56 |
| Figure 16 | EXISTING LAYOUT OF N18 AND COLLEN COLANE STREET  | 57 |
| Figure 17 | PROPOSED LAYOUT OF N18 AND COLLEN COLANE INTERSECTION  | 57 |
| Figure 18 | EXISTING LAYOUT OF N14 AND SUID STREET INTERSECTION  | 58 |
| Figure 19 | EXISTING VRYBURG WATER INFRASTRUCTURE.   | 61 |
| Figure 20 | EXISTING HUHUDI WATER INFRASTRUCTURE.  | 62 |
| Figure 21 | PROPOSED BULK WATER INFRASTRUCTURE AUGMENTATION  | 69 |
| Figure 22 | EXISTING VRYBURG SEWER INFRASTRUCTURE.   | 71 |
| Figure 23 | SEWER INFRASTRUCTURE AUGMENTATION  | 73 |
| Figure 24 | DIRECTION OF STORM-WATER FLOW  | 73 |
| Figure 25 | SUBSTATION LOCATIONS   | 79 |
| Figure 26 | LOAD ALLOCATION  | 80 |
| Figure 27 | EAST BULK SUPPLY PROPOSAL  | 81 |
| Figure 28 | WEST BULK SUPPLY PROPOSAL  | 82 |
| Figure 29 | RING DESIGN PHILOSOPHY   | 82 |
| Figure 30 | QUALITY OF SUBSIDISED SETTLEMENT THAT COULD BE ACHIEVED THROUGH INNOVATIVE DESIGN AND CROSS-SUBSIDISATION. | 99 |

## LIST OF MAPS

|        |   |    |
|--------|---|----|
| Map 1  | DEVELOPMENT AREAS VRYBURG EXTENSION 29, HUHUDI EXTENSION 1 AND RE-LAYOUT / SUBDIVISION PROPERTIES HUHUDI  | 2  |
| Map 2  | LOCALITY OF NALEDI LOCAL MUNICIPALITY (NW392) IN PROVINCIAL CONTEXT AS WELL AS LOCALITY OF THE VRYBURG EXTENSION 29 DEVELOPMENT AREA IN MUNICIPAL CONTEXT.  | 4  |
| Map 3  | LOCALITY OF PROPERTIES TO WHICH THE LAND DEVELOPMENT APPLICATION APPLIES  | 12 |
| Map 4  | LOCALITY MAP OF PROPOSED DEVELOPMENT AREA   | 13 |
| Map 5  | Subdivision Map of the Remaining Extent of Portion 8 of the farm Rosendal 673, Registration Division I.N., North West Province  | 16 |
| Map 6  | Proposed Extension of the Boundaries of the township area of Huhudi by the incorporation of Portion 18 of the farm Rosendal 673, Registration Division I.N., North West Province into the township area of Huhudi as Erf 5166, Huhudi | 16 |
| Map 7  | Existing zoning of development area and surrounding properties  | 18 |
| Map 8  | CONTOUR DATA OF DEVELOPMENT AREA  | 23 |
| Map 9  | RESULTS OF AERIAL PHOTOGRAPHY, CONTOUR DATA AND PHYSICAL SURVEY   | 24 |
| Map 10 | Indication of wetland depressions (small pan) and their buffer zone (30 m) at the adjacent proposed township area of Vryburg Extension 29   | 26 |
| Map 11 | GEOTECHNICAL SITE ZONATION  | 29 |
| Map 12 | Map showing location of ESA/MSA sites and finds within the development areas (Google Earth 2018).   | 36 |
| Map 13 | HIERARCHY OF NODES  | 96 |
| Map 14 | DEVELOPMENT CORRIDORS OF THE NORTH WEST PROVINCE  | 98 |

|               |  |            |
|---------------|--|------------|
| <b>Map 15</b> | <b>NALEDI SPATIAL DEVELOPMENT FRAMEWORK</b>                          | <b>100</b> |
| <b>Map 16</b> | <b>EXTENT OF INFORMAL OCCUPATION WITHIN THE HUHUDI URBAN COMPLEX</b> | <b>102</b> |

## LIST OF TABLES

|                 |  |           |
|-----------------|--|-----------|
| <b>Table 1</b>  | <b>HIGHEST LEVEL OF EDUCATION AGAINST TOTAL POPULATION (2016)</b>                    | <b>6</b>  |
| <b>Table 2</b>  | <b>HIGHEST LEVEL OF EDUCATION AGAINST TOTAL POPULATION (ESTIMATED 2019)</b>          | <b>6</b>  |
| <b>Table 3</b>  | <b>EMPLOYMENT STATUS AGAINST THE TOTAL POPULATION</b>                                | <b>6</b>  |
| <b>Table 4</b>  | <b>EMPLOYMENT BY SECTOR AGAINST THE TOTAL POPULATION</b>                             | <b>7</b>  |
| <b>Table 5</b>  | <b>TYPE OF HOUSEHOLDS AGAINST THE TOTAL NUMBER OF HOUSEHOLDS</b>                     | <b>7</b>  |
| <b>Table 6</b>  | <b>NUMBER OF HOUSEHOLDS WITH ACCESS TO ELECTRICITY BY TYPE</b>                       | <b>8</b>  |
| <b>Table 7</b>  | <b>TYPE OF TOILET FACILITIES USED IN TERMS OF THE TOTAL NUMBER OF HOUSEHOLDS</b>     | <b>8</b>  |
| <b>Table 8</b>  | <b>OWNERSHIP DETAILS</b>   | <b>15</b> |
| <b>Table 9</b>  | <b>PROPERTY AREAS</b>  | <b>15</b> |
| <b>Table 10</b> | <b>Listing details in terms of the National Environmental Management Act, 1998</b>   | <b>32</b> |
| <b>Table 11</b> | <b>Detail land use analysis of the proposed township Naledi Extension 1</b>          | <b>38</b> |
| <b>Table 12</b> | <b>“Residential 4” development parameters</b>  | <b>41</b> |
| <b>Table 13</b> | <b>“Business 1” development parameters</b>   | <b>42</b> |
| <b>Table 14</b> | <b>“Business 2” development parameters</b>   | <b>43</b> |
| <b>Table 15</b> | <b>Number of “Institutional 1” erven</b>   | <b>44</b> |
| <b>Table 16</b> | <b>CSIR Guideline for educational facilities</b>                                     | <b>44</b> |
| <b>Table 17</b> | <b>CSIR Guideline for educational facilities</b>                                     | <b>45</b> |
| <b>Table 18</b> | <b>“Institutional 1” development parameters</b>                                      | <b>45</b> |
| <b>Table 19</b> | <b>Number of “Institutional 2” erven per township area</b>                           | <b>46</b> |
| <b>Table 20</b> | <b>“Institutional 2” development parameters</b>                                      | <b>46</b> |
| <b>Table 21</b> | <b>“Public Open Space 1” development parameters</b>                                  | <b>47</b> |
| <b>Table 22</b> | <b>“Transport 1” development parameters</b>  | <b>47</b> |
| <b>Table 23</b> | <b>“Transport 2” development parameters</b>  | <b>48</b> |
| <b>Table 24</b> | <b>“Cemetery” development parameters</b>   | <b>49</b> |
| <b>Table 25</b> | <b>Proposed Development AM Peak Hour Trip Generation</b>                             | <b>52</b> |
| <b>Table 26</b> | <b>Proposed Development PM Peak Hour Trip Generation</b>                             | <b>53</b> |
| <b>Table 27</b> | <b>Current Water Demand</b>  | <b>60</b> |
| <b>Table 28</b> | <b>Future Water Demand Including Vryburg Extension 29 and Huhudi Extension 1</b>     | <b>60</b> |
| <b>Table 29</b> | <b>CURRENT SEWER GENERATION</b>  | <b>70</b> |
| <b>Table 30</b> | <b>FUTURE SEWER GENERATION INCLUDING VRYBURG EXTENSION 29 AND HUHUDI EXTENSION 1</b> | <b>70</b> |
| <b>Table 31</b> | <b>MSW GENERATION INCLUDING VRYBURG EXTENSION 29 AND HUHUDI EXTENSION 1</b>          | <b>75</b> |
| <b>Table 32</b> | <b>LOAD ESTIMATION</b>   | <b>77</b> |

# LIST OF PLATES

|                 |   |           |
|-----------------|---|-----------|
| <b>Plate 1</b>  | <b>View of informal dwelling units occupying development area</b>                         | <b>17</b> |
| <b>Plate 2</b>  | <b>View of Eskom powerlines traversing the development area</b>                           | <b>17</b> |
| <b>Plate 3</b>  | <b>View of Vryburg-Pudimoe railway line (direction south)</b>                             | <b>17</b> |
| <b>Plate 4</b>  | <b>View of municipal electricity infrastructure</b>                                       | <b>17</b> |
| <b>Plate 5</b>  | <b>View of existing power line (as per servitude K1/1965)</b>                             | <b>21</b> |
| <b>Plate 6</b>  | <b>View of the Bophirima-Waterloo 22kV and Bohirima-Boereplaas 22kV Eskom power lines</b> | <b>22</b> |
| <b>Plate 7</b>  | <b>MSA flake tool from the first area.</b>  | <b>34</b> |
| <b>Plate 8</b>  | <b>MSA core from first site</b>   | <b>34</b> |
| <b>Plate 9</b>  | <b>ESA/MSA tools from the first area</b>  | <b>35</b> |
| <b>Plate 10</b> | <b>Weathered MSA tool from the first area</b>   | <b>35</b> |
| <b>Plate 11</b> | <b>One of the large ESA/MSA tools from the gravels in the road.</b>                       | <b>35</b> |
| <b>Plate 12</b> | <b>An ESA pebble tool (chopper</b>  | <b>35</b> |
| <b>Plate 13</b> | <b>View of existing level crossing</b>  | <b>50</b> |
| <b>Plate 14</b> | <b>View of N14 National Road</b>  | <b>51</b> |
| <b>Plate 15</b> | <b>View of National Road N18</b>  | <b>52</b> |
| <b>Plate 16</b> | <b>View of existing bus and minibus taxi lay-bys along N18</b>                            | <b>58</b> |

# MOTIVATION REPORT

## PROPOSED TOWNSHIP ESTABLISHMENT (HUHUDI EXTENSION 1), SUBDIVISION AND EXTENSION OF THE BOUNDARIES OF AN APPROVED TOWNSHIP

### ON

#### A PORTION OF THE REMAINING EXTENT OF PORTION 8 OF THE FARM ROSENDAL 673, REGISTRATION DIVISION I.N., NORTH WEST PROVINCE

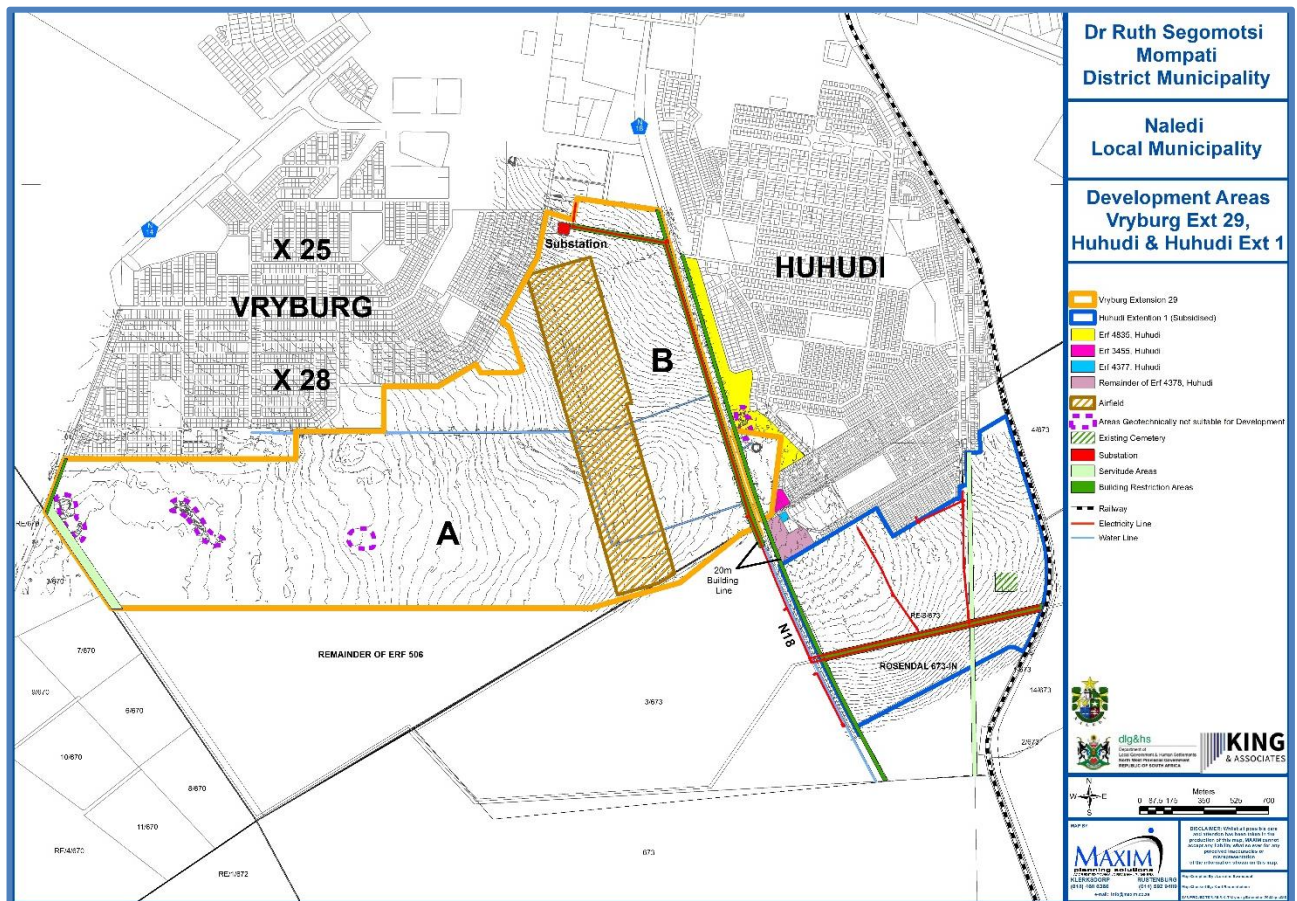
## CHAPTER 1: INTRODUCTION

### 1.1 INTRODUCTION

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

- Proposed township area of Vryburg Extension 29 located on a portion of the Remaining Extent of Erf 506, Vryburg and a portion of the Remaining Extent of Portion 3 of the farm Rosendal 673, Registration Division I.N., North West Province;
- **Proposed township area of Huhudi Extension 1 located on a portion of the Remaining Extent of Portion 8 of the farm Rosendal 673, Registration Division I.N., North West Province;**
- Proposed re-layout of Erf 3455, Huhudi;
- Proposed re-layout of Erf 4835, Huhudi
- Proposed subdivision of Erf 4377 and the Remaining Extent of Erf 4378, Huhudi

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



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

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

The purpose of the fore-mentioned developments is to not only address the short term need for low cost residential erven (which has given rise to the large-scale occupation of vacant community facility erven as well as the farm portion located south of the existing urban area of Huhudi) but also to create sufficient erven to accommodate the medium term need for residential erven in the entire Vryburg urban area to avoid the occurrence of informal settlement areas and to afford all inhabitants of Vryburg the opportunity for proper housing. The low-cost erven will however not only be available for subsidized housing purposes but can also be used for GAP / Bonded / FLISP housing purposes. In addition to the low cost / subsidized residential erven detailed above, the integrated layout plan also makes provision for an additional 1061 erven residential erven that can be used for middle- and higher income housing purposes. The project constitutes a collaboration between the Department of Co-operative Governance, Human Settlements and Traditional Affairs (COGHSTA) and the Naledi Local Municipality.

Due to the integrated nature of the development areas detailed above, cognisance should be taken of the fact that the pre-planning studies conducted in respect of such areas were undertaken as a single commission and the pre-planning studies referenced in this Memorandum extends to all the development areas.

Even though the development areas were planned in an integrated manner, the Naledi Local Municipality deemed it appropriate to incorporate the various development areas into three (3) individual Land Development Applications, namely:

- The application relating to the establishment of the proposed township Vryburg Extension 29;
- **The application relating to the establishment of the proposed township Huhudi Extension 1; and**
- The application in respect of the re-layout of Erven 3455 and 4835, Huhudi as well as the consolidation and re-subdivision of Erf 4377 and the Remaining Extent of Erf 4378, Huhudi.

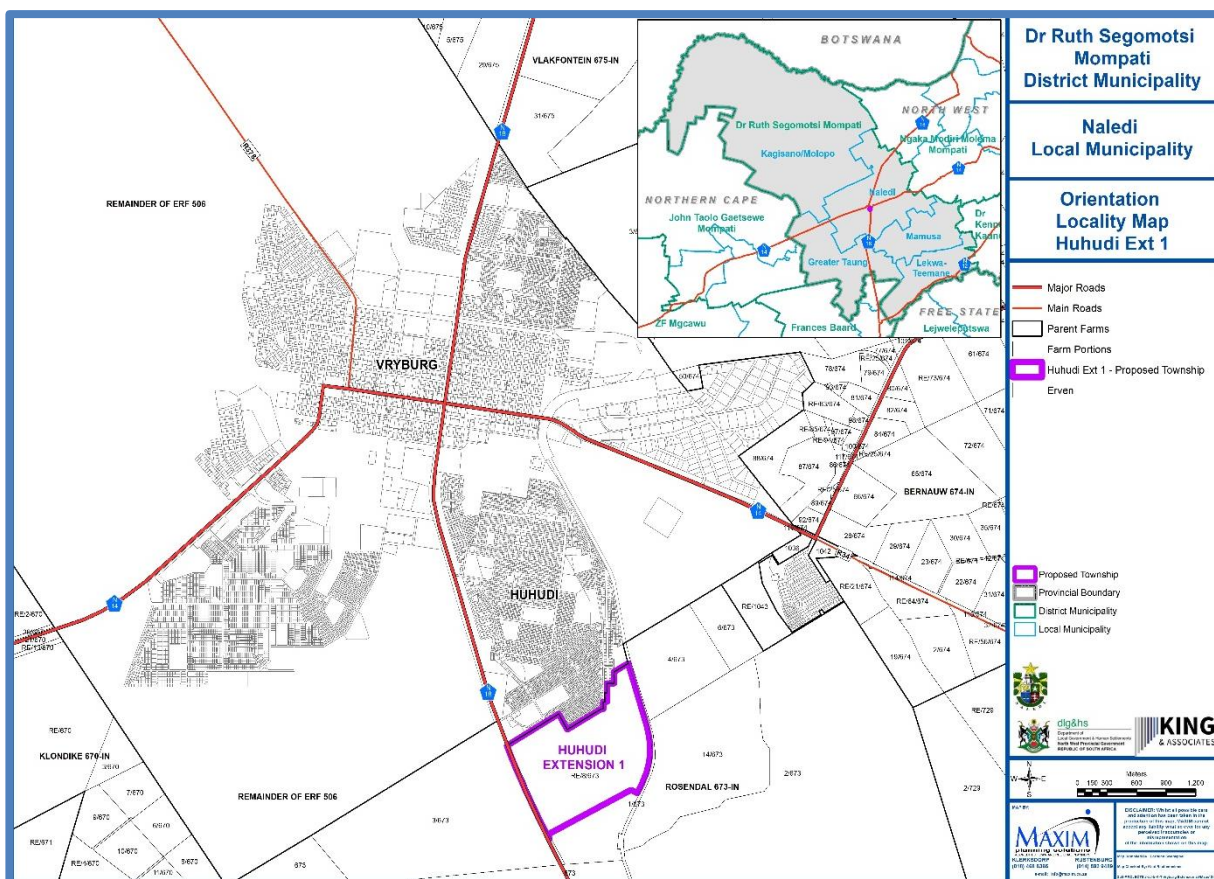
The fore-mentioned division was deemed necessary to avoid confusion during the public participation process.

## **1.2 BACKGROUND OF NALEDI LOCAL MUNICIPALITY**

### **1.2.1 REGIONAL LOCALITY**

Naledi Local Municipality is a category B Municipality, as defined in the Municipal Structures Act, situated in the Dr Ruth Segomotsi Mompati District in the North West Province of South Africa. The area of jurisdiction of the Naledi Local Municipality covers an area of approximately 7 264 square kilometres with a total population of 68 803 – according to the Community Survey of 2016 by Statistics South Africa - and is divided into 10 wards representing the interests of the communities of Vryburg, Kismet Park, Huhudi, Colridge, Dithakwaneng, Stella, Devondale, Broedersput and the newly developed Vryburg Extension 25 and 28. The administrative head of the municipality is located in Vryburg.





**Map 2: Locality of Naledi Local Municipality (NW392) in provincial context as well as locality of the Huhudi Extension 1 development area in Municipal context.**

## 1.2.2 DEMOGRAPHICS

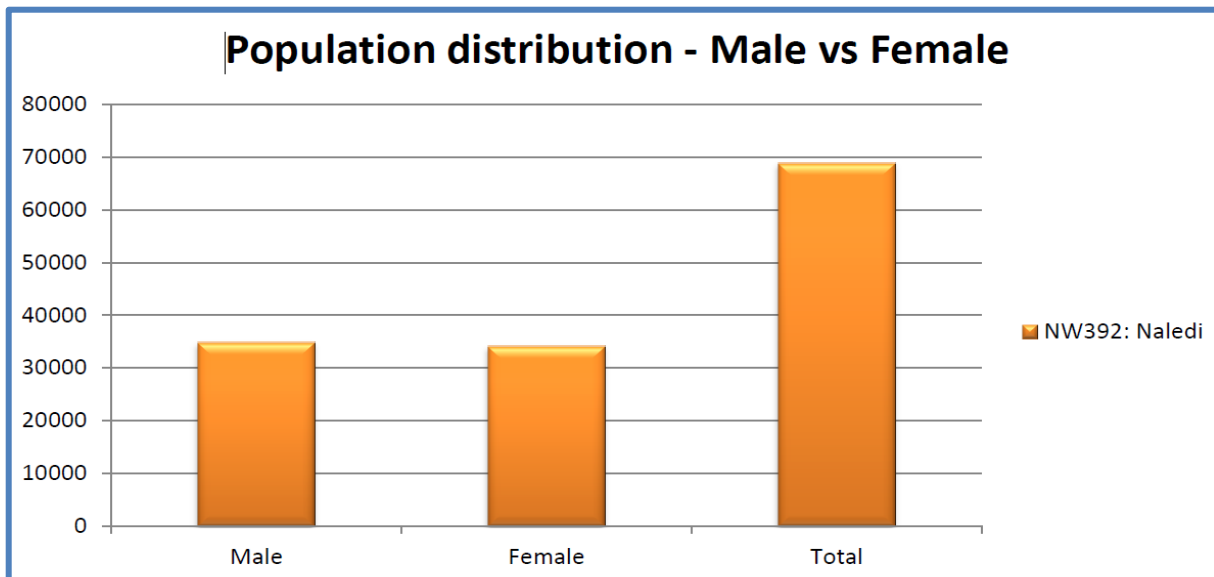
The demographic profile detailed below was extracted from the Naledi Local Municipality Final IDP 2017-2018.

