

ESIGUNGWINI SUBSIDISED HOUSING DEVELOPMENT: PRELIMINARY ENVIRONMENTAL ASSESSMENT



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PREPARED FOR:



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1 INTRODUCTION

1.1 PROJECT BACKGROUND

The uPhongolo Municipality has, through its IDP process, and extensive consultation with respective beneficiary communities residing within the uPhongolo Municipality, identified the need to provide subsidised housing in its area of jurisdiction. This process was initiated as a means to address the municipality's housing need and in doing so improve the living conditions and quality of life of its communities.

The purpose of this document is to provide a Preliminary Environmental Assessment for the development of the Esigungwini Subsidised Housing Development. The proposed project area is aimed at providing suitable housing to beneficiaries residing within a portion of Wards 10 and 11 of the uPhongolo Municipality. The proposed development will entail the construction of 1 000 new top structures together with relevant services such as access to water and sanitation. The project shall be titled and referred to as the "Esigungwini Housing Project/ Project Area" for the purpose of easy reference in report writing.

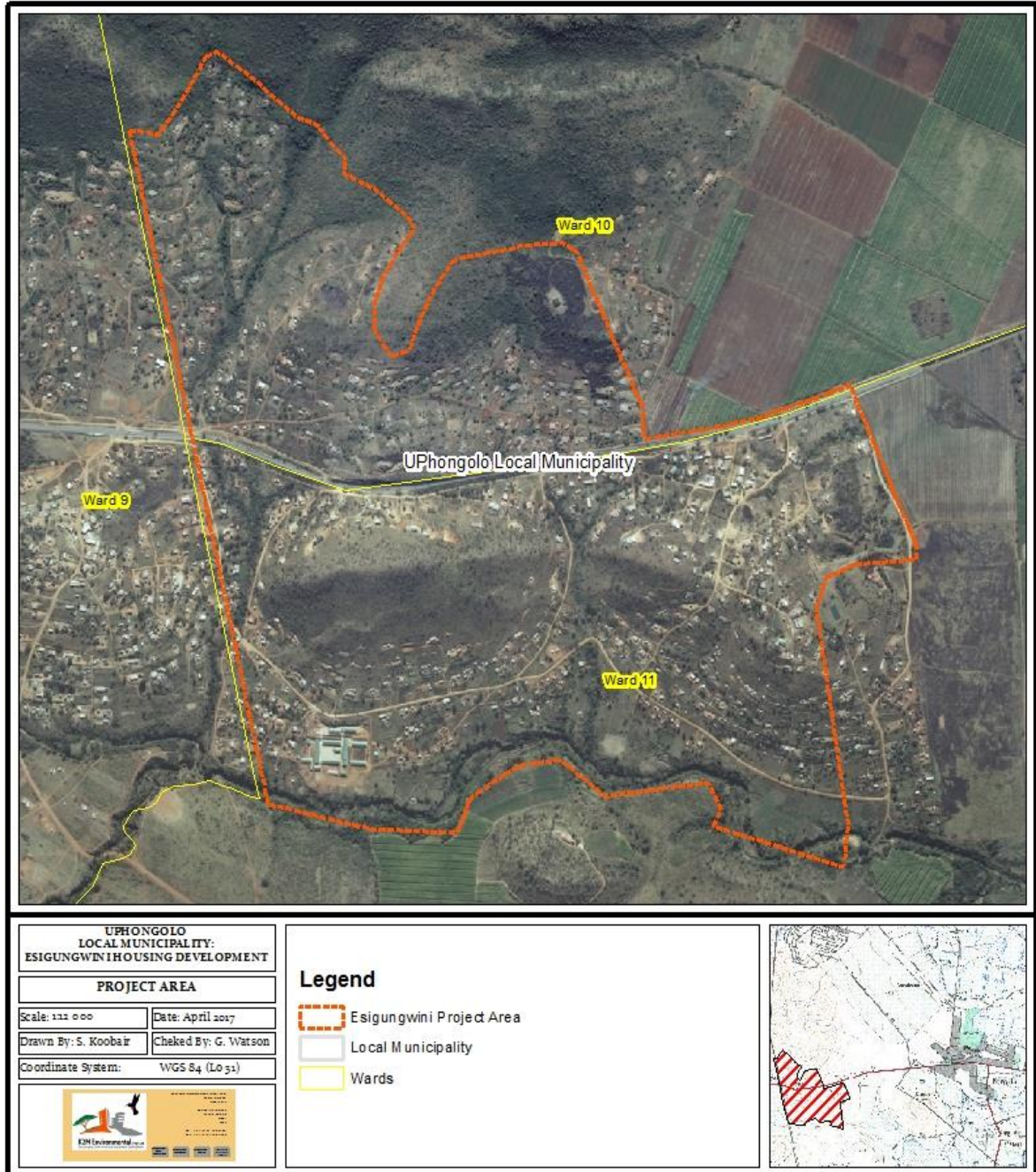
This Preliminary Environmental Assessment will only provide an initial baseline environmental report that briefly describes potential environmental impacts of the proposed development and some preliminary recommended mitigation measures. This initial screening report will also provide an assessment of the viability of the proposed development for the developer in terms of environmental criteria. This document thus does not constitute an environmental scoping report as per the EIA Regulations, but is an initial environmental study for the purposes outlined above.

1.2 SITE DESCRIPTION

The total extend of the project area is approximately 197.5Ha and is made up by a portion of Wards 10 and 11 of the uPhongolo Municipality. The project area is located approximately 1.7km west of the Pongola Town. The project area is situated in relatively mountainous areas, most of which have being transformed due to the establishment of rural settlements. There are a number of

perennial streams that traverse the project area. The project area in relation to the wards are depicted in Map 1.1 below.

Map 1.1: Project Area



2 APPROACH AND METHODOLOGY

2.1 APPROACH

2.1.1 Applicable legislation

The National Environmental Management Act (No. 107 of 1998) provides for the control of certain listed activities which “*may have a detrimental effect on the environment*” if not controlled. In terms of the Environmental Impact Assessment (EIA) Regulations Listing Notice 1, Listing Notice 2 and Listing Notice 3 of 2014, such activities are prohibited until written authorisation is obtained from the Minister or her delegated authority. Activities listed in EIA Regulations Listing Notice 1 (No. R983) and Listing Notice 3 (No. R985) of the 4th of December 2014 will require a Basic Assessment to be conducted while activities listed in EIA Regulations Listing Notice 2 (No. R984) will require a full EIA process which includes a Scoping phase and an Environmental Impact Assessment phase. Any proposed development on the site must be screened in light of these regulations and authorisation must be acquired prior to construction, should it be concluded that the development triggers any of the activities listed in the above-mentioned regulations.

The purpose of this Preliminary Environmental Assessment is to identify possible strategic environmental issues at the earliest possible stage in the planning process to:

- Ensure that environmental issues are addressed in a pro-active manner in the development of the housing process.
- Improve the assessment of strategic environmental impacts that might be caused by the envisaged developments, and
- Ensure that the concept of sustainability is integrated with developmental decision making.

The overall approach towards this preliminary assessment is therefore based on the concept of sustainable development within the context of the official definition of sustainable development being: “*development that aims for equity within and between generations and adopts an approach where the economic, social and Environmental aspects of development are considered in a holistic fashion*”.

2.2 METHODOLOGY

This Preliminary Environmental Assessment provides a summarized overview of some of the key aspects relating to the social, economic, infrastructural, service and biophysical environments which impact on, and are similarly impacted upon by the Esigungwini Subsidised Housing project area. The summarized overviews of various aspects contained within the Preliminary Environmental Assessment have been based on a combination of existing available desktop information sources as well as the findings and observations derived from the recent on-site survey conducted of the project area.

Available desktop information sources include information derived from the 2011 South African Census, as well as the uPhongolo Municipality Integrated Development Plan 2015/2016; and various spatial GIS information. These information sources were initially made use of to establish the general status quo conditions of various social, economic, service and infrastructural demographics which impact on and are subsequently impacted upon by the project area and its local population. As a supplement to the information provided and discussed within the assessment report a number of accompanying thematic maps have also been included within the report, which provide a graphical representation of various biophysical factors at play within the project area.

The report has generally been structured as follows:

- **Section 3** deals with the **Socio-Economic Development component** of the project area. The social component addresses aspects such as age, gender, education and housing, while the economic component addresses aspects such as monthly household income, employment status, and a profile of the economic sectors within which the employed proportion of the project area population are involved in within the Esigungwini Housing project area.
- **Section 4** deals with the **services and infrastructural component** of the project area. The services component therefore addresses residents' access to water, sanitation, electricity, telecommunication infrastructure and waste removal services, while the infrastructural component addresses the road network and stormwater management systems within the project area.

- **Section 5** deals with the **biophysical characteristics** of the project area, and therefore covers aspects such as land cover, topography and drainage, floodline areas, soils, geology, vegetation, mineral deposits, archaeological, cultural and historical sites, and potential sources of pollution.
- **Section 6** provides a brief overview of the **preliminary environmental impacts and proposed mitigation measures** for the Esigungwini Housing project area, and discusses some of the impacts associated therewith.
- **Section 7** provides a **summary conclusion** of the findings of the Preliminary Environmental Assessment Report and the potential impact of the proposed development on the environment and local population, while also providing some recommendations with which to minimize or negate any negative impacts.

3 SOCIO-ECONOMIC COMPONENT

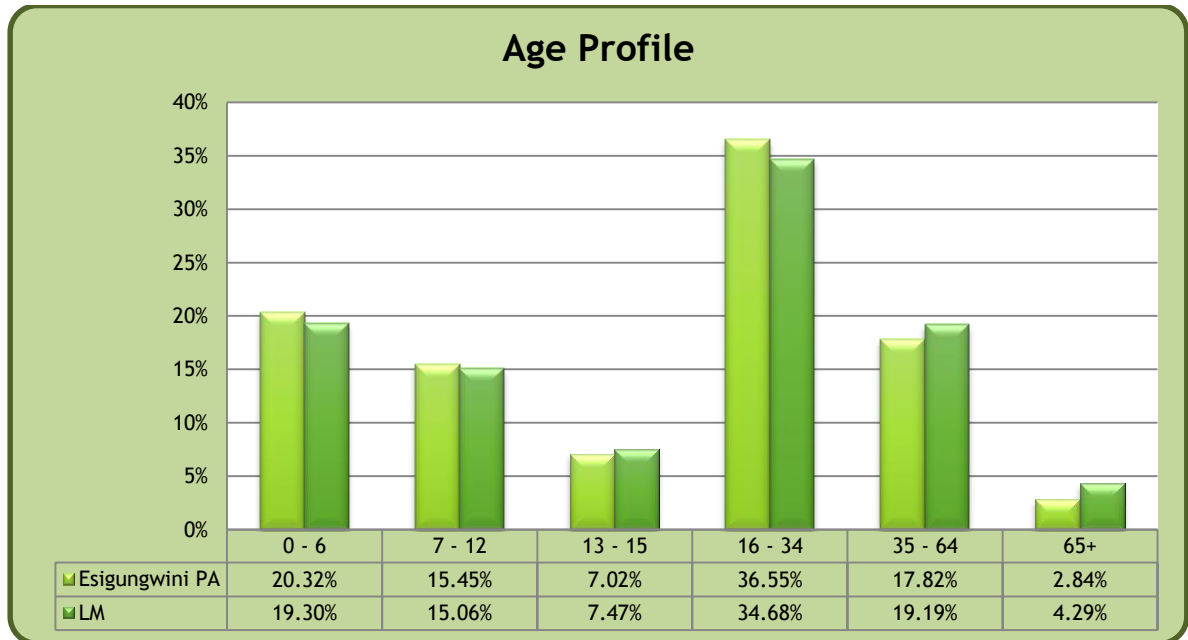
3.1 SOCIAL DEMOGRAPHIC CHARACTERISTICS

The figures illustrated below were prepared from the Census 2001 and 2011 data and present a socio-economic overview of the study area. The Esigungwini Housing project area falls within the jurisdiction of the uPhongolo Municipality; the figures of the study area are therefore presented together with the overall figures of the municipality to yield a comparative socio-economic overview of the study area. The total population of the study area is approximately 5 527 persons and the population of the municipality is estimated at 127 221 persons.

3.1.1 Age Profile

The age profile of the project area and of the uPhongolo Municipality (MM) is depicted in Figure 3.1 below. It is evident from the graph that the majority of the population (42.79%) of the project area are younger than the age of 15 years. A total of 36.55% are between the ages of 16 and 34 years. 17.82% of the population fall in the age category of 35 – 64 years, while only 2.84% of the total population of the project area are older than the age of 65 years. The age distribution figures suggest that the population of the study area, consists mostly of young individuals who will become adults in the near future. The figures also indicate that 41.83% of the population within the uPhongolo Municipality is younger than 15 years.

Figure 3.1: Age Profile



Source: Statistics SA, Census 2011.

3.1.1.1 Implications for the Subsidised Housing Project:

Age distribution patterns are of utmost importance when planning future developments and allocating subsidies as various subsidised facilities will be better enjoyed by individuals of certain ages now and in the future. Age distribution is also considered when determining the need for other supporting facilities necessary to ensure maximum yield of benefits of any given development, such as the proposed subsidised housing project. The age distribution structure of the population of the project area has various implications as far as subsidised housing is concerned, which must be considered during the planning (location) and implementation of the project, these include:

- Provision of sufficient and appropriate education facilities within close proximity to the housing development, and thereby ensuring that scholars do not travel unnecessary distances.
- Provision of economic and/ or employment opportunities within close proximity of the houses as a number of young people will be entering the economically active age category over the next five to ten years and will thus be seeking appropriate employment opportunities.
- Provision of adequate social services and amenities: as the young age profile increases the proportion of the population which are not yet economically active which results in a high dependency ratio which places increased pressure on social services, facilities, and

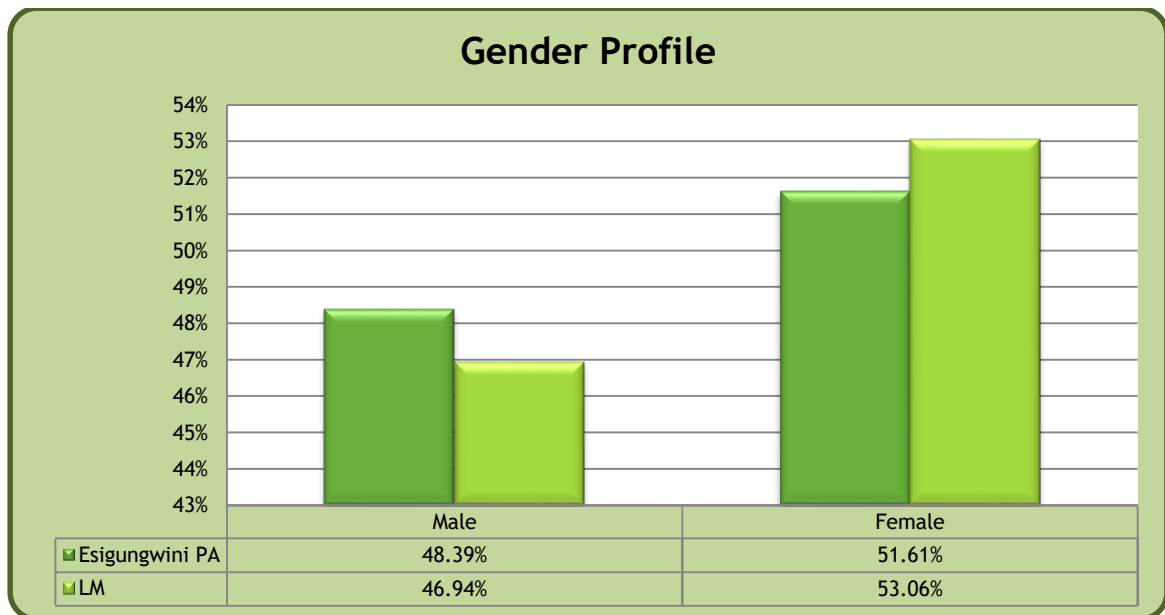
amenities. Provision of such services will not only benefit young individuals but rather the community at large.

