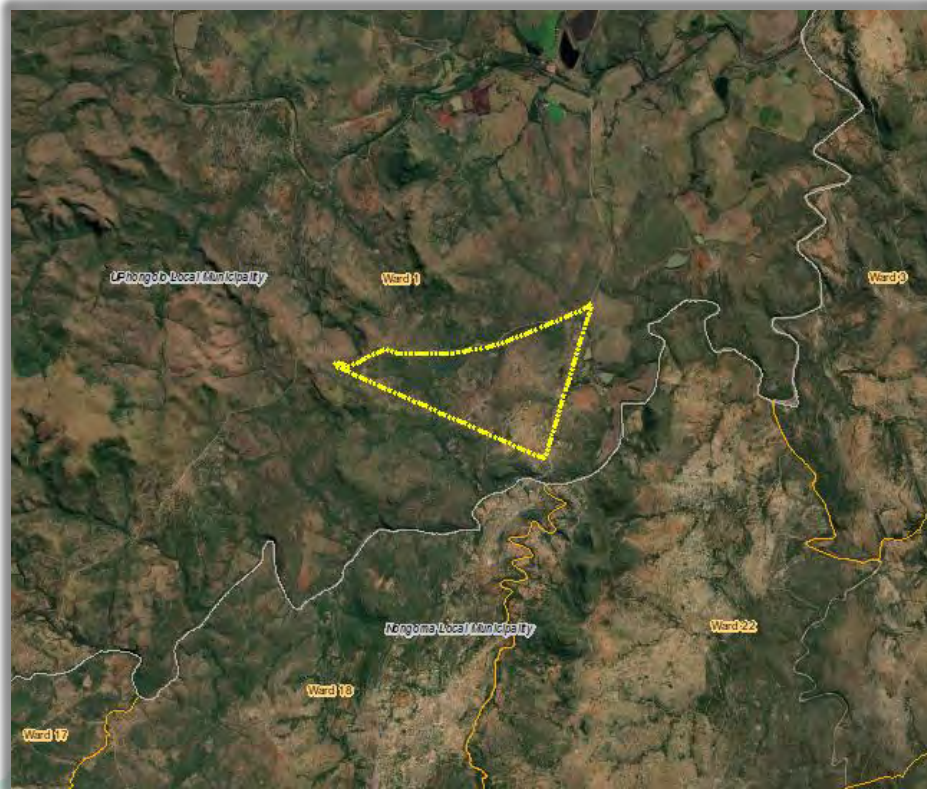


MAHLANGOSI RURAL SUBSIDISED HOUSING DEVELOPMENT: PRELIMINARY ENVIRONMENTAL ASSESSMENT



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1 INTRODUCTION

1.1 PROJECT BACKGROUND

The Uphongolo Local Municipality has, through its IDP process, and extensive consultation with respective beneficiary communities residing within the Uphongolo Local Municipality, identified the need to provide rural subsidised housing in its area of jurisdiction. This process was initiated as a means to address the municipality's predominantly traditional/informal housing profile, and in doing so improve the living conditions and quality of life of its rural communities. The provision and implementation of the rural subsidised housing projects will occur in accordance with the terms of the Rural Housing Subsidy Scheme (as described in Chapter 11 of the National Housing Code). The proposed Mahlangosi Rural Subsidised Housing Project is aimed at providing suitable housing to beneficiaries residing on a portion of Wards 1 of the Uphongolo Local Municipality.

All rural subsidised housing projects require that an Environmental Assessment be conducted, as part of the initial rural housing application. This document provides an Environmental Assessment of the project area as part of the approval phase of the proposed rural housing project. The report is based on a combination of available desktop data sources. This assessment provides a summarized overview of key socio-economic, infrastructural and environmental aspects that will have to be considered in the implementation of the proposed subsidized housing project.

While the exact nature of the housing project in terms of the application of the subsidies and the location of individual beneficiaries within the study area have not yet been specified, it is known that the proposed Rural Subsidised Housing project will result in the construction of approximately 1 000 new housing units within the project area, and will therefore service approximately 1 000 beneficiaries and their associated families. This document provides a preliminary overview of factors that are relevant to the broader study area, while taking into account the existing settlement pattern and distribution

According to Chapter 11 of the National Housing Code, rural housing subsidies may be used for any purposes which, in the discretion of the Housing Board, amount to housing purposes. Without limiting the discretion of any particular Housing Board, the following purposes may be regarded as housing purposes:

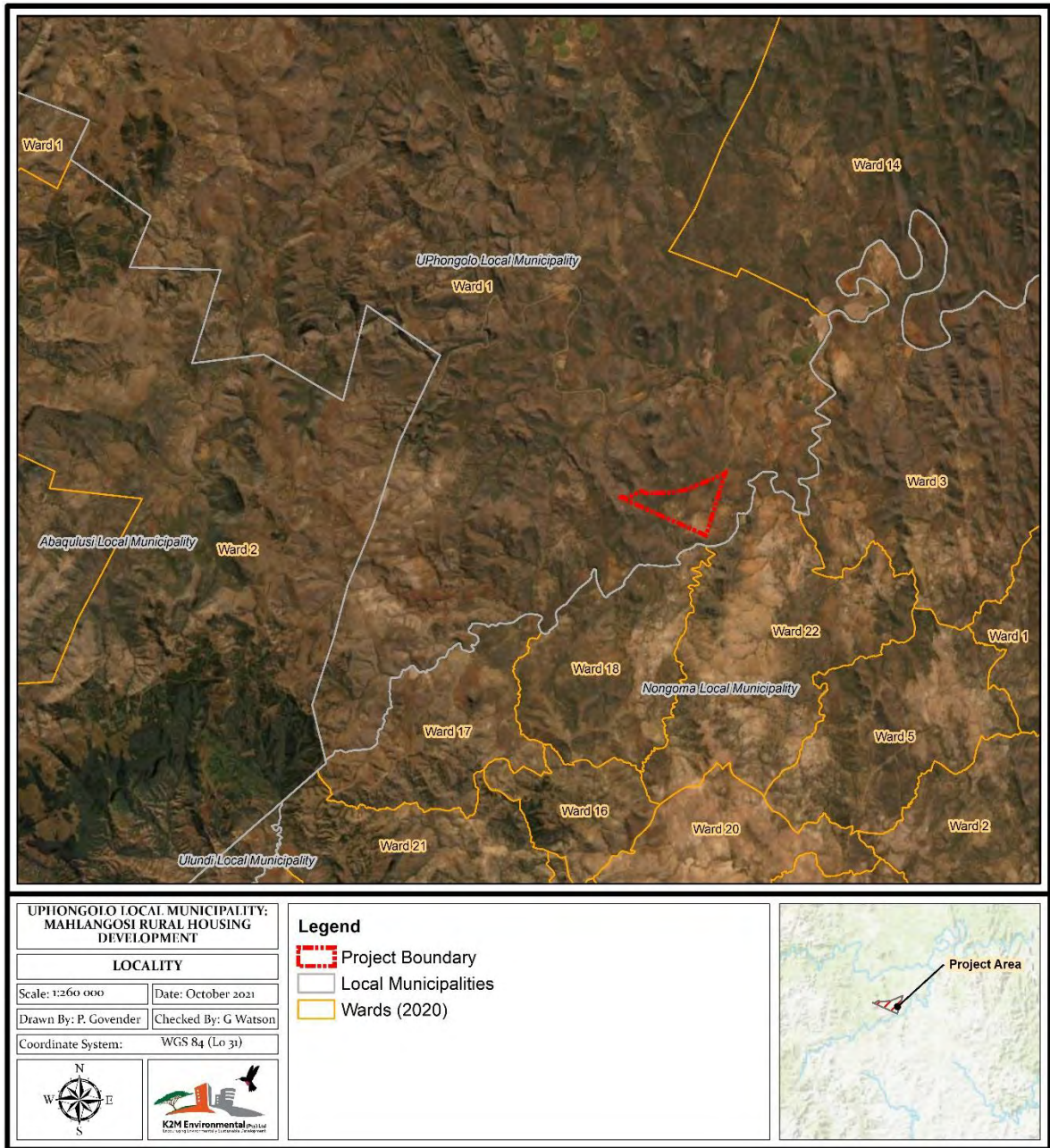
- ✚ The provision of sanitation facilities;
- ✚ The provision of roads and stormwater drains within the boundaries of any particular settlement;
- ✚ The provision of water;
- ✚ The construction or upgrading of dwellings;
- ✚ The purchase of building materials in order to enable a beneficiary himself or herself to construct or upgrade a dwelling