### 1.2.2.1 Population and Household Facts

- The total population of the Naledi Municipal area was 68 803 in **2016**.
- The average growth rate of the population from **2011 to 2016** was 2.94%
- By applying the average growth rate of 2.94% to the period **2016 to 2019**, the total population of the Naledi Local Municipality is estimated at 75 052 in **2019**.
- The total number of households in the Naledi Municipal Area was 20 692 in **2016**.
- The average growth rate of households from **2011 to 2016** was 10.24%
- By applying the average growth rate of 10.24% to the period **2016 to 2019**, the total number of households in the Naledi Local Municipal Area is estimated at 25 158 in **2019**



- Naledi's population gender is as follows: male 34771 female 34032 (based on 2016 total population of 68 803)
- Based on the estimated population calculated for 2019, the gender distribution is estimated as follows: male 37 929 female 37 123

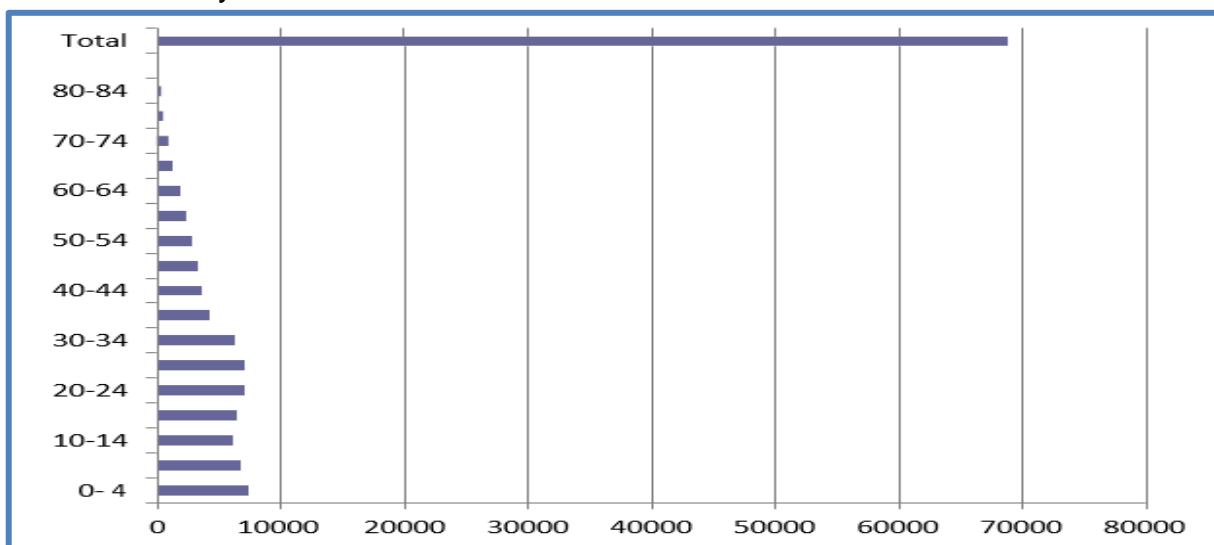


**Figure 1: Population distribution of males and females against the total population.**

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

#### 1.2.2.2 Age Profile

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



**Figure 2: Population distribution by age group.**

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

### 1.2.2.3 Education Profile

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

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

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

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

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

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

*(Source: Own Calculations)*

### 1.2.2.4 Macro-economic and local economic development outlook

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

**Table 3: Employment status against the total population**

| Employment Status       |                  |
|-------------------------|------------------|
| Employment Status       | Number of people |
| Employed                | 18201            |
| Unemployed              | 6415             |
| Discouraged work seeker | 1780             |
| Not economically active | 16344            |

|                |              |
|----------------|--------------|
| Not applicable | 24040        |
| <b>Total</b>   | <b>66781</b> |

(Source: Census 2011 by Statistics South Africa)

**Table 4: Employment by sector against the total population**

| <b>Employment by Sector</b> |                         |
|-----------------------------|-------------------------|
| <b>Sector</b>               | <b>Number of people</b> |
| Formal                      | 10710                   |
| Informal                    | 3508                    |
| Private Household           | 4041                    |
| Do not know                 | 416                     |
| Not applicable              | 48106                   |
| <b>Total</b>                | <b>66781</b>            |

(Source: Census 2011 by Statistics South Africa)

### 1.2.2.5 Housing

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

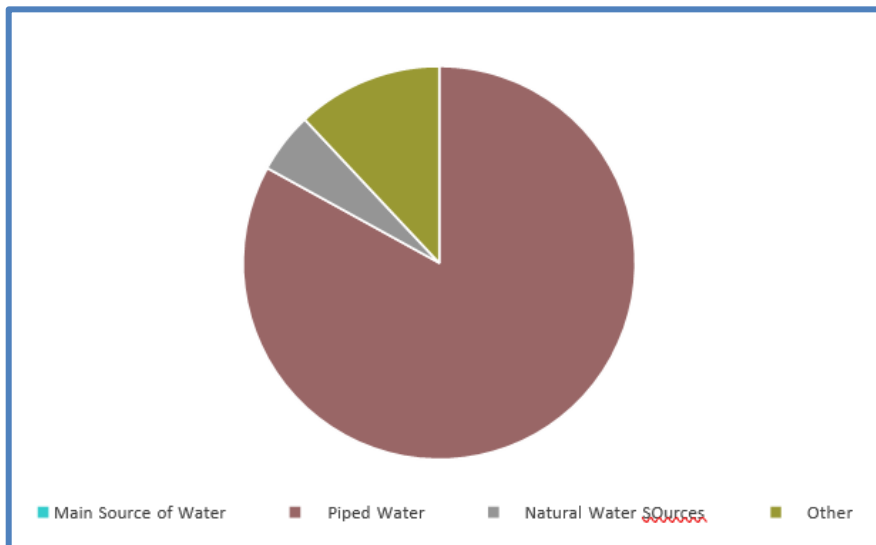
**Table 5: Type of households against the total number of households**

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

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

### 1.2.2.6 Access to Services

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



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

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

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

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

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

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

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

| Type of Toilet facilities used in Naledi           |                      |
|--|----------------------|
| Facility Type                                      | Number of households |
| Flush toilet connected to a public sewerage system | 14358                |

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

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

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

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

- To ensure that sustainable housing development takes place.
- To integrate housing with other municipal services in order to establish sustainable human settlements, in support of spatial restructuring.
- To coordinate municipal departments in order to work together in planning and implementing.

- To promote middle- and high-income housing which will in turn generate resources to improve low income areas.
- To promote environmental and energy efficient housing.

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

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

## 1.4 **APPLICATION**

Maxim Planning Solutions (Pty) Ltd (2002/017393/07), herein represented by Koot Raubenheimer (ID No. 700305 5192 089), being the duly authorised agent of the Naledi Local Municipality (NW392), is hereby applying on behalf of the Naledi Local Municipality in terms of:

- Section 67(2) read with Chapter 6 of the Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015 read with Section 41(2)(b) of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) for the subdivision of the Remaining Extent of Portion 8 of the farm Rosendal 673, Registration Division I.N., North West Province into two (2) portions
- Section 56(1) read with Chapter 6 of the Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015 read with Section 41(2)(a) of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) for the extension of the boundaries of the township Huhudi by the incorporation of the newly created Portion 18 (a portion of Portion 8) of the farm Rosendal 673, Registration Division I.N., North West Province into the township of Huhudi as Erf 5166, Huhudi
- Section 56(1) read with Chapter 6 of the Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015 read with Section 41(2)(a) of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) for the establishment of the proposed township Huhudi Extension 1 on a portion of the Remaining Extent of Portion 8 of the farm Rosendal 673, Registration Division I.N., North West Province (to be known as Erf 5166, Huhudi) comprising 2 348 “Residential 4” erven, 1 “Business 1” erf, 6 “Business 2” erven, 12 “Institutional 1” erven, 2 “Institutional 2” erven, 11 “Public Open Space 1” erven, 1 “Cemetery” erf, 1 “Transport 1” erf as well as streets to be zoned “Transport 2”.



## 1.5 PUBLIC PARTICIPATION

Public participation in respect of the land development application comprising the establishment of the proposed township area of Huhudi Extension 1, the subdivision of the Remaining Extent of Portion 8 of the farm Rosendal 673, Registration Division I.N., North West Province and the extension of the boundaries of the approved township Huhudi by the incorporation of Portion 18 of the farm Rosendal 673, Registration Division I.N., North West Province will include the following:

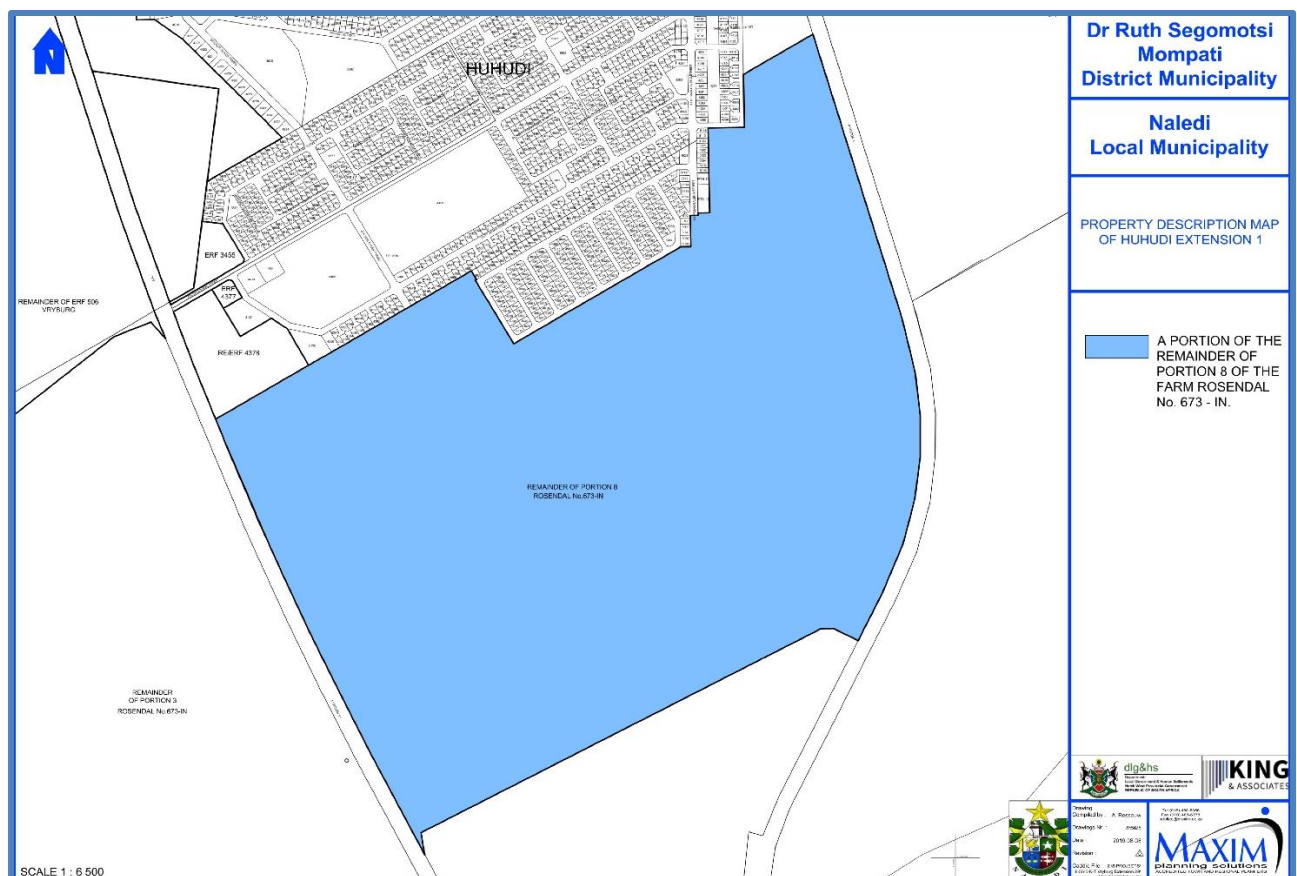
- ✧ Publishing notices of the application (as set out in **Annexure T1** of the comprehensive Land Development Application) in the Stellalander as well as in the North West Provincial Gazette in Afrikaans & English for two consecutive weeks as contemplated in Sections 94(1)(b) and 94(1)(h) read with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



The public will be afforded a period of 30 days to comment in this matter whereas the external organisations / departments that will be approached for comments will be afforded a period of 60 days to furnish us with their comments in respect of the application. Following receipt of the said comments we will forward same to your Municipality for your further attention and record purposes.

## 1.6 STUDY AREA DELINEATION

The proposed development area comprises a Portion of the Remaining Extent of Portion 8 of the farm Rosendal 673, Registration Division I.N., North West Province, as depicted on **Map 3** below.



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

## 1.7 REPORT OUTLINE

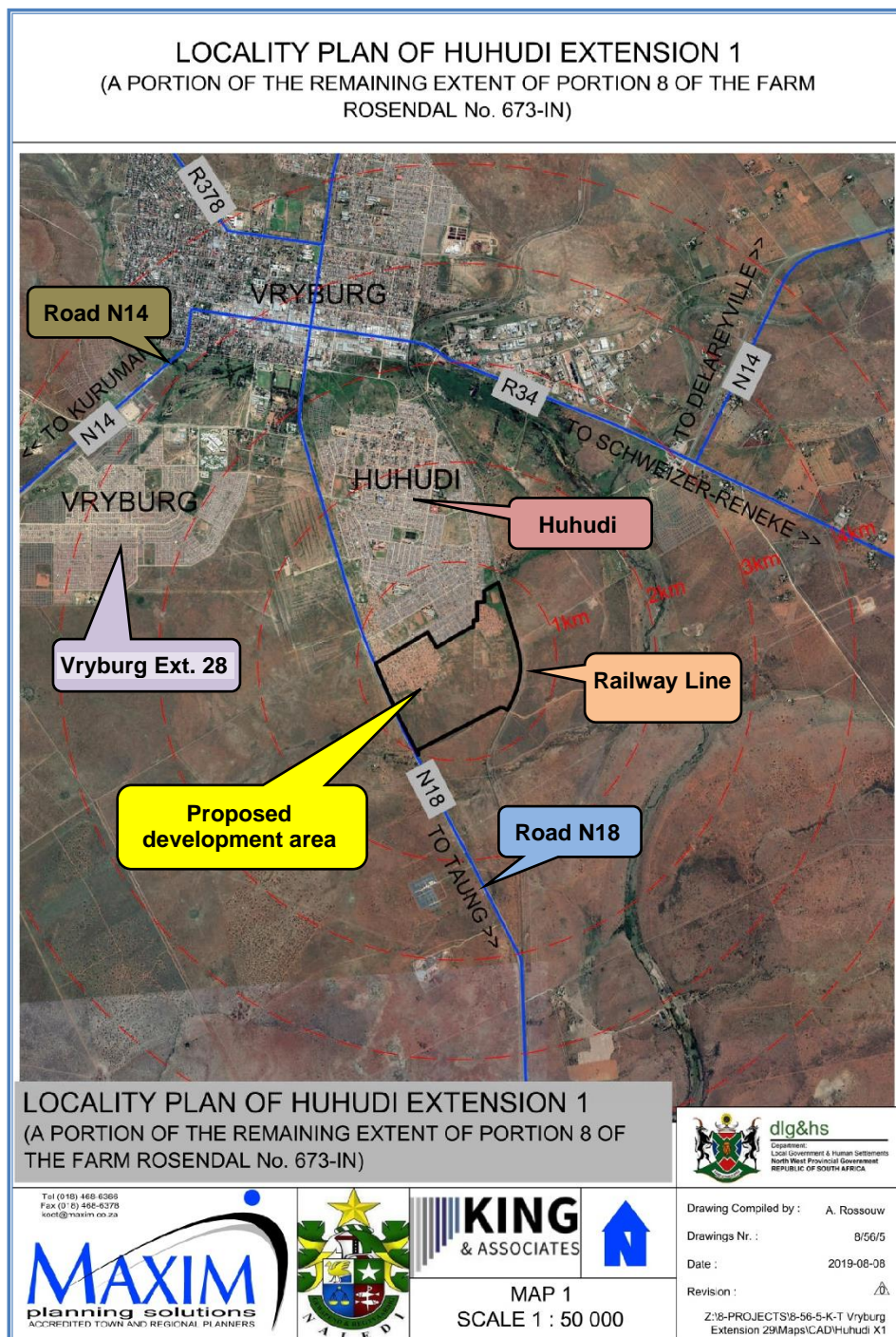
The remainder of the report is structured in terms of the following main headings:

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

## CHAPTER 2: PARTICULARS OF THE DEVELOPMENT AREA

### 2.1 LOCALITY

The proposed development/township area is located directly adjacent and to the south of the existing township area of Huhudi and is bordered to the south-west by Road N18 (Vryburg-Taung Road) and to the east by the Vryburg-Pudimoe railway line (as indicated on **Map 4** below).



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

The proposed township area will be located within the area of jurisdiction of the Naledi Local Municipality which in turn falls within the area of jurisdiction of the Dr. Ruth Segomotsi Mompati District Municipality.

An orientation locality plan of the proposed township/development area is attached to the comprehensive land development application as **Annexure F1**.

## 2.2 SG DIAGRAM

The Remaining Extent of Portion 8 of the farm Rosendal 673, Registration Division I.N., North West Province is reflected on diagram SG No. C9361/1992 (attached as **Annexure E1** to the comprehensive land development application and reflected on **Figure 4** below).

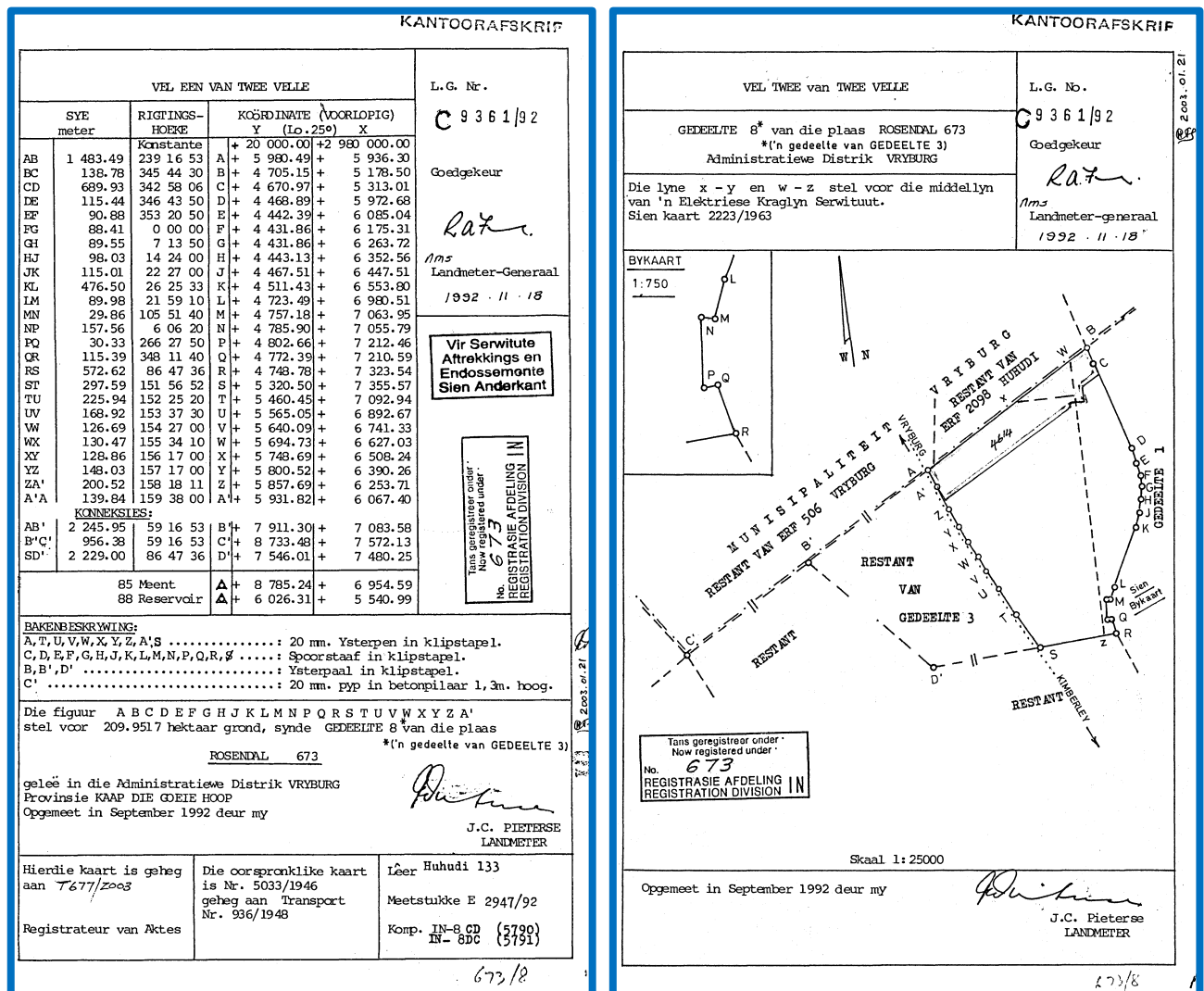


Figure 4: Diagram SG No. 9361/1992 (Sheets 1 and 2)

## 2.3 OWNER

The property to which this Land Development Application applies, is currently registered as follows:



**Table 8: Ownership Details**

| Property Description  | Registered Owner          | Title Deed Number |
|---|---------------------------|-------------------|
| Remaining Extent of Portion 8 of the farm Rosendal 673, Registration Division I.N., North West Province | Naledi Local Municipality | T677/2003         |

(Refer **Annexure J1** of the comprehensive Land Development Application for a copy of the Aktex Deeds Office Enquiry as well as **Annexure J2** for a copy of the relevant Title Deed).

## 2.4 AREA

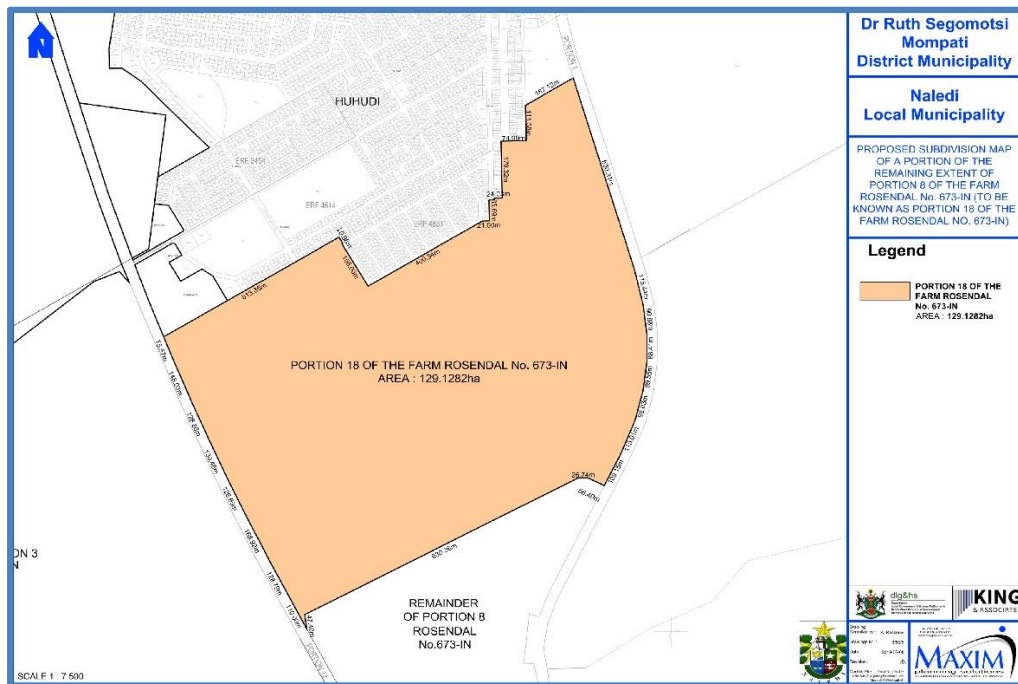
The property to which this land development application applies currently comprises the following area:

**Table 9: Property Areas**

| Property Description  | Total Area               |
|---|--------------------------|
| Remaining Extent of Portion 8 of the farm Rosendal 673, Registration Division I.N., North West Province | 209,9517 Hectares        |
| <b>TOTAL</b>  | <b>209,9517 Hectares</b> |

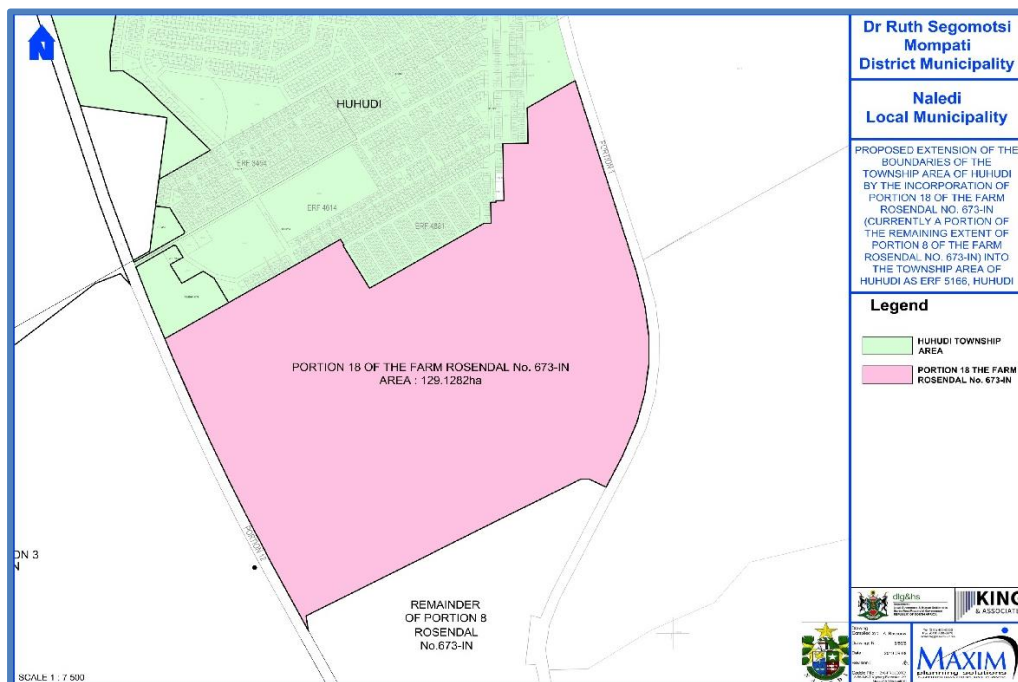
The proposed township area of Huhudi Extension 1 will comprise a total area of 129,1282 hectares.

As the proposed township area will be located on a portion of the Remaining Extent of Portion 8 of the farm Rosendal 673, Registration Division I.N., North West Province, this land development application also seeks to obtain the necessary approval in respect of the subdivision of the Remaining Extent of Portion 8 of the farm Rosendal 673, Registration Division I.N., North West Province into two (2) portions (to create Portion 18 and the Remaining Extent of Portion 8 of the farm Rosendal 673, Registration Division I.N., North West Province (as reflected on **Map 5** below – attached as **Annexure G1** to the comprehensive Land Development Application).