The lack of such facilities and services within close proximity to the area will result in the individuals and families relocating to areas where such services are available and therefore leaving the subsidised houses which were meant to improve their quality of life, thereby limiting the success of the proposed housing project.

3.1.2 Gender Profile

According to the 2011 census information in Figure 3.2 below, as much as 51.61% of the total population of the study area is female and 48.39% are male.

Figure 3.2: Gender Profile



Source: Statistics SA, Census 2011.

3.1.2.1 Implications for the Subsidised Housing Project:

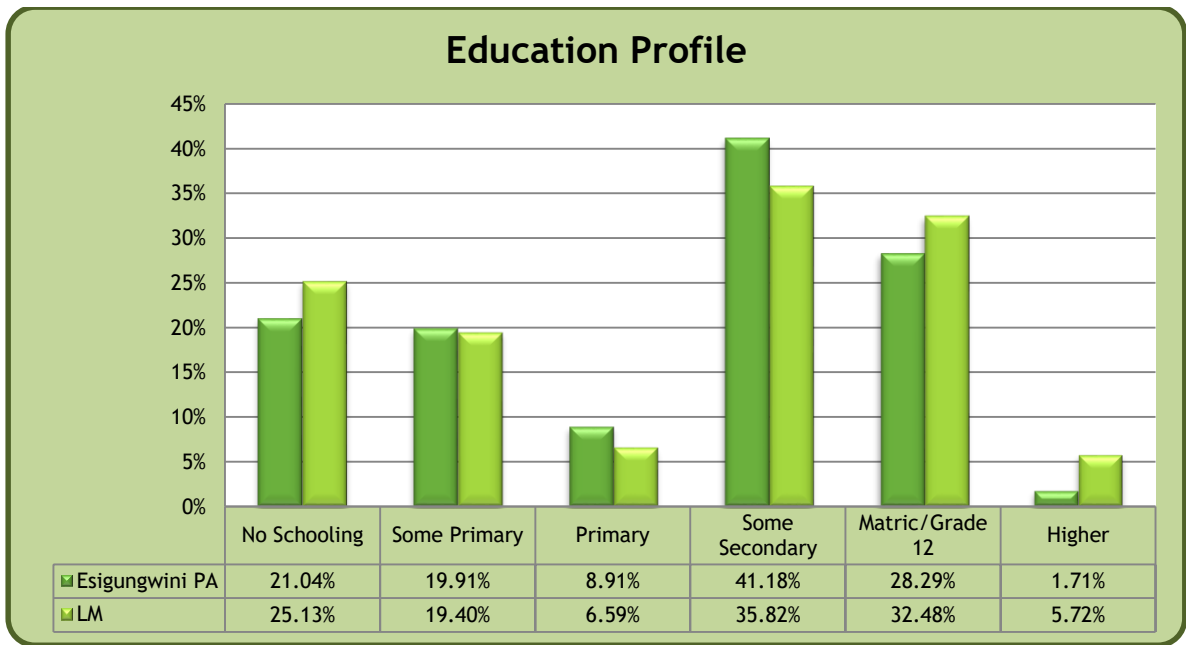
The implication of gender roles within the Esigungwini Housing project area needs to be given due consideration with regards to the implementation of the envisaged subsidised housing project. Practices of gender equality and empowerment are necessary to ensure that benefits derived from

the implementation of the proposed development are distributed in such a way that is reflective of the population structure as a whole.

3.1.3 Education Profile

The 2011 education profile of the study area and the uPhongolo Municipality is illustrated in Figure 3.3 below. These figures illustrate the education levels of persons over the age of 20 years and therefore falling into the economically active categories of the population. Approximately 21.04% of the population having no form of schooling. Approximately 19.91% of the population within the study area had undergone some form of primary school education, 8.91% completed primary school, 41.18% completed some form of secondary school and only 28.29% completed matric.

Figure 3.3: Levels of Education



Source: Statistics SA, Census 2011.

3.1.3.1 Implications for the Subsidised Housing Project:

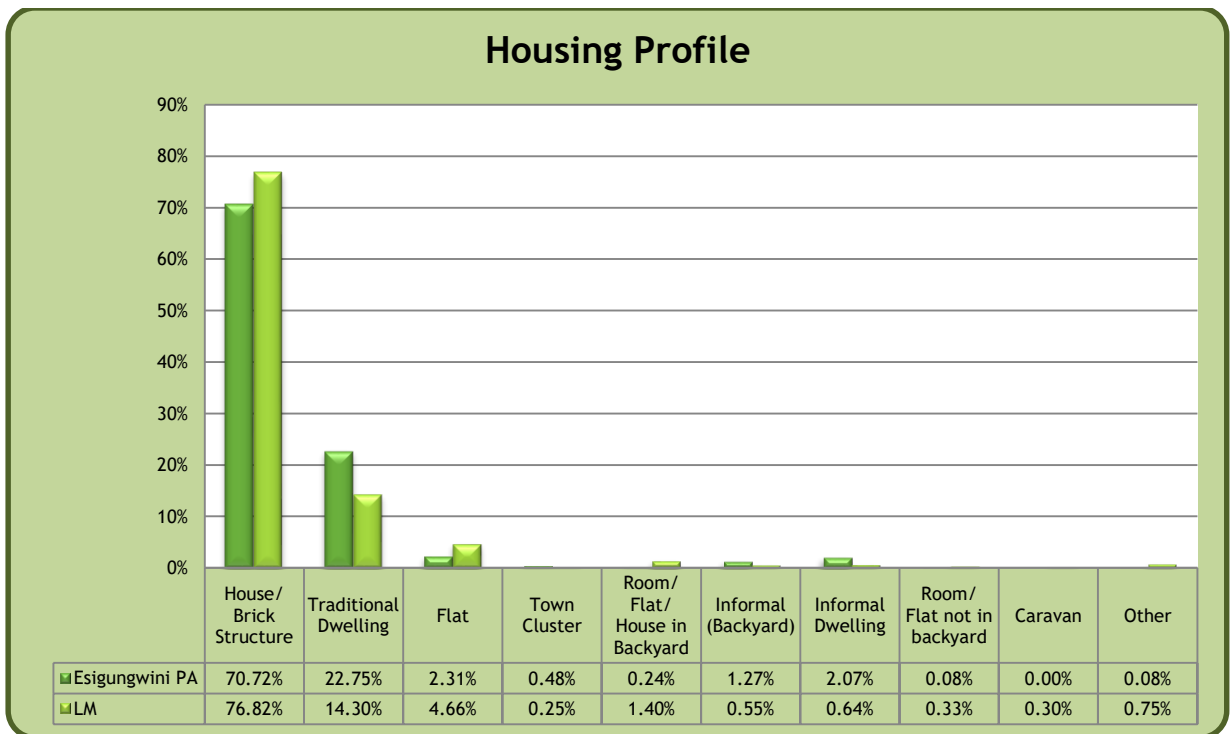
The level of illiteracy within the project area will need to be taken into consideration with regards to the implementation of the proposed project to ensure that that population within the study area whom are illiterate are assisted, included and involved in community participation practices, and are not discriminated against as a result. Technical aspects of the proposed housing project may

have to be communicated as they need to be clearly understood by the beneficiary communities. Specific provisions will need to be made to include those members of the project area whom may be illiterate in the development process, so as to avoid the possibility of exclusion of certain demographics. Facilities with which to cater to adult education could similarly constitute a viable option for future municipal developments of the area. In terms of overall project development and management it is important to ensure that all beneficiaries fully understand and grasp the implications and technical aspects relating to this housing initiative.

3.1.4 Housing Profile

As can be seen from Figure 3.4, the most predominant housing type in the project area is the “House/Brick Structure” with 70.72% of houses falling into this category. The second predominant housing type is the “Traditional dwellings” with 22.75% falling into this category. The figures indicate that within the uPhongolo Municipality, approximately 76.82% of houses fall in the “House/Brick Structure” housing category and 14.30% fall within the “Traditional dwellings” category.

Figure 3.4: Housing Profile



Source: Statistics SA, Census 2011.

3.1.4.1 Implications for the Subsidised Housing Project:

According to the Housing Act, 1997, it is pertinent that all citizens and permanent residents of the Republic will, on a progressive basis, have access to:

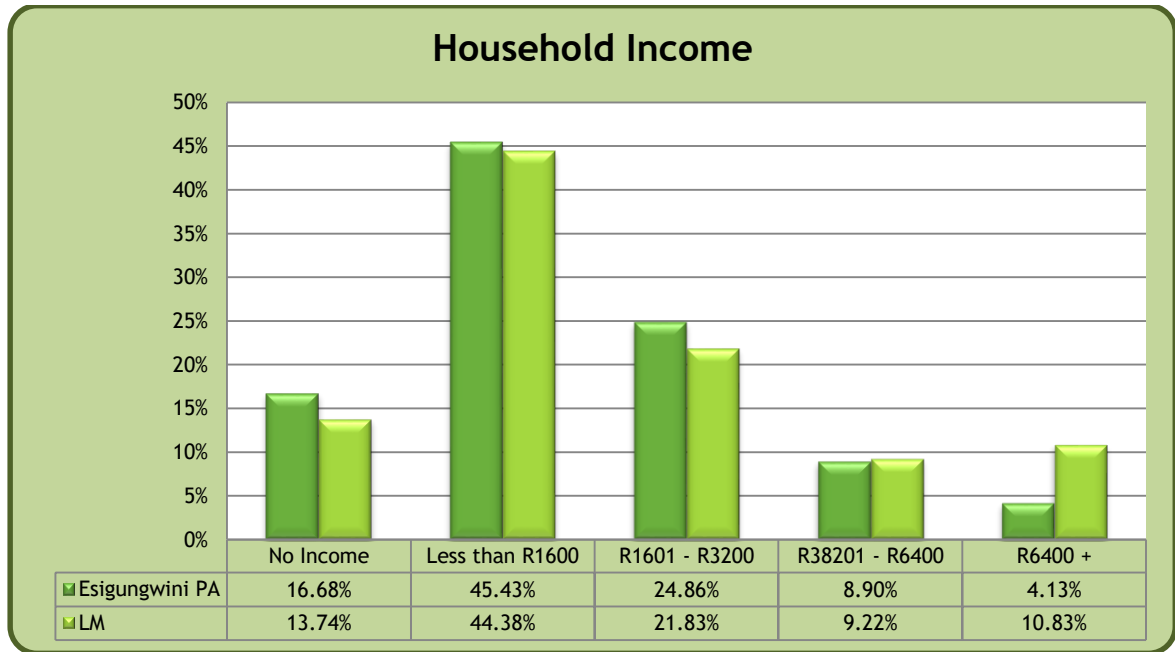
- Permanent residential structures with secure tenure, ensuring internal and external privacy and providing adequate protection against the elements.

The National legislated (RDP) minimum norms and standards in respect of housing supply in South Africa is considered to be a brick top structure of 40 m² (minimum). Approximately 70.72% of households in the project area; and 76.82% of the households within uPhongolo Municipality; have access to housing services at this level. This national standard has been accepted by the Department of Human Settlement as their minimum norms and standards for the housing instrument as far as subsidised housing provision is concerned.

3.2 **ECONOMIC DEMOGRAPHIC CHARACTERISTICS**

3.2.1 **Household Income and Affordability Profile**

Figure 3.5 below illustrates a relatively low household income profile of the Esigungwini Housing project area. As much as 16.68% of the total number of households within the study area indicated not to have an income. The figures also show that 45.43% of the total number of households indicated a collective monthly household income of less than R1600, with 24.86% falling within the income range of R1600 – R3200 and 8.90% falling between R3200 and R6400. Approximately 4.13% of households earn more than R6400, which is much lower as compared to the uPhongolo Municipality percentage of 10.83%.

Figure 3.5: Monthly household income

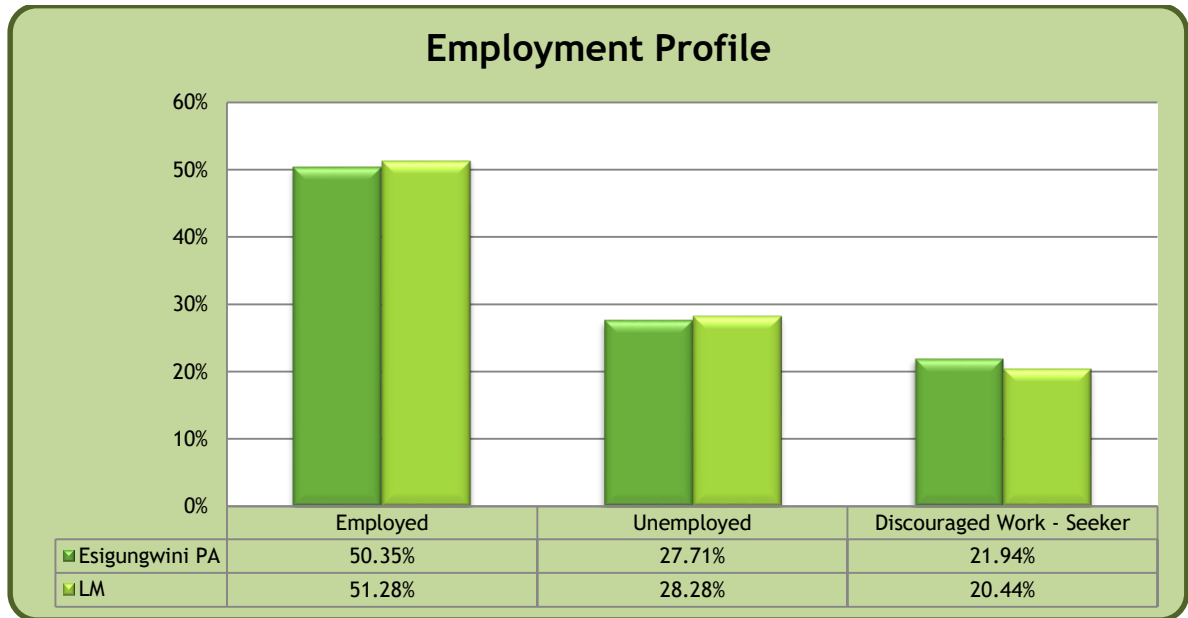
Source: Statistics SA, Census 2011.