1.2 SITE DESCRIPTION

The project area falls within the jurisdiction of the Uphongolo Local Municipality, which is one of the local municipalities that is a part of the Zululand District Municipality. The total population of the project area is approximately 1 799 persons and the population of the municipality is estimated at 127 221 persons.

The project area is approximately 713.57 ha in extent and is situated within Ward 1 of the Uphongolo Local Municipality. The project area consists of low to medium density rural settlements (scattered), with homesteads incorporating a mix of round and rectangular structures constructed of both traditional (mud brick, wattle and daub, thatch roof) and more modern or urban (cement blocks and corrugated iron roof) materials and techniques. The existing settlements are predominantly located to the east of the site. The site is bordered by the R66 roadway to the east and the Nkunzana River is located to the south east of the site. The project area in relation to the wards is 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.*” 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 his delegated authority. Activities listed in EIA Regulations Listing Notice 1 and Listing Notice 3 of 2014 will require a Basic Assessment to be conducted while activities listed EIA Regulations Listing Notice 2 of 2014 will require a thorough EIA process which includes a Scoping Report and an Environmental Impact Assessment Report.

The Department of Economic Development, Tourism and Environmental Affairs (DEDTEA) have in the past on similar projects indicated that it is their opinion that the development and construction of rural subsidised housing projects on Ingonyama Trust Land **do not constitute a listed activity** as identified in terms of Environmental Impact Assessment Regulations. This opinion was based on the fact that the Rural Housing Projects entail the construction of housing units within existing iMuzi's (Brown Field Development). Due to the fact that such projects do not constitute listed activities they therefore did not require environmental authorisation in terms of the National Environmental Management Act) (Act 107 of 1998) (NEMA), and as such no environmental authorisation was required from the Department of Economic Development, Tourism and Environmental Affairs for projects of this nature.

The Department of Human Settlement has requested that cognisance needs to be taken in terms of the establishment of sustainable human settlements. This encourages the densification of settlements to enable for the provision of other supporting infrastructure at a later stage such as water connections to individual stand level as well as improved road and sanitation infrastructure. It is however important to understand that as part of this project only housing units with a Ventilated Improved Pit Latrine (VIP) will be constructed within existing iMuzi's.

Should any Greenfield development occur as a result to this project, the extent of the cumulative area to be impacted must be limited to less than 1 hectare and should be restricted to degraded

areas. Should the cumulative Greenfield Development footprint exceed 1 hectare, then an Environmental Authorisation will need to be applied for.

The purpose of this Environmental Assessment is thus 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.

This Environmental Assessment is prepared in terms of the Stage 1 application (reservation of beneficiaries) requirement of the Department of Human Settlement. This Report will be submitted to DEDTEA for official comment and to determine the way forward.

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 Environmental Assessment thus 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 Mahlongosi Rural Housing project area. The summarized overviews of various aspects contained within the 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 Integrated Development Plan 2021/2022; 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 Mahlangosi Rural 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 use, climate, land cover, topography and drainage, floodline areas, CBAs, Protected areas, corridors, mineral deposits, archaeological, cultural and historical sites, and potential sources of pollution.
- ✚ **Section 6** provides a brief overview of the **current settlement pattern** of the Mahlangosi Rural 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

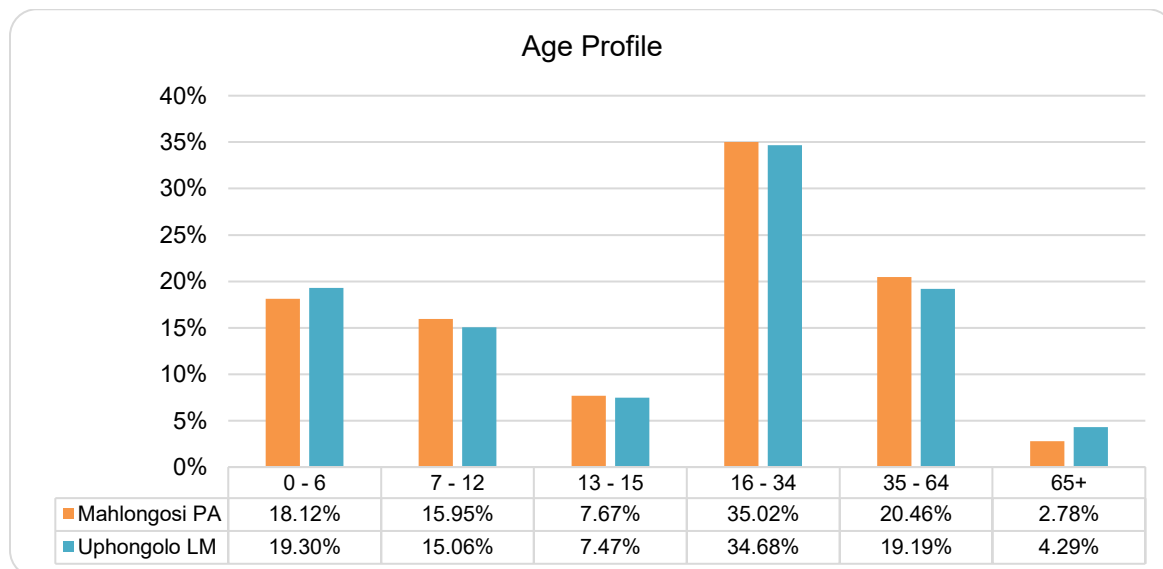
3.1 SOCIAL DEMOGRAPHIC CHARACTERISTICS

The figures illustrated below were prepared from the Census 2011 data and present a socio-economic overview of the study area. The Mahlongosi Housing project area falls within the jurisdiction of the Uphongolo Local Municipality. The figures of the project 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 project area is approximately 1 799 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 Local Municipality (LM) is depicted in Figure 3.1 below. Majority (41.74% and 41.83%) of the population within the project area as well as the Local Municipality are younger than the age of 15 years. As such as 35.02% of the people with the project are aged between 16-34 years. Only 2.78% of the population are over the age of 65 years within the project area.

Figure 3.1: Age Profile



Source: Statistics SA, Census 2011.