**Map 5: Subdivision Map of the Remaining Extent of Portion 8 of the farm Rosendal 673, Registration Division I.N., North West Province**

It is further proposed to extend the boundaries of the approved township area of Huhudi by the incorporation of a portion of the Remaining Extent of Portion 8 of the farm Rosendal 673, Registration Division I.N., North West Province (subdivided as Portion 18 of the said farm) into the township area of Huhudi as Erf 5166, Huhudi (as reflected on **Map 6** below – attached as **Annexure G2** to the comprehensive Land Development Application).



**Map 6: Proposed Extension of the Boundaries of the township area of Huhudi by the incorporation of Portion 18 of the farm Rosendal 673, Registration Division I.N., North West Province into the township area of Huhudi as Erf 5166, Huhudi**

The proposed township area of Huhudi Extension 1 will ultimately be located on Erf 5166, Huhudi.

## 2.5 **EXISTING LAND USE AND ZONING**

The proposed development area is currently to a large extent occupied by informal dwelling units. An existing cemetery is located within the south-eastern part of the development area. The proposed township area is bordered to the north by the existing residential township area of Huhudi.



**Plate 1: View of informal dwelling units occupying development area**



**Plate 2: View of Eskom powerlines traversing the development area**



**Plate 3: View of Vryburg-Pudimoe railway line (direction south)**

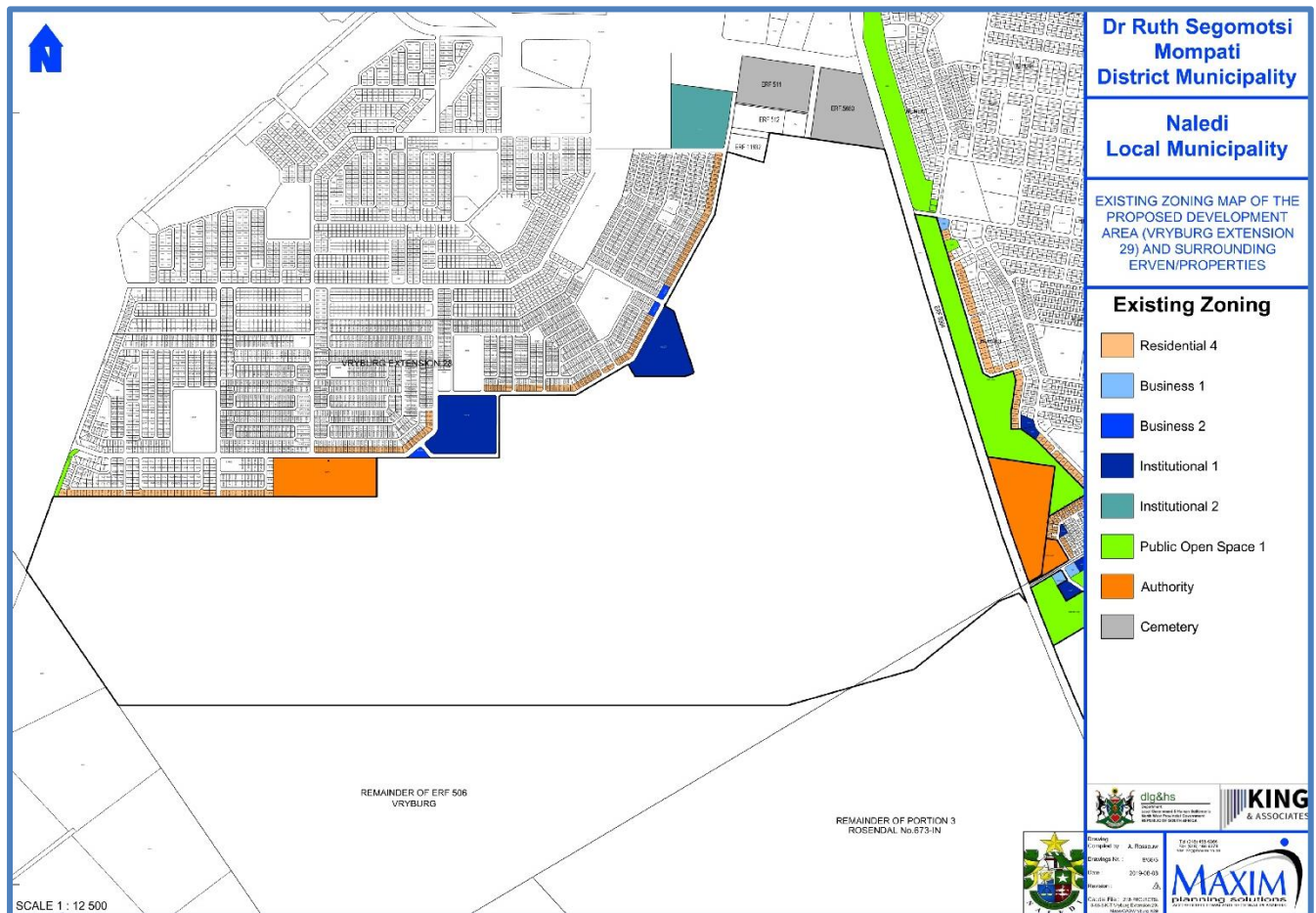


**Plate 4: View of municipal electricity infrastructure**

On scrutiny of the Town Planning Scheme Maps of the Naledi Local Municipality it was noted that the Remaining Extent of Portion 8 of the farm Rosendal 673, Registration Division I.N., North West Province has not been allocated a zoning in terms of the fore-mentioned Town Planning Scheme. The township establishment process will culminate in the proposed township area being incorporated into the then applicable Land Use / Town Planning Scheme of the Naledi Local Municipality to allow for the proper management of land uses



within this proposed township area. The properties surrounding the proposed township area are inter alia zoned for “Residential 4”, “Business 1”, “Business 2”, “Institutional 1”, “Institutional 2”, “Public Open Space” and “Authority” purposes (as reflected on **Map 7** below – attached as **Annexure M** to the comprehensive Land Development Application).



**Map 7: Existing zoning of development area and surrounding properties**

## 2.6 MINERAL RIGHTS

In terms of Certificate of Registered Title T677/2003, the rights to any deposits of gold, silver, platinum or precious stones and the right of mining for gold, silver, platinum or precious stones in respect of the Remaining Extent of Portion 8 of the farm Rosendal 673, Registration Division I.N., North West Province were reserved in favour of the Government as indicated in the following extract from Certificate of Registered Title T677/2003:

**A. “DIE voorwaardes vervat in Grondbrief Nr. F.T. 639, Nr. V wat as volg lui:**

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



Certificate of Registered Title T677/2003 also contains a further reservation of mineral rights (excluding those in favour of the State) to be reserved in favour of Jacob Barend Maree Alberts and Pieter Arnoldus Alberts as set out in Certificate of Mineral Rights K12/1988RM, as set out in the following extract from Certificate of Registered Title T677/2003:

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

The reservation of rights to minerals is however subject to the provisions of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) that came into force on 01 May 2004. The land development application will subsequently also be referred to the Department of Mineral Resources for its consent in terms of Section 53 of the fore-mentioned Act in respect of the proposed development.

## **2.7 RESTRICTIVE TITLE CONDITIONS**

According to Certificate of Registered Title T677/2003 (attached as **Annexure J2** to the comprehensive Land Development Application), the Remaining Extent of Portion 8 of the farm Rosendal 673, Registration Division I.N., North West Province is subject to the following title conditions, which will be dealt with as indicated:

- A. “THE conditions contained in DEED of GRANT Nr. F.T. 639, Nr. V which reads as follows:**
- V. THAT the rights of the Proprietor shall not extend to any deposits of gold, silver, platinum or precious stones, which may at any time be or be discovered on the land hereby granted, and the right of mining for gold, silver, platinum or precious stones is reserved by the Government under such regulations as shall from time to time be established by law.**
- B. “Die voorbehoud van mineraleregte, uitgesluit die voorbehoud ten gunste van die Staat, ten gunste van JACOB BAREND MAREE ALBERTS en PIETER ARNOLDUS ALBERTS, kragtens Sertifikaat van Mineraleregte K 12/1988 RM.”**

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

**“C. Kragtens Notariële Akte van Serwituut Nr 1/1965 is die binnegemelde eiendom onderhewig aan ‘n ewigdurende reg ten gunste van die Munisipaliteit van Naledi om elektrisiteit te lei lands die roete aangedui deur die lyne x – y en w - z op Kaart LG 9361/92 hierby aangeheg.”**

Notarial Deed of Servitude Nr 1/1965 was registered in favour of the Naledi Local Municipality for the purpose of a powerline servitude. The route of this servitude is reflected

KANTOORAFTSKRIF

VEL TWEE van TWEE VELLE

L.G. No.

GEDEELTE 8\* van die plaas ROSENDAL 673

\*(in gedeelte van GEDEELTE 3)

Administratiewe Distrik VRYBURG

C 9 3 6 1 / 9 2

Goedgekeur

R.A.T.

Ans

Landmeter-generaal

1992 . 11 . 18

Die lyne x - y en w - z stel voor die middellyn  
van 'n Elektriese Kraglyn Serwituut.  
Sien kaart 2223/1963

BYKAART

1:750

Tans geregistreer onder  
Now registered under

No. **673**  
REGISTRASIE AFDELING  
REGISTRATION DIVISION IN

Skaal 1:25000

Opgemette in September 1992 deur my

J.C. Pieterse  
LANDMETER

273/8

**Figure 5: Diagram SG No. 9361/1992 (sheet 2)**

The above-mentioned servitude comprises an existing power line as reflected on **Plate 5** below:



**Plate 5: View of existing power line (as per servitude K1/1965)**

This servitude was accommodated in the layout plan of the proposed township and affects the proposed Erven 7542 to 7546, Vanilla Crescent, Chicory Street, Spearmint Crescent and Safflower Avenue.

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

Based on the assessment of the existing title conditions, it is evident that it is not necessary to apply for the removal, suspension or amendment of any of the title conditions contained in Certificate of Registered Title T677/2003.

## **2.8 SERVITUDES**

As alluded to in Section 2.7 supra, preliminary indications are that the portion of the Remaining Extent of Portion 8 of the farm Rosendal 673, Registration Division I.N., North West Province, to which this application applies, is only directly affected by Notarial Deed of Servitude K1/1965. This servitude is reflected on Diagram SG No. 9361/1992 (refer **Figure 5** above) and affects Erven 7542 to 7546, Vanilla Crescent, Chicory Street, Spearmint Crescent and Safflower Avenue. These erven together with the streets affected thereby will be made subject to this servitude.

In addition to the power line servitude detailed above, the proposed development area is affected by an additional two (2) Eskom power lines that traverses the central southern part of the development area from east to south. These power lines comprise the Bophirima-Waterloo 22kV as well as the Bophirima-Boereplaas 22kV lines (refer **Plate 6** below). These power lines were erected according to a wayleave agreement and is not registered notarially.



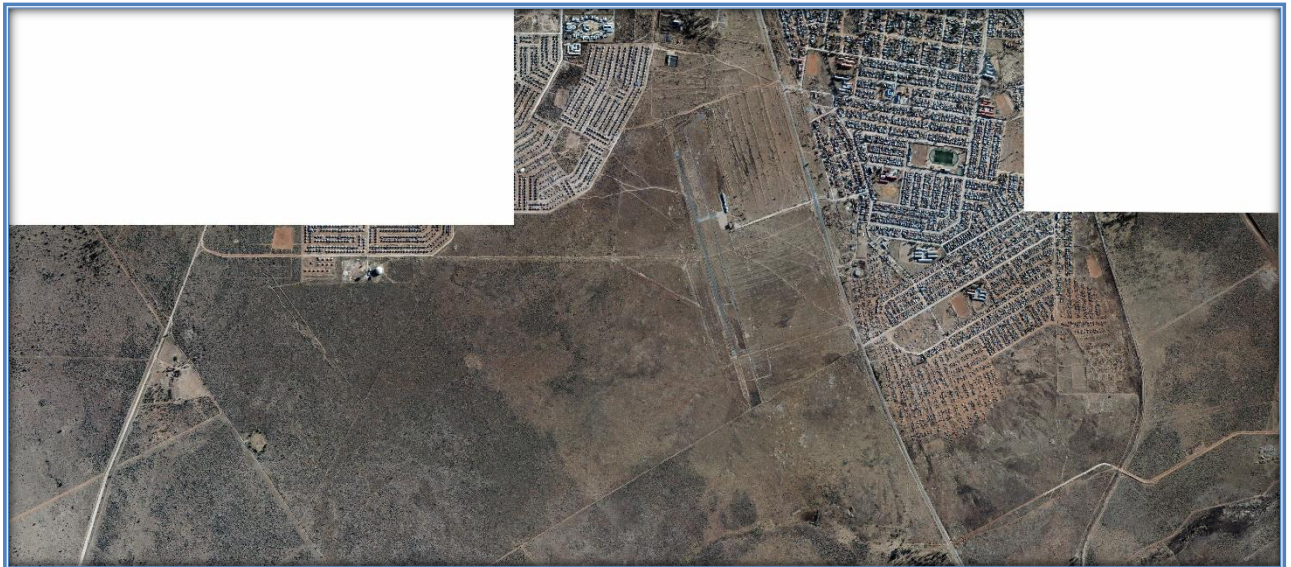
**Plate 6: View of the Bophirima-Waterloo 22kV and Bohirima-Boereplaas 22kV Eskom power lines**



## CHAPTER 3: PHYSICAL ASPECTS

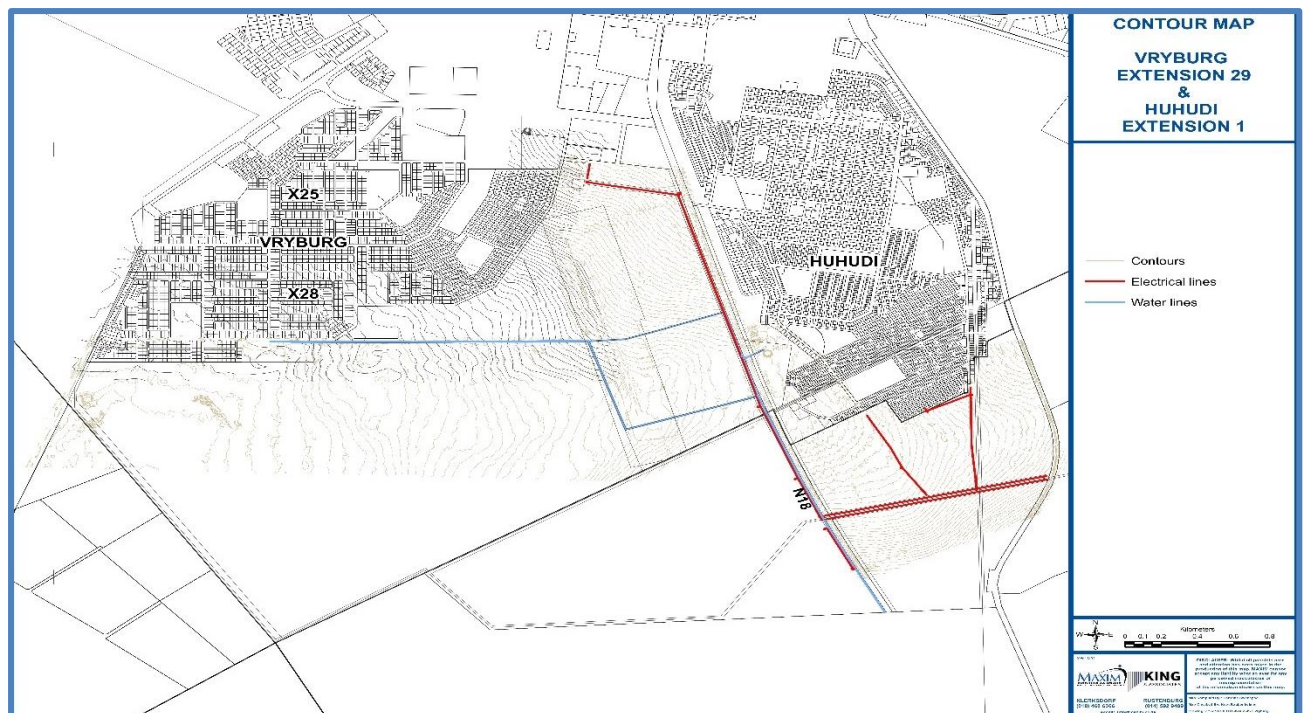
### 3.1 TOPOGRAPHY

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 6**).



**Figure 6: Aerial photograph of development area**

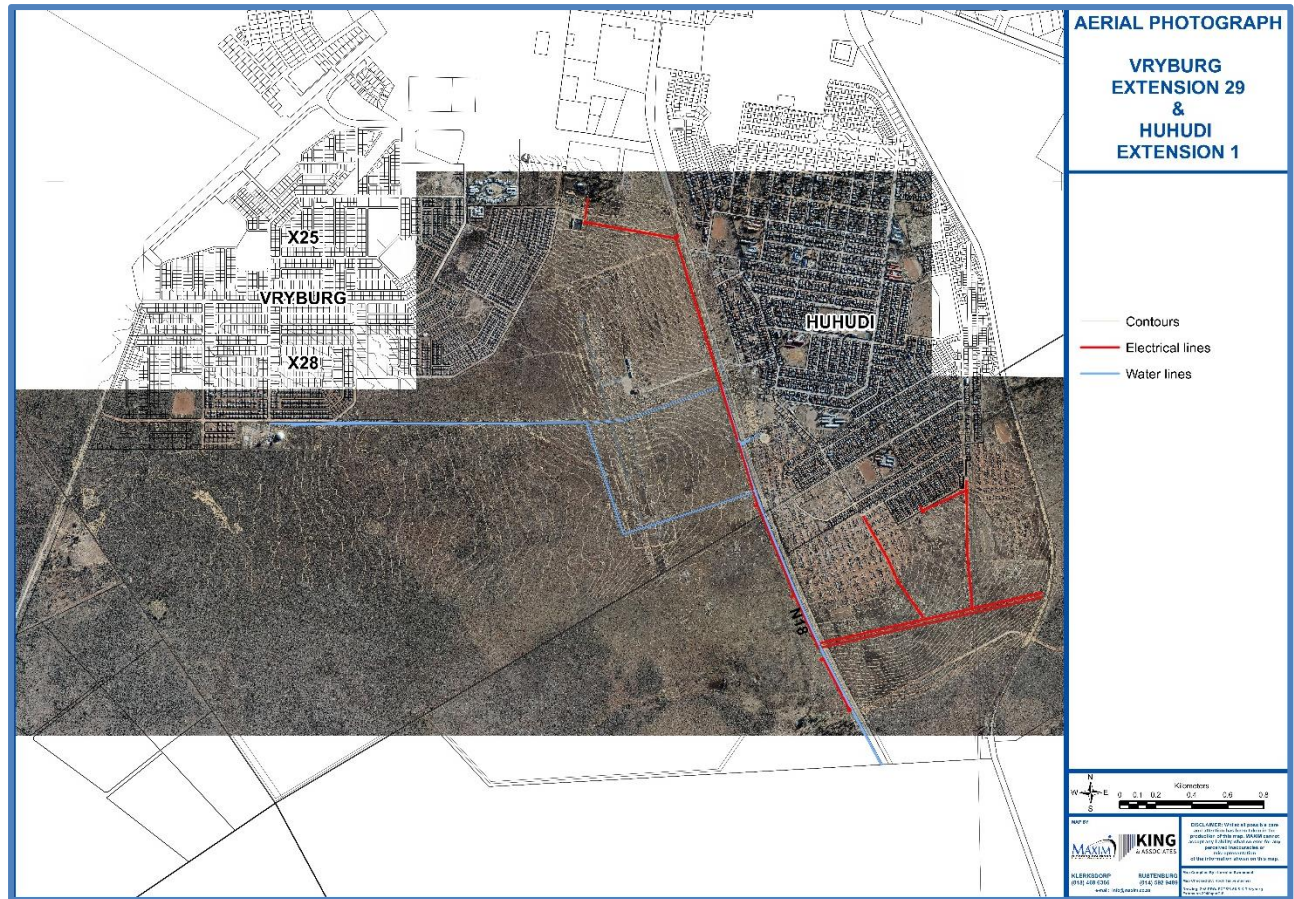
Based on the results of the aerial survey, a contour map of the development area was generated by Azur Aerial Work CC. The results of the contour survey are reflected **Map 8**.



**Map 8: Contour data of development area**



This aerial survey was supplemented by a physical survey of prominent features that could affect the planning of the concerned development area that was conducted by TMK Professional Land Surveyors (refer **Map 9**). During the physical survey, the positions of existing powerlines traversing the development area were detected and this information was employed during the layout planning process to allow for the layout plan to accommodate the existing services infrastructure.



**Map 9: Results of aerial photography, contour data and physical survey**

The proposed development area is located on a shallow eastern slope of 1186 to 1206 MASL, the lowest point towards the Dry Harts River.

### 3.2 CLIMATE

The region is characterized by summer rainfall with thunderstorms, with annual rainfall figures of 550 mm (Vryburg) recorded at the closest weather station to the site. Winters are dry with frost common. The warmest months are normally December and January and the coldest months are June and July.

An analysis of the data confirms a Weinert's N-Value in the order of 6 for Vryburg. The mechanical disintegration of rocks will therefore be dominant over chemical 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 an easterly direction towards the Dry Harts River, a tributary to the Vaal River.

Plate flow is the dominant drainage pattern on site, and no prominent drainage channel intersects the site but according to the topography and contours heights, the water dissipates into the sandy colluvium or pebble marker or pans on site.

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

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

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.

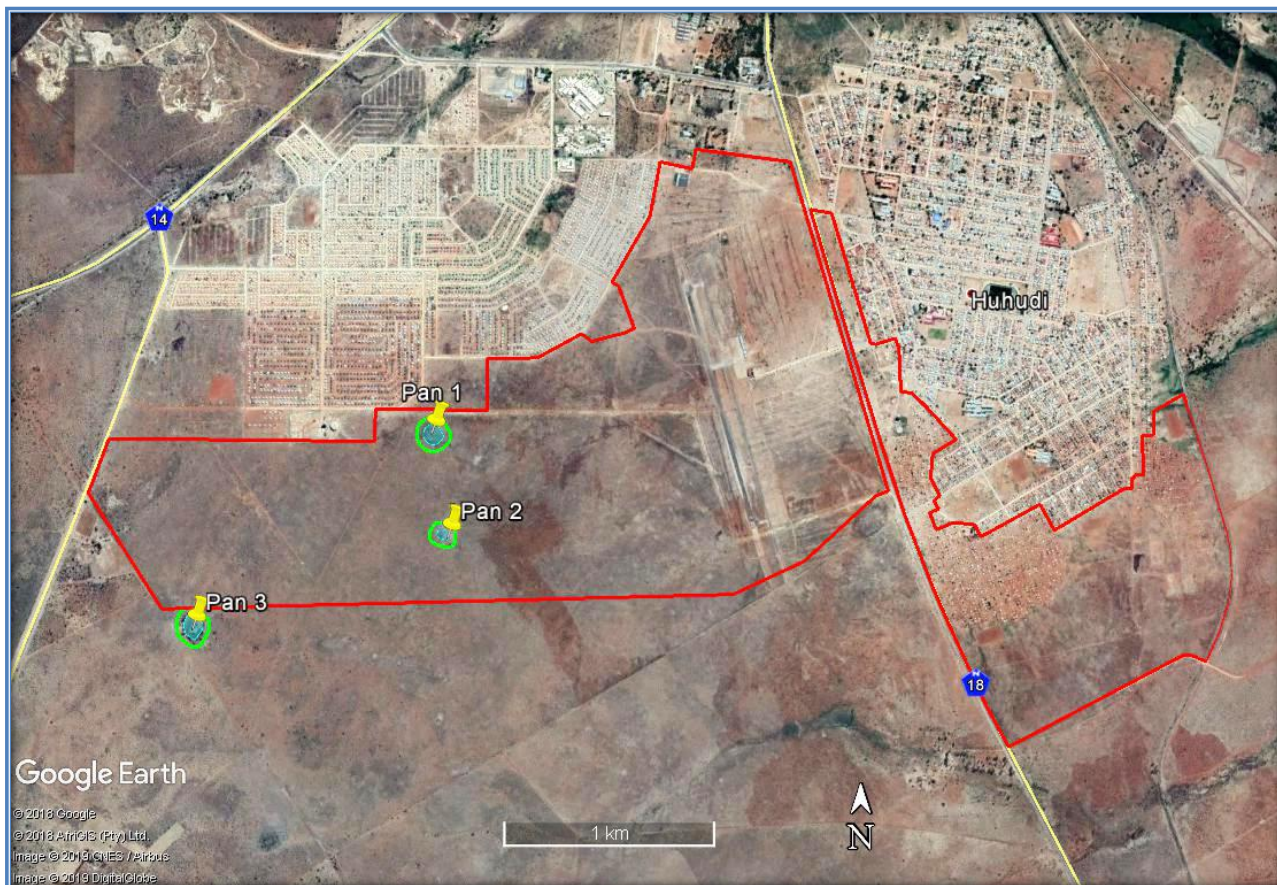
Storm water diversion measures such as ponding pools are recommended to control peak flows during thunderstorms.