3.2.1.1 Implications for the Subsidised Housing Project:

The figures above indicate relatively low affordability levels within the project area and relatively high affordability levels in the overall metropolitan. The proposed subsidised housing project will benefit many households with low monthly income and who cannot afford proper housing. The ability of residents to pay for service levels above the minimum required standards will also be very limited.

3.2.2 Employment Profile

Figure 3.6 below illustrates the employment profile of the study area and the overall municipal profile. These figures illustrate the employment profiles of persons over the age of 16 years and therefore falling into the economically active categories of the population. As much as 50.35% of the active population indicated to be employed whilst 27.71% of the economically active population within the study area indicated that they were unemployed. The overall employment profile of the uPhongolo Municipality indicated that 51.28% of the population was employed and as much as 28.28% was unemployed.

Figure 3.6: Percentage of Economically Active population unemployed

Source: Statistics SA, Census 2011

3.2.2.1 Implications for the Subsidised Housing Project:

The potential role of the envisaged housing project in providing some employment and income generating opportunities during the construction and implementation phases should clearly be a key consideration in the project plan. The development of technical skills relating to construction which could benefit the project beneficiaries after completion of the housing project should also be considered in the project implementation and management stages.

3.2.3 Economic Sector Profile

3.2.3.1 Implications for the Subsidised Housing Project:

It can be expected that a number of additional employment opportunities could be created due to the construction of houses for this project. Local employment opportunities should be optimized during the implementation stages to contribute towards longer term economic sustainability in the project area.

4 SERVICES AND INFRASTRUCTURE

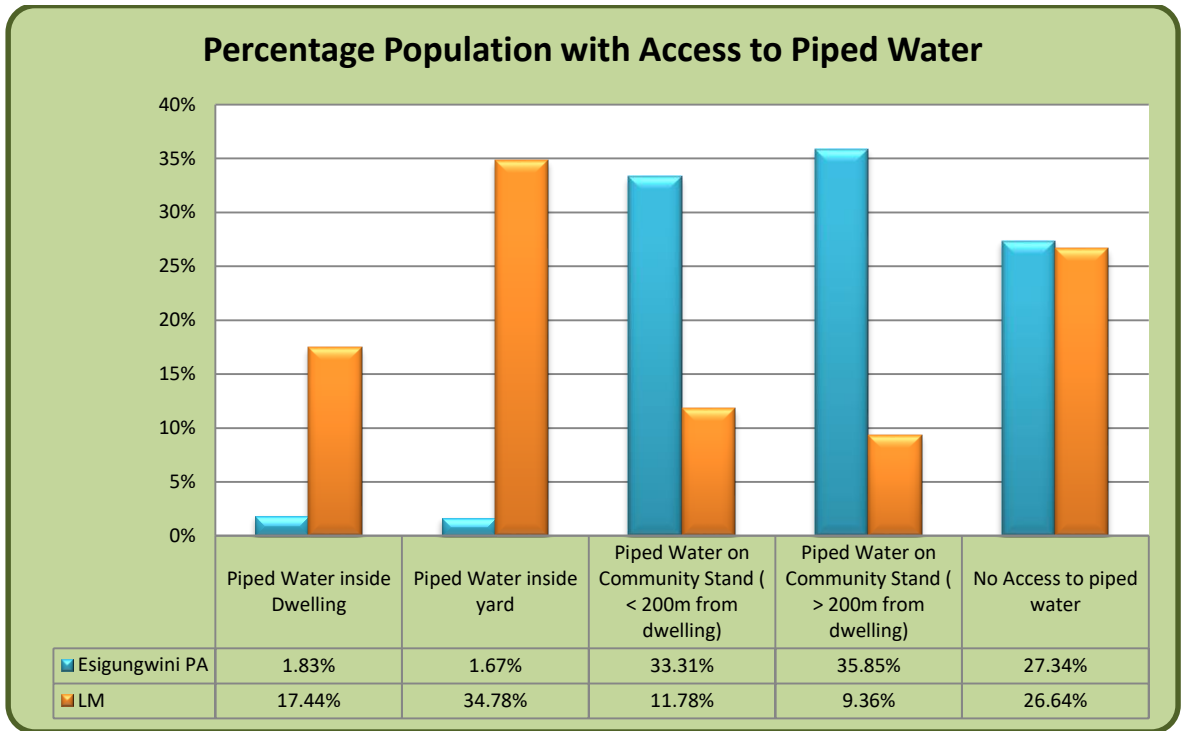
4.1 SERVICES DEMOGRAPHICS

4.1.1 Access to water sources

Figure 4.1 and 4.2 below illustrates the various sources of water, for drinking and other auxiliary household uses, for communities residing within the project area and the overall uPhongolo Municipality. The figure shows relatively good access to running water in the project area with 1.83% of the total number of households having access to piped water “inside dwelling” and 1.67% having piped water “inside the yard”. Approximately 36.80% of households within the project area have to walk less than 200m to get water, whilst 35.85% of households have to walk more than 200m to get water. Approximately 9.06% of households within the study area make use of boreholes, and 3.10% utilise water from a river or stream. Approximately 15.50% of the households buy water from a vendor who probably sources it from the above mentioned sources which are situated at a greater distance from the households.

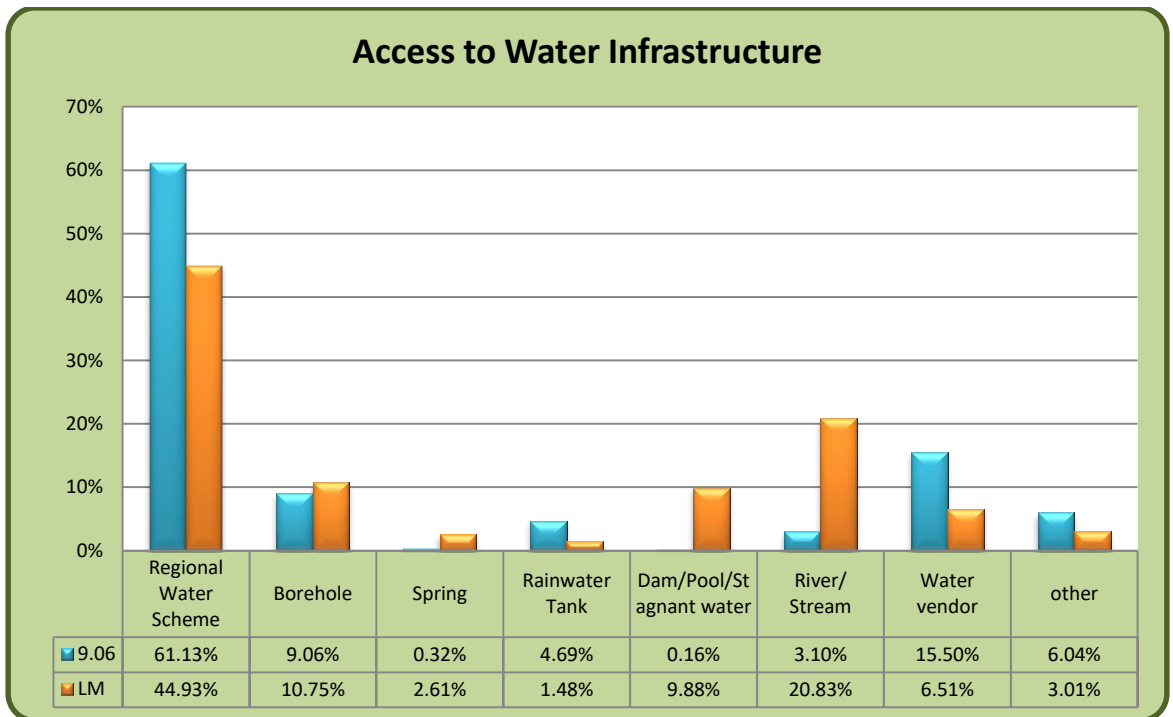
The overall figures for the uPhongolo Municipality indicate that 17.44% and 34.78% of households having access to piped water “inside dwelling” and “piped water inside yard” respectively. A further 64% of households indicated to source water from a communal tap situated within a distance of 200 meters while 9.36% would source water from a communal tap situated more than 200 meters from the dwelling. Approximately 6.51% of households within the municipality utilise water from a water vendor and 20.83% from rivers and streams.

Figure 4.1: Access to Water Infrastructure



Source: Statistics SA, Census 2011.

Figure 4.2: Access to piped water



Source: Statistics SA, Census 2011.

4.1.1.1 Implications for the Subsidised Housing Project:

The levels of service delivery derived from acceptable national policy frameworks which are relevant for the level of water services indicate the following definitions as being applicable:

- A 'Survival' level of service providing five (5) to eight (8) litres of water per capita per day at 800 – 1500 meters walking distance;
- The RDP level of service providing twenty-five (25) litres of water per capita per day at 200 meters walking distance; and
- A higher level of service providing more than twenty-five (25) litres of water per capita per day and at less than 200 meters walking distance. It even includes a yard or house connection.

The National legislated (RDP) minimum norms and standards in respect of water supply in South Africa are therefore considered to be a maximum 200 m's walking distance between a communal stand pipe and one's residence. Approximately 64% of the households within the uPhongolo Municipality and 36.80% of the Esigungwini Housing study area have access to water services at this level or better (piped water inside dwelling and yard). This national standard has been accepted by the Department of Housing as their minimum norms and standards for the housing instrument as far as subsidized housing provision is concerned. Therefore, due to the fact that the provision of water amounts to housing purposes in terms of the Housing Board/Department of Human Settlements explanation of subsidies, the provision of water at the minimum RDP level of service provision at least should constitute a key municipal objective for implementation in the Esigungwini Housing project area, as well as the uPhongolo Municipality as a whole. The provision of Subsidised Housing should therefore not occur in isolation but should be supported by various other necessary infrastructural and service provision projects.

4.1.2 **Access to Sanitation Infrastructure**

Figure 4.3 illustrate that only 0.08% of households use the flush toilets which are connected to a sewage system while 0.24% is connected to the septic tank system. The figures also show that majority of households (25.76%) make use of unimproved "pit latrines" toilet facilities and 0.16% makes use of chemical toilets.

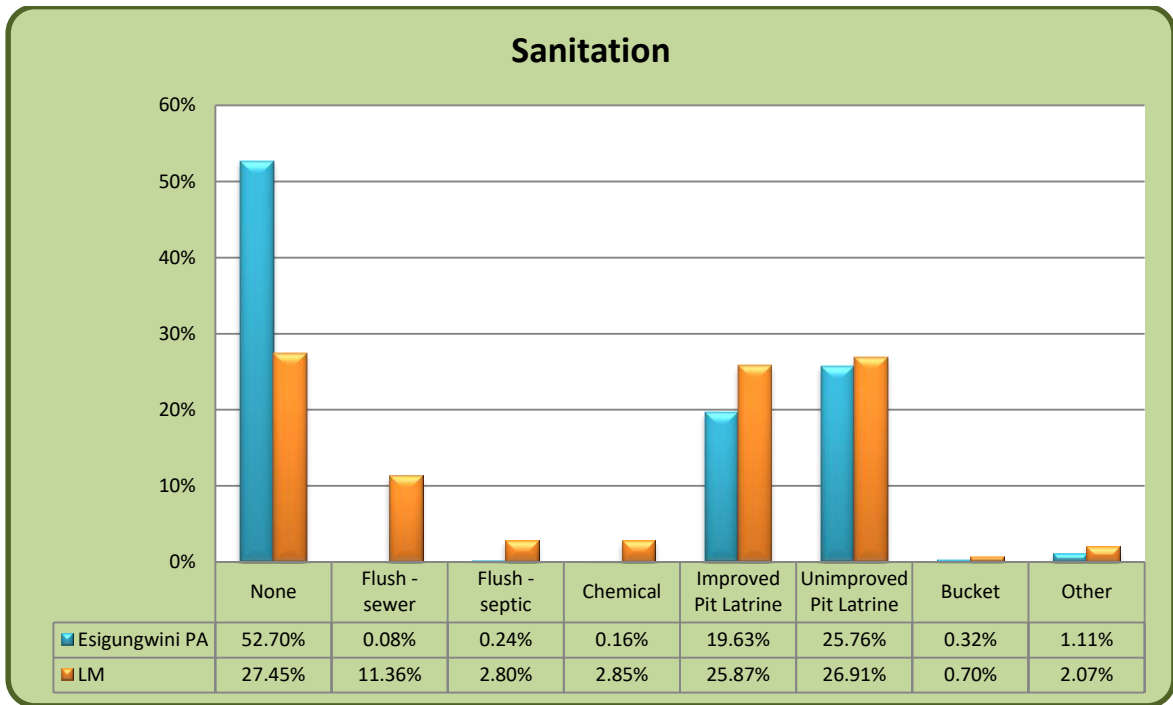
The statistics of the overall uPhongolo Municipality indicates that 11.36% of households make use of flush toilets connected to a sewer system and 2.80% use flush toilets connected to a septic tank.

A further 26.91% utilised the “unimproved pit latrines” whilst 25.87% utilise the “improved pit latrines”.

The absence of appropriate sanitation infrastructure in the project area is clearly evident from the information depicted in Figure 4.3 below. The average number of households with flush toilets in uPhongolo Municipality is relatively higher than that of the project area.

The potential impact of the extensive utilization of unimproved pit latrines and other forms of inappropriate sanitation infrastructure, on biophysical aspects such as surface and ground water, as well as the potential health implications is clearly evident from these figures, as is the need for improved access to sanitation infrastructure in the Esigungwini Housing project area.

Figure 4.3: Access to sanitation infrastructure



Source: Statistics SA, Census 2011.