3.1.1.1 Implications for the Rural Subsidised Housing Project:

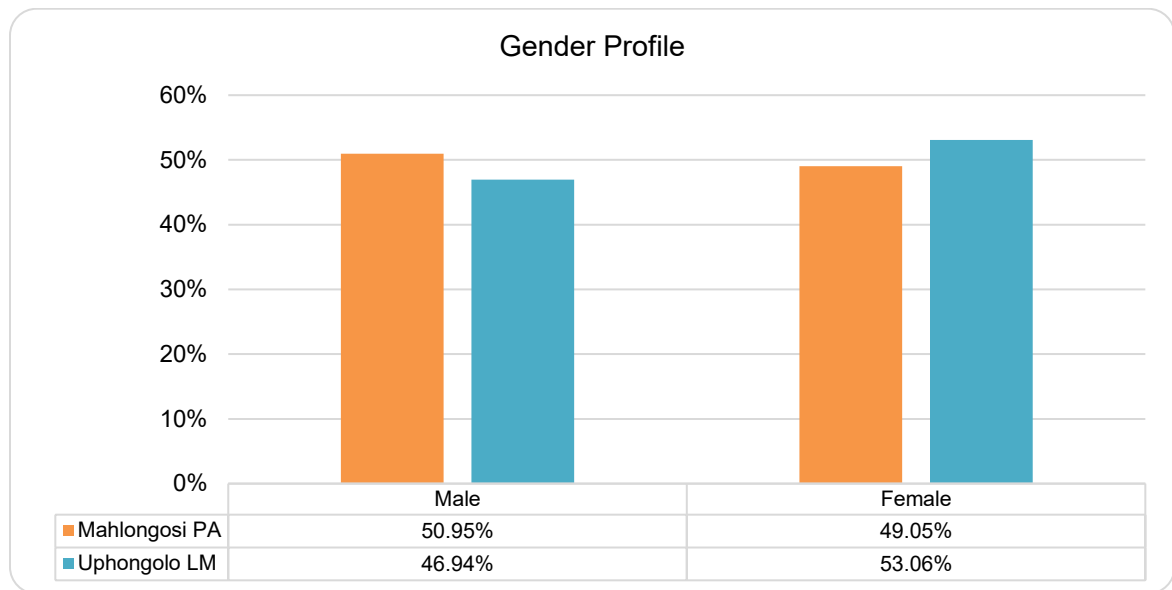
Age distribution patterns are of utmost importance when planning future developments and allocating subsidies as various subsidised facilities will be better enjoyed by individuals of certain ages now and in the future. Age distribution is also considered when determining the need for other supporting facilities necessary to ensure maximum yield of benefits of any given development, such as the proposed rural 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 50.95% of the population within the project area are male whilst 49.05% are female. In contrast to the project area, majority of the population within the Municipality (53.06%) are female.

Figure 3.2: Gender Profile

Source: Statistics SA, Census 2011.

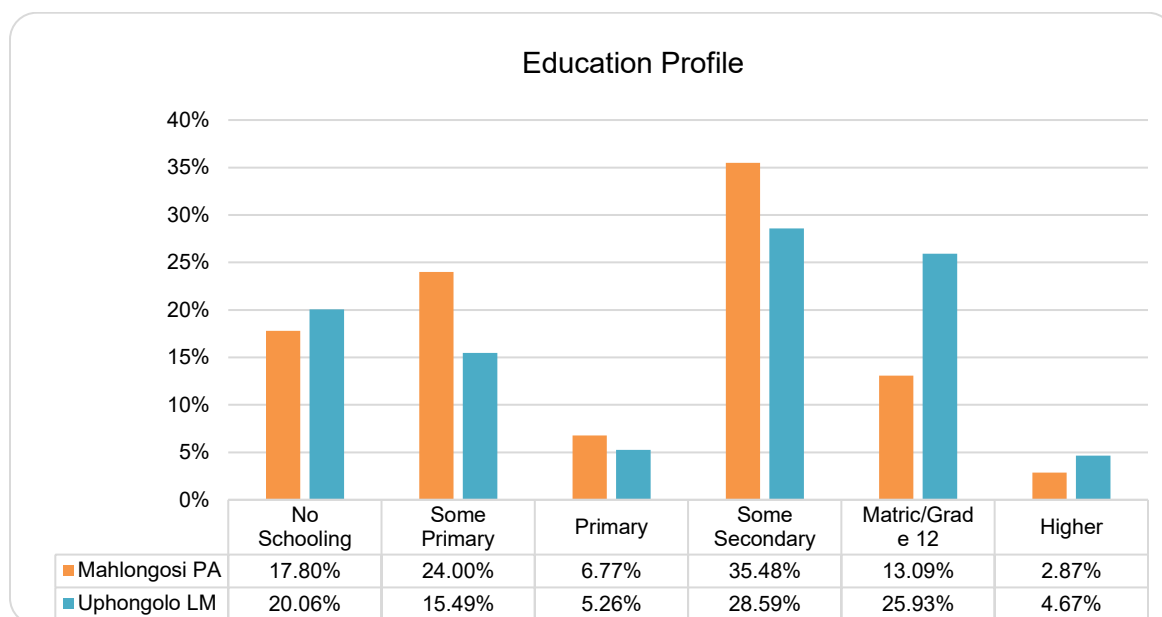
3.1.2.1 Implications for the Rural Subsidised Housing Project:

The implication of gender roles within the Mahlongosi Housing project area need 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 areas surrounding the project 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. Majority (35.48%) of the population within the study area have some form of secondary education. As much as 17.80% have no form of schooling and only 2.87% have a tertiary qualification.

With the Local Municipality, majority (28.59%) of people have some form of secondary education, 25.93% have completed their matric and appropriately 4.67% have a tertiary qualification. Approximately 20.06% have no form of schooling.

Figure 3.3: Levels of Education

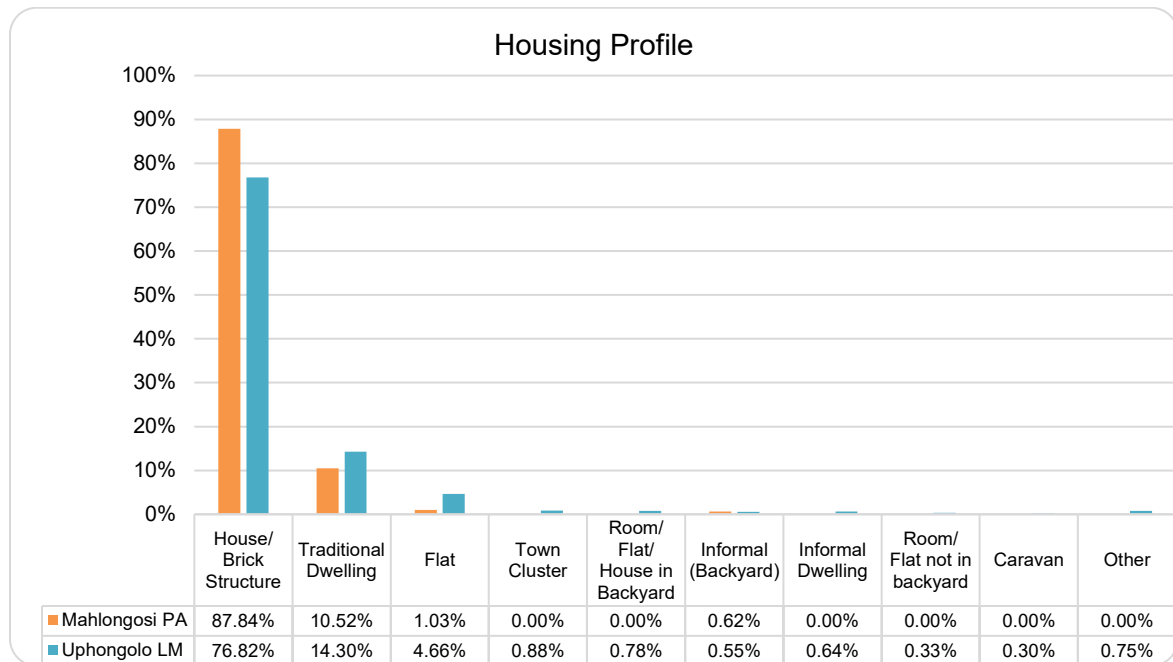
Source: Statistics SA, Census 2011.