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

### **3.4 WETLANDS AND PANS**

As mentioned in section 3.3 supra, no pans or wetland areas are present at the site. This was confirmed in terms of the Wetland Assessment conducted by Anthene Ecological CC. The pans and wetland that were identified by the Wetland Study are located within the proposed township area of Vryburg Extension 29 and does not affect the proposed development area. The locality of the wetland areas in relation to the proposed township area of Huhudi Extension 1 is reflected on **Map 10** overleaf.





**Map 10: Indication of wetland depressions (small pan) and their buffer zone (30 m) at the adjacent proposed township area of Vryburg Extension 29**

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

The wetland assessment conducted by Anthene Ecological CC confirms that the proposed township area of Huhudi Extension 1 is not affected by any wetlands. The Wetland Report is attached to the comprehensive Land Development Application as **Annexure O3**.

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

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

- ✧ Vegetation at the site contains a visibly poor cover of grass-layer and conspicuous high frequency of shrub-height trees. Shrub-height thorn trees such as *Vachellia karroo*, *Vachellia tortilis* and *Vachellia hebeclada* are prominent in some areas and in other areas visible concentrations of *Tarchonanthus camphoratus* (Camphor Bush) are noted.
- ✧ The site is on very gentle slopes (flat area).

- ✧ The entire site is visibly degraded or transformed. Large cleared or trampled areas with partial cover of exotic plant species or weeds are present. Tracks, roads and old buildings are found at the site. Informal dumping is extensive at the site.
- ✧ The vegetation type that represents the Savanna Biome at the site, Ghaap Plateau Vaalbosveld (SVk 7), is not listed as threatened ecosystem according to the National List of Threatened Ecosystems (2011).
- ✧ Presence of Threatened or Near Threatened animal or plant species are unlikely.
- ✧ One individual of a Protected tree species, *Vachellia erioloba* (Camel Thorn) is found at the site.
- ✧ Protected Tree species are listed under the National Forests Act No. 84 of 1998. In terms of a part of section 15(1) of Act No. 84 of 1998, no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a license granted by the Minister.
- ✧ Ecological sensitivity at the site is medium-low, apart from the degraded and modified small wetlands which are regarded as of medium sensitivity.
- ✧ The footprint proposed for the proposed development is not part of a corridor of particular conservation importance. Small and restricted pan depressions at the site could be important in a stepping stone conservation corridor system.

### 3.6 GROUNDWATER

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

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

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

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

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

The site is underlain by diamictite and shale of the Dwyka Formation, Karoo Supergroup. Surficial deposits include quaternary diamondiferous gravel and calcrete gravel, covering

the lithology. Diamictite is a sedimentary rock that consists of non-sorted to poorly sorted terrigenous sediment containing particles that differ and may range in size from clay to boulders, suspended in a matrix of mudstone or sandstone.

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

### **3.7.1 SITE EVALUATION**

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

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

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

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

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

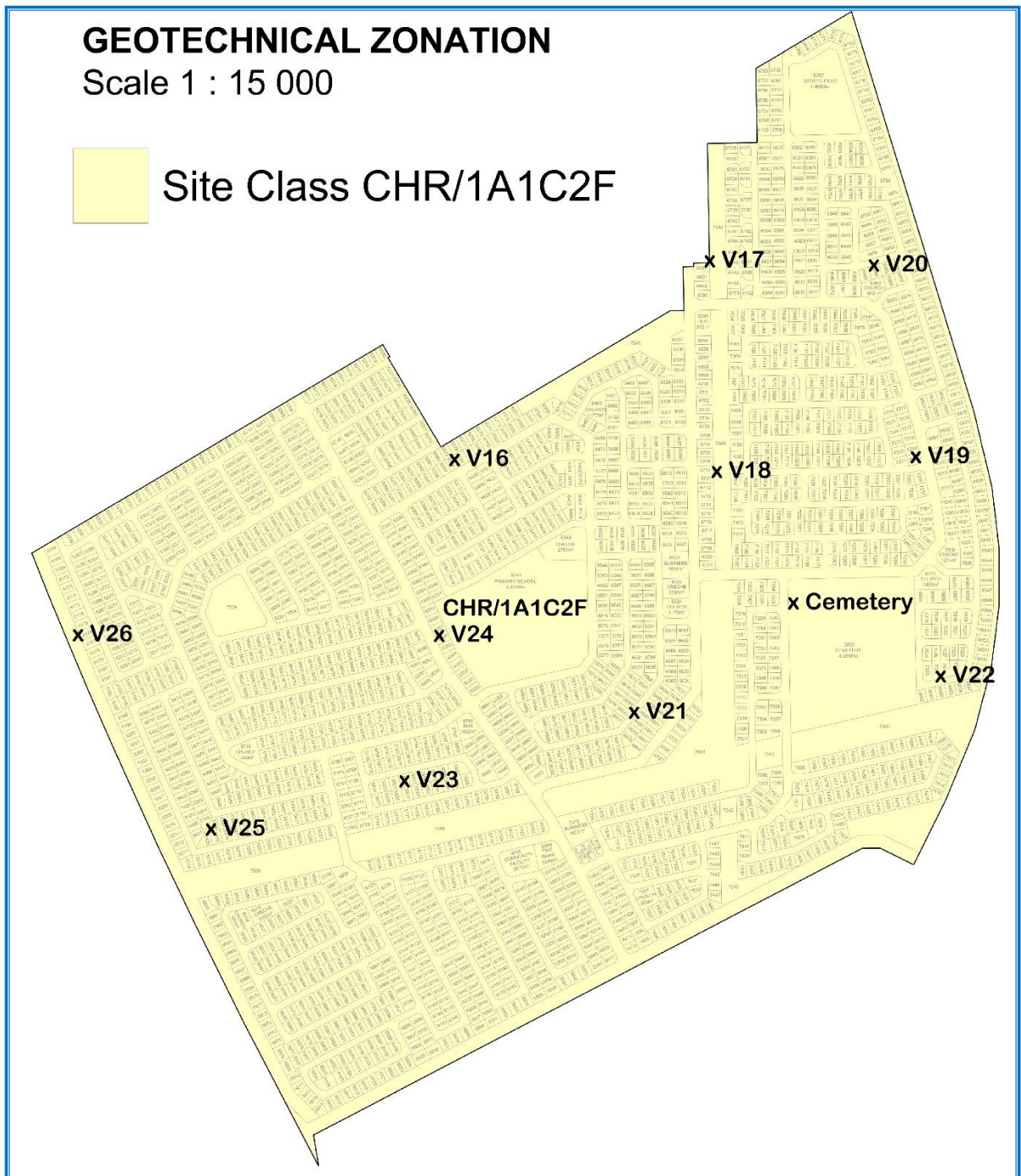
Storm water diversion measures such as ponding pools are recommended to control peak flows during thunderstorms.

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

### **3.7.2 SITE ZONATION**

In terms of the results of the geotechnical investigation, the development area was divided into the following geotechnical zone which is described in detail in this section and also reflected on **Map 11**.





**Map 11: Geotechnical Site Zonation**

**Normal Development with risk:**

**Site Class CHR/1A1C2F:**

This zone represents the majority of the area and comprises of a relative thin top layer less than 0,75m in thickness of moderately collapsible or medium compressible and medium expansive soil underlain by a competent pebble marker and diamictite, with an expected range of total soil movement measured at surface as consolidation calculated to less than 5mm of total settlement, or less than 7,5 mm heave, with a site classification of CHR, underlain by **shallow rock shale and diamictite** and this added a **R site class designation** to the zone with **problems relating to restricted**

**excavation to 1,5m.** Normal foundation techniques will be adequate to enable proper development, with proper compaction within standard strip foundations and drainage provision that will be required.

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

### **3.7.3 FOUNDATION RECOMMENDATIONS AND SOLUTIONS**

The following foundations solutions can be considered:

#### **Consolidation or collapse settlement**

##### **Site Class C (Estimated total Settlement of less than 5mm):**

##### **Normal Construction:**

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

##### **Site Class C1 (Estimated total Settlement of between 5 and 10mm):**

##### **Modified normal construction:**

Reinforced strip footing and slab on the ground.

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

Light reinforcement in masonry.

Site drainage and service/plumbing precautions recommended.

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

Compaction of in situ soils below individual footings:

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

Normal construction with light reinforcement in strip foundation and masonry.

Deep strip foundations

Normal construction with drainage precaution.

Founding on a competent horizon below problem horizon.

Soil Raft

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

Normal construction with lightly reinforced strip footings and masonry.

### **Expansive soil**

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

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

#### **Normal construction:**

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

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

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

#### **Modified normal:**

Lightly reinforced strip footings.

Articulation joints at all internal/external doors and openings

Light reinforcement in masonry.

Site drainage and plumbing/service precautions.

Or soil raft:

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

Normal construction with lightly reinforced strip footings and masonry.

Site drainage *and plumbing/service precautions.*

## **3.8 ENVIRONMENTAL IMPACT ASSESSMENT**

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

The activity that forms the subject of this application is listed in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014. The proposed development triggers the following regulations:

**Table 10: 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>1</sup> :   |
|--|--|---|
| GN.R. 327,<br>7 April 2017                           | 44   | The expansion of the existing cemetery at Vryburg by an additional 69 066 square meters and the expansion of the existing cemetery at Huhudi with an additional 36 413 square meters.   |
| GN.R. 325,<br>7 April 2017                           | 15   | The clearance of 533,64 ha of indigenous vegetation (This area includes the clearance of 1 241 083 square meters of indigenous vegetation that is located within a critical Biodiversity area 2 as identified in the North West Bioregional Plan) in order to establish a township that will be located on a Portion of the Remaining Extent of Portion 8 of the farm Rosendal No. 673-IN, a Portion of the Remaining Extent of Erf 506, Vryburg, a Portion of the Remaining Extent of Portion 3 of the farm Rosendal No. 673-IN and Erven 3455, 4377, the remaining extent of Erf 4378 and Erf 4835, Huhudi, North West Province.. |
| GN.R. 324,<br>7 April 2017                           | 12 (h) (iv)(vi)                                    | Clearance of 1 241 083 square meters of indigenous vegetation within a Critical biodiversity area 2 (CBA 2) and the clearance of 60 365 square meters of indigenous vegetation within 100 meters from a Pan.  |

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

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

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

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

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

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

### 3.9 **CULTURAL HERITAGE AREAS**

A Pelser 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 number of sites with Stone Age tools (individual tools and some denser scatters) were identified in the study area during the assessment. This includes some stone tools to the south of Area F (Huhudi Extension 1). These tools were identified in areas close to sections of disturbances (pipeline excavations) and roads, as well as open patches of soil. Although only a few areas were inspected for the possibility of the presence of archaeological material, these finds do indicate that there is a high likelihood of more sites being present in the total development area. The reason for this interpretation is provided below. Also, based on the findings some recommendations regarding archaeological mitigation measures are also provided.

The first site found contains a number of Earlier & Middle Stone Age core and flake tools scattered around an area of about 50m x 50m. The tools are weathered and patinated and seems to have been exposed to water erosion (rolling) as well. Although only around 10 objects were identified in this area, the section only represents a small fraction of the total land area covered by the study area. It is therefore highly likely that there could be more and denser scatters present in the area.

The 2<sup>nd</sup> area where stone tools were identified is located to the south of (and therefore outside of the main study area) Area F (Huhudi Extension 1). The ESA/MSA tools identified here is located next to a newly constructed dirt road and within exposed gravels and rocks. The tools include large and smaller core and flake tools, as well as some choppers. Although

not located in the main development area the presence of these tools in the exposed gravels does indicate the high likelihood of more sites and finds located “in situ” below the present surface levels. Sites and artifacts might therefore be exposed during construction work related to the township developments.

The following mitigation measures are recommended based on the superficial findings during the Phase 1 assessment:

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

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

**Cultural Significance:** Medium - High.

**Heritage Significance:** Grade II

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

**Mitigation:** See above



Plate 7: MSA flake tool from the first area. Plate 8: MSA core from first site





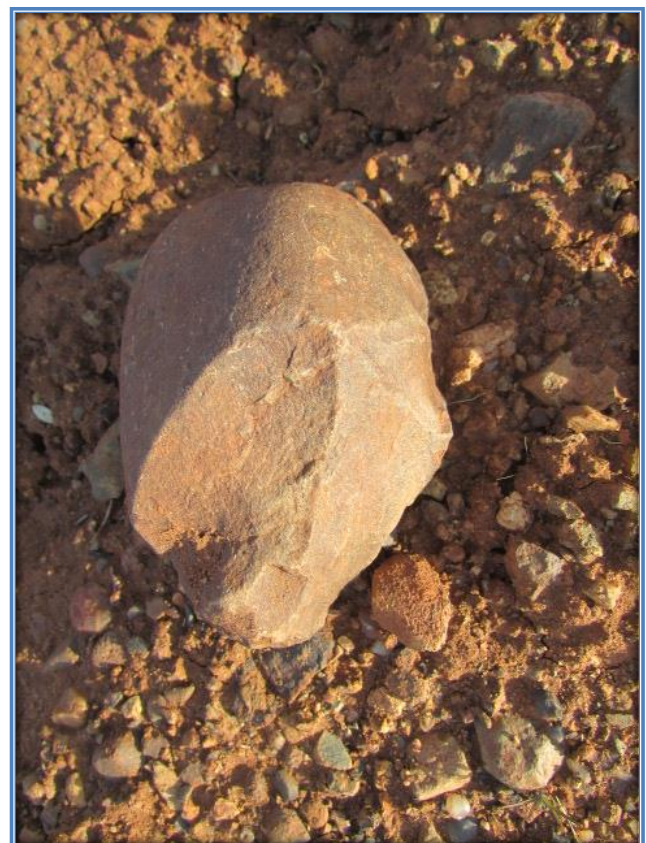
**Plate 9: ESA/MSA tools from the first area.**



**Plate 10: Weathered MSA tool from the first area.**

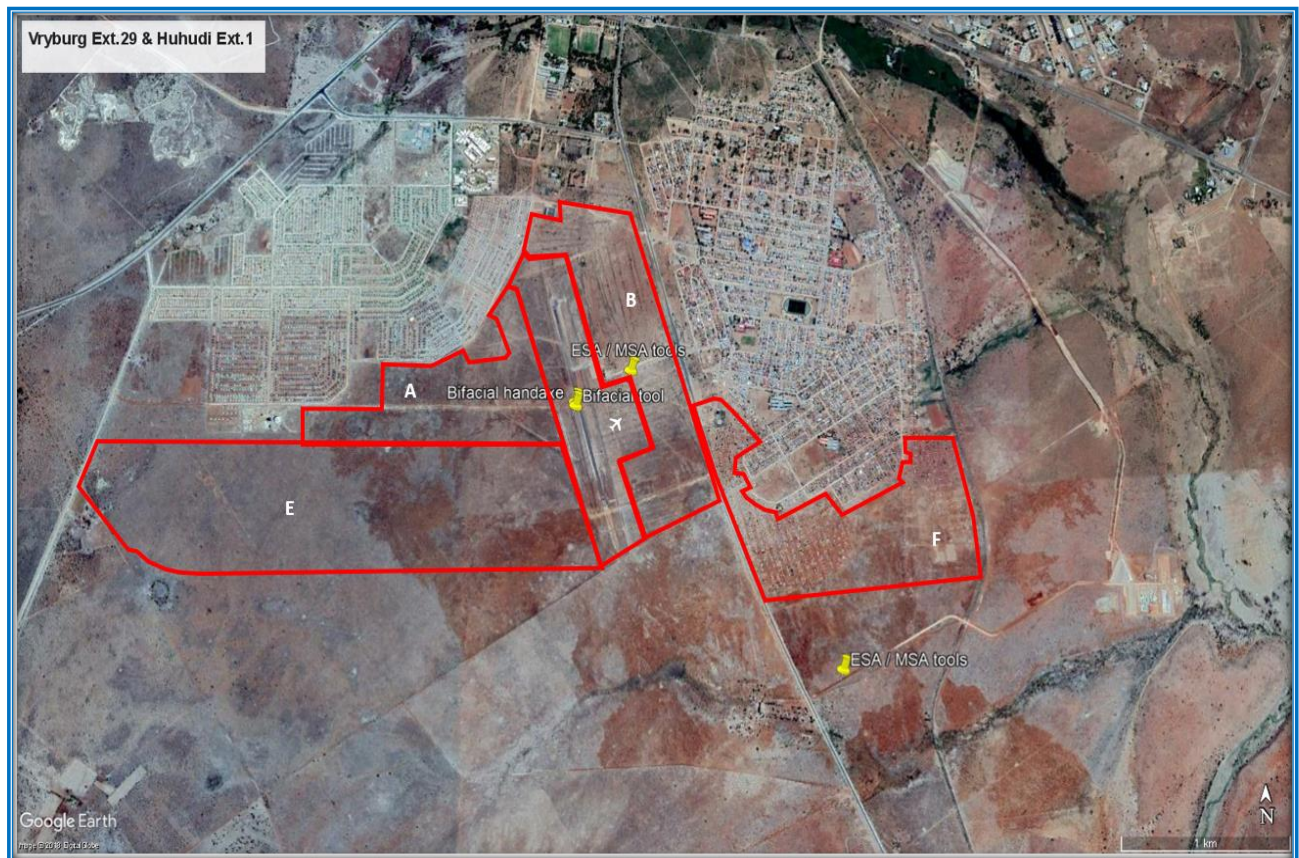


**Plate 11: One of the large ESA/MSA tools from the gravels in the road.**



**Plate 12: An ESA pebble tool (chopper)**





**Map 12: Map showing location of ESA/MSA sites and finds within the development areas (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 should be allowed to continue once the recommended mitigation measures have been implemented”***.

## CHAPTER 4: PROPOSED DEVELOPMENT

### 4.1 LAND USES

The intentions of the township applicant i.e. the Naledi Local Municipality is to utilize the concerned property for the establishment of a proper integrated human settlement comprising the proposed township areas of not only Huhudi Extension 1 but also Vryburg Extension 29 (addressed under cover of a separate Land Development Application). The aim of these township establishment processes are not only to address the short term need for erven that can be utilized for low cost and subsidized housing purposes, but to create a variety of residential erven that can be utilized for various housing typologies including inter alia GAP/FLISP housing, rental housing, bonded housing and middle income housing. In accordance with the policy guidelines contained in the Breaking New Ground (BNG) Principles it is indicated that new residential township areas should focus on the establishment of integrated human settlements focussing on the provision of erven not only for subsidized/low income households but also addressing the need for other housing typologies such as rental housing, social housing, bonded housing and FLISP projects. Cognisance should be taken of the fact that even though the integrated layout plan compiled in respect of the combined development area includes erven for GAP/FLISP/bonded and middle-income housing, the erven earmarked for this purpose are located within the adjacent proposed township area of Vryburg Extension 29. These erven are however located in close proximity to the township area of Huhudi Extension 1 and is only divided by the N18 National Road.

Based on the erf sizes encountered within the urban area bordering onto the development area, the following erf size was adopted for the proposed township area of Huhudi Extension 1.



**Figure 7: Residential erf size**

As alluded to in Section 1.1, the planning of the proposed new integrated human settlement area at Huhudi Extension 1 was conducted in an integrated manner and focussed on the entire designated development area. This integrated planning yielded a township area comprising 8411 erven comprising of 7241 erven for subsidized and low-income housing purposes, 1061 erven for middle-income housing and 109 erven to accommodate the necessary no-residential community-, social-, educational- and business facilities. The integrated layout plan compiled in respect of the proposed township area on Huhudi



Extension 1 located on a portion of the Remaining Extent of Portion 8 of the farm Rosendal 673, Registration Division I.N., North West Province makes provision for the following erven/land uses:

**Table 11: Detail land use analysis of the proposed township Naledi Extension 1**

| Proposed Zoning     | Proposed Land use                          |  | Number of Erven | Erf Number  | Area in Ha | % of Area |
|---------------------|--|--|-----------------|---|------------|-----------|
| Residential 4       | Dwelling Unit<br>Minimum 300m <sup>2</sup> |  | 2348            | 5167-5717; 5719-5798;<br>5800-6004; 6007-6017;<br>6020-6347; 6350-6459;<br>6461-6521; 6525-6693;<br>6695-6766; 6768-6862;<br>6864-6870; 6872-6968;<br>6970-7005; 7007-7334;<br>7339-7526; 7528-7537 | 74.7380ha  | 57.88%    |
| Business 1          | Business                                   |  | 1               | 7335  | 0.1923ha   | 0.15%     |
| Business 2          | Shop                                       |  | 6               | 5799; 6522; 6694;<br>7336-7338  | 0.4710ha   | 0.36%     |
| Institutional 1     | Place of Instruction<br>(Primary School)   |  | 1               | 6348  | 3.3746ha   | 2.61%     |
|                     | Place of Instruction<br>(Creche)           |  | 4               | 6019; 6349;<br>6523; 7006   | 0.6270ha   | 0.49%     |
|                     | Place of Worship<br>(Church)               |  | 7               | 5718; 6018; 6460; 6524;<br>6871; 6969; 7527   | 0.8003ha   | 0.62%     |
| Institutional 2     | Community Facility                         |  | 1               | 6005  | 0.2077ha   | 0.16%     |
|                     | Sports Field                               |  | 1               | 6767  | 1.0699ha   | 0.83%     |
| Public Open Space 1 | Public Open Space                          |  | 11              | 7538-7548   | 13.7596ha  | 10.66%    |
| Transport 1         | Taxi Rank                                  |  | 1               | 6006  | 0.1346ha   | 0.10%     |
| Transport 2         | Public Street                              |  |                 |   | 29.7216ha  | 23.02%    |
| Cemetery            | Cemetery                                   |  | 1               | 6863  | 4.0316ha   | 3.12%     |
| TOTAL               |  |  | 2382            | 5167-7548   | 129.1282ha | 100%      |

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

▪ **Residential 4**

The layout plan of the proposed township Huhudi Extension 1 makes provision for a total of 2 348 residential erven with a minimum erf size of 300m<sup>2</sup>. The erf size detailed above was to a large extent dictated by the average residential erf sizes of the surrounding areas.

It is envisaged that the residential erven will be utilized for low cost and subsidized housing purposes but same can also be utilized for GAP/FLISP/bonded housing purposes.

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.

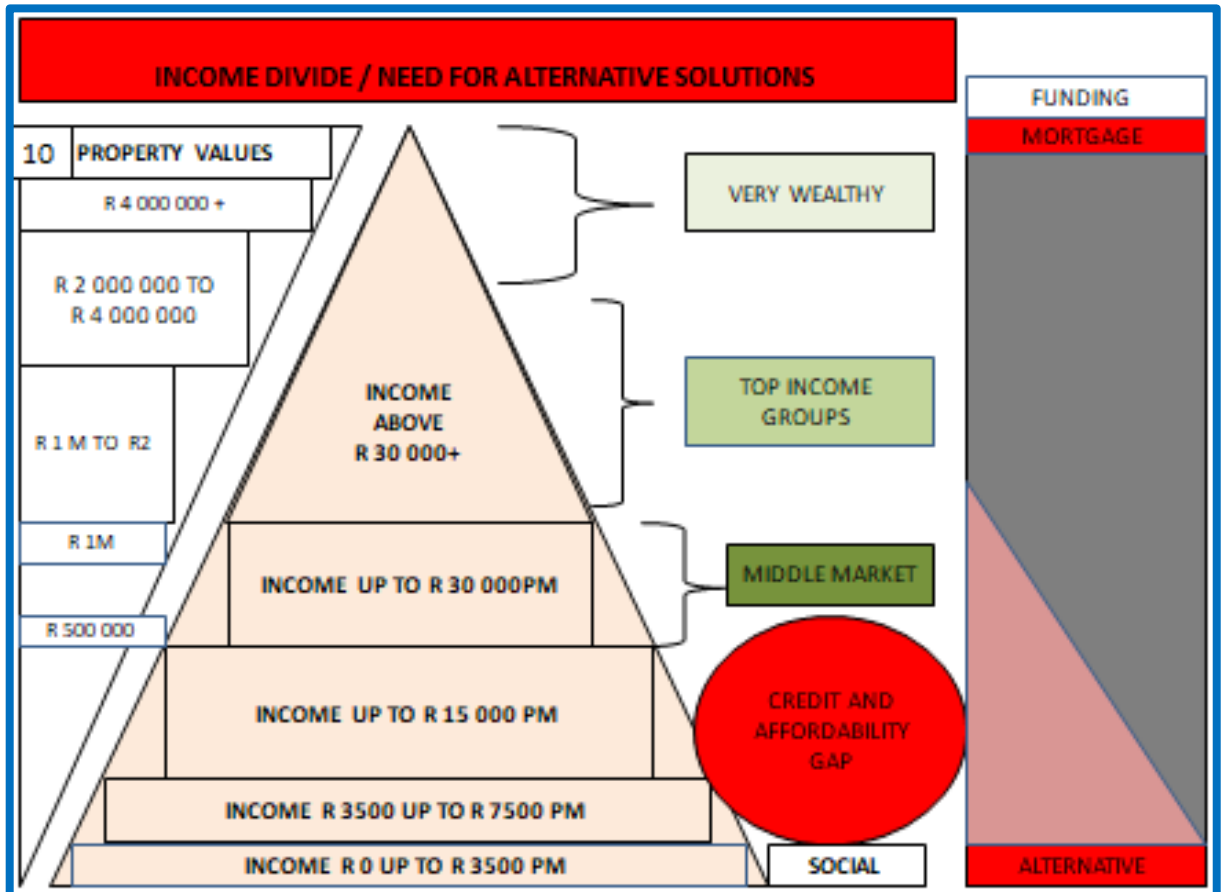
- **People's Housing Process**

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 8: 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:





▪ **Business 1**

The layout plan of the proposed township area of Huhudi Extension 1 makes provision for one (1) erf to be zoned as “Business 1”.