4.1.2.1 Implications for the Subsidised Housing Project:

The levels of service delivery derived from acceptable national policy frameworks which are relevant for the level of sanitation services indicate the following definitions as being applicable:

- A Ventilated Improved Pit latrine (VIP) level of service;

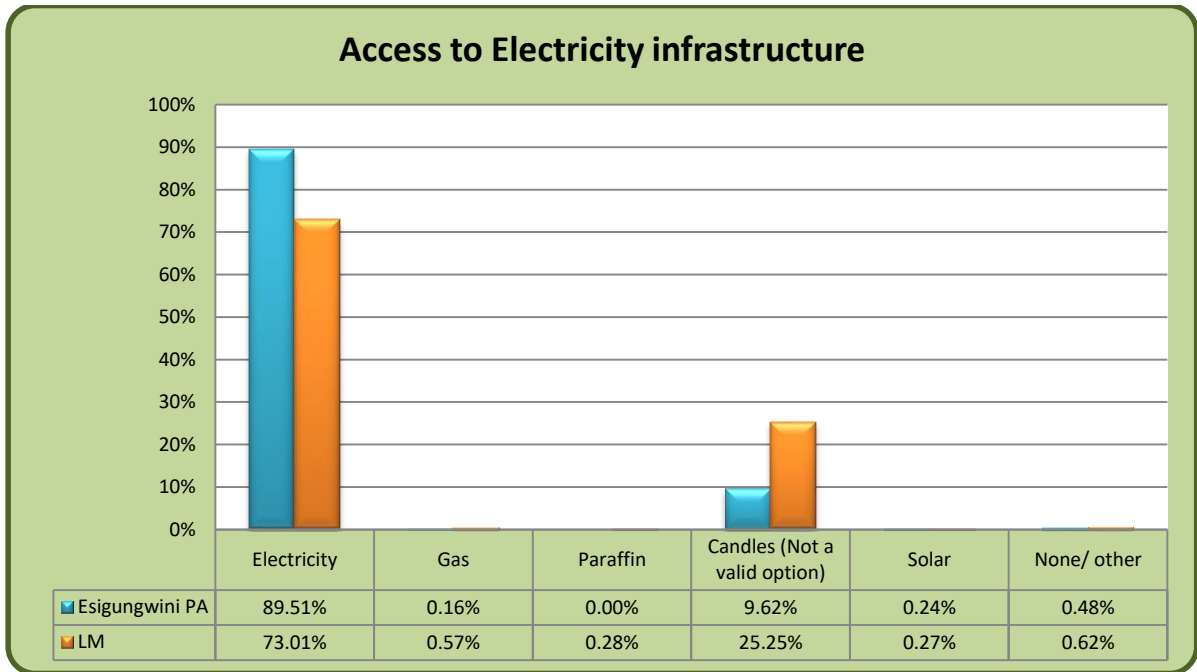
- The interim level of service providing on-site sanitation that could include amongst others an on-site dry system (single, double pit or organic systems such as the Enviroloo) or an on-site wet system (such as a low flush or a septic tank and french drain); and
- A waterborne level of service providing treatment of raw sewage by means of a Sewage Treatment Works.

The National legislated (RDP) minimum norms and standards in respect of sanitation service provision in South Africa are considered to be ventilated improved pit toilet (VIP). Approximately 25.87% of households in uPhongolo Municipality and 19.63% of the study area have access to sanitation services at this level or better. This national standard has been accepted by the Department of Human Settlements as their minimum norms and standards for all housing instruments as far as subsidised housing provision is concerned. Therefore, due to the fact that the provision of sanitation amounts to housing purposes in terms of the Housing Board/Department of Human Settlements explanation of subsidies, the provision of sanitation at the minimum RDP level of service provision at least should constitute a key municipal objective for implementation in the Esigungwini Housing project area, as well as the uPhongolo Municipality as a whole. The provision of Subsidised Housing should therefore not occur in isolation but should be supported by various other necessary infrastructural and service provision projects.

4.1.3 Access to electricity infrastructure

Figure 4.4 below indicates the various energy sources used for lighting purposes by households within the study area and overall uPhongolo Municipality. During the time of the survey, the majority (89.51%) of households within the study area indicated that they had access to electricity while 9.62% used candles. Overall, within the uPhongolo Municipality, 73.01% of households have access to electricity.

Figure 4.4: Access to electricity infrastructure



Source: Statistics SA, Census 2011.

4.1.3.1 Implications for the Subsidised Housing Project:

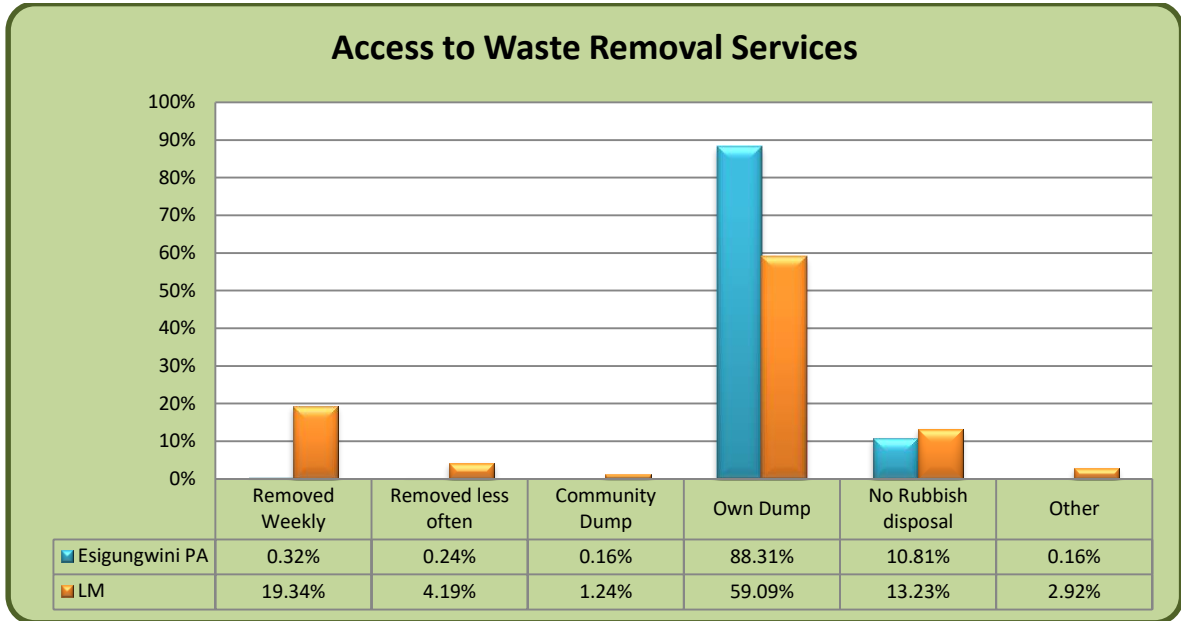
The provision of an internal electrical reticulation network is not viewed as a minimum requirement as far as subsidised housing is concerned, and as such the provision of an internal electrical reticulation network does not form part of the proposed subsidised housing project. The absence of appropriate electricity infrastructure can often result in the extensive utilization of firewood for cooking and heating purposes with the resulting potential negative impact on natural vegetation. Limited access to electricity infrastructure often contributes to the general deforestation of the surrounding area, and increased levels of air pollution arising from the use of firewood for cooking and heating purposes.

4.1.4 Access to Waste Removal Services

The graph in Figure 4.5 below depicts the various waste management/ removal methods recorded as being used by the various households within the study area and the overall Metropolitan. As little as 0.32% of households within the study area indicated that their waste was removed weekly, whilst 0.16% indicated that they utilised a community dump. The figures from the graph indicate

that 19.34% of the households in uPhongolo Municipality had their refuse collected once a week and 4.19% collected less often than on a weekly basis. Majority of the households in the project area (88.13%) and local municipality (59.09%) use their own dumps.

Figure 4.5: Access to waste removal services



Source: Statistics SA, Census 2011.

4.1.4.1 Implications for the Subsidised Housing Project:

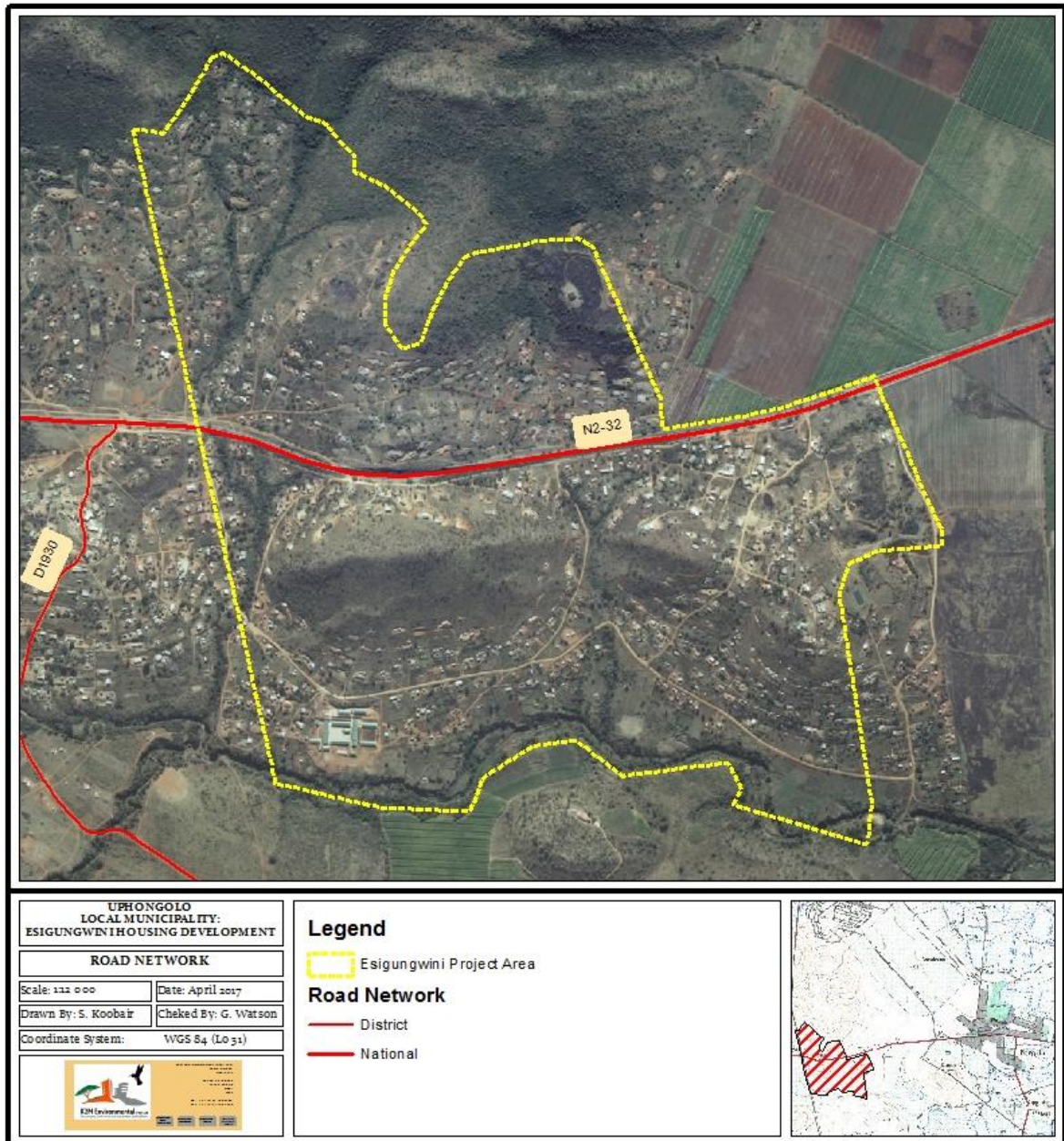
The UPhongolo Municipality is the service provider responsible for the provision of a functional waste removal and disposal system within the study area. It must be noted that the absence of waste removal services in the study area can not only impact negatively on the biophysical environment, but also on the aesthetic appearance of the area, and the overall health profile of the resident communities, as well as their livestock as a result of livestock ingesting such waste.

4.2 INFRASTRUCTURE

4.2.1 Roads

This section of the report provides an overview of existing road networks occurring across and providing access to the Esigungwini Housing (project area). Access to the project area is obtained via the P93 as indicated on Map 4.1 below.

Map 4.1: Road Network

**(i) National Roads**

The N2 has been proclaimed through the project area.

(ii) Provincial Roads

There are no Provincial Roads that have been proclaimed through the project area.

(iii) District Roads

There are no District Roads that have been proclaimed through the project area.

(iv) Numbered Local Access Roads

There are no Local Access Roads that have been proclaimed through the project area.

(v) Unnumbered Local Access Roads

There are a number of unnumbered local access roads traversing the project area.

4.2.1.1 Implications for the Subsidised Housing Project:

The National legislated (RDP) minimum norms and standards in respect of roads in South Africa are considered to be “access to all erven with graded or gravel paved roads”. This national standard has been accepted by the Department of Housing as their minimum norms and standards for the housing instrument as far as road provision is concerned. It is important to note however that *no new access roads* are planned as part of the Esigungwini Housing Subsidised Development. Grading processes may be conducted on some existing roads as part of the proposed project in an attempt to improve the current condition of these roads within the Esigungwini Housing project area, and will therefore form part of a road maintenance programme, however such a process will not extend to the creation of any new road networks. Furthermore, due to the fact that no new road networks are planned as part of the proposed development, and due to the fact that grading purposes form part of routine road maintenance the surrounding natural environment will not be adversely impacted upon.

It should also be noted that all District Roads will be allocated a 30 m road reserve, to which an additional 15 m building line will be added onto either side, while all Local Access roads will be afforded a minimum 15 m building line within which no construction activities may occur. This therefore ensures that no construction activities associated with the proposed housing project will result in any adverse negative impacts on the existing road network.

4.2.2 Stormwater

Whilst low income subsidised housing developments have huge budgetary constraints on the design and implementation of stormwater management and control systems, it is vitally important to dispose of stormwater as effectively and efficiently as possible. This is due to the fact that

uncontrolled stormwater runoff can cause damage to property and may erode and destabilise fill and cut banks. The objectives of the stormwater management system should be as follows:

- To adequately dispose of runoff from developed areas without causing soil saturation or erosion. This is particularly important on any sites underlain by erodible soils and on steep slopes;
- To provide overland flow routes through developments to cater for major storms and thereby minimising any risk of damage to property infrastructure and other immovable assets;
- Stormwater systems should be designed to function adequately with low maintenance in the long term, and should cater for silting, etc.

4.2.2.1 Implications for the Subsidised Housing Project:

While the National legislated (RDP) minimum norms and standards in respect of stormwater management in South Africa is considered to be “Lined open channels” the logistics and costs involved with the implementation thereof mean that such a minimum norm and standard is not feasible for implementation as part of the Esigungwini Subsidised Housing development.

5 BIO-PHYSICAL COMPONENT

5.1 CURRENT LAND USE

The current land use is predominantly low to medium dense households as well as cattle grazing. Many of the households within the project area depend on subsistence agriculture for their livelihoods.