3.1.3.1 Implications for the Rural 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 project 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 illustrated in Figure 3.4, the predominant housing type with the project area (87.84%) and the Local Municipality (76.82%) is the “House / Brick Structure”.

Figure 3.4: Housing Profile

Source: Statistics SA, Census 2011.

3.1.4.1 Implications for the Rural 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.

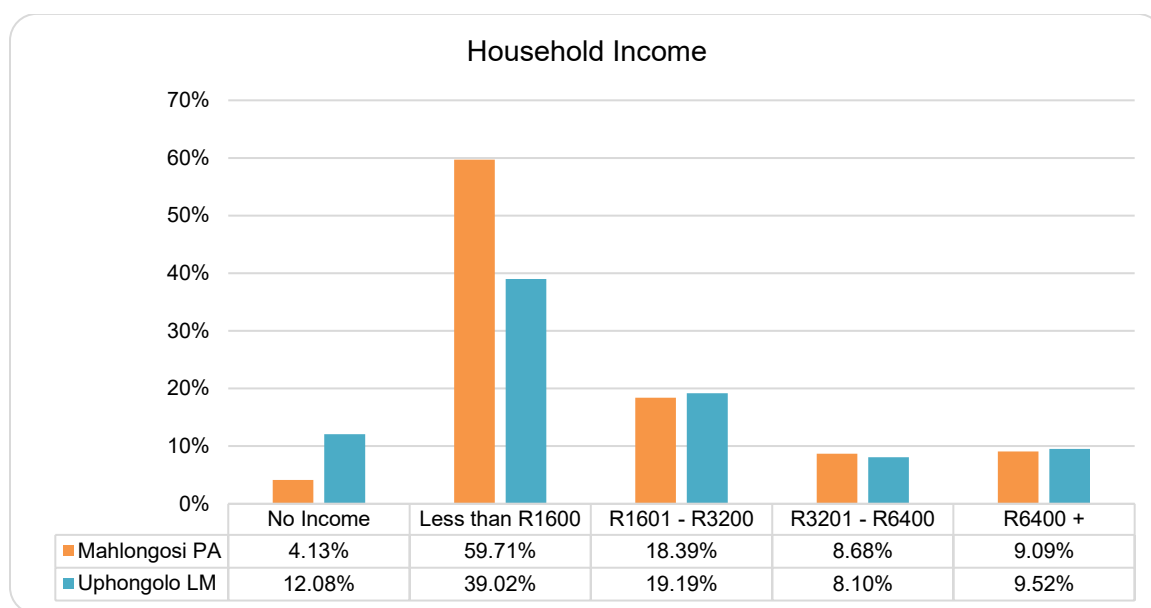
The National legislated (RDP) minimum norms and standards in respect of housing supply in South Africa is considered to be a brick top structure of 40 m² (minimum). Approximately 87.84% of households in the project area; and 76.82% of the households within the Local Municipality; have access to housing 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 the household income profile of the Mahlongosi Housing project area. As much as 59.71% of households within the study area earn a household monthly income of less than R1 600. Approximately 4.13% of households earn no income whilst 9.09% of households earn more than R6 400 per month. Within the Uphongolo Municipality, 39.02% of households earn less than R1 600 per month, 19.19% earn between R1 601 and R3 200 a month. As much as 12.08% of households do not earn a monthly household income within the Municipality and 9.52% earn more than R6 400 a month.

Figure 3.5: Monthly Household Income



Source: Statistics SA, Census 2011.

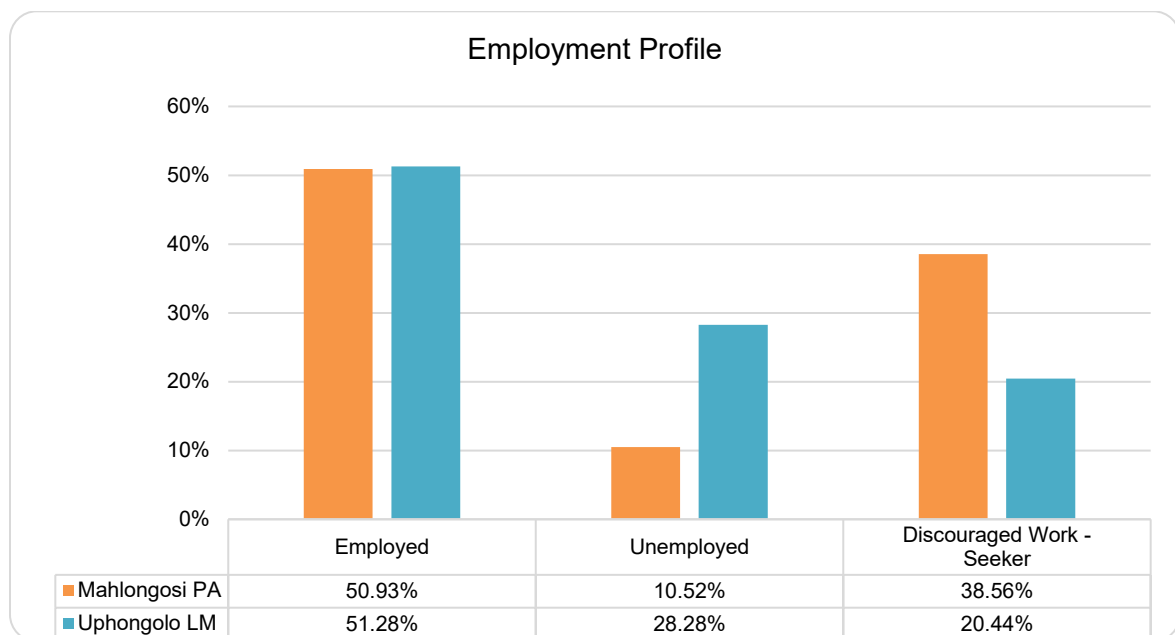
3.2.1.1 Implications for the Rural Subsidised Housing Project:

The figures above indicate relatively low affordability levels within the project area and the municipality. The proposed rural 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 surrounding areas and the overall municipal profile. These figures illustrate the employment profiles of persons over the age of 15 years and therefore falling into the economically active categories of the population. Majority of the population within the project area (50.93%) and the Uphongolo Local Municipality (51.28%) are employed whilst 10.52% within the project area and 28.28% with the Municipality are unemployed.