To ensure that a proper integrated human settlement is established, it is imperative that adequate provision also be made for commercial activities that will address the needs of the concerned community whilst similarly providing opportunities for job creation. The township area of Huhudi Extension 1 makes provision for the establishment of one (1) commercial/service node that is located along one of the Class 3 collector roads and centrally within the proposed development area. It is envisaged that this erf will be utilized as the main commercial node offering the greatest variety of goods and services. It is envisaged that these nodes will function as mixed land use nodes also providing supporting social facilities such as clinics, municipal pay points, Thusong Centres, Post Office facilities, SASSA pay points etc. The “Business 1” erf was positioned centrally within the development area to limit walking distances whilst also ensuring easy accessibility to these facilities. The functions offered at the commercial/service node will also be supplemented by smaller “Business 2” erven (as detailed below).

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

**Table 13: “Business 1” development parameters**

| Development parameter | Development Parameter Detail   |
|-----------------------|--|
| Primary Use           | <ul style="list-style-type: none"> <li>▪ Authority use</li> <li>▪ Bed &amp; Breakfast</li> <li>▪ Canteen</li> <li>▪ Community facility</li> <li>▪ Electrical purposes</li> <li>▪ Filling Station</li> <li>▪ Funeral parlour</li> <li>▪ Guest house / lodge</li> <li>▪ Hotel</li> <li>▪ Office</li> <li>▪ Parking</li> <li>▪ Place of assembly</li> <li>▪ Private street / parking</li> <li>▪ Restaurant</li> <li>▪ Shop</li> <li>▪ Tavern</li> </ul> |
| Special Consent Uses  | <ul style="list-style-type: none"> <li>▪ Nursery</li> <li>▪ Place of entertainment</li> <li>▪ Place of worship</li> <li>▪ Special usage</li> <li>▪ Transmission tower</li> </ul>   |

|                        |  |
|------------------------|--|
| Written Consent Uses   | <ul style="list-style-type: none"> <li>▪ Dwelling house</li> <li>▪ Institutional use</li> <li>▪ Place of instruction</li> <li>▪ Residential building</li> <li>▪ Service station</li> </ul> |
| Coverage               | 80%  |
| Height                 | 6 storeys  |
| Floor Area Ratio (FAR) | 3  |
| Building lines         | <ul style="list-style-type: none"> <li>▪ Street boundary: 0m</li> <li>▪ Rear boundary: -</li> <li>▪ Side boundary: -</li> </ul>  |

• **Business 2**

The layout plan of the proposed township area of Huhudi Extension 1 makes provision for six (6) erven to be zoned as “Business 2”:

To ensure that a proper integrated human settlement is established, it is imperative that adequate provision also be made for commercial activities that will address the daily needs of the concerned community whilst similarly providing opportunities for job creation. The township area of Huhudi Extension 1 makes provision for the establishment of 17 suburban business nodes that are primary located along Class 3 and 4 roads and at the intersections of such roads. As a support function to the business hub/node provided in the central part of the development area, provision was also made for 3 smaller business erven that can be developed as integral part of the greater business development and which will afford smaller entrepreneurs to also enter the market by providing their own shops and businesses or by providing opportunities for people that wishes to rent such facilities.

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

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

**Table 14: “Business 2” development parameters**

| Development parameter | Development Parameter Detail   |
|-----------------------|--|
| Primary Use           | <ul style="list-style-type: none"> <li>▪ Canteen</li> <li>▪ Electrical purposes</li> <li>▪ Office</li> <li>▪ Parking</li> <li>▪ Place of assembly</li> <li>▪ Shop</li> </ul> |
| Special Consent Uses  | <ul style="list-style-type: none"> <li>▪ Place of entertainment</li> </ul>   |

|                        |  |
|------------------------|--|
|                        | <ul style="list-style-type: none"> <li>Place of worship</li> <li>Special usage</li> <li>Tavern</li> <li>Transmission tower</li> </ul>  |
| Written Consent Uses   | <ul style="list-style-type: none"> <li>Dwelling house</li> <li>Filling Station</li> <li>Place of instruction</li> <li>Residential building</li> <li>Service station</li> </ul> |
| Coverage               | 80%  |
| Height                 | 4 storeys  |
| Floor Area Ratio (FAR) | 2  |
| Building lines         | <ul style="list-style-type: none"> <li>Street boundary: 0m</li> <li>Rear boundary: -</li> <li>Side boundary: -</li> </ul>  |

▪ **Institutional 1**

The layout plan of the proposed township area of Huhudi Extension 1 makes provision for the following number of erven to be zoned as “Institutional 1”:

**Table 15: Number of “Institutional 1” erven**

| Proposed township area | Number of “Institutional 1” erven | Proposed land use | Combined area          |
|------------------------|-----------------------------------|-------------------|------------------------|
| Huhudi Extension 1     | 1                                 | Primary School    | 3,3746 hectares        |
|                        | 4                                 | Crèche            | 0,6270 hectares        |
|                        | 7                                 | Church            | 0,8003 hectares        |
| <b>TOTAL</b>           | <b>12</b>                         |                   | <b>4,8019 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 16: 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 | 2.3 – 2.8                | 4                        |
| Primary School                                    | 1 per 7000 inhabitants        | 1                        | 1                        |

|                  |                          |     |   |
|------------------|--------------------------|-----|---|
| Secondary School | 1 per 12 500 inhabitants | 0.5 | 0 |
|------------------|--------------------------|-----|---|

(Based on estimated 2348 households, 2.9 average household size and total estimated inhabitants of 6 809)

The erf earmarked for the use as primary school was positioned in such a manner to limit walking distance for learners whilst ensuring that the facilities are positioned in such a manner to ensure optimum accessibility. To prevent any conflict in land use and ensure the safety of learners, the primary school erf was positioned in such a manner to limit the number of residential erven bordering onto such primary school erf.

In addition to the educational facilities to be provided, the layout plan also incorporates 7 erven that can be utilized for religious purposes to address the needs of the community for religious facilities.

**Table 17: CSIR Guideline for educational facilities**

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

(Based on estimated 2348 households, 2.9 average household size and total estimated inhabitants of 6 809)

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

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

**Table 18: “Institutional 1” development parameters**

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



▪ **Institutional 2**

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

**Table 19: Number of “Institutional 2” erven per township area**

| Proposed township area | Number of “Institutional 2” erven | Proposed land use  | Combined area          |
|------------------------|-----------------------------------|--------------------|------------------------|
| Huhudi Extension 1     | 1                                 | Community facility | 0,2077 hectares        |
|                        | 1                                 | Sports field       | 1,0699 hectares        |
| <b>TOTAL</b>           | <b>2</b>                          |                    | <b>1,2776 hectares</b> |

The proposed “Institutional 2” erven will make provision for the erection of a community hall and also accommodates an existing soccer field located within the north-eastern part of the development area.

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

**Table 20: “Institutional 2” development parameters**

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

▪ **Public Open Space 1**

The layout plan of the proposed township Huhudi Extension 1 also incorporates 11 erven that were earmarked for “Public Open Space” purposes. These erven were primarily provided to accommodate areas that were deemed not suitable for development purposes due to the presence of existing services infrastructure (power lines) that traverse the proposed development area. The public open space erven are

also provided to accommodate the prescribed 20m building restriction area applicable along Road N18 as well as the required 8m building restriction area applicable along the Vryburg-Pudimoe railway line reserve.

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

**Table 21: “Public Open Space 1” development parameters**

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

▪ **Transport 1**

The layout plan of the proposed township Huhudi Extension 1 incorporates one (1) “Transport 1” erf that will be utilized for the purposes of a taxi rank. This site was specifically positioned along the Class 3 collector road and forms an integral part of the largest business node within the integrated human settlement area. The positioning of the taxi rank was specifically chosen to limit walking distance specifically within the area where vehicle ownership is expected to be lower than in the areas designated for middle income households. The taxi rank will comprise a total area of 0,1346 hectares.

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

**Table 22: “Transport 1” development parameters**

| Development parameter | Development Parameter Detail   |
|-----------------------|--|
| Primary Use           | <ul style="list-style-type: none"> <li>Cemetery</li> <li>Dwelling house</li> <li>Electrical purposes</li> <li>Railway purposes</li> <li>Transport usage</li> </ul> |
| Special Consent Uses  | <ul style="list-style-type: none"> <li>Commercial use</li> <li>Light industry</li> <li>Offices</li> <li>Special usage</li> </ul>                                   |

|                         |  |
|-------------------------|--|
|                         | ▪ Transmission tower   |
| Written Consent Uses    | -  |
| Coverage                | -  |
| Height                  | -  |
| Floor Area Ration (FAR) | -  |
| Building lines          | <ul style="list-style-type: none"> <li>▪ Street boundary: -</li> <li>▪ Rear boundary: -</li> <li>▪ Side boundary: -</li> </ul> |

▪ **Transport 2**

The public streets within the proposed township area of Huhudi Extension 1 will on proclamation of the proposed township be zoned “Transport 2” in terms of the Naledi Town Planning Scheme, 2004 and will be subject to the following development parameters:

**Table 23: “Transport 2” development parameters**

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

As per request from the Naledi Local Municipality, all streets within the proposed township area of Huhudi Extension 1 was provided with proposed street names. The street names adopted for this specific township area relate to herbs and spices and are indicated on the layout plan of the proposed township area and are also contained in **Annexure S** of the comprehensive Land Development Application.

▪ **Cemetery**

The layout plan of the proposed township Huhudi Extension 1 incorporates one (1) erf that is earmarked for cemetery purposes. This erf will accommodate an existing cemetery already developed on the proposed development area. Provision has also been made for the future expansion of this existing cemetery and this was included in the Environmental Authorisation that was issued in respect of the proposed development.

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

**Table 24: “Cemetery” development parameters**

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

## 4.2 FACTORS INFLUENCING THE LAYOUT PLAN

The layout plan of the proposed township area of Huhudi Extension 1 was influenced by the following factors:

- ★ Provision of the prescribed 20m building restriction and line of no access along the Vryburg-Taung Road (N18);
- ★ Accommodating the proposals contained in the Naledi Spatial Development Framework in respect of the establishment of a link road between the Reivilo Road and Road N18;
- ★ Aligning the road network of the proposed township area with the adjacent township areas of Huhudi;
- ★ Accommodating the existing power line servitude that traverses the development area from south to east within the open space system of the township;
- ★ Accommodating the existing two (2) power lines of Eskom traversing the development area from east to west within the open space system of the proposed township;
- ★ Aligning the proposed street network of the proposed township area with the street network proposed in respect of the subdivision of Erf 4377 and the Remaining Extent of Erf 4378, Huhudi;
- ★ Accommodating the existing cemetery located within the proposed development area within an erf in the proposed township area;
- ★ Accommodating an existing soccer field located within the north-eastern part of the development area on an erf in the proposed township;
- ★ Providing access to possible future development to the south;
- ★ Providing an 8m building restriction area adjacent to the Vryburg-Pudimoe railway line; and
- ★ Accommodating an existing road off Road N18 into the street network of the proposed township area. This road currently crosses the Vryburg-Pudimoe railway line at an existing level crossing (refer **Plate 13**). Cognisance should be taken of the fact that the road running across the level crossing terminates on the opposite side of the level crossing where a manned access gate was erected to the concerned farm. This level crossing will not be utilized by the inhabitants of the proposed township area as the main



movement pattern will be towards the N18 and not towards the manned access gate leading onto the adjacent farm portion.



Plate 13: View of existing level crossing

### 4.3 ACCESS

Access to the proposed township area of Huhudi Extension 1 will be provided from the Vryburg-Taung Road (N18) through the proposed upgrading of an informal farm access road that extends up to the Vryburg-Pudimoe railway line as well as from the existing street network of the adjacent township area of Huhudi. The proposed access road linking onto the N18 will be located along the southern boundary of the proposed township area. It is envisaged that this road will in future also be utilized to provide access to the remainder of this specific farm portions should development needs require the development thereof.

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

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

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

#### **4.3.1 STUDY AREA**

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

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

#### **4.3.2 SURROUNDING ROAD NETWORK**

##### **4.3.2.1 N14**

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



Plate 14: View of N14 National Road

##### **4.3.2.1 N18**

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



Plate 15: View of National Road N18

### 4.3.3 TRAFFIC FLOW AND TRIP GENERATION

#### 4.3.3.1 Trip Generation

The COTO *Trip Generation Manual* (September 2012 TMH 17 Volume 1) recommends the peak hour trip rates as per in **Tables 25 & 26** below. The trip generation rates for Residential 1 and Primary- & Secondary Schools have been obtained from a study that was conducted by ITS Consulting Engineers. The lower trip rates are now used for similar type of lower income developments in the country and is more a true reflection of vehicle ownership. Since the Townships have low levels of employment and there are very scarce job opportunities in the area, these trip rates can be justified. Most people therefore walk, use public transport or is transported by their employers in the areas, therefore the reductions for very low vehicle ownerships were allowed.

**Table 25: Proposed Development AM Peak Hour Trip Generation**

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



**Table 26: Proposed Development PM Peak Hour Trip Generation**

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

#### 4.3.3.2 Expected Trip Distribution

The following distribution was used:

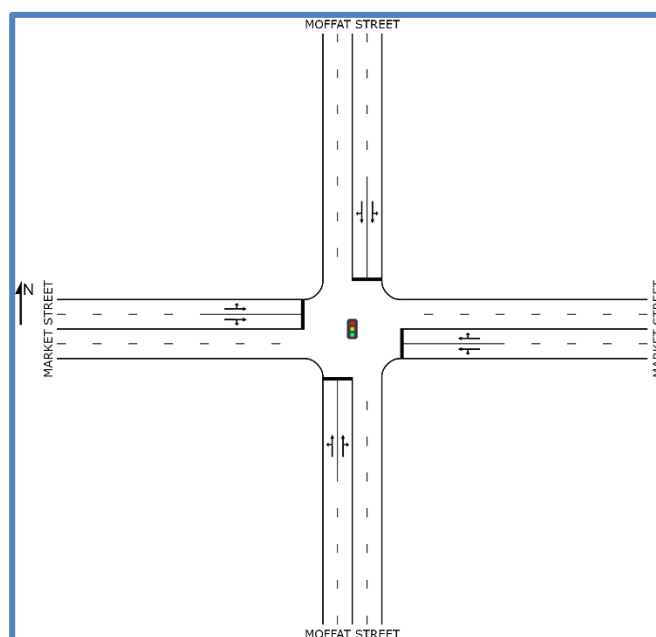
- 25% from the north along N18.
- 25% from the east along N14 & R34.
- 10% from the north along N14 from town.
- 20% from within town.
- 20% from the south along the N18.

#### 4.3.4 TRAFFIC IMPACT AND CAPACITY ANALYSIS

##### 4.3.4.1 Future 2023 Traffic

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

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

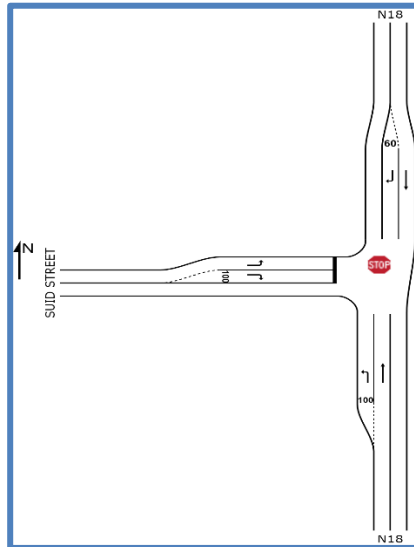


**Figure 9: Existing layout of Market Street (N14) and Moffat Street (N18) intersection**



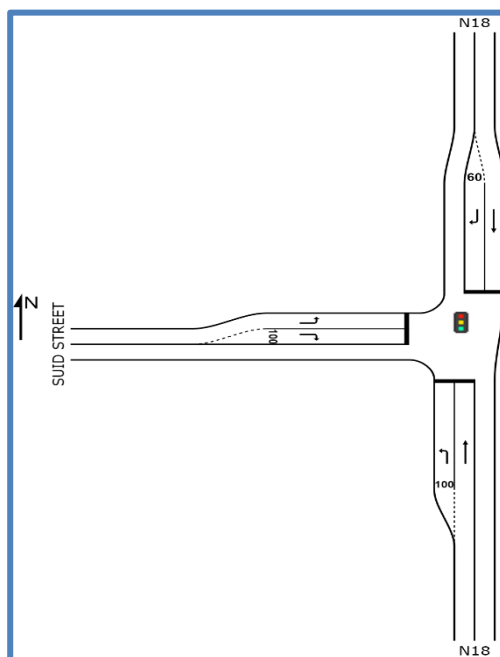
For the **Existing 2018 & Future 2023** scenarios the analysis indicates that the intersection operates with acceptable LOS and spare capacity therefore no upgrades are proposed.

#### 4.3.4.3 N18 and Suid Street Intersection



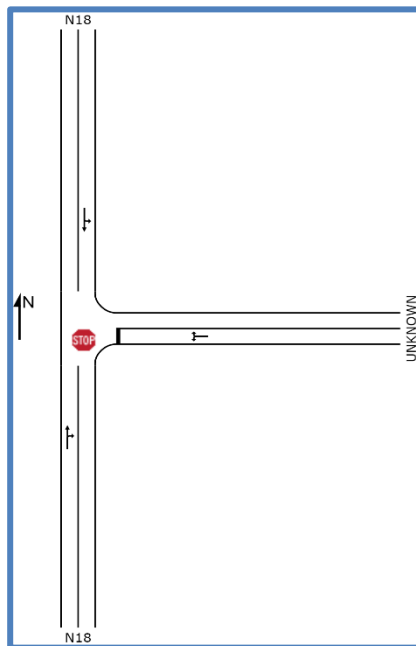
**Figure 10: Existing Layout of N18 and Suid Street Intersection**

For the **Existing 2018** scenario the analysis indicates that the intersection operates with acceptable LOS and spare capacity. By including the development traffic, the side road (Suid Street) will experience delays although the intersection will still have capacity left, thus to mitigate this, upgrades and signals are proposed by **2023** which should firstly be Warranted. The proposed layout is shown below in **Figure 11**:



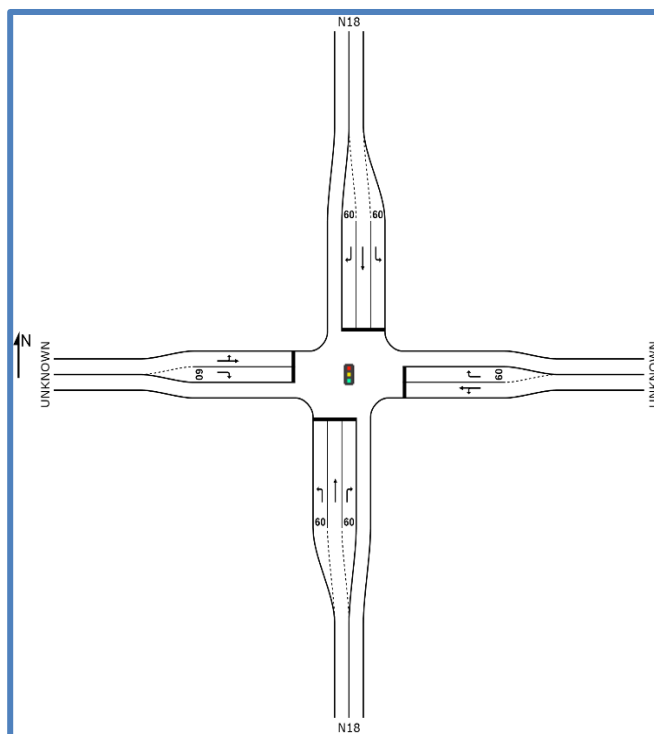
**Figure 11: Proposed Layout of N18 and Suid Street Intersection**

#### 4.3.4.4 N18 and Nelson Mandela Street Intersection



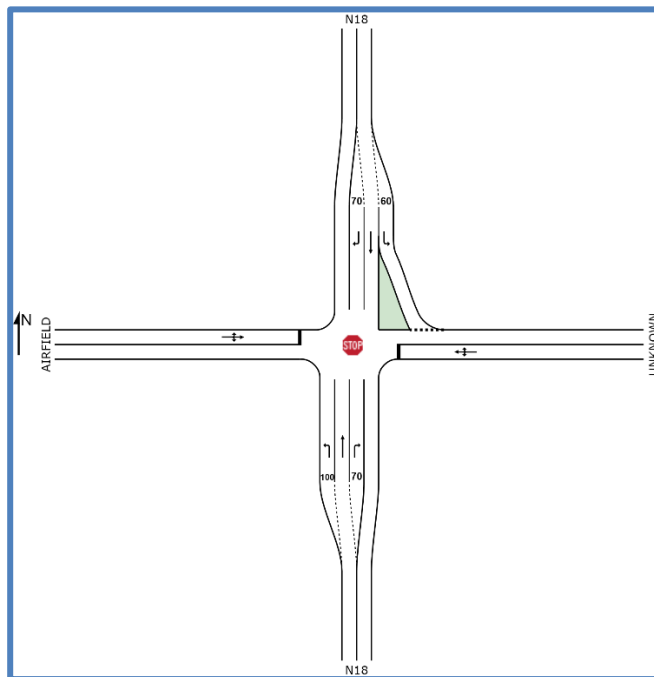
**Figure 12: Existing Layout of N18 and Nelson Mandela Street Intersection**

For the **Existing 2018** scenario the analysis indicates that the intersection operates with acceptable LOS and spare capacity. By including the development traffic, the side roads will experience very long delays. To mitigate this, upgrades and signals are proposed by **2019** which should firstly be Warranted. The proposed layout is shown in **Figure 13** below:



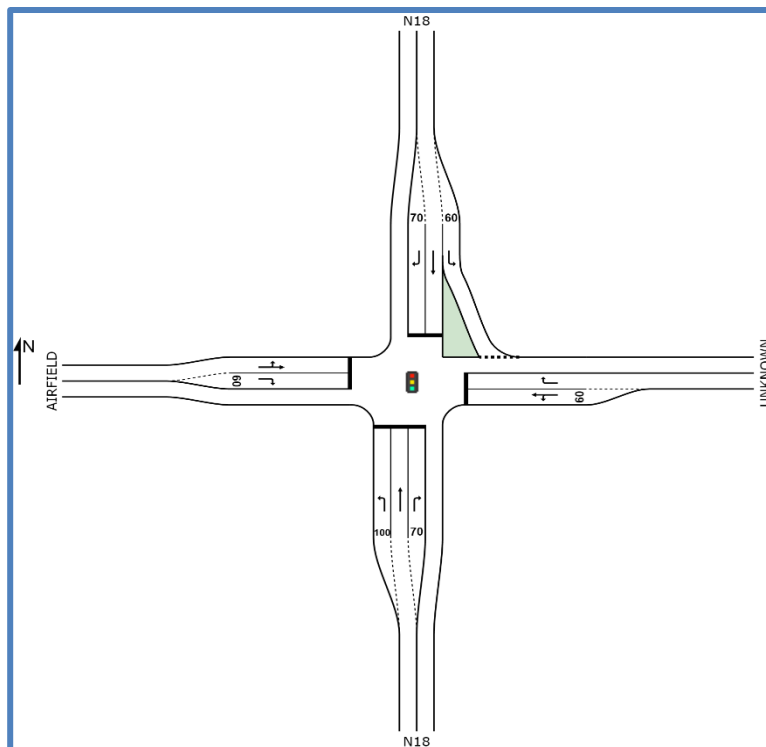
**Figure 13: Proposed Layout of N18 and Nelson Mandela Street Intersection**

#### 4.3.4.5 N18, Airstrip Road and Liquid Silver Street



**Figure 14: Existing Layout of N18, Airstrip Road and Liquid Silver Street**

For the **Existing 2018** scenario the analysis indicates that the intersection operates with acceptable LOS and spare capacity. By including the development traffic, the side roads will experience very long delays. To mitigate this, upgrades and signals are proposed by **2019** which should firstly be Warranted. The proposed layout is shown in **Figure 15** below:



**Figure 15: Proposed Layout of N18, Airstrip Road and Liquid Silver Street**

#### 4.3.4.6 N18 and Colleen Colane Street Intersection

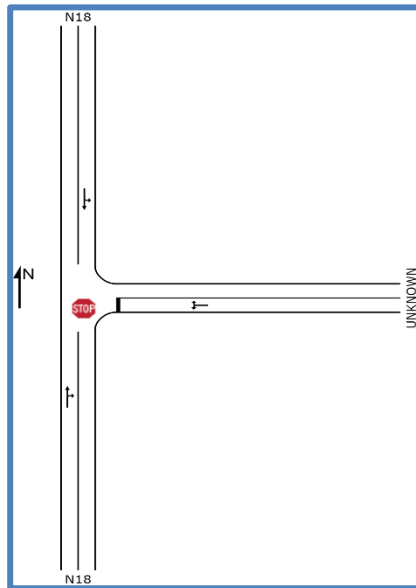


Figure 16: Existing Layout of N18 and Colleen Colane Street

For the **Existing 2018** scenario the analysis indicates that the intersection operates with acceptable LOS and spare capacity. By including the development traffic, the side roads will experience very long delays. To mitigate this, upgrades and signals are proposed by **2019** which should firstly be Warranted. The proposed layout is shown in **Figure 17** below:

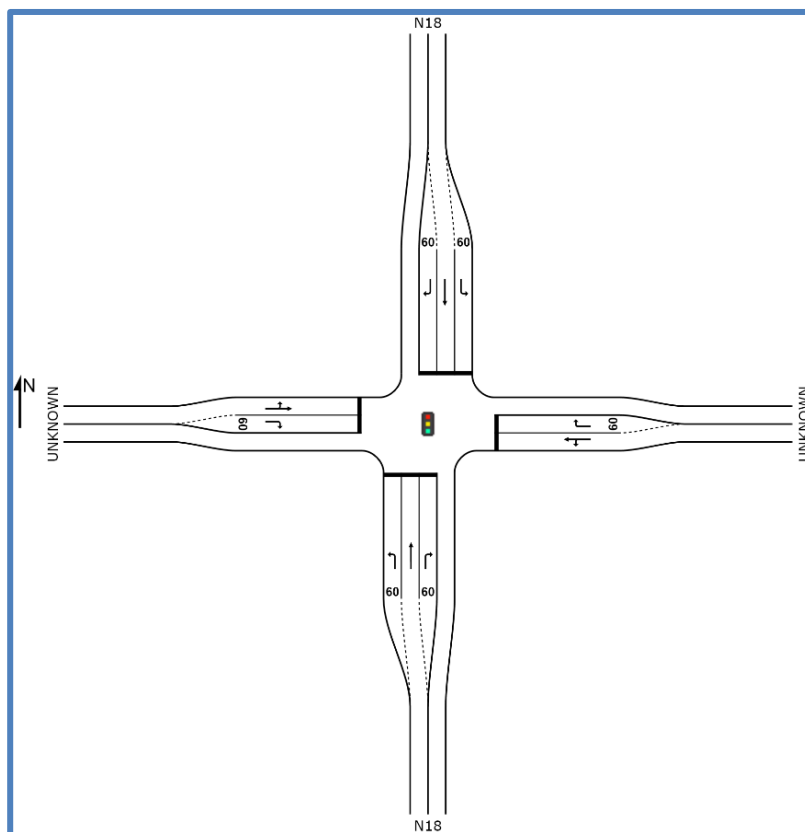
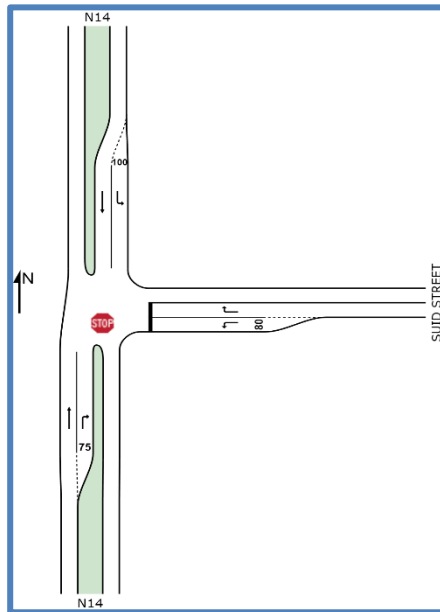


Figure 17: Proposed Layout of N18 and Colleen Colane Intersection



#### 4.3.4.7 N14 and Suid Street Intersection



**Figure 18: Existing Layout of N14 and Suid Street Intersection**

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

### 4.3.5 PUBLIC TRANSPORT AND NON-MOTORISED TRANSPORT

#### 4.3.5.1 Public Transport

The following public transport facilities are recommended:

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



**Plate 16: View of existing bus and minibus taxi lay-bys along N18**

#### **4.3.5.2 Non-Motorised Transport (NMT)**

The following is proposed:

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

#### **4.3.6 CONCLUSION AND RECOMMENDATIONS**

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

The Traffic Engineer concluded and made the following recommendations:

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

## CHAPTER 5: PROVISION OF ENGINEERING SERVICES

### 5.1 INTRODUCTION

Moedi Consulting Engineers was appointed to investigate and report on the provision of civil engineering services to the proposed township area. Due to the integrated nature of this development (encompassing the proposed township areas of Huhudi Extension 1, Vryburg Extension 29 and the re-development of four erven in Huhudi), the engineering services investigations and reports will deal with the development in total.

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

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

### 5.2 CIVIL ENGINEERING SERVICES

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

#### 5.2.1 BULK WATER

##### 5.2.1.1 Water Demand

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

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

**Table 27: Current Water Demand**

| Area              | Population / Stands | Water Demand ( $\ell / c / d$ ) | AADD* (K $\ell /$ Day) | GAADD** (K $\ell /$ Day) | Daily Peak ( $\ell / s$ ) |
|-------------------|---------------------|---------------------------------|------------------------|--------------------------|---------------------------|
| Vryburg           | 13 698              | 250                             | 3 424.5                | 3 766.9                  | 104.6                     |
| Huhudi            | 16 385              | 150                             | 2 457.7                | 2 703.5                  | 75.1                      |
| Extension 25 & 28 | 14 213              | 150                             | 2 131.9                | 2 345.1                  | 65.1                      |
| CBD               | 149                 | -                               | 254.6                  | 280.0                    | 7.8                       |
| Industrial Area   | 53                  | -                               | 449.6                  | 494.5                    | 13.7                      |

|                     |               |   |              |                |              |
|---------------------|---------------|---|--------------|----------------|--------------|
| Institutional Areas | 34            | - | 67.8         | 74.5           | 2.1          |
| <b>Total</b>        | <b>44 597</b> |   | <b>8 786</b> | <b>9 664.8</b> | <b>268.5</b> |

\*AADD – Average Annual Daily Demand

\*\*GAADD - Gross Average Annual Daily Demand

**Table 28: Future Water Demand Including Vryburg Extension 29 and Huhudi Extension 1**

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

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

#### 5.2.1.2 Bulk Water Infrastructure

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



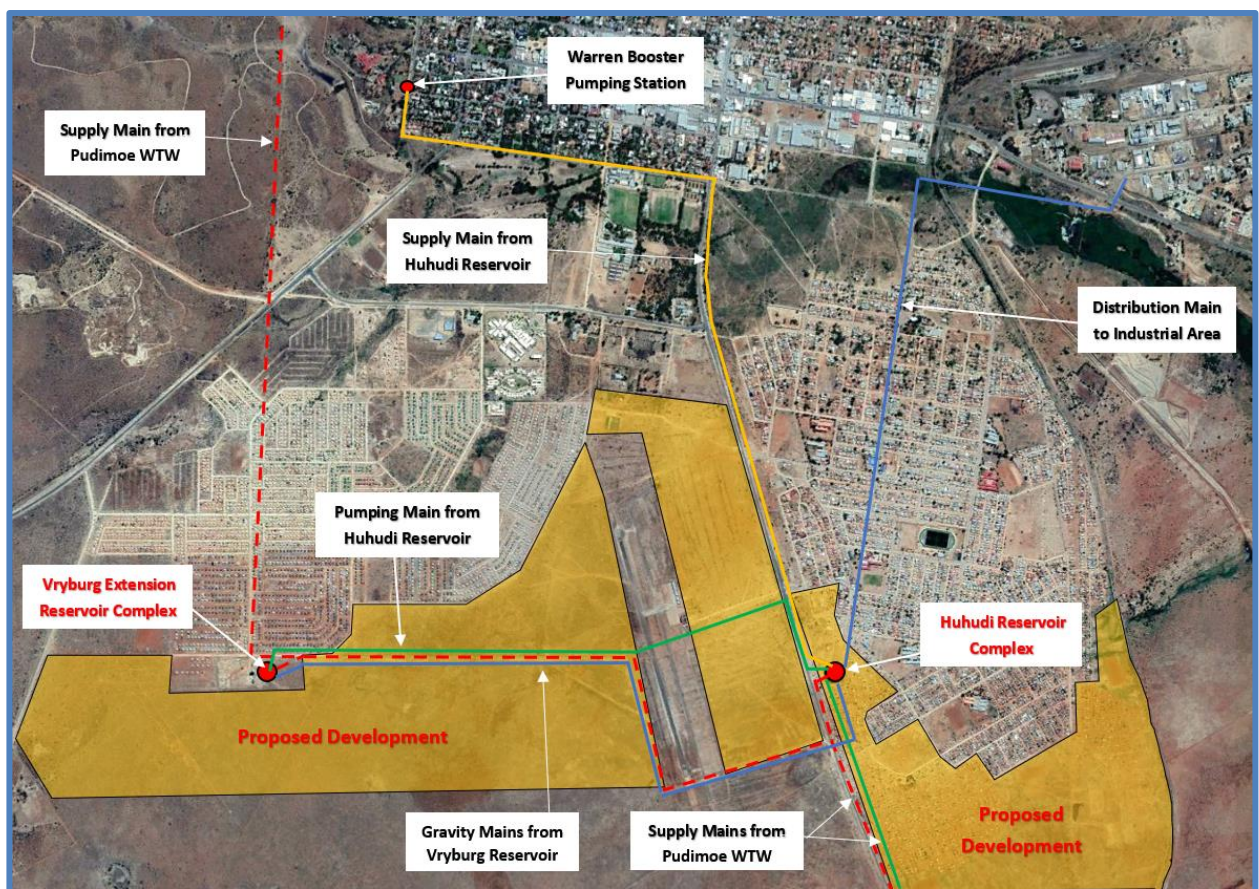
**Figure 19: Existing Vryburg Water Infrastructure.**



The bulk water infrastructure of Vryburg functions fundamentally as follows:

- Water is abstracted from five individual borehole wellfields (Armoedsvlakte, Biesiesvlakte, Swartfontein, Vegter & Vryburg town). The wellfields are clustered into three supply systems (Northern supply main, Western supply main and Townlands supply main)
- The three supply systems pump abstracted water into the Edwin Freyling Reservoir Complex.
- Drinking water is supplied to northern suburbs, CBD and industrial areas of Vryburg from the Edwin Freyling reservoir complex. The option also exists for bulk water to be conveyed to the Huhudi Reservoir Complex via the Warren Booster Pumping Station.
- The Edwin Freyling Reservoir Complex supplies water to the Colridge Elevated Tower.
- Bulk water can be pumped from the Pudimoe water treatment works (WTW) into Edwin Freyling Reservoir Complex as a supplementary bulk source.

The basic components of the existing water infrastructure located in the Huhudi area is graphically illustrated in the figure below:



**Figure 20: Existing Huhudi Water Infrastructure.**

The bulk water infrastructure of Huhudi functions fundamentally as follows:

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

**5.2.1.3 Bulk Water Supply**

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

- **Ground Water**

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

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

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

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

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

cycle allowing sufficient recovery time to ensure long term protection and sustained delivery from the production boreholes.

Experience has also shown that the boreholes require regular and continued maintenance and repairs. Damages to electrical components due to power surges and lightning is a general phenomenon in Vryburg. To provide for this, it is recommended that the reliable daily yield for purposes of this report in terms of bulk water supply from the production boreholes be taken at 90% of the total potential yield, assuming that 10% of the boreholes will be under maintenance or repair at any given time. The total reliable yield should therefore be taken as 6.3 Ml/day.

- **Bulk Water from the Pudimoe WTW**

The Huhudi Reservoir Complex and Vryburg Extension Reservoir Complex receives bulk water from the Pudimoe WTW located south of Huhudi. Purified water can be pumped either into the Huhudi Reservoir Complex or the Vryburg Extension Reservoir Complex.

- **Pudimoe-Vryburg Pipeline**

Historically bulk water has been pumped to the Naledi district by means of a Ø 355 mm pipe line from the Pudimoe WTW. The Pudimoe-Vryburg Pipeline has been upgraded recently as part of the Taung Regional Bulk Water Supply Scheme (Phase 2B). The total length of the Ø 550 mm new supply line is 56km, with three reservoirs and two pumping stations. These reservoirs and pump stations were strategically placed within the supply system and consists of three distinct sections, namely:

- ☐ Section No. 1 – Pumping main from Pudimoe to Dryharts
- ☐ Section No. 2 – Gravitation line from Dryharts to Brussels
- ☐ Section No. 3 – Pumping main from booster pumping station at Brussels to Vryburg

The supply system is able to deliver 273.4 l/s for a 20 hour a day pumping period and has sufficient spare capacity for the 5 Ml/day future water demand of the neighbouring towns of Ganyesa and Stella.

- **Pudimoe WTW**

The Pudimoe WTW have a total design capacity of 21 Ml/day and consists of 3 modules. The treatment plant receives raw water from the Vaal River via the Vaal-Harts Irrigation Scheme. The network of channels making up the Vaal-Harts Irrigation Scheme originates from Warrenton, Northern Cape and ends at the Pudimoe WTW.

Module 1 of the Pudimoe WTW (known as the “Old Vryburg Water Treatment Works”), has a capacity of 6 Ml/day and supplies water to Dry-



Harts and Huhudi. An estimated 3.9 Mℓ/day is currently supplied to Huhudi. Module 2 of the Pudimoe WTW (known as the “2003 Water Treatment Works”), has a design capacity of 8 Mℓ/day and supply water to Taung, Pudimoe and the surrounding settlements. The recently constructed Module 3 of the Pudimoe WTW has a capacity of 7 Mℓ/day and was initially established to be a dedicated supply to Huhudi.

The Pudimoe WTW receives a raw water supply ranging from 5 to 13 Mℓ/day. The WTW is currently operating at an estimated 65 % of the design capacity due to limited availability of raw water.

The current inability of the Pudimoe WTW to supply the Huhudi & Vryburg Extension Reservoir Complexes with sufficient bulk water is contributed solely to insufficient inflow of raw water from the Vaal-Harts canal.

The Vaal-Harts canal, supplying raw water to the Pudimoe WTW, is operating at full capacity and will require an extensive upgrade to increase the supply volume. The Department of Water and Sanitation has conducted a preliminary cost estimate to upgrade the Vaal-Harts Irrigation Scheme. The estimated cost to upgrade the Vaal-Harts Irrigation Scheme amounts to R 1.8 billion. The upgrade of the Vaal-Harts Irrigation Scheme is not planned for the foreseeable future.

○ **Taung Regional Bulk Water Supply Scheme**

The bulk water supply shortfalls within the DRSDM, especially in the Greater Taung and Naledi Local Municipalities prompted the DRSDM to embark on a regional bulk water supply scheme to augment the supply to the Naledi and Greater Taung Local Municipalities. This involves the implementation of bulk water supply infrastructure as part of a RBIP (Regional Bulk Infrastructure Programme) largely funded by the Department of Water & Sanitation (DWS). The project consists of the following phases:

- ☐ Phase 1 Refurbish Old 6Mℓ/day Pudimoe WTW
- ☐ Phase 2A Pudimoe New 7Mℓ/day Module
- ☐ Phase 2B Refurbish Existing 8Mℓ/day Pudimoe WTW
- ☐ Phase 2B 56km Bulk Water Supply Mains and Reservoirs
- ☐ Phase 2C 9.5km Bulk Gravity Pipeline from Taung Dam to Taung WTW
- ☐ Phase 2D 11Mℓ/day module at new Taung WTW
- ☐ Phase 2E Bulk water supply to South Eastern Villages of Taung

The new 11Mℓ/day WTW constructed in Taung will significantly augment the bulk water supply systems of the Greater Taung region once commissioned. Prior to the implementation of the Taung Regional Bulk Water Supply Scheme, the Pudimoe WTW supplied bulk water to 15 villages with a total



water demand of 8.3 Mℓ/day. In addition, the Pudimoe WTW supplied an estimated 3.9 Mℓ/day to the Huhudi Reservoir Complex. The total bulk water supplied by the Pudimoe WTW amounted to 12.2 Mℓ/day

Completion of the Taung Regional Bulk Water Supply Scheme will theoretically avail an additional 4 Mℓ/day that can be pumped from the Pudimoe WTW to the Huhudi Reservoir Complex resulting in an estimated total of 7.9 Mℓ /day to be supplied to Vryburg from the Pudimoe WTW.

#### **5.2.1.4 Conclusion on Bulk Water Supply vs. Demand**

Based on the information derived from sub-sections 3.3.1 & 3.3.2 above, the total potential bulk water supply to the greater Vryburg from existing and new infrastructure projects currently under construction is summarized as follows:

|                              |                          |
|------------------------------|--------------------------|
| <b>Production Boreholes:</b> | <b>6.3 Mℓ/day</b>        |
| <b>Pudimoe WTW:</b>          | <b><u>7.9 Mℓ/day</u></b> |
| <b>Total water supply:</b>   | <b>14.2Mℓ/day</b>        |

Although there is not sufficient bulk water currently available in Vryburg to support the proposed development, the expected future supply appears to meet the projected demand calculated under section 5.2.1.1 above. Successful supply of sufficient bulk water for Vryburg (including the proposed new development) is however subject to various conditions, namely:

- **Borehole supply**
  - That production boreholes are maintained and utilized wisely to ensure sustained long-term yield according to its full potential recorded under 5.2.1.3.
  - That Geohydrological studies be commenced with to explore and drill additional production boreholes to augment bulk water supply. It is proposed that a geohydrological investigation be conducted to explore possible further groundwater potential. Historical geohydrological reports hint that unpenetrated aquifers will most likely be found north-west of the town of Vryburg. The drilling and equipping of new boreholes are instrumental to the success of the proposed development - *funding for implementation still to be approved.*
  - Boreholes drilled & tested under above-mentioned exploration programme be equipped and connected to the Huhudi town reservoirs. Planning, design and costing can only be undertaken once location and supply potential of new boreholes are known. Target is to establish an additional 25 boreholes for the long term.

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

#### 5.2.1.5 Bulk Water Storage

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

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

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

The Huhudi Reservoir Complex consist of a 4.5Mℓ concrete reservoir and a 0.386 Mℓ elevated tower supplying water to Huhudi, and the industrial area. The theoretical water demand (AADD) for the supply region amounts to 2.6 Mℓ /day and the 4-hour instantaneous peak demand equates to 1.1 Mℓ. The proposed development will increase the theoretical water demand (AADD) of the storage node to 3.9 Mℓ /day and 4-hour instantaneous peak demand to 1.7 Mℓ.

The Vryburg Extension Reservoir Complex consist of a 10Mℓ concrete reservoir and a 0.386 Mℓ elevated tower supplying water to Vryburg Extension 25 & 28. The theoretical water demand (AADD) for the supply region amounts to 2.1 Mℓ /day and the 4-hour instantaneous peak demand equates to 0.9 Mℓ. The proposed development will increase the theoretical water demand (AADD) of the storage node to 4.6 Mℓ /day and 4-hour instantaneous peak demand to 2.0 Mℓ.

▪ **Reservoir Capacity Analysis**

In accordance with the Guidelines for Human Settlement Planning and Design (Red Book), the required storage capacity provided should comply with the water demand (AADD) for 48 hours. The current AADD equates to 8.7Mℓ / day and the proposed development will increase the AADD to 12.4 / day.

Based on the Reservoir Capacity Analysis contained in the Engineering Services Report, the following conclusions can be drawn:

- The proposed development will not impact the Edwin Freyling Reservoir Complex.
- The Huhudi Reservoir Complex does not comply with total elevated storage required for future water demand scenarios. Topographically the Huhudi Reservoir is lower than the Edwin Freyling and Vryburg Extension Reservoir, thus it is not sensible to increase the storage capacity of the Huhudi Reservoir. It is proposed to increase storage of the adjacent Vryburg Extension Reservoir Complex which can supply the Huhudi Reservoir Complex by utilizing the existing infrastructure.
- The Vryburg Extension Reservoir Complex complies in terms of total storage but does not comply with elevated storage guidelines. It is proposed that the total capacity (ground and elevated storage) be increased to compensate for the storage shortfalls of the Huhudi Reservoir Complex.

**5.2.1.6 Proposed Water Infrastructure Upgrading**

The success of the proposed development is dependent on the provision of adequate water to the proposed new townships by integrating the required new bulk water infrastructure into the existing supply system. The required bulk water infrastructure is graphically illustrated below.



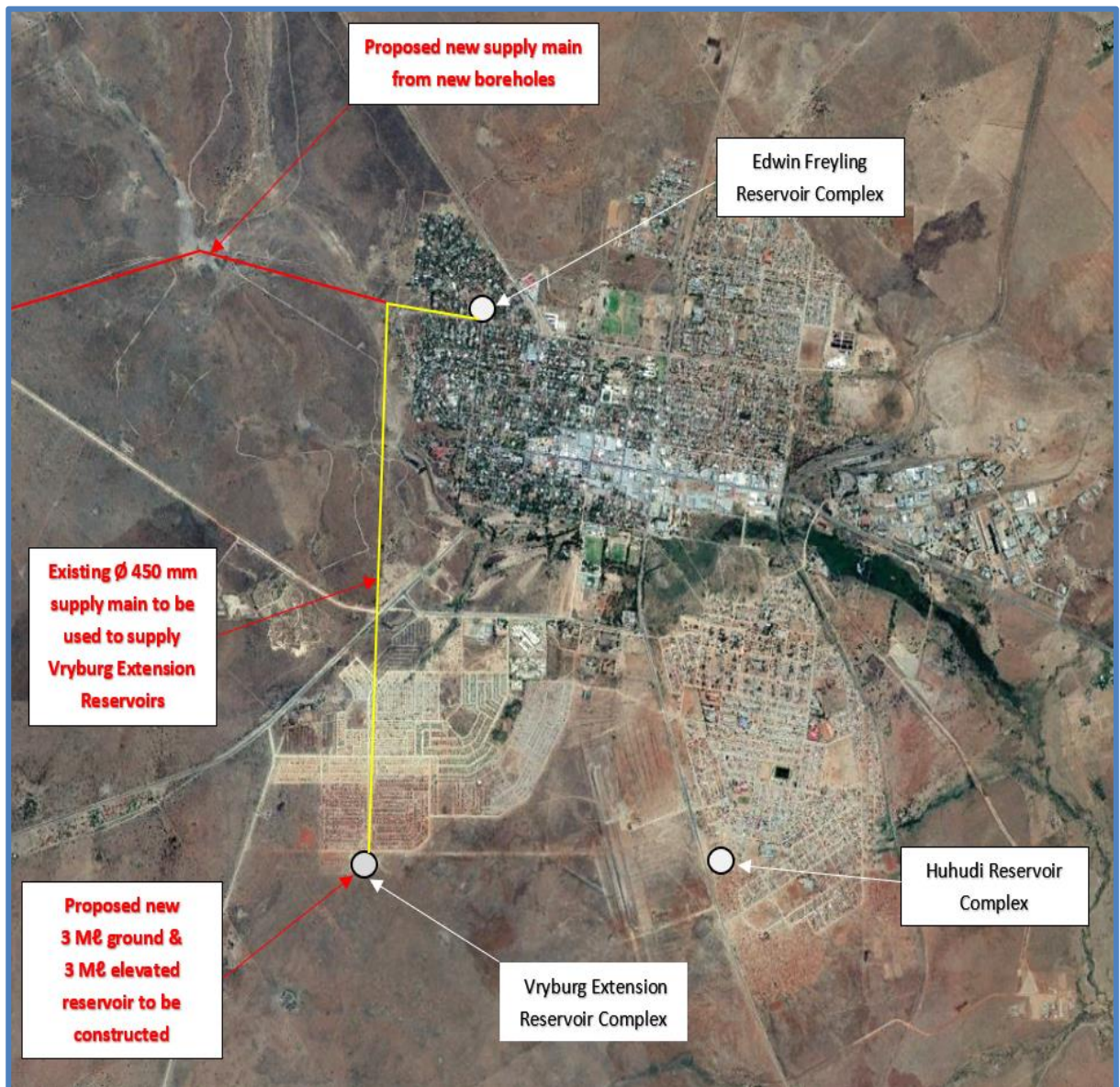


Figure 21: Proposed Bulk Water Infrastructure Augmentation

## 5.2.2 BULK WATER

### 5.2.2.1 Sewer Generation

The theoretical sewerage generation was established by applying the per capita rates (125 ℓ / c / d for Vryburg and 100 ℓ / c / d for Huhudi & Ext.25 & 28) to the recognized population. The sewerage generation rates are derived from “*Guidelines for Human Settlement Planning and Design*”, published by the CSIR. The following tables indicate the derived sewerage generation:



**Table 29: Current Sewer Generation**

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

\* ADWF - Average Dry Weather Flow

\*\*PWWF - Peak Wet Weather Flow

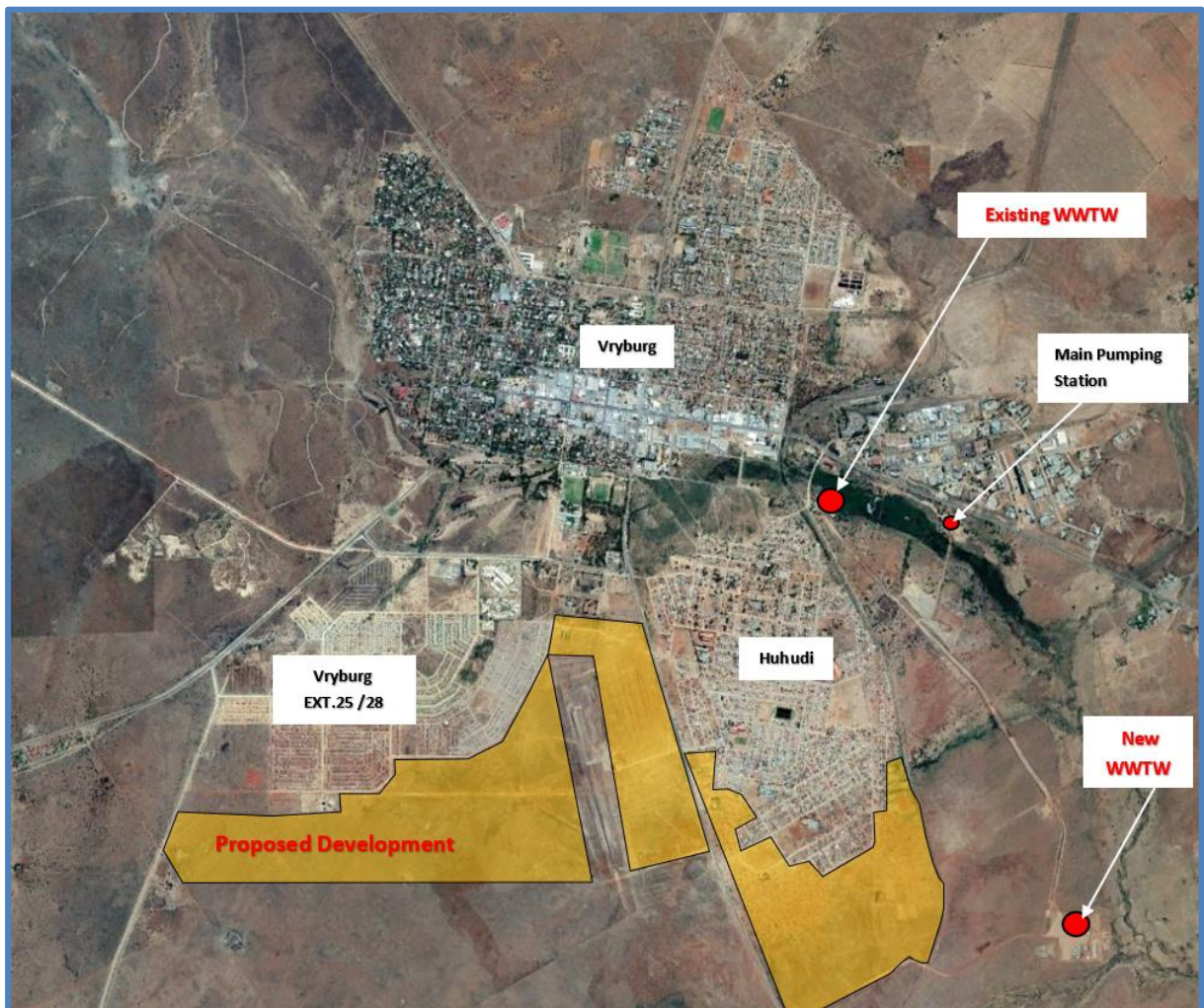
\*\*\*IPWWF - Instantaneous Peak Wet Weather Flow

**Table 30: Future Sewer Generation Including Vryburg Extension 29 and Huhudi Extension 1**

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

### 5.2.2.2 Bulk Sewer Infrastructure

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



**Figure 22: Existing Vryburg Sewer Infrastructure.**

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

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

### **5.2.2.3 Bulk Sewerage Treatment Capacity**

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

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

**Existing WWTW Capacity - Current Sewer Generation**

= Design Capacity – Existing Sewer Inflow  
= 6.4 – 5.4  
= 1 Ml/d

The estimated peak influent at the WWTW amounts to 144 l/s. Calculated as follows:  
= 45.6 + 43.6 + 37.8 + 5.4 + 11.4 + 0.6  
= 144 l/s

**Existing WWTW Capacity - Sewer Generation Including Proposed Development**

= Design Capacity – Existing Sewer Inflow  
= 6.4 – 8.2  
= - 1.8 Ml/d

The estimated peak influent at the WWTW amounts to 144 l/s. Calculated as follows:  
= 45.6 + 43.6 + 37.8 + 74.6 + 5.4 + 11.4 + 0.6  
= 218.4 l/s

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

**New & existing WWTW Capacity - Current Sewer Generation**

= Design Capacity – Existing Sewer Inflow  
= (9 + 6.5) – 5.4  
= 10.1 Ml/d

**New & existing WWTW Capacity - Sewer Generation Including Proposed Development**

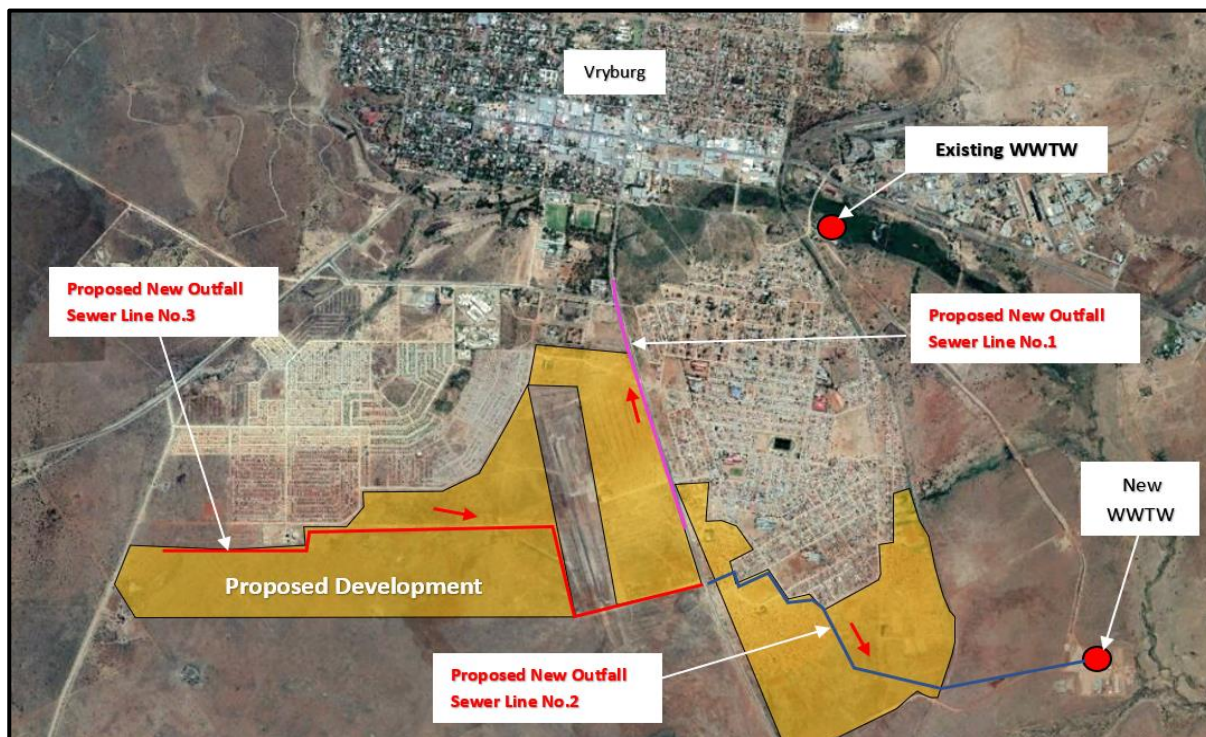
= Design Capacity – Existing Sewer Inflow  
= (9 + 6.5) – 8.2  
= 7.3 Ml/d

**5.2.2.4 Proposed Bulk Sewer Infrastructure Augmentation**

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



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



**Figure 23: Sewer Infrastructure Augmentation**

### **Proposed New Outfall Sewer Line No.1 - Pink**

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

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

### **Proposed New Outfall Sewer Line No.2 – Blue**

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



|                                      |                  |
|--------------------------------------|------------------|
| Dwellings:                           | 5 923 Households |
| Slope:                               | 1: 400           |
| Average Dry Weather Flow:            | 1 954 Kl/s       |
| Instantaneous Peak Wet Weather Flow: | 56 l/s           |
| Pipe Diameter:                       | 400 mm           |

### Proposed New Outfall Sewer Line No.3 – Red

The proposed sewer line will commence from the north western boundary of Vryburg Extension 29 and connect to Proposed New Outfall Sewer Line No.2 in the vicinity of the Huhudi Reservoir Complex. The sewer line will convey approximately 69% of the waste water generated in Vryburg Extension 29. The following parameters is applied in the proposed sewer line design:

|                                      |                  |
|--------------------------------------|------------------|
| Dwellings:                           | 3 661 Households |
| Slope:                               | 1: 500           |
| Average Dry Weather Flow:            | 1 208 Kl/s       |
| Instantaneous Peak Wet Weather Flow: | 36 l/s           |
| Pipe Diameter:                       | 350 mm           |

### 5.2.3 STORM WATER

The natural topography of Vryburg Extension 29 slopes towards the north eastern boundary of the proposed development. The urbanisation of the demarcated area will increase the peak storm-water runoff (1– in – 2 years recurrence interval) from 3.6 m<sup>3</sup>/s to 12.2 m<sup>3</sup>/s.

The demarcated area for the proposed development of Huhudi Extension 1 slopes towards the eastern boundary of the site. The development of the township will increase the storm-water runoff (1 – in – 2 years recurrence interval) from 2.1 m<sup>3</sup>/s to 7.3 m<sup>3</sup>/s.



Figure 24: Direction of Storm-water Flow

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

## 5.2.4 SOLID WASTE

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

**Table 31: MSW Generation Including Vryburg Extension 29 and Huhudi Extension 1**

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

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

## 5.2.5 INTERNAL SERVICES

### 5.2.5.1 Water

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

- Use of uPVC and HDPE pipe materials of varying diameter according to designs of the Civil Engineer.
- Sufficient capacity to comply with fire flow demands.
- Installation of consumer water meters according to municipal policy.
- Provision of isolating valves, fire hydrants and air release valves to comply with the requirements and regulations the municipality.

### 5.2.5.2 Sewer

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

### 5.2.5.3 Roads and Stormwater

#### ➤ **Internal Streets Geometric Design**

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

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

#### ➤ **Pavement Design**

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

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

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

#### ➤ **Stormwater Drainage**

Storm-water runoff will be accommodated in the road prism and in open channels up to outlet points as far as possible. Lined concrete ditches should be constructed where concentrated volumes of storm-water crosses roadways and/or intersections.

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

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

#### 5.2.5.4 Refuse Removal

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

### 5.3 ELECTRICAL ENGINEERING SERVICES

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

#### 5.3.1 LOAD ESTIMATION

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

**Table 32: Load Estimation**

| Proposed Zoning | Proposed Land Use                       | Number of Erven | kVA per Erf | Area (Ha) | kVA/ Ha | Total Demand (kVA) |
|-----------------|---|-----------------|-------------|-----------|---------|--------------------|
| Residential 4   | Dwelling Unit Minimum 300m <sup>2</sup> | 2 739           | 2,4         |           |         | 6 574              |
|                 | Dwelling Unit Minimum 400m <sup>2</sup> | 4 594           | 3,5         |           |         | 16 079             |
|                 | Dwelling Unit Minimum 500m <sup>2</sup> | 1 102           | 5           |           |         | 5 510              |
| Business 1      | Business                                | 3               |             | 0,7       | 100     | 73                 |
| Business 2      | Shop                                    | 26              |             | 2,0       | 150     | 299                |
| Commercial      | Business Light Industry                 | 1               |             | 1,1       | 200     | 217                |
| Institutional 1 | Place of Instruction (Primary School)   | 2               |             | 6,7       | 30      | 201                |



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

### 5.3.2 BULK SUPPLY

#### 5.3.2.1 General

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

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

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

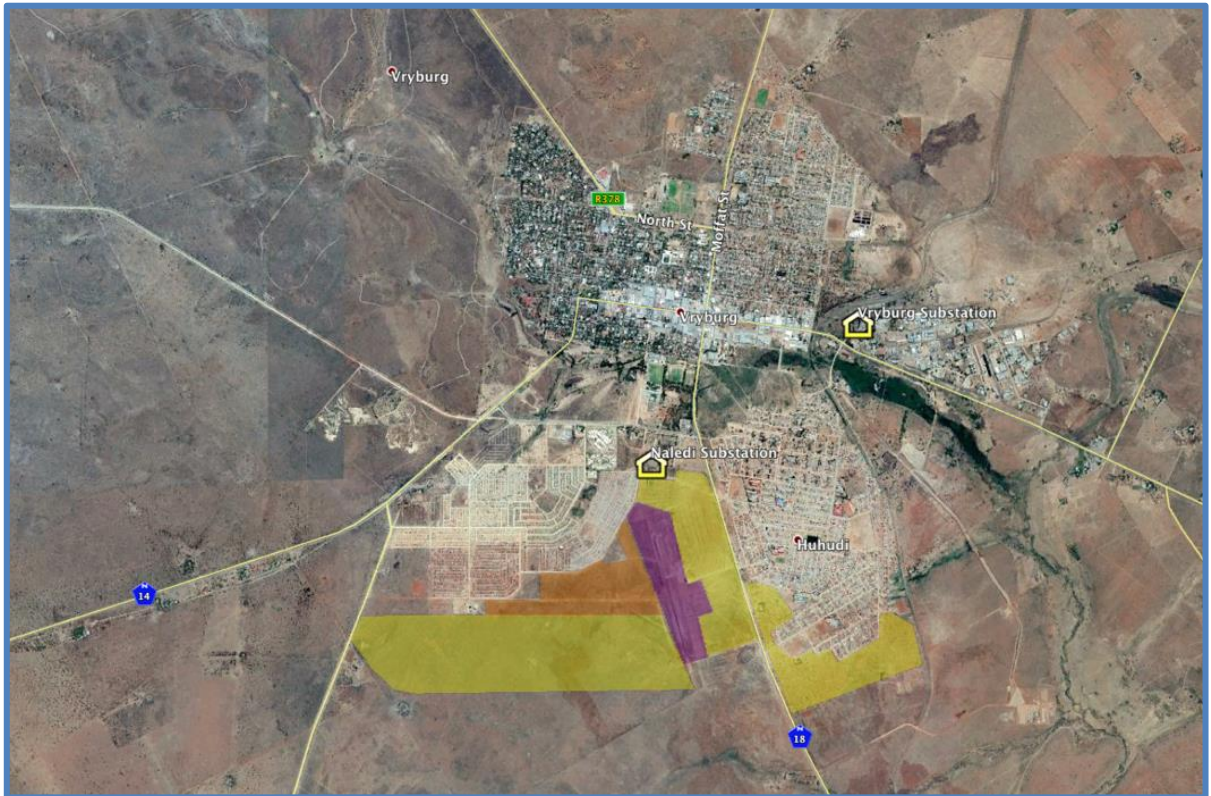


Figure 25: Substation Locations

#### 5.3.2.2 Existing Network Analysis

##### ➤ **Vryburg Main**

The Naledi Local municipality currently has a Notified Maximum Demand (NMD) of 15,3 MVA at Vryburg main substation, excluding Huhudi. They are already exceeding this value in the winter months and paying the associated fines.

The total load for Huhudi is estimated to be 5 MVA however, as it is an Eskom supply area this load is not subject to NMD but only available capacity.

Vryburg Main currently has one 40 MVA transformer installed thus providing a potential 17 MVA of available capacity. This capacity is however at risk as there is only one transformer at the substation.

The Eskom planning does include the installation of an additional 40 MVA transformer, this is expected to happen after 5 years.

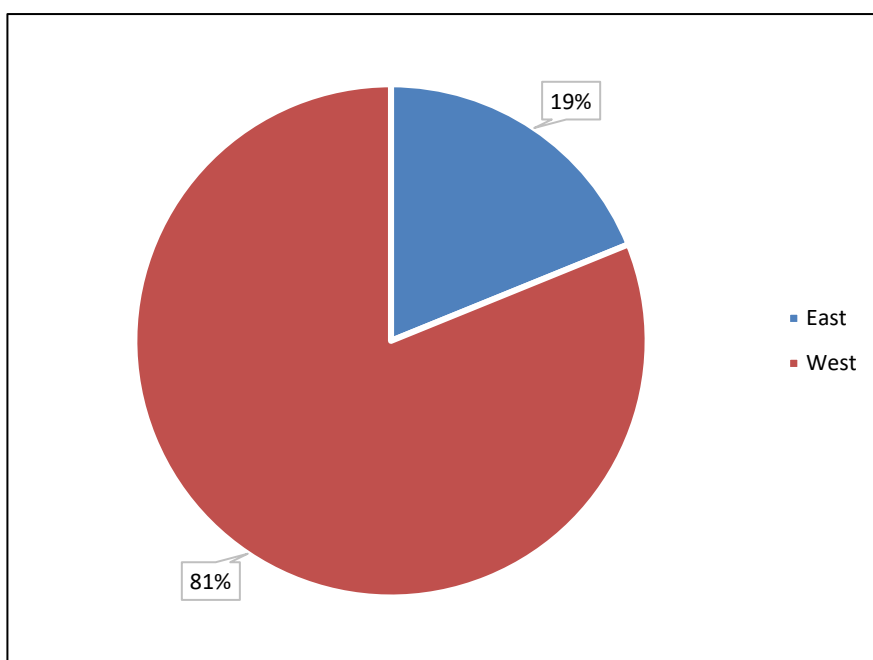
##### ➤ **Naledi Substation**

There is no historical data available for the Naledi substation. Currently there is only one 5 MVA 22/11 kV transformer with a NMD of 2,5 MVA. This is because Eskom currently does not have any more capacity available on the 22kV line supplying the substation from Eskom Woodhouse.

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

### 5.3.3 **BULK SUPPLY PROPOSAL**

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



**Figure 26: Load Allocation**

#### 5.3.3.1 **East Development**

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

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

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





**Figure 27: East Bulk Supply Proposal**

#### **5.3.3.2 West Development**

The development to the West of the N18 has a total estimated load of 26MVA.

This area is currently supplied from Naledi substation which is already operating at maximum available capacity. The existing electrical network will not be able to supply the required capacity from Vryburg substation and upgrades to this network will also be very high.

With future developments in mind Naledi substation has been built to the 132/11kV standard with the capacity to accommodate up to three (3) 10 MVA 132/11kV transformers. Eskom has indicated that they will be able to supply additional capacity through their 132kV network from the Mookodi MTS.

Our recommendation is for the existing 22kV line (white) to be extended into Mookodi MTS and upgraded to 132kV (blue). At the same time Naledi substation will have to be upgraded to three (3) 10 MVA 132/11kV transformers.

This solution will bring the required capacity into the development area and unlock the full development potential with a stable electrical supply.





Figure 28: West Bulk Supply Proposal

### 5.3.4 PROPOSED ELECTRICAL SERVICES

The following electrical services are proposed:

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

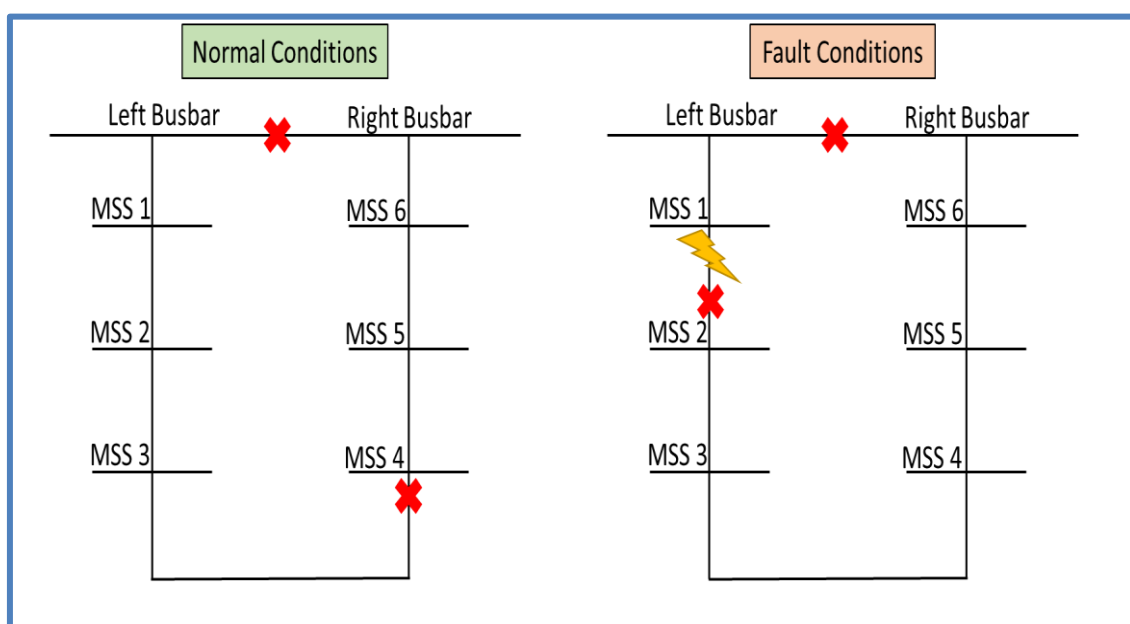


Figure 29: Ring Design Philosophy

- c) **LV Reticulation:** Electricity will be distributed throughout the development by way of an overhead LV radial network and associated pole top boxes.
- d) **LV Connections:** LV connections (10/16mm<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 pole top boxes.
- e) **Street & Area Lighting:** Residential roads and public areas will make use of HPS type luminaires installed on wooden poles.
- f) The detail of the above will be determined during the detail design phase of the project, dependant on the final SDP and will be submitted for review and approval.

## CHAPTER 6: MOTIVATION

### 6.1 INTRODUCTION

This need and desirability in respect of the application for the establishment of the proposed township area of Huhudi Extension 1 as well as the subdivision of the Remaining Extent of Portion 8 of the farm Rosendal 673, Registration Division I.N., North West Province and the extension of the boundaries of the approved township Huhudi by the incorporation of a portion of the Remaining Extent of Portion 8 of the farm Rosendal 673, Registration Division I.N., North West Province into the township area of Huhudi 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 Framework for Sustainable Development (NFSD)
- 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
- North West Provincial Spatial Development Framework, 2016
- Dr. Ruth Segomotsi Mompati District Spatial Development Framework, 2012
- Naledi Local Municipality Final Integrated Development Plan 2017-2022
- Naledi Local Municipality Spatial Development Framework
- 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-ordinating housing development in its area of jurisdiction.

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

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

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

## **6.2 NATIONAL DEVELOPMENT PLAN: VISION 2030**

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

Its core focuses include:

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

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

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

This environment has a bearing on access to opportunities, good schools, useful social networks, public services and safe environments. Separation between social groups, long distances between jobs and housing, and poor public services exacerbate poverty and inequality. Location affects communities, local economies, labour markets and infrastructure networks. Businesses are also affected by where they are situated. Access to



markets and suppliers determines their survival and profitability. This is hugely significant for South Africa's society, economy and environment.

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

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

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

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

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

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

In terms of the provisions (Schedule 4) of the Constitution, 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.

This specific project comprises a collaboration between the Department of Co-Operative Governance, Human Settlements and Traditional Affairs (COGHSTA) and the Naledi Local Municipality and has at its core the objective 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 area 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 FRAMEWORK FOR SUSTAINABLE DEVELOPMENT (NFSD)**

In the National Framework for Sustainable Development (NFSD) it is stated that "*the achievement of sustainable development is not a once-off occurrence and its objectives cannot be achieved by a single action or decision. It is an ongoing process that requires a particular set of values and attitudes in which economic, social and environmental assets that society has at its disposal, are managed in a manner that sustains human well-being without compromising the ability of future generations to meet their own need*". The NFSD further continues to emphasize that South Africa's current development path in certain instances reflects signs of being unsustainable in the long-term. It highlights that a large percentage of growth in economic activity (measured in terms of its contribution to the GDP) is achieved by "consuming" natural resources and degrading our habitat at accelerating rates with the inevitable consequence that future economic growth and development objectives will be prejudiced. "

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

The Naledi Local Municipality will also promote private sector development as the proposed integrated human settlement makes ample provision for residential erven that can be developed by the private sector or through partnerships between Government, financial institutions and private contractors in terms of the development of FLIPS housing. Even though not located in the township area of Huhudi Extension 1, the integrated human settlement incorporates erven for middle income households that wish to acquire a preferred stand from the Naledi Local Municipality and erect their own home on the concerned site. In this manner the Naledi Local Municipality will also be promoting private sector development. Private sector development is however not only limited to housing but also incorporates private sector commercial and social facility development.

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

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

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

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

- Progressive Informal Settlement Eradication: These settlements must be integrated into the broader urban setup so as to overcome spatial, social and economic exclusion. The plan encourages the eradication of informal settlements through in-

situ upgrading in desired locations coupled with the relocation of households where development is not possible or desirable.