5.2 LAND COVER AND TOPOGRAPHY

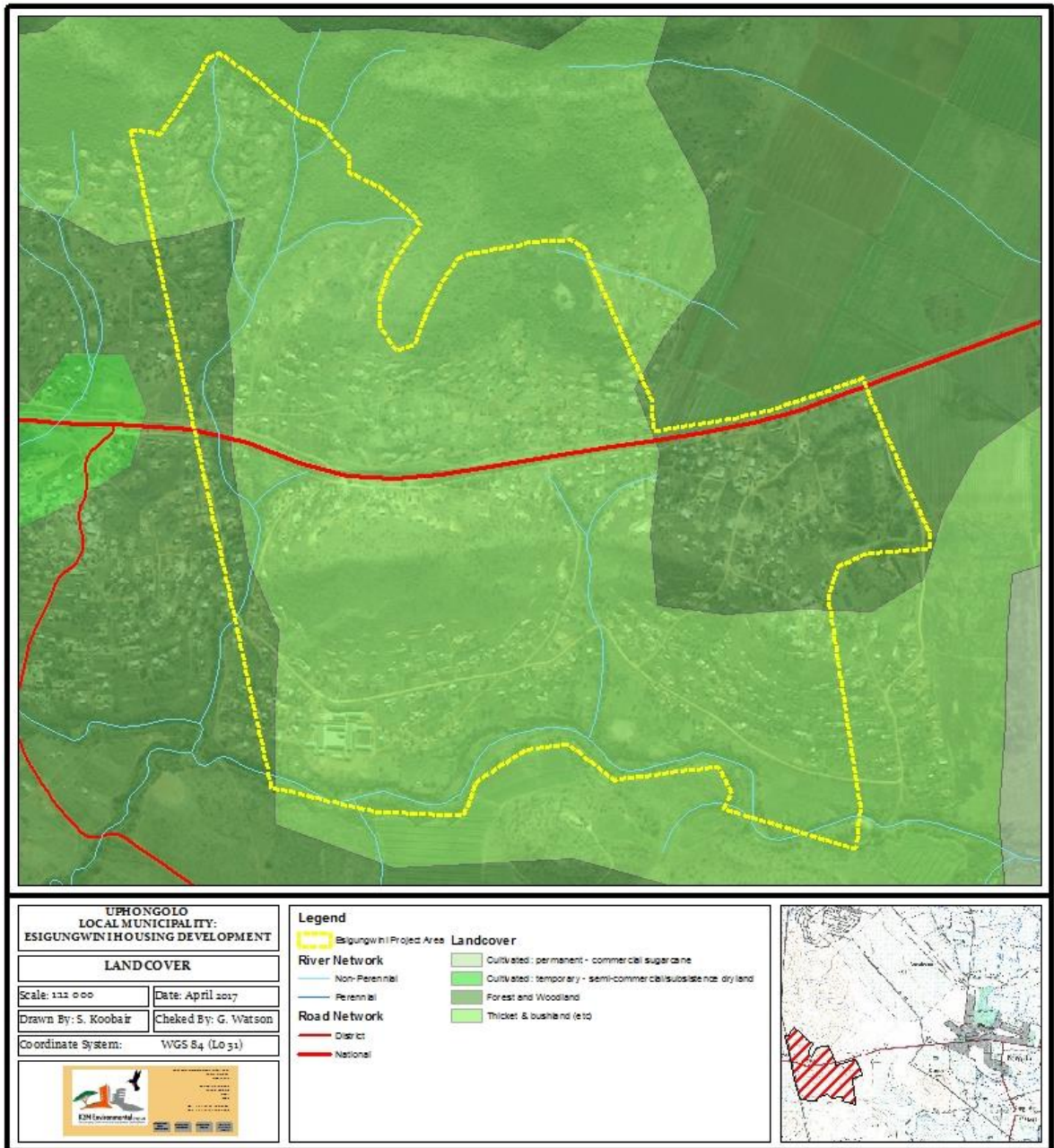
The overall land cover within the study area is summarized in Table 5.1 below and graphically depicted on the Map 5.1 below. The dominant land cover within the project area “Thicket and Bushland” which covers 80.15% and can be found throughout the project area. The second most dominant land cover type is the “Forest Woodland” which covers 19.85% of the project area located in the eastern and western portion of the project area.

Table 5:1: Land Cover

Land Cover	Area (Ha)	Percentage of Total Area
Forest Woodland	39.30	19.85%
Thicket & bushland (etc)	158.66	80.15%
Total Area	197.96	100.00%

Source: LANDSAT Landcover

Map 5.1: Landcover



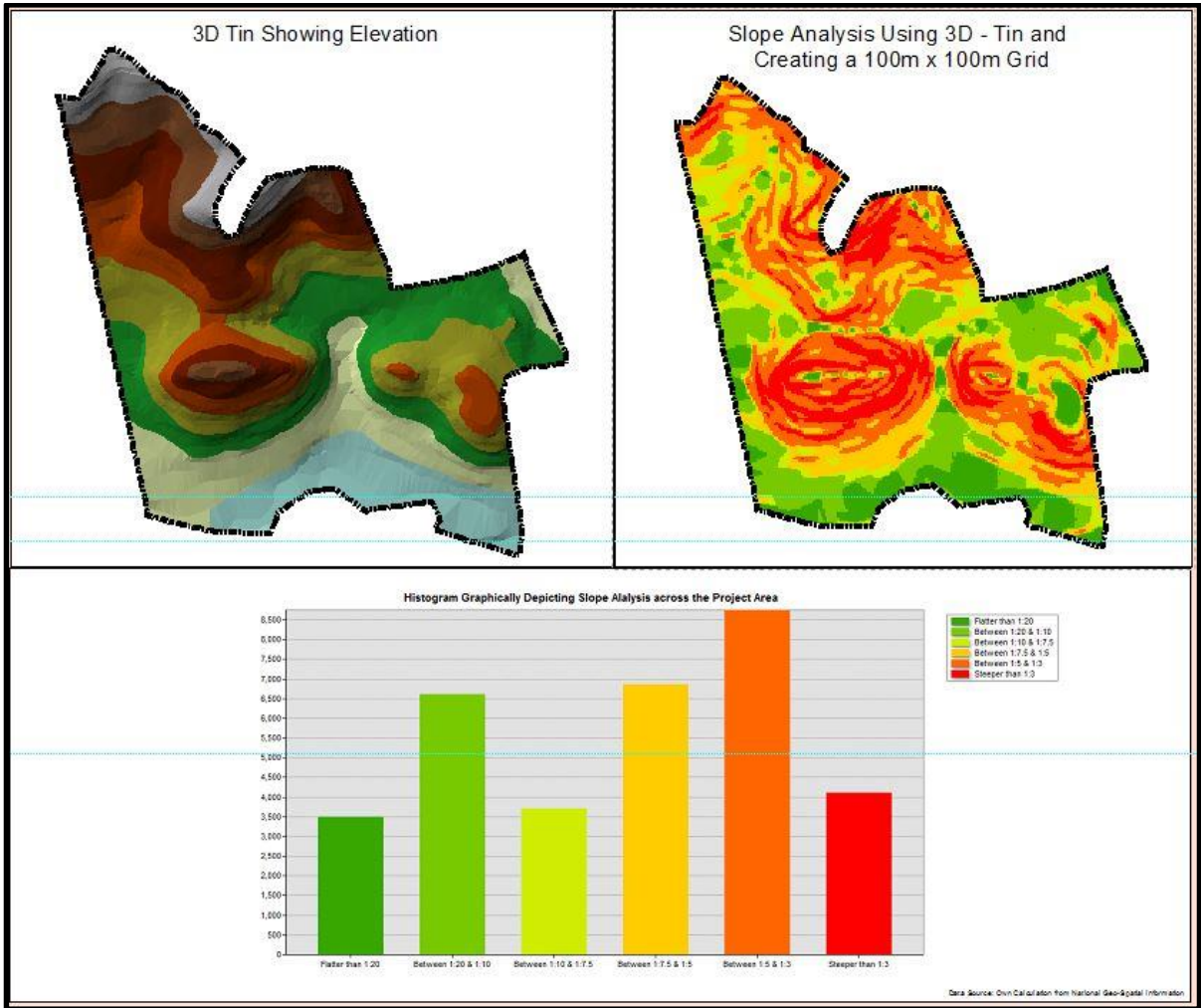
The overall topography of the study area is summarized in Table 5.2 below and clearly depicted on Map 5.2 below. The slope analysis study indicates that the majority of the project area (26.26%) is characterized by slopes that are “Between 1:5 - 1:3”. Approximately 20.20% of the area’s topography has a slope character “Between 1:7.5 - 1:5” while 19.70% of the project area is characterised by slopes “Between 1:20 - 1:10”. Appropriate planning and design principles suitable for the topography of the area and taking due cognizance of the characteristics of the area, will thus have to be applied during the detailed planning stages of the envisaged housing process.

Table 5:2: Slope Analysis

Slope Analysis	Area (Ha)	Percentage of Total Area
Flatter than 1:20	21	10.61%
Between 1:20 - 1:10	39	19.70%
Between 1:10 - 1:7.5	22	11.11%
Between 1:7.5 - 1:5	40	20.20%
Between 1:5 - 1:3	52	26.26%
Steeper than 1:3	24	12.12%
Total Area	198	100.00%

Own Calculations

Map 5.2: Slope Analysis

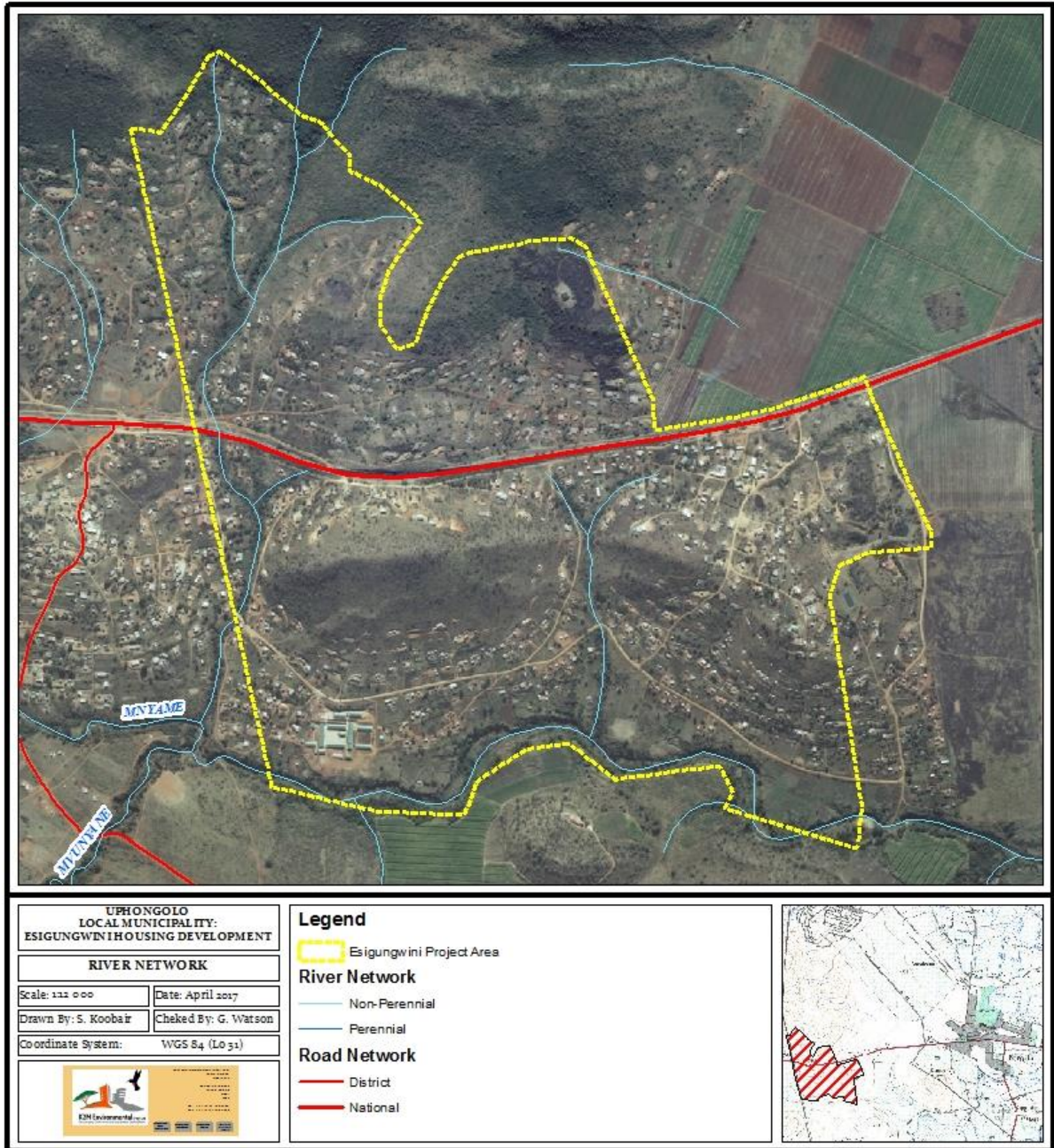


5.3 FLOOD LINE AREAS

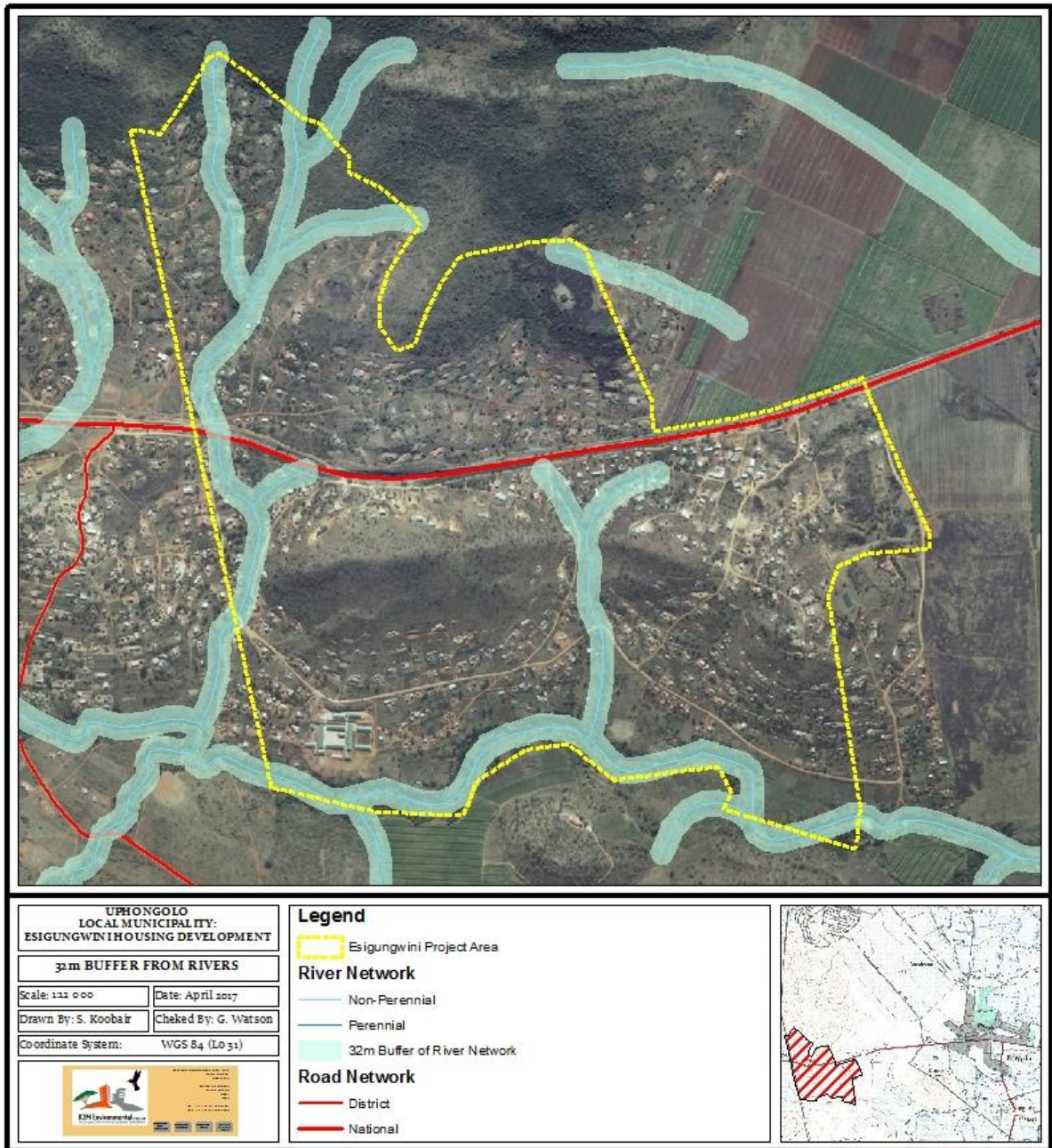
As indicated in Map 5.3, there are a number of perennial and non-perennial streams within the project area which may be subject to periodic flooding depending on the rainfall and subsequent runoff at any point in time, either within or upstream of the specific catchment area. Therefore, in terms of the National Water Act, as well as other developmental legislation which are applicable, the project area is subject to a 1:100-year flood line restriction and no development should occur within this area.