Figure 3.6: Percentage of Economically Active Population Unemployed



Source: Statistics SA, Census 2011

3.2.2.1 Implications for the Rural 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.

4 SERVICES AND INFRASTRUCTURE

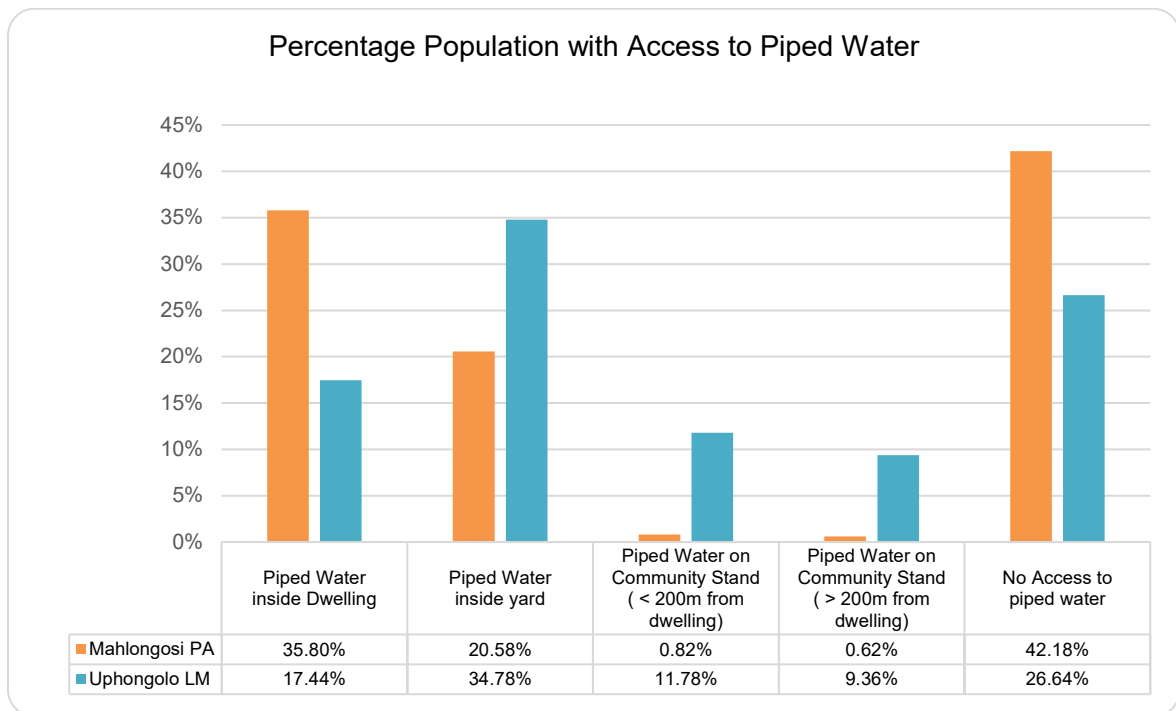
4.1 SERVICES DEMOGRAPHICS

4.1.1 Access to water sources

Figure 4.1 and 4.2 below illustrates the percentage of the population within the Mahlongosi project area and the Uphongolo Local Municipality who have access to piped water and the various sources of water used for drinking and other auxiliary household uses, respectively. As illustrated in Figure 4.1, 35.80% have piped water inside their dwelling, 20.58% piped water inside their yard. As much as 42.18% of households do not have access to piped water. Figure 4.2 indicates that majority (40%) of households source water from a river or stream. Approximately 27.42% of households depend on boreholes and approximately 17.94% rely on rainwater which is collected and stored in tanks.

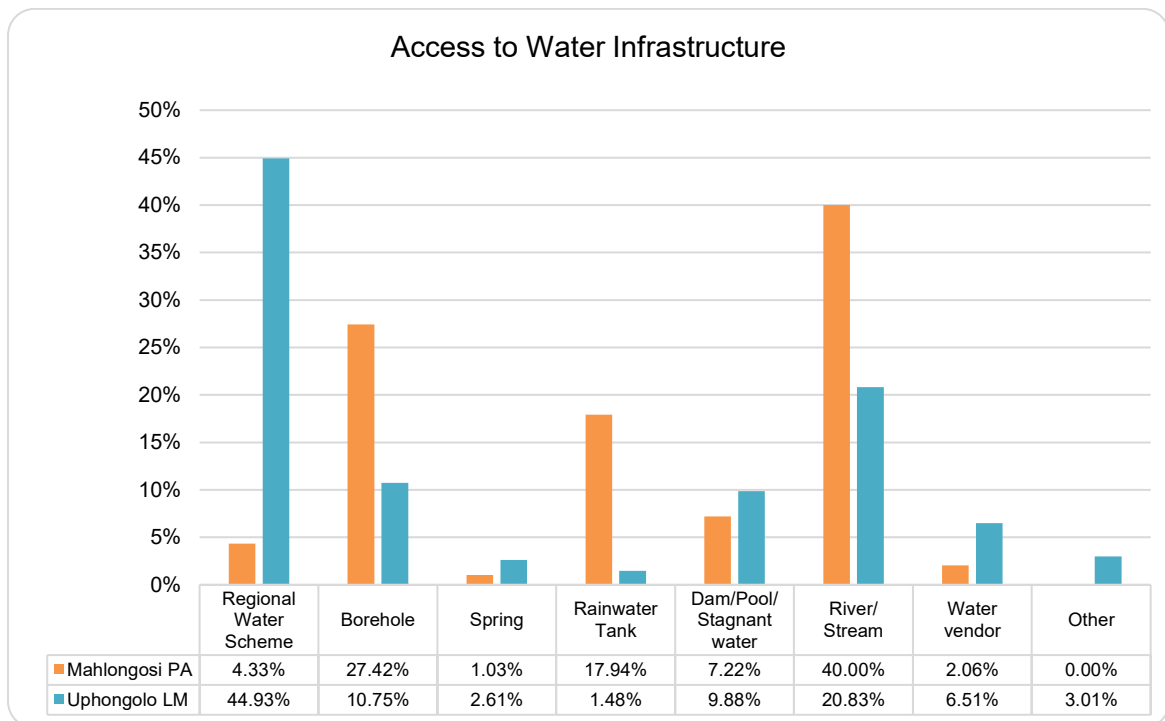
The overall figures for the Uphongolo Local Municipality indicate that majority (34.78%) of households have access to piped water inside their yards, 17.44% of households have access to piped water inside their dwelling and 21.14% of households obtain their water from a standpipe. Figure 4.2 illustrates that majority of households within the Municipality source water from the Regional Water Scheme. Approximately 20.83% of households within the Municipality source water from rivers or streams, whilst 10.75% rely on boreholes for their water supply.

Figure 4.1: Access to Piped Water



Source: Statistics SA, Census 2011.

Figure 4.2: Access to Water Infrastructure



Source: Statistics SA, Census 2011.

4.1.1.1 Implications for the Rural 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 57.20% of the households within the Mahlongosi project area and 68% of households within the Uphongolo Local Municipality have access to water services at this level or better (piped water inside dwelling and yard, and within a 200m walking distance). This national standard has been accepted by the Department of Human Settlements 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 Mahlongosi project area, as well as the Uphongolo Local 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.