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

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

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



- township area will accommodate 2348 households currently residing in squalid conditions.
- The location of the proposed township area directly adjacent to the existing urban area of Huhudi further enhances integration and will offer inhabitants the opportunity to access the multitude of business, social and educational facilities on offer in the existing Vryburg/Huhudi urban area.
  - The development of the Vryburg Extension 29 and Huhudi Extension 1 township areas is a definitive move away from providing housing-only township areas and towards the provision of a proper integrated human settlement that offers a magnitude of social, educational and commercial support facilities and infrastructure in close proximity to the inhabitants.

## **6.7 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.

## **6.8 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 Huhudi Extension 1 and Vryburg Extension 29 and as well as the

redevelopment of four erven in the township area of Huhudi 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 Naledi 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 place (specifically in the area south of Huhudi as well as on the erven in Huhudi earmarked for redevelopment). 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.
- The only other alternative that exists for the proposed development is the "no-go" option which will imply that the status quo will prevail. This is unacceptable as Informal settlements consist of non-conventional housing built without complying with legal building procedures. Broadly, these crude dwellings mostly lack proper indoor infrastructure, such as water supply, sanitation, drainage, waste disposal and proper road access. There is also a bond between poor housing and environmental conditions in informal settlements which also reflects poverty. Linking basic services such as water to health is viewed as a false separation as these services are 'intimately related to housing'. It becomes a housing issue if children playing outside the house contract diarrhoea via ingesting pathogens from faecal matter which contaminates the land on which they play. Otherwise, it is the house which provides for shelter against injury, weather and disease. Improving the surroundings of the house is to limit severe health risks existing within poor quality housing.
- 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.
- Although the emphasis is on housing, complimentary land uses have been included in the township as people want easy access to job opportunities, shops, banking facilities, clinics, etc. and want their living environment, such as residential townships to be placed at strategic positions with good access routes in close proximity to these amenities.
- A mixed land use development is *socially responsible* based on the following:

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

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

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

- 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.

- ## 6.10 MUNICIPAL SYSTEMS ACT, 2000 (ACT 32 OF 2000)

## 6.11 NATIONAL HOUSING ACT, 1997 (ACT 107 OF 1997)

This project will at its core and as first development implementation phase aim at addressing the needs of the poor in respect of the provision of housing. The development of the Vryburg



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

## **6.12 WHITE PAPER ON WISE LAND USE (2001)**

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

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

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

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

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

The basis of the system will be principles and norms aimed at achieving sustainability, equality, efficiency, fairness and good governance in spatial planning and land use management. The decisions of planning authorities, whether related to the formulation of plans such as IDPs or the consideration of land development applications such as rezoning, must all be consistent with these principles and norms. A failure by an authority to affect this enables the Minister to intervene in the decision, either to require that it is reconsidered or in extreme cases to take the decision him or herself.

## 6.13 MILLENNIUM DEVELOPMENT GOALS (MDG)

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

The targets included in the Social Contract consist of:

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

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

## 6.14 NATIONAL SPATIAL DEVELOPMENT PERSPECTIVE (2006)

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

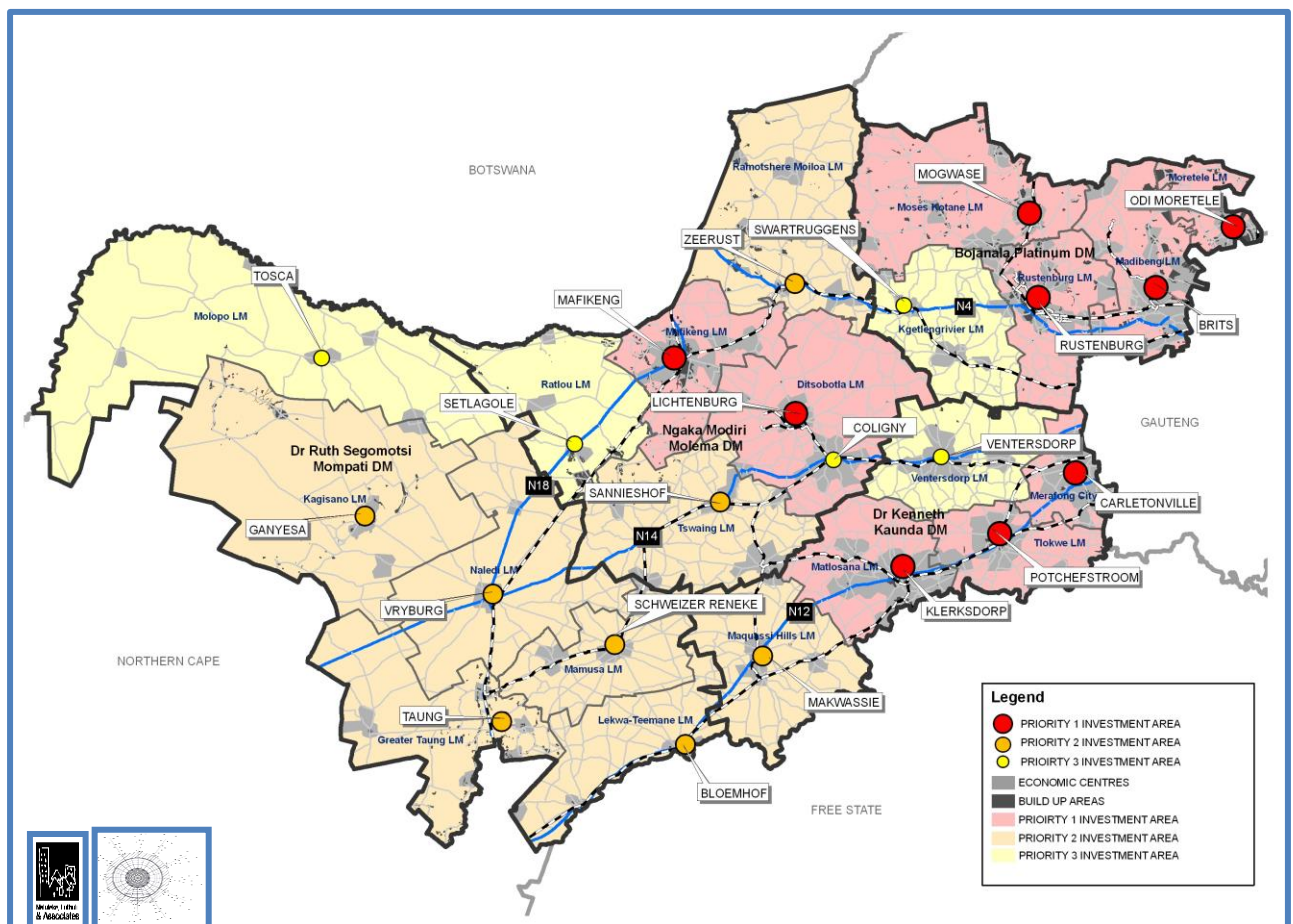
- Principle 1: Rapid economic growth that is sustained and inclusive is a pre-requisite for the achievement of other policy objectives, among which poverty alleviation is key.
- Principle 2: Government has a constitutional obligation to provide basic services to all citizens wherever they reside.
- Principle 3: Government spending on fixed investment should be focused on localities of economic growth and/or economic activities and to create long-term employment opportunities.
- Principle 4: Efforts to address past and current social inequalities should focus on people, not places. In localities where there are both high levels of poverty and demonstrated economic potential, this could include fixed capital investment beyond basic services to exploit the potential of those localities. In localities with low demonstrated economic potential, government should beyond the provision of basic services, concentrate primarily on human development.

- **Principle 5:** In order to overcome the spatial distortions of apartheid, future settlement and economic development opportunities should be channelled into activity corridors and nodes that are adjacent to or that link the main growth centres. Infrastructure investment should primarily support localities that will become major growth nodes in South Africa and the SADC region to create regional gateways to the global economy.

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

## 6.15 NORTH WEST PROVINCIAL SPATIAL DEVELOPMENT FRAMEWORK, 2016

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



Map 13: Hierarchy of Nodes

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

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

- **Addressing Spatial Imbalances**
  - To reduce the number of households living under unsustainable conditions with 10% per annum
- **Functional hierarchy of towns and cities**
  - Promoting corridor development
  - To enhance the development of primary nodes to develop into organized, well planned metropolitan areas.
  - To reduce the number of small unsustainable settlements by 50% over a period of between 20 and 30 years.
- **Specific Land Use Management Principles**
  - Compact Urban Development
  - Focused Investment
  - Managed growth
- **Conforming to concepts such as:**
  - Economic and social activity overlaps
  - Densification
  - Combats urban sprawl
  - Providing economies of scale for effective and affordable service delivery
  - Promoting infill development where high levels of services are available
  - Increased population density (people per m<sup>2</sup>).

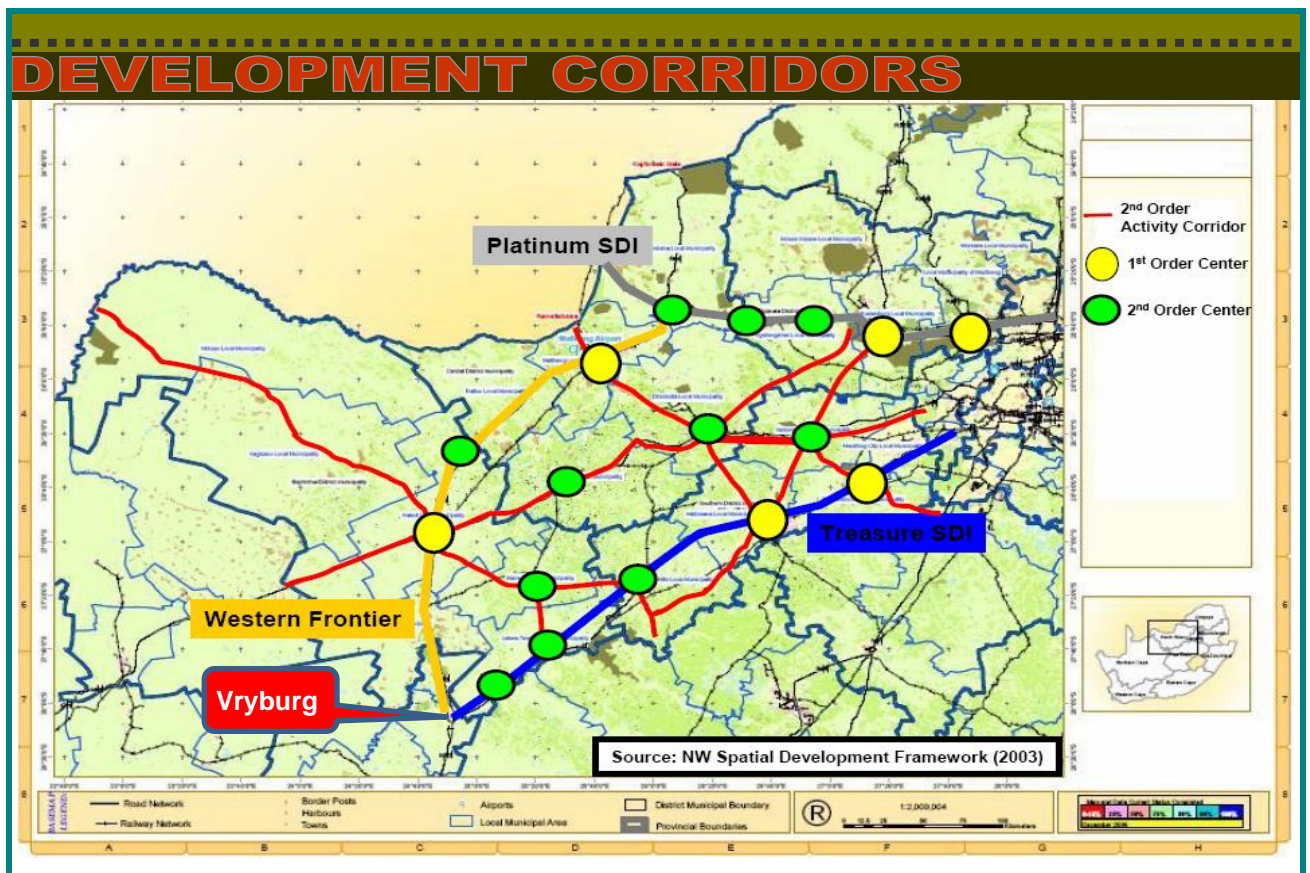
The alleviation of poverty is one of the key challenges for economic development. Higher levels of economic growth are a key challenge for poverty eradication. Investment in people is pivotal to the eradication of poverty and inequality. Investment in people is also, to a large extent, about delivering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

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



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

The *development regions and corridors* constitute a clustering of nodes and the creation of a system that synergises the capacity of stakeholders and entities within these nodes to ensure institutional and leadership capacity that would lead to regional equity. **Map 14** illustrates the spatial context of the current *development regions and corridors* of the North West Province.



**Map 14: Development Corridors of the North West Province**

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

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

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

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

The quality of subsidised settlements that could be achieved through innovative design and cross-subsidisation is visually represented in **Figure 30**.



**Figure 30: Quality of subsidised settlement that could be achieved through innovative design and cross-subsidisation.**

## **6.16 NALEDI FINAL INTEGRATED DEVELOPMENT PLAN 2017-2022**

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

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

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

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



Sandveld Nature Reserve).

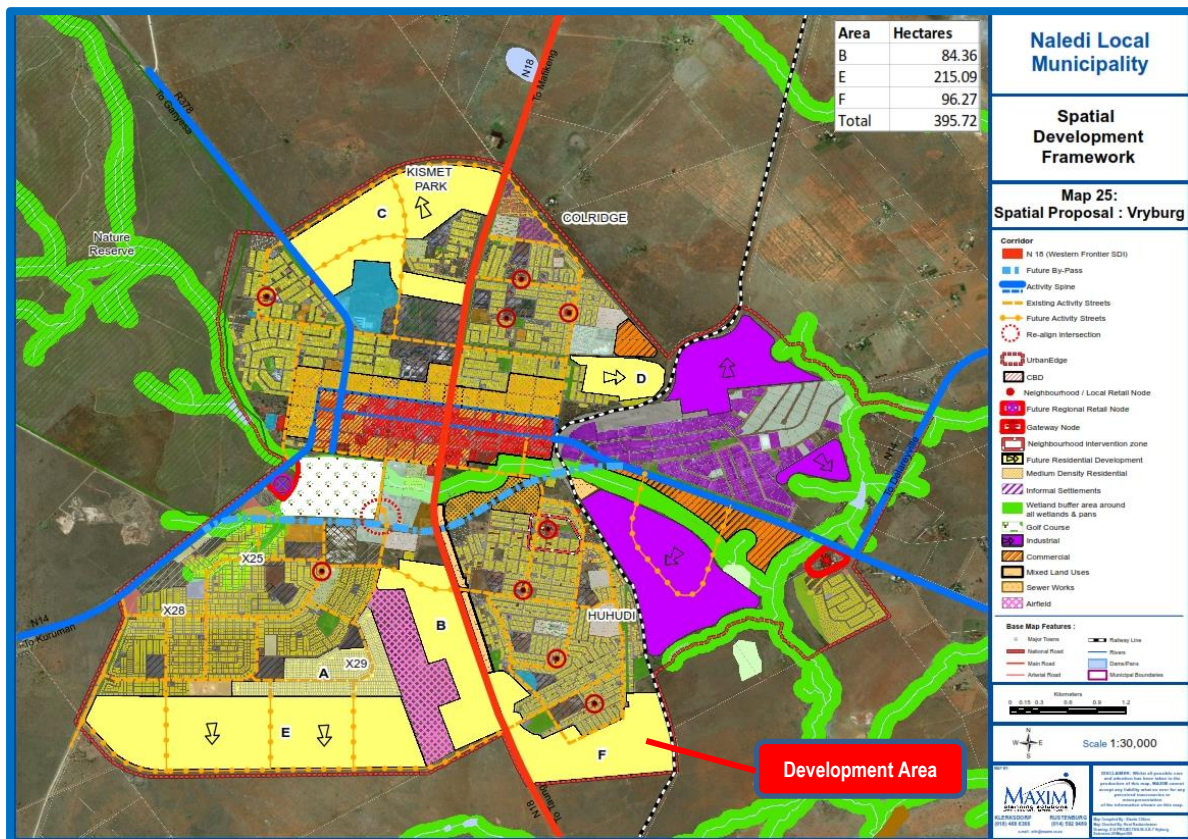
Vryburg functions as a first order node for the municipal area as well as the District Municipality. Although the PSDF identified Vryburg as a Priority 2 Node (area) due to its economic status compared to other first order nodes such as Matlosana, Rustenburg, Tlokwe, etc., it already functions as a prominent node for the western parts of the province.

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

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

## 6.17 NALEDI SPATIAL DEVELOPMENT FRAMEWORK, 2013

In terms of the Spatial Development Framework of the Naledi Local Municipality, the property on which the proposed township is to be established, is located inside the demarcated Urban Edge. The subject property was also earmarked for “future residential development”, as reflected on **Map 15** (refer **Area F**).



Map 15: Naledi Spatial Development Framework

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

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

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

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

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

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

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

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

The act applies to spatial planning, land development and land use management. The following five (5) primary development principles referred to in the Spatial Planning and Land Use management Act, 2013 (Act 16 of 2013) (SPLUMA) and explained in SPLUMA: A Practical Guide compiled by Nic Laubscher, Lizette Hoffman, Ernst Drewes and Jan Nysschen, 2016, need to be taken into consideration:



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

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

The large-scale informal occupation of vacant municipal land prevalent in specifically the Huhudi urban complex is reflected on the aerial photograph produced in respect of the development areas, as reflected on **Map 16** below)



**Map 16: Extent of informal occupation within the Huhudi urban complex**

The inhabitants of these informal dwelling units reside in squalid conditions due to the non-availability of vacant and serviced residential erven and the lack of available housing for those households that qualify for subsidized housing or other forms of housing (e.g. rental housing). This development will provide residents access to land and the use of such land to better their living conditions whilst similarly providing the necessary security of tenure. It is therefore imperative that the Naledi Local Municipality act pro-actively in providing vacant erven for housing development purposes in an attempt to 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 a 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 Naledi 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. The proposed integrated human settlement 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-, and middle-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 Naledi Local Municipality municipal area are governed by a functional land use management system. The proposed land uses in the township area of Vryburg Extension 29 will be regulated by the Naledi Town Planning Scheme, 2004. 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 Naledi Local Municipality Integrated Development Plan (2017-2022), the number of informal housing structures was estimated at 2970 units in 2016, which constitutes 14,35% of the total dwelling units in the Naledi area. 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 the Naledi Local Municipality 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 Naledi Local Municipality has sufficient fiscal, institutional and administrative capacity and resources to administer the development. The Naledi Local Municipality will ensure that the development complies with the requirements contained in the Naledi Town Planning Scheme, 2004 and the Naledi Local Municipality Spatial Development Framework. In this regard it is pertinent to also note that the fiscal capacity of the Naledi 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 effect that the development will have on the natural surrounding area. For an area to be environmentally sustainable, it should protect the unique amenity and character of the surrounding environment and

also prevent degradation. The development will not be situated in an ecological sensitive area or in places of hazard or high risk, such as within the flood plain. This statement is supported by the fact that the two (2) wetland areas encountered within the development area have been properly integrated into the open space system of the proposed township area. The proposed development further excludes noxious activities.

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

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

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

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

**(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 Naledi 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 area of Huhudi Extension 1 is located within the demarcated urban edge as set out in the Naledi 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 un-economical. 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 Vryburg and the surrounding agricultural 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 area of Huhudi Extension 1, the subdivision of the component property comprising the development area and the subsequent incorporation thereof into the approved township area of Huhudi will be processed in accordance with the prescriptions of the Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015. The processes prescribed in terms of this legislation make provision for the necessary community involvement through a comprehensive public participation process.

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

Standards for the protection of natural resources, agricultural land, open spaces and ecosystems have been compiled on a national and regional level. The local municipality compiled a Spatial Development Framework to increase resilience for

human settlements, focusing on vulnerable and informal areas. The Spatial Development Framework needs to be flexible to adapt to social, economic and technological trends. This development is specifically aimed at providing opportunities for people that are currently devoid of land for proper housing purposes. The provision of proper housing for the landless community of Naledi will alleviate the plight of a community who is most vulnerable to suffer the impacts of environmental and economic shock.

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

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

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

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

Integration between the different levels of government assists to create complimentary and mutually reinforcing policies, while integration between the different sectors will result in positive benefits. Government departments have been consulted during the compilation of the Spatial Development Framework of the local municipality. In addition to the fore-mentioned consultation, it should be noted that this application for township establishment will also be referred to the following government and non-government departments as integral part of the public participation process:

- Department of Agriculture, Forestry and Fisheries (DAFF)
- Transnet Freight Rail
- South African Heritage Resources Agency (SAHRA)
- Eskom
- Department of Public Works and Roads
- Department Water and Sanitation
- Openserve (former Telkom SA Limited)
- SA Post Office Limited (SAPO)
- Dr. Ruth Segomotsi Mompati District Municipality
- South African National Roads Agency Limited (SANRAL)

- Department of Mineral Resources (DMR)
- Department of Education
- Department of Health
- Department of Co-operative Governance, Human Settlements and Traditional Affairs (COGHSTA)
- Department Agriculture, Land Reform and Rural Development
- Sedibeng Water
- South African Civil Aviation Authority (SACAA)

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

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

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

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

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

- ✧ Publishing notices of the application (as set out in **Annexure T1** of the comprehensive Land Development Application) in the Stellalander as well as in the North West Provincial Gazette in Afrikaans & English for two consecutive weeks as contemplated in Sections 94(1)(b) and 94(1)(h) read with Sections 94(2)(a) and 95(1)(b) of the Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015;
- ✧ Displaying a site notice (as set out in **Annexure T2** of the comprehensive Land Development Application) in a conspicuous place on the land to which the application applies as contemplated in Sections 94(1)(b) and 94(1)(h) read with Section 97(1)(a) of the Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015;
- ✧ Giving notice to the following external organizations / departments (as set out in **Annexure T3** of the comprehensive Land Development Application) as contemplated in Section 94(1)(b) and 94(1)(h) read with Section 95(1)(d) of the Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015:



- Department of Agriculture, Forestry and Fisheries (DAFF)
- Transnet Freight Rail
- South African Heritage Resources Agency (SAHRA)
- Eskom
- Department of Public Works and Roads
- Department Water and Sanitation
- Openserve (former Telkom SA Limited)
- SA Post Office Limited (SAPO)
- Dr. Ruth Segomotsi Mompati District Municipality
- South African National Roads Agency Limited (SANRAL)
- Department of Mineral Resources (DMR)
- Department of Education
- Department of Health
- Department of Co-operative Governance, Human Settlements and Traditional Affairs (COGHSTA)
- Department Agriculture, Land Reform and Rural Development
- Sedibeng Water
- South African Civil Aviation Authority (SACAA)
- ✧ Giving notice to all adjacent property owners (as set out in **Annexure T4** of the comprehensive Land Development Application) as contemplated in Section 94(1) (h read with Section 95(1)(c) of the Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015.

The external organizations / departments will be afforded a period of sixty (60) days to comment in this matter. The adjacent property owners and the general public will be afforded a period of thirty (30) days to lodge comments or objections in this matter as set out in the Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015.

**(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 Naledi Local Municipality Spatial Planning and Land Use Management By-Law, 2015 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 comment or object against this development.

## **6.20 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:

- This land development application forms an integral part of the proposed 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 integrated housing project will also allow for the development of various housing typologies to accommodate the housing needs of the community of Naledi.
- The proposed development area is located in an area earmarked for future residential development in terms of the Spatial Development Framework of the Naledi Local Municipality
- The proposed development area is located directly adjacent to the existing township area of Huhudi and constitutes the logic extension of the existing built-up urban area of Huhudi and constitutes infill development.
- The location of the proposed development area in relation to the existing township area of Huhudi further allows for easy connection to existing services networks in order to service the erven within the proposed township area.
- Furthermore, the fauna and flora of the area where this residential complex will be constructed are not especially sensitive and are poorly protected in its current state. This further decreases the significance of any further impacts that might occur.
- The proposed township area is easily accessible due to its locality directly adjacent to the Vryburg-Taung National Road (N18). The township is further easily accessible through numerous connector roads linking the township area through the existing street network of the adjacent township area of Huhudi.
- The proposed township area of Huhudi Extension 1 will also be linked to the economic activities offered within the Vryburg urban area through the existing road network of Vryburg which links with the proposed road network of the proposed township area.
- The construction phase of this project will create a number of additional jobs for the local community.
- The layout plan that was compiled in respect of the township area comprehensively address the issues identified during the pre-planning studies relating inter alia to the following:
  - Incorporating the road network with that of the adjacent township areas;
  - Incorporating all existing servitudes and Eskom powerlines within the layout plan of the township area;
  - Incorporating the results of the geotechnical investigation which indicated that the development area is suitable for township establishment purposes subject to the precautionary measure proposed;

- Engineering services can be provided to the proposed township area subject to the necessary bulk services upgrades set out in Section 5 above required not only to service the proposed township area but to also address current services challenges experienced within the Vryburg/Huhudi urban complexes especially relating to the provision of sufficient water.
- Traffic generated by the development can be accommodated within the existing road network subject to the necessary road and intersections upgrades proposed in terms of the Traffic Impact Study.

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

**K. RAUBENHEIMER**  
**Pr. PIn A/924/1996**