All new households to be constructed as part of the proposed development will be located outside of the 1:100 year floodline, and where this 1:100 year floodline is not known, all new household structures will be located at least 32 m's away from the bank of any river or stream. This 32m default floodline area has been demarcated on map 5.4.

Map 5.3: River Network



Map 5.4: 32m Buffer



5.4 AGRICULTURAL POTENTIAL

According to the Agricultural Land Potential Categories External Report, agricultural potential refers to, the potential of the land to produce sustainably over a long period without degradation to the natural resources base. This includes land under production for cultivation purposes (arable land) and for grazing purposes.

As indicated in Table 5.3 below and Map 5.5, majority (59.75%) of the project area is categorised as Category C: Moderate Agricultural. Land with moderate agricultural potential would be required to achieve viable and sustainable food production, although agriculture is still the majority land use in the rural landscape (Collett and Mitchell, 2013). This Category is more limited in the extent of arable land available for cultivation. These areas are more suitable for extensive grazing, the production of fodder crops in support of livestock production, and, from a natural rangeland grazing perspective, additional feed may be required during winter months to supplement the seasonal grazing provided by existing rangeland (Collett and Mitchell, 2013).

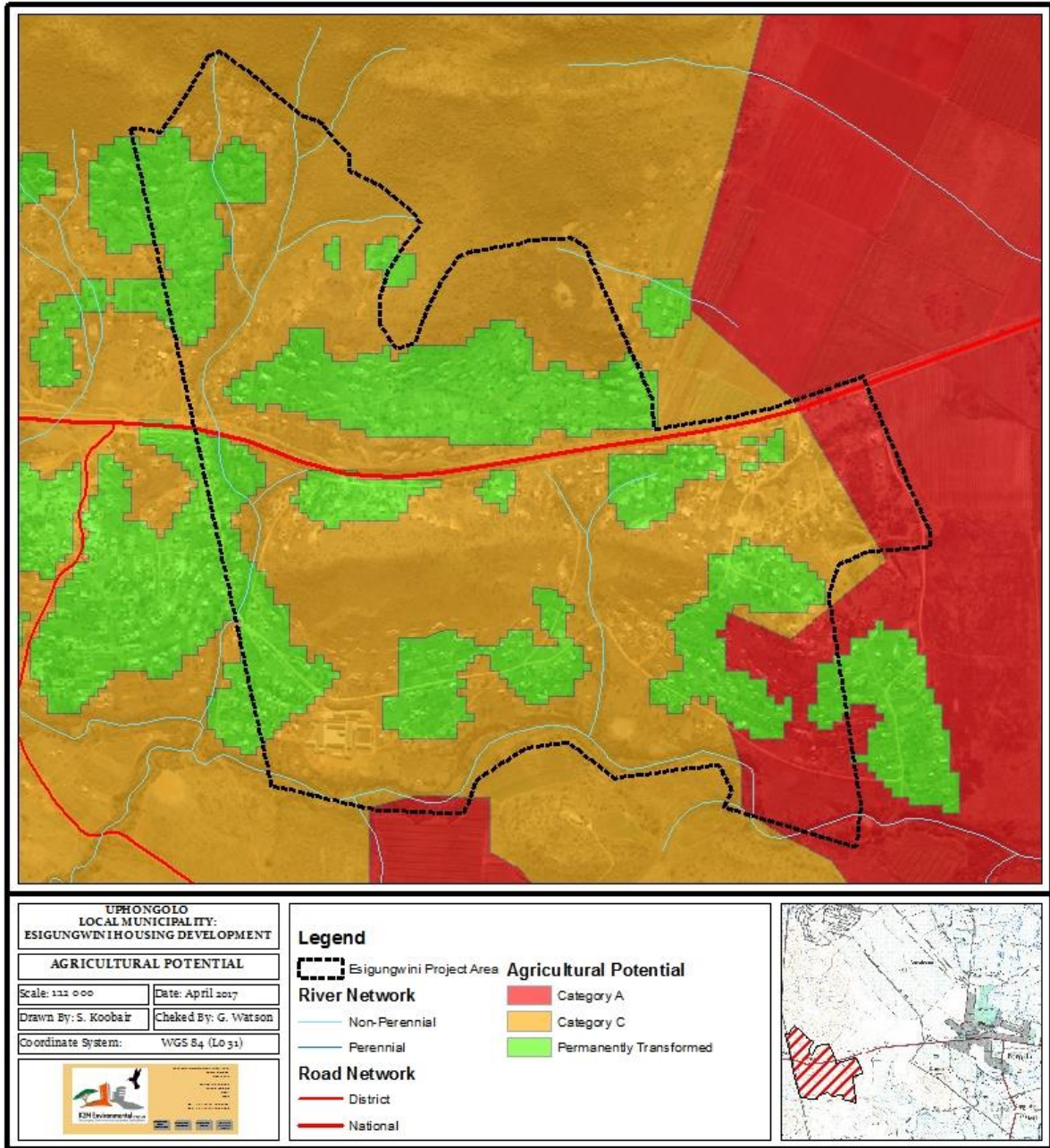
Approximately 31.18% of the project area is categorised as Permanently Transformed and is distributed throughout the project area. Areas demarcated as Permanently Transformed, applies to land that has been converted irreversibly to non-agricultural land uses. This includes urban/built up areas, roads, mines and quarries and which can therefore no longer be utilized for agricultural production purposes. This Category will also require regular updates due to on-going non-agricultural development. This may also include previously mined areas which are polluted and/or degraded to the point that safe utilization of the land for food production is not possible (Collett and Mitchell, 2013).

Table 5:3: Agricultural Potential

Agricultural Potential	Area (Ha)	Percentage of Total Area
Category A: Very High	17.94	9.06%
Category C: Moderate	118.29	59.75%
Permanently Transformed	61.73	31.18%
Total Area	197.96	100.00%

Source: Department of Agriculture and Rural Development

Map 5.5: Agricultural Potential



5.5 VEGETATION

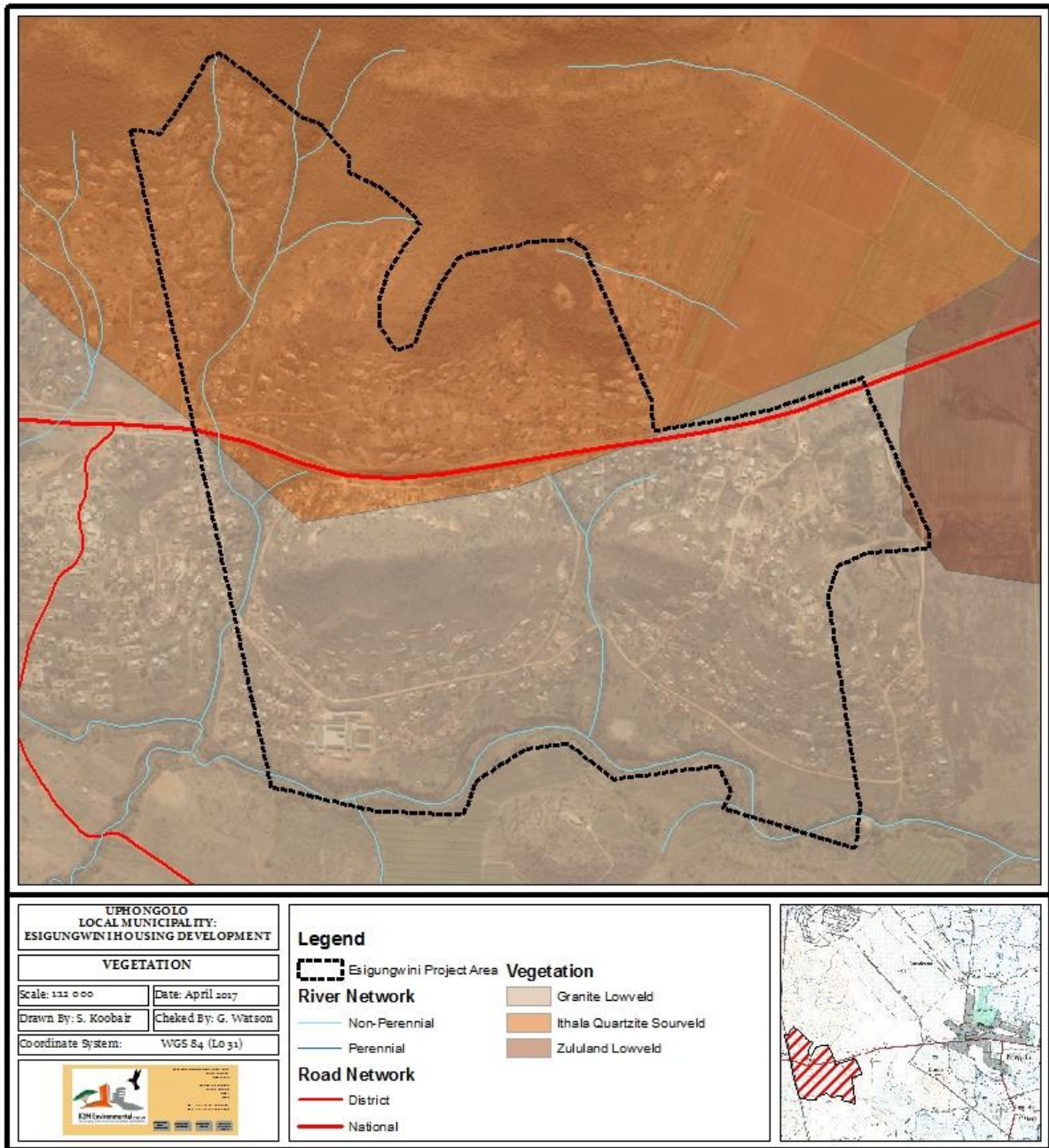
As indicated in Table 5.5 and Map 5.6, majority (60.35%) of the project area is categorised as Granite Lowveld and is found in the southern sections of the project area. The second most dominant vegetation type is the Ithala Quartzite Sourveld which covers approximately 39.42% of the project area and is located in the northern portions of the project area.

Table 5:4: Vegetation

Vegetation	Area (Ha)	Percentage of Total Area
Ithala Quartzite Sourveld	78.03	39.42%
Granite Lowveld	119.47	60.35%
Zululand Lowveld	0.46	0.23%
Total Area	197.96	100.00%

Source: KZN Environmental Potential Atlas

Map 5.6: Vegetation



The vegetation unit which occurs within the Esigungwini Housing project area is discussed in further detail below.

5.5.1 Granite Lowveld

The Granite Lowveld can be found in the Limpopo and Mpumalanga Provinces, Swaziland and marginally in KwaZulu-Natal. Substantial parts are found in the Kruger National Park spanning areas east of Orpen Camp southwards through skukuza and Mkuhlu, including undulating terrain west of skukuza to the basin of the Mbyamiti River. Altitude 250-700 m.

Granite Lowveld is characterized by tall shrubland with few trees to moderately dense low woodland on the deep sandy uplands with *Terminalia sericea*, *Combretum zeyheri* and *C. apiculatum* and ground layer including *Pogonarthria squarrosa*, *Tricho/aena monachne* and *Eragrostis rigidior*. Dense thicket to open savanna in the bottomlands with *Acacia nigrescens*, *Dichrostachys cinerea*, *Grewia bicolor* in the woody layer

The geology and soils associated with this vegetation include from north to south, the swazian Goudplaats Gneiss, Makhutswi Gneiss and Nelspruit Suite (granite gneiss and migmatite), and further south still, the younger Mpuluzi Granite (Randian) form the major basement geology of the area. Archaean granite and gneiss weather into sandy soils in the uplands and clayey soils with high sodium content in the lowlands.

The Granite Lowveld vegetation category occurs in areas characterized as receiving summer rainfall with a little rain in winter, with a mean annual precipitation of about 450 mm on the eastern flats to about 900 mm near the escarpment in the west. In a north-south direction, MAP of the unit appears to peak in Swaziland. Generally a frost-free region. Mean monthly maximum and minimum temperatures for skukuza 39.5 °C and -0.1°C for January and June, respectively. Corresponding values for Hoedspruit 38.0°C and 3.7°C for January and July, respectively.