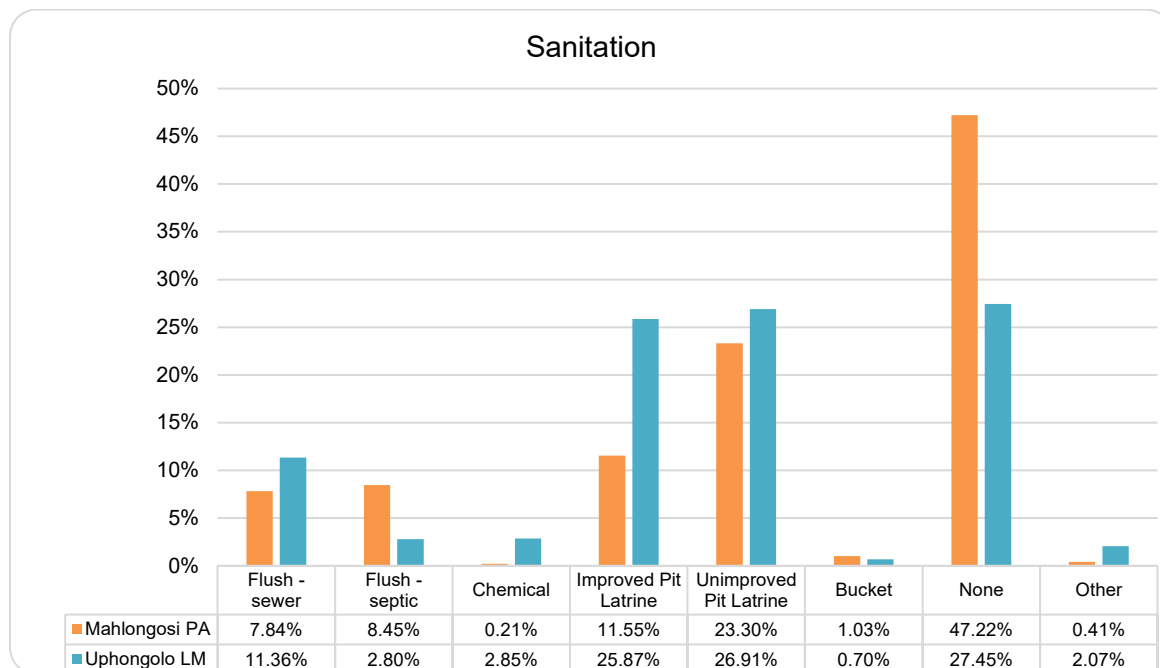
4.1.2 **Access to Sanitation Infrastructure**

Figure 4.3 illustrates that majority (47.22%) of the households in the project area do not have access to sanitation. Approximately 23.30% make use of the unimproved pit latrine, 11.55% make use of improved pit latrine and 7.84% have access to flush toilets connected to a sewer system.

The statistics for the overall Uphongolo Local Municipality indicate that majority (27.45%) of the households do not access to sanitation. Approximately 26.91% make use of unimproved pit latrine whilst 25.87% use improved pit latrines. Approximately 11.36% have access to flush toilets connected to a sewer system.

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 Mahlongosi Housing project area.

Figure 4.3: Access to Sanitation Infrastructure



Source: Statistics SA, Census 2011.

4.1.2.1 Implications for the Rural 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.

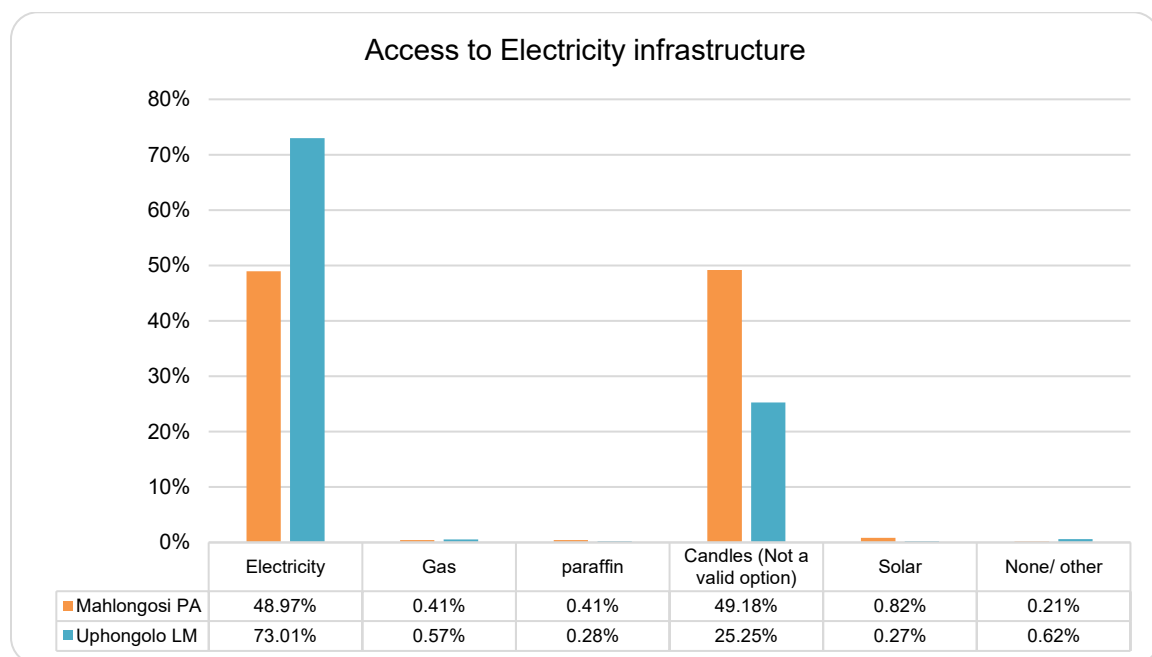
The National legislated (RDP) minimum norms and standards in respect of sanitation service provision in South Africa are considered to be ventilated improved pit toilet (VIP). Approximately 42.88% of households in Uphongolo Local Municipality and 28.05% of the project area have access

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 Mahlongosi Housing project area, as well as the Uphongolo Local 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 Local Municipality. During the time of the survey, approximately 48.97% of households within of the study area indicated that they had access to electricity while 49.18% used candles. Overall, within the Uphongolo Local Municipality, 73.01% of households have access to electricity and 25.25% utilised candles.

Figure 4.4: Access to Electricity Infrastructure



Source: Statistics SA, Census 2011.

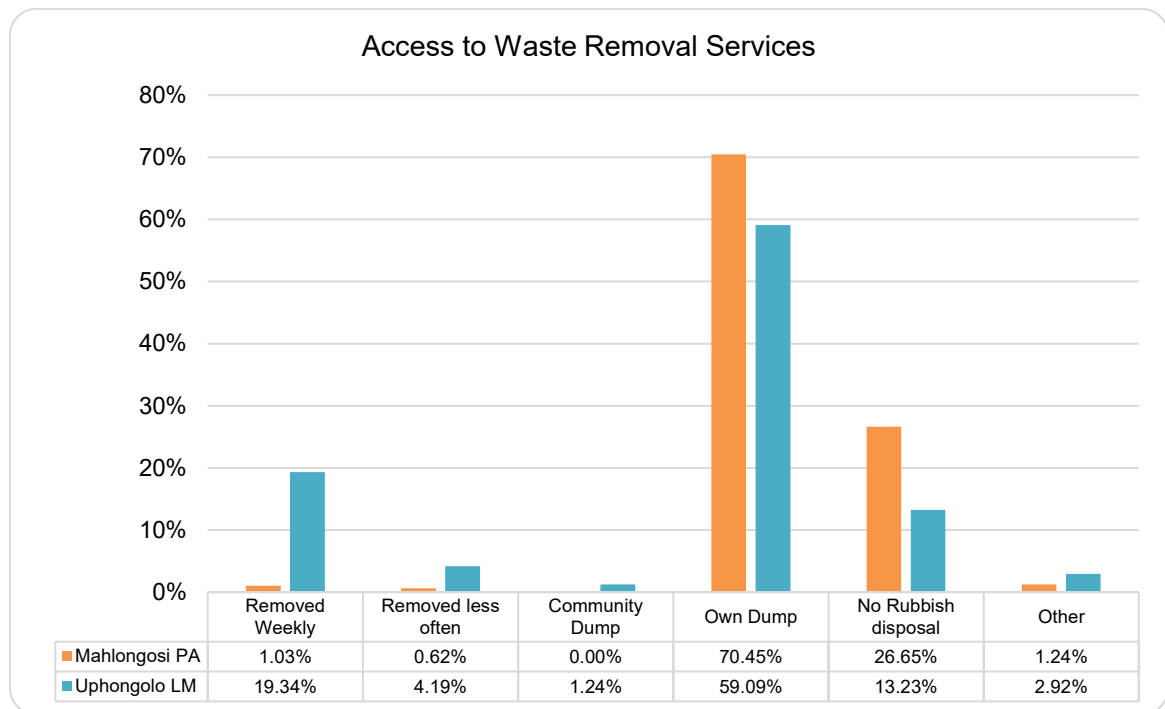
4.1.3.1 Implications for the Rural Housing Project:

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 surrounding areas of the study area and the overall Municipality. Majority (40.75%) of households within the project area make use of their own dump and approximately 26.65% of household do not have make use of any waste disposal. As little as 1.03% have their waste removed on a weekly basis.

Within the overall Municipality, majority (59.09%) of the households within the Municipality make use their own dump. Approximately 18.34% have their waste removed weekly whilst 13.23% do not have any form of rubbish disposal.

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 Local 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 Mahlongosi Rural Housing (project area). **It must however be noted that the scope of the proposed Mahlongosi Rural Subsidised Housing Project does not include any major construction of new roads to the project area, in some instances some individual access roads will be constructed but which will be well below the triggers for environmental authorisation. The accesses will be less than 4-meter-wide, with no construction activity being permitted within a 32m stream, dam, river and wetland.**

4.2.1.1 National Roads

There are no National Roads that have been proclaimed within the project area.

4.2.1.2 Provincial Roads

There is a Provincial Road that has been proclaimed within the project area namely the P52.

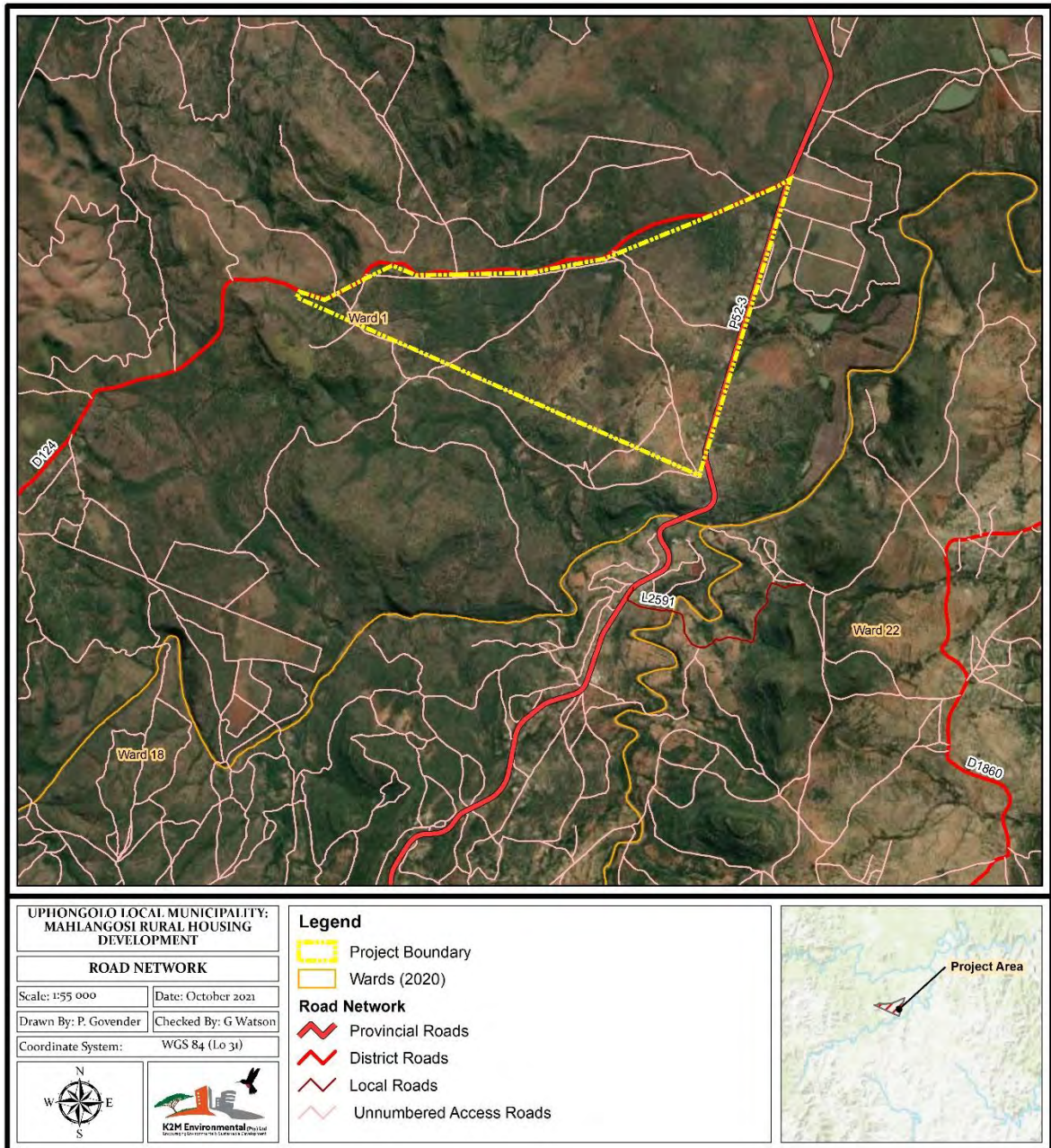
4.2.1.3 District Roads

There is one District Road that has been proclaimed within the project area namely the D124.

4.2.1.4 Local Access Roads

There are no numbered local access roads within the site.

Map 4.1: Road Network



4.2.1.5 Implications for the Rural 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 Human Settlements as their minimum norms and standards for the rural 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 Mahlongosi Rural Housing Area’s Rural Subsidised Housing 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 Mahlongosi Rural 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 20 m road reserve, to which an additional 10 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 rural housing project will result in any adverse negative impacts on the existing road network.

4.2.2 **Stormwater**

Whilst low income rural 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:

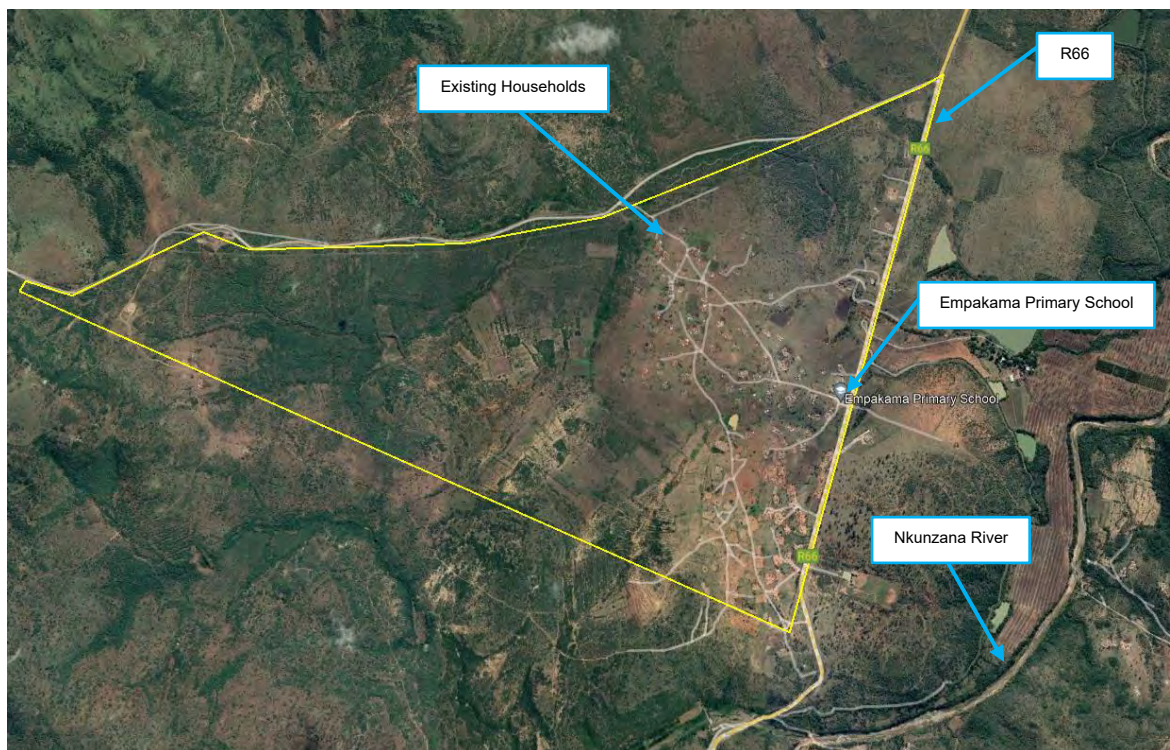
While the National legislated (RDP) minimum norms and standards in respect of stormwater management in South Africa is considered to be “Lined open channels” the logistics and costs involved with the implementation thereof mean that such a minimum norm and standard is not feasible for implementation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

5 BIO-PHYSICAL COMPONENT

5.1 CURRENT LAND USE

The current land use is predominantly agriculture together with low to medium dense households which is mainly situated to the east of the site. Many of the households within the project area depend on subsistence agriculture for their livelihoods. The project area is bordered by the R66 (P52) roadway to the east and the Empakama Primary School is also situated to the east of the site.

Figure 5.1: Current Land use

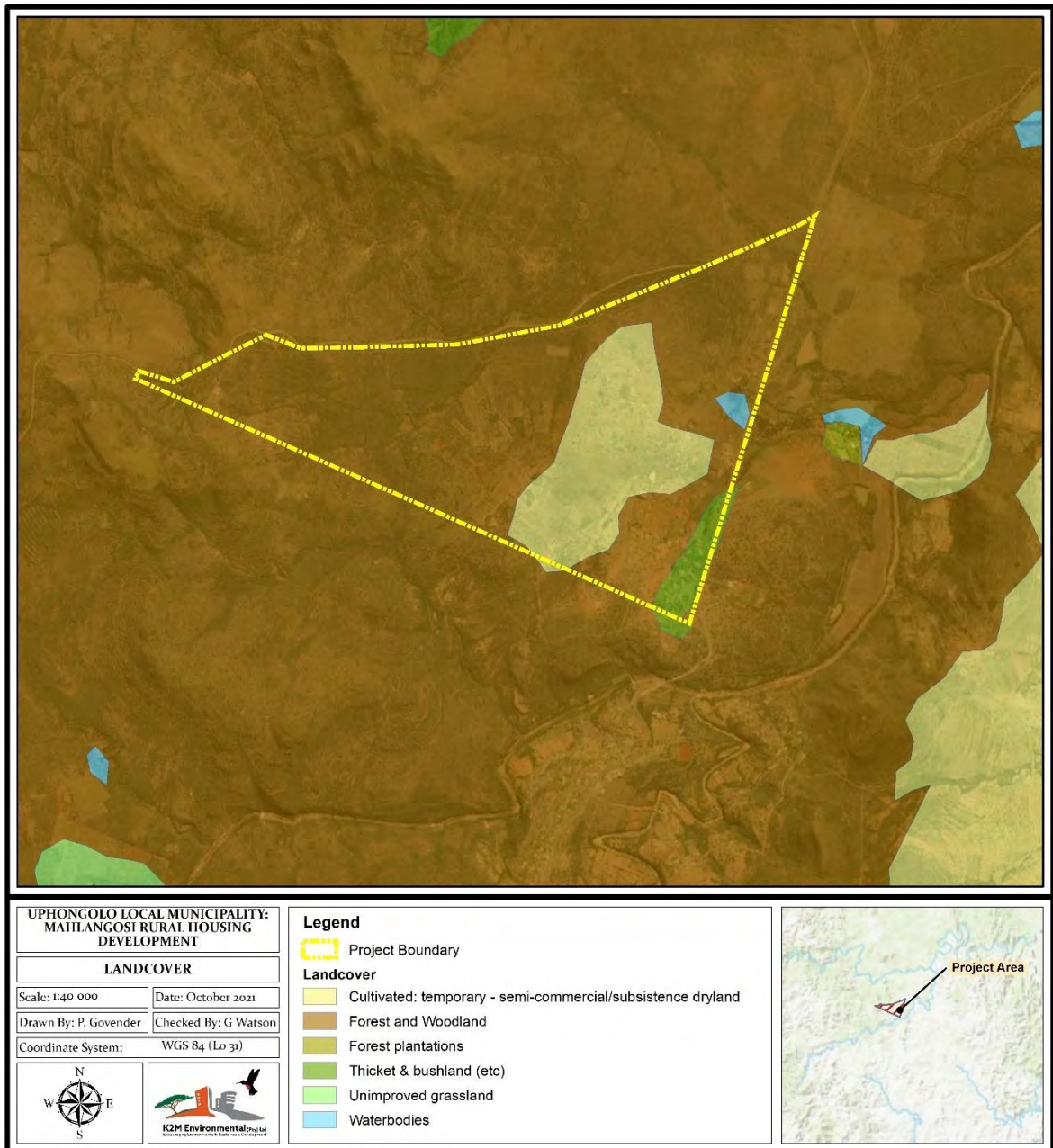


Source: Google Earth, 2021

5.2 LAND COVER AND TOPOGRAPHY