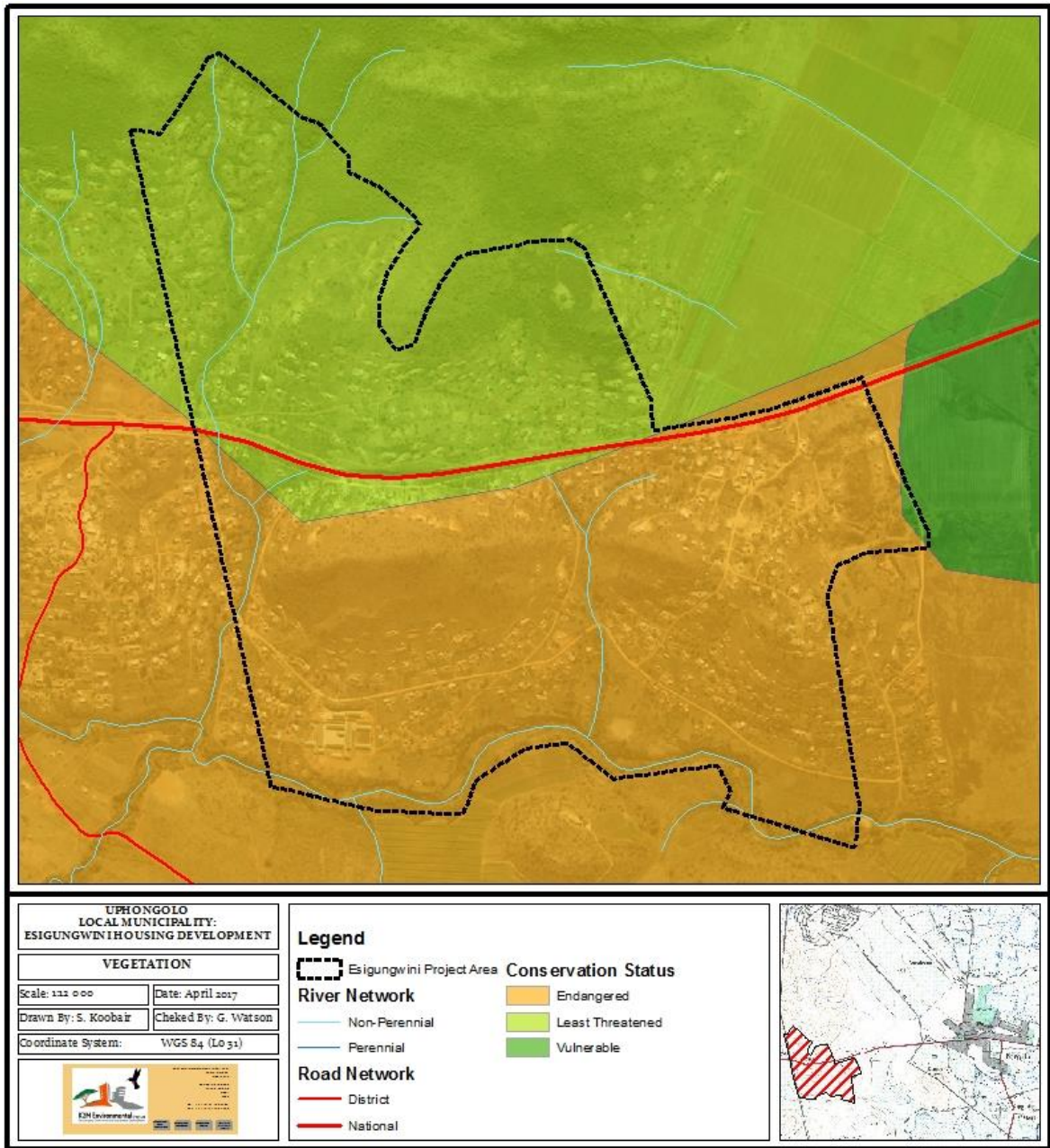
5.6 CONSERVATION STATUS

Table 5.5 and Map 5.7 indicates the conservation status for the vegetation types present within the project area. The Conservation Status is determined by comparing the amount of natural habitat remaining in the project area with the biodiversity conservation target of the Vegetation Type. As can be seen, majority (60.35%) of the project area has a conservation status that is Endangered. It should be noted that majority of the project area has already been transformed, thus making it difficult to conserve the vegetation.

Table 5:5: Conservation Status

Conservation Status	Area (Ha)	Percentage of Total Area
Least Threatened	78.03	39.42%
Endangered	119.47	60.35%
Vulnerable	0.46	0.23%
Total Area	197.96	100.00%

Map 5.7: Conservation Status



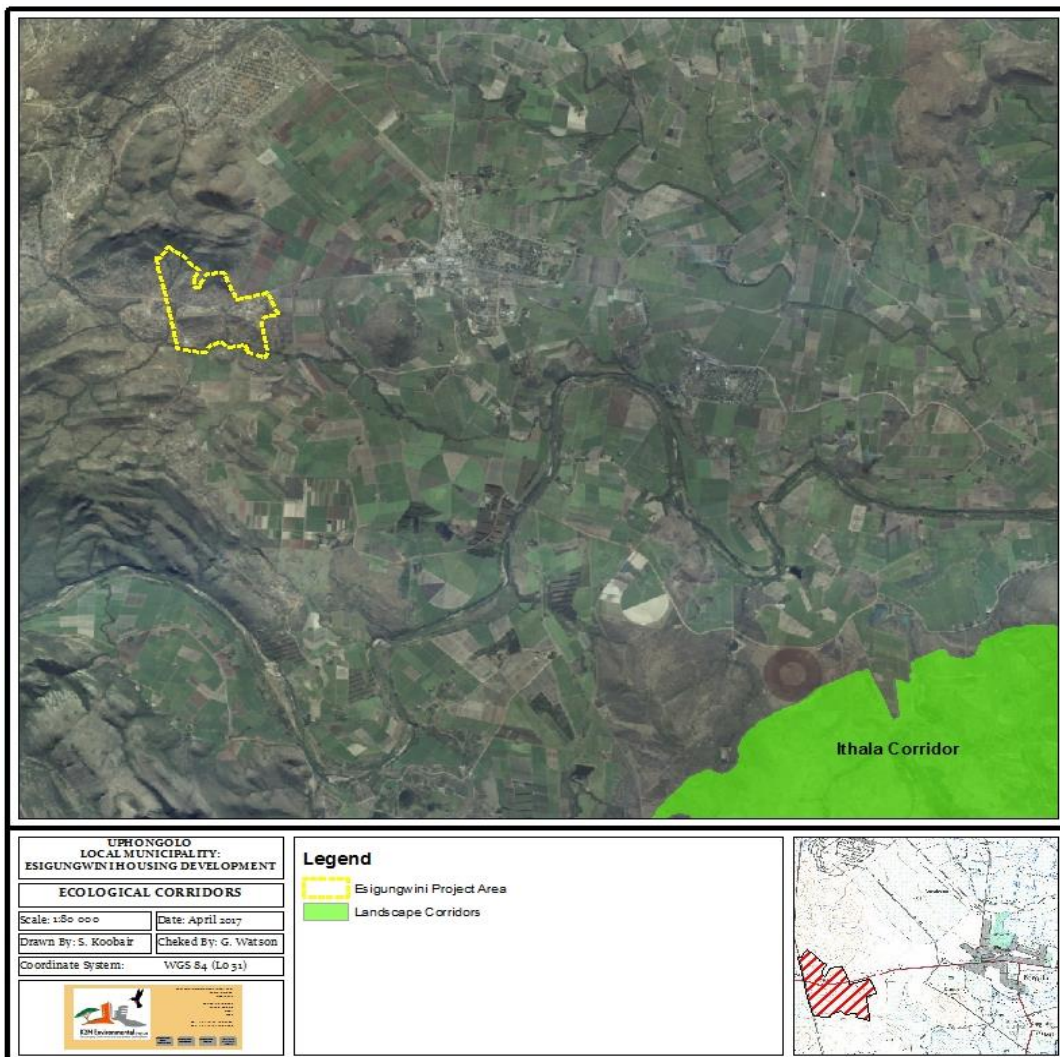
5.7 PROTECTED AREAS

There are no protected areas within the project area or within close proximity.

5.8 CORRIDORS

There are no corridors within the project area, the closest is the Ithala corridor which is approximately 9.5km South East of the project area.

Map 5.8: Corridors



5.9 CRITICAL BIODIVERSITY AREAS

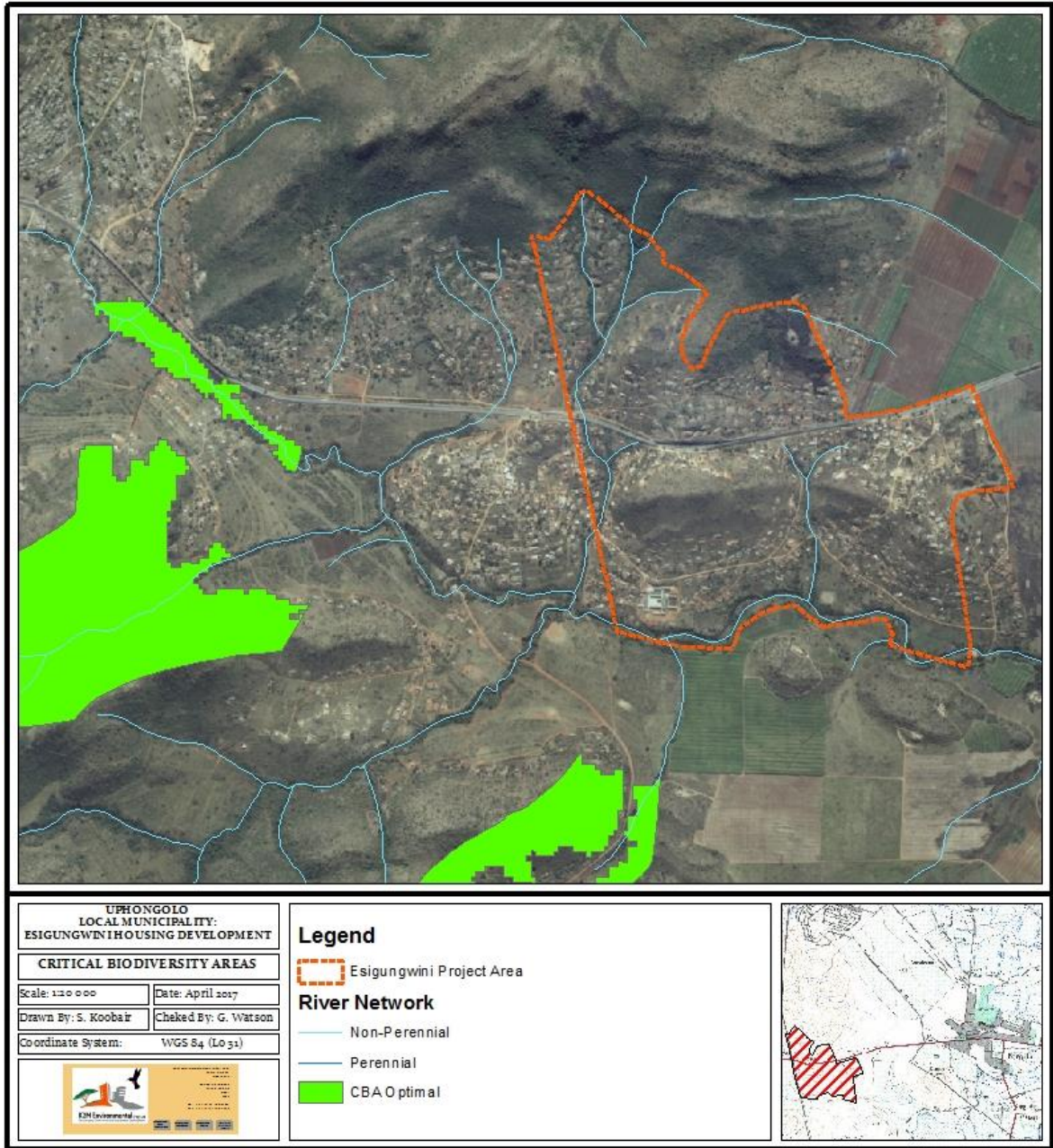
The Critical Biodiversity Areas (CBAs) can be divided into two subcategories, namely Irreplaceable and Optimal. The CBA categories are based on the optimised outputs derived using systematic conservation planning software, with the Planning Units (PU) identified representing the localities for which the conservation targets for one or more of the biodiversity features contained within can be achieved.

The CBA Irreplaceable Areas represent the localities for which the conservation targets of one or more of the biodiversity features that can be achieved. These areas are considered critical for meeting biodiversity targets and thresholds, and which are required to ensure the persistence of viable populations of species and the functionality of ecosystems. The CBA: Irreplaceable Areas are identified as having an Irreplaceability value of 1.

The CBA: Optimal Areas are areas which represent the best localities out of a potentially larger selection of available PU's that are optimally located to meet both the conservation target but also the criteria defined by either the Decision Support Layers or the Cost Layer. The CBA Optimal Area has an Irreplaceability score of >0 and < 0.8 .

As indicated on Map 5.9, there are no CBAs within the area, the closest CBA is 1 km south of the project area.

Map 5.9: CBAs



5.10 MINERAL DEPOSITS

There are no mineral deposits within the project area and none in close proximity.

5.11 ARCHAEOLOGICAL, HISTORICAL AND CULTURAL SITES

No detailed information is currently available on existing archaeological, historical or cultural sites within the boundaries of the study area. The KwaZulu-Natal Heritage Act requires that Amafa aKwaZulu-Natali (Heritage KwaZulu-Natal) is to comment on the need for an archaeological assessment for proposed development if:

- Development area is larger than 10 000 m²
- Development is longer than 300m
- The development area contains known archaeological sites.

However due to the fact that the project area is highly transformed, it is not expected that the implementation and operation of the proposed project will result in any adverse impacts on any archaeological, historical or cultural sites which may be present within the area. This aspect will however have to be further investigated during the environmental scoping phase and be informed by detailed land use information emanating from the planning component of the project.

6 PRELIMINARY ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

6.1 WETLAND SYSTEM

The removal of the vegetation from the property will increase the surface flow of stormwater dramatically and will result in soil erosion. Therefore, the removal of vegetation and the rehabilitation and re-vegetation of the wetlands will have to be done concurrently as far as possible to reduce erosion of the wetland system of the project area. To determine the impact of the development on the surface water flow, a Stormwater Flow Assessment will have to be conducted as part of the EIA Process. This stormwater assessment/plan should compare the existing surface water flow with the possible water flow once the area has been developed.

The rehabilitation and re-vegetation of the wetland systems are closely linked and the key to the success of any rehabilitation is the deactivation and plugging of the drains within all of the wetland drainage lines. The blocking of drains will improve flooding and increase the wetted perimeter of the current degraded systems. With the increased moisture levels, hydrophilic vegetation will soon re-colonize these systems and improve biodiversity. Initial re-vegetation should focus on restoring a protective ground cover once the vegetation has been removed to prevent erosion. Indigenous turf grasses such as *Stenophrum secundatum* and *Cynodon dactylon* should be used to establish an initial cover. Natural successional processes should drive the shift in vegetation composition from hygrophilous turf grasses to true hydrophilic species once flooding is restored. Indigenous riparian tree species such as *Ficus sp.*, *Rauvolfia caffra*, *Voacanga thouarsii*, *Syzygium cordatum* should be planted within all the drainage lines to further stabilize the water courses. In the lower wetland portions *Barringtonia racemosa* should be planted. The removal and ongoing control of alien invasive plants is essential across the site. The removal of the vegetation will create an ideal habitat for many alien plants and control of these species should be constant during both the construction phase as well as a stipulated function of the UPhongolo Municipality (managing authority for the open spaces / wetlands) during the operational phase of the development.

The following principles for successful wetland rehabilitation used by the Mondi Wetlands Project can also be useful:

- **Remove the cause** of the damage, not the symptoms and manage the resource correctly.
- **Re-establish** the **natural water flow** patterns within the wetland.
- Do not concentrate water always try and spread it out, this should reduce the possibility of erosion occurring.
- Do not underestimate the **force of the water** during high flow periods.
- Many **wetland soils** are **highly erodible**, be aware of this when designing structures.
- There are two ways of deciding what method of rehabilitation to initiate and that is either **stabilising the problem area and maintaining the present condition** of the wetland or secondly to try and **reclaim the wetland area that has been lost**.

Herbaceous plants with their rapidly spreading capabilities and dense near surface root mat, and surface cover, are also extremely effective firstly against scouring of wetlands, and secondly for enhancing the stability of gentle or shallow banks. Herbaceous plants absorb the energy of fast flowing water rather than reflecting it and its strong regenerative powers, makes them ideal for rehabilitating wetland erosion.

For rehabilitation it is important to be deliberate in both the selecting and placing of plants with vigorous rooting growth characteristics that will accelerate natural plant succession and deal directly with the problem on site. Local plant species native to stream banks and wetlands should be used. The best is to look around and see what indigenous species are growing in the area you are about to rehabilitate.

6.2 DRAINAGE AND FLOODLINE

Appropriate stormwater control and management as well as attenuation measures will have to be implemented as part of the development to limit the impact of stormwater run-off especially during the occurrence of heavy rain or storms. It will also be necessary to put the necessary measures in place to eradicate invader plant species and restore the natural indigenous vegetation along drainage and floodlines. No development should be allowed within the 1:100 year flood line.

6.3 ROADS AND STORMWATER RUNOFF

The current road network of the project area will not satisfy the requirements of the proposed development. New roads will have to be constructed to provide access to all the areas of the development. These roads will have to be aligned in such a manner to minimise any negative impacts on the wetland system. The flow rate of the stormwater runoff should be reduced before it reaches the wetland system to reduce the possibility of erosion within the wetland system.

The main factors influencing **storm water** runoff in the project area will be an increase in the impermeable surface area due to the construction of houses and access roads. An increase in both impermeabilities, which reduce rainwater infiltration into the ground, together with the rapid draining of storm-water from the development sites are likely to result in an increase in storm-water runoff into drainage lines and watercourses. Appropriate storm-water control measures, thus needs to be installed in an environmentally sensitive manner to reduce the flow rate of the stormwater. Insufficient and inappropriate storm-water control measures can result in:

- Increased levels of soil erosion.
- Risk of pollution.
- Detrimental ecological effects in the river catchments downstream of the proposed development site.
- Risk of flooding of dwellings.

Any outlet areas in watercourses that will receive storm-water must be specially protected against degradation and soil erosion. Storm water discharge points into natural watercourses are of particular concern and outlet control structures and water course protection measures that can sustain the magnitude of expected runoff must be installed.

6.4 SOIL EROSION AND EARTHWORKS

The Conservation of Agricultural Resources Act, No. 43 of 1983 (as amended) provides for the control and prevention of soil erosion. Increased runoff during and after rainfall events, especially torrential rainfall events, may result in increased erosion in surrounding areas and water courses feeding into the tributaries and main rivers.

Restoration of excavated areas must be carried out and appropriate erosion control measures must be implemented such as the planting of indigenous grass and other indigenous vegetation found naturally in the area to prevent erosion. The planted vegetation will have to be monitored to ensure continued growth.

During project implementation, the **re-vegetation specifications for civil engineering construction projects** will have to be adhered to. These specifications provide clear guidelines for:

- Type and source of materials to be used for re-vegetation
- Re-vegetation methods
- Planting guidelines
- Maintenance of re-vegetated areas

6.5 SANITATION AND SOLID WASTE

In terms of the proposed Esigungwini Subsidised Housing Development four sewer disposal options will be assessed as part of the Bulk Engineering Report, which include:

- Full water borne sewage - discharge to a municipal plant.
- An onsite package plant that falls within the general authorization for the site.
- Septic tank and soakaways
- Ventilated Improved Pit Latrines (VIP System)

The recommended sewage disposal system will be assessed in detail as part of the Environmental Authorization Application. These four alternatives will be compared in terms of its impacts on the environment, implementation cost, etc.

6.6 PHYSICAL AND LANDSCAPE CHARACTERISTICS

The benefits of the proposed housing development through the provision of housing units and the creation of employment opportunities to the community as part of the construction process outweigh the loss of vegetated land. The development will have a net positive impact on the

physical and landscape characteristics of the development area if mitigation measures and recommendations are implemented.

The impact on environmental sensitive areas such as the river system should be limited as far as possible. Where these impacts are unavoidable, specific management and mitigation measures will have to be considered during the EIA process as part of the detailed planning and implementation process.

6.7 ECOLOGICAL CHARACTERISTICS

It will be necessary to fully rehabilitate and re-vegetate the property as well as to remove alien invasive plants on a continual basis during the construction and operational period of the development. The re-introduction of indigenous vegetation into the area as part of the development should be encouraged. Implementing of these measures will help in the rehabilitation and promotion of the natural ecology of the project area and its surroundings.

6.8 ARCHAEOLOGICAL, HISTORICAL AND CULTURAL SIGNIFICANCE

Since the total development footprint will exceed 10 000 m², Amafa will have to comment on the need for an archaeological assessment as part of the EIA process before environmental authorization for the development is considered by the KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs

6.9 POLLUTION

All waste generated during the construction and the operational phase of the housing project should be collected and disposed of at the nearest permitted municipal landfill site. The proposed development may generate some additional noise during the construction phase, but this can be managed if contractors abide by stipulated working hours and other mitigation measures that will be

specified in the Environmental Management Plan. Additional noise pollution during the operational phase of the development will mainly be associated with increased traffic volumes in this area.

6.10 SOCIAL AND ECONOMIC IMPACTS

The introduction of appropriate mitigation and management measures can result in a number of positive social and economic impacts resulting from the project:

- Provision of proper housing to a large number of destitute households.
- Ecological revival of road-sides, and clearing of alien vegetation areas through the planting and long-term care of suitable indigenous vegetation.
- Employment of people from the local community during the construction phase of the project.
- Sorting of solid waste for recycling at special designated sites and creation and managing of community compost facilities. The compost can be used in community permaculture vegetable gardens.

7 CONCLUSIONS AND RECOMMENDATIONS

The number of households in need of housing (including those residing in traditional houses constructed of traditional materials, backyard structures or informal structures) is approximately 51.47%. The purpose of this preliminary assessment is to provide a brief overview of the social, economic, biophysical and infrastructural characteristics of the broader area within which this total estimated housing need will have to be addressed.

7.1 SOCIO-ECONOMIC ASPECTS

A number of important aspects and recommendations relating to the **socio-economic characteristics** of the study area include:

- Approximately 42.79% of the total population of the study area is younger than 15 years of age. This implies two important aspects as far as the development and implementation of the proposed housing project is concerned:
 - Sufficient and appropriate education facilities according to accepted national norms and standards will have to be provided.
 - A number of people will be entering the economically active age category over the next five to ten years and will thus be seeking appropriate employment opportunities.
- The study area is characterized as being female dominated with 51.61% being represented by females.
- The figure illustrates the education levels of persons over the age of 20 years and therefore falling into the economically active categories of the population. Approximately 21.04% of the population having no form of schooling. Approximately 19.91% of the population within the study area had undergone some form of primary school education, 8.91% completed primary school, 41.18% completed some form of secondary school and only 28.29% completed matric.
- The most predominant housing type in the project area is the “House/Brick Structure” with 70.72% of houses falling into this category.

- As much as 16.68% of the total number of households within the study area indicated not to have an income. The figures also show that 45.43% of the total number of households indicated a collective monthly household income of less than R1600, with 24.86% falling within the income range of R1600 – R3200 and 8.90% falling between R3200 and R6400.
- As much as 50.35% of the active population indicated to be employed whilst 27.71% of the economically active population within the study area indicated that they were unemployed.

7.2 SERVICES ASPECT

A number of important summary observations regarding the **services characteristics** of the study area population include:

- The figure shows relatively good access to running water in the project area with 1.83% of the total number of households having access to piped water “inside dwelling” and 1.67% having piped water “inside the yard”. Approximately 36.80% of households within the project area have to walk less than 200m to get water, whilst 35.85% of households have to walk more than 200m to get water.
- Majority of households (25.76%) make use of unimproved “pit latrines” toilet facilities and 0.16% makes use of chemical toilets.
- As much as 89.51% of the total number of households within the study area has access to electricity for lighting purposes.
- As little as 0.32% of households within the study area indicated that their waste was removed weekly, whilst 0.16% indicated that they utilised a community dump. Majority of the households in the project area (88.13%) and local municipality (59.09%) use their own dumps.

7.3 INFRASTRUCTURAL ASPECTS

A number of important summary observations regarding the **infrastructural characteristics** of the study area population include:

- The project area seems to be lacking service with regards to access; with a few local footpaths and the N2.

7.4 BIO-PHYSICAL ASPECTS

As far as the **biophysical characteristics** of the study area are concerned, the key aspects can be summarized as follows:

- The current land use is predominantly low to medium dense households as well as cattle grazing. Many of the households within the project area depend on subsistence agriculture for their livelihoods.
- The dominant land cover within the project area “Thicket and Bushland” which covers 80.15% and can be found throughout the project area
- The slope analysis study indicates that the majority of the project area (26.26%) is characterized by slopes that are “Between 1:5 - 1:3”. Approximately 20.20% of the area’s topography has a slope character “Between 1:7.5 - 1:5” while 19.70% of the project area is characterised by slopes “Between 1:20 - 1:10”.
- Majority (59.75%) of the project area is categorised as Category C: Moderate Agricultural.
- Majority (60.35%) of the project area is categorised as Granite Lowveld and is found in the southern sections of the project area.
- There are no protected areas within the project area.

- There are no corridors within the project area, the closest is the Ithala corridor which is approximately 9.5km South East of the project area.
- There are no CBAs within the area, the closest CBA is 1 km south of the project area.
- There are no mineral deposits within the project area and none in close proximity.
- There are no known archaeological, cultural or historical sites or artefacts located within the Esigungwini Housing project area. Due to this project area being highly vegetated, should any sites or artefacts of archaeological, cultural or historical significance be located within the project area, it is not expected or anticipated that these will not be impacted upon as a result of the proposed development. The Developer is however aware of his responsibilities with regards to the Amafa Heritage Act.
- No detailed quantifiable information is currently available on various forms of pollution in the study area.

7.5 EXISTING SETTLEMENT ASPECTS

As far as the **settlement characteristics** of the study area are concerned, the key aspects can be summarized as follows:

- The slope analysis study indicates that the majority of the project area (26.26%) is characterized by slopes that are “Between 1:5 - 1:3”. Approximately 20.20% of the area’s topography has a slope character “Between 1:7.5 - 1:5” while 19.70% of the project area is characterised by slopes “Between 1:20 - 1:10”.
- The dominant land cover within the project area “Thicket and Bushland” which covers 80.15% and can be found throughout the project area.

7.6 RECOMMENDATIONS

Based on the existing available desktop overview, it does not appear as if there are any material barriers to the proposed housing development from an environmental impact perspective. It is however important to take cognisance of the fact that the proposed development will require Environmental Authorisation for the formalisation of the houses and roads.

7.7 LEGISLATIVE REQUIREMENTS

Possible considerations from a legislation point of view are briefly summarized in the Table below.

Act ¹	Section ¹	Summary of requirement ¹	Implication for project
National Water Act (Act 36 of 1998) and regulations	S21, 32, 41	"Water use" in terms of the Act includes "impeding or diverting the flow of water in a watercourse" and "altering the bed, banks, course or characteristics of a watercourse". Department of Water Affairs and Forestry will require water licences for all water uses unless the water use is an "existing lawful water use", or it is a permissible water use in terms of the Schedule 1 of the Act or can be generally authorized. It is advised that the Department of Water Affairs and Forestry be consulted as to their licensing requirements for each development. Licences are not required where water is obtained from the local council or another bulk water supplier.	If part of the housing subsidy will be utilized for the provision of water the necessary permits will have to be obtained from the Department of Water Affairs and Forestry (depending on the existing water service authority and water service provider arrangement in the area)
	S144	A person is prohibited from establishing a township unless the layout plan shows, in a form acceptable to the local authority, the 1/100 year flood level, for the purposes of ensuring that all persons who might be affected have access to information regarding potential flood hazards.	Depending on the exact location of the housing components, a 1/100 year floodline will have to be determined.
Water Services Act (Act 108 of 1997)	S6	Access to water services must be through a nominated water services provider, failing which approval should be obtained from the water services authority.	Applicable if water provision will form part of the subsidy application.
Water Services Act (Act 108 of 1997)	S7	Water for industrial use must be obtained through a nominated water services provider and no person may dispose of industrial effluent in any manner other than that approved by the water services provider nominated by the water services authority having jurisdiction in the area of question.	It is not anticipated at this stage that any industrial development will form part of the housing development project.
Environmental Conservation Act (Act 73 of 1989)	S20	Waste must be disposed of at a waste disposal facility licensed in terms of the provisions of the Act. Any hazardous waste such as paints, varnishes, waste oils etc accumulated at the construction sites must be disposed of at hazardous waste sites. If waste dumps are established for housing developments, a waste disposal license will be required from the Department of Water Affairs and Forestry.	A waste disposal license for a waste dump will be required if a formal waste collection and removal system is implemented as part of housing project. Waste which is may be generated during the construction process, will have to appropriately disposed of.
National Building Regulations and Building Standards Act (Act 103 of 1997) and Regulations	Reg F6 of Part F	No person may on specified days and during specified times generate noise from a construction site which may unreasonably disturb or interfere with the amenity of the neighbourhood, unless authorized to do so by the local authority.	Appropriate specifications will have to be included in the tender documentation
National Heritage Resources Act (Act 25 of 1999)	S34	No person may alter or demolish any structure or part of a structure that is older than 60 years without a permit issued by the relevant provincial heritage resources authority	The existence of graves, archaeological or paleontological sites will have to be further investigated, once the exact location of the housing project components is known.
	S35	No person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site.	

	S36	No person may, without a permit issued by the South African Heritage Resources Association or a provincial heritage resources authority, destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by the local authority. "Grave" is widely defined in the Act to include the contents, headstone or other marker of such a place, and any other structure on or associated with such place.	
National Forest Act (Act 84 of 1998)	CH 3 Part 1	There is a prohibition against damaging or cutting protected indigenous trees unless a license has been obtained or an exemption has been published in the Government Gazette.	Indigenous trees will have to be protected, where possible, during the implementation phase of the project
Conservation of Agricultural Resources Act (Act 43 of 1983 and GN R1048)		This regulation requires the control of weeds and invader plants, which occur on any land or inland water surface in SA. Category 1 plants are declared weeds and may only occur in biological control reserves. Category 2 plants are declared invader plants and may only occur in demarcated areas and biological control reserves. Category 3 plants are declared invader plants and may occur in biological control reserves. All weeds and invader plants not within the demarcated areas or biological control reserves must be eradicated and control methods are stipulated	Weeds and invader plants should be eradicated if occurring at the final project location.
National Building Regulations and Building Standards Act (Act 103 of 1997) and Regulations R2378	Reg F6 of Part F	The owner of any land on which excavation work is in progress must keep precautions in the working area and on surrounding roads and footways to limit to a reasonable level the amount of dust arising from these areas.	Appropriate stipulations should be included in the tender documentation for construction.
Minerals Act (Act 50 of 1991)	S 5 and 9	No person may prospect or mine for any mineral without the necessary authorization granted to him in accordance with the provisions of the Minerals Act (Act 50 of 1991). Should construction material be excavated from borrow pits, the provision of the Minerals Act, are applicable and the Department of Minerals and Energy needs to be contacted in order to determine their requirements in this regard.	If any borrow pits are to be excavated during the construction process in the implementation phase, the necessary permits will have to be acquired from the Department of Minerals and Energy

¹ national Department of Housing – Environmental services for Housing developments

7.8 CONCLUSION

It is recommended that a Basic Assessment Report, as required by the 2014 Environmental Impact Assessment Regulations be conducted as part of the detailed project planning phase to confirm the initial findings outlined in this report and to fulfill the legal requirements of the National Environmental Management Act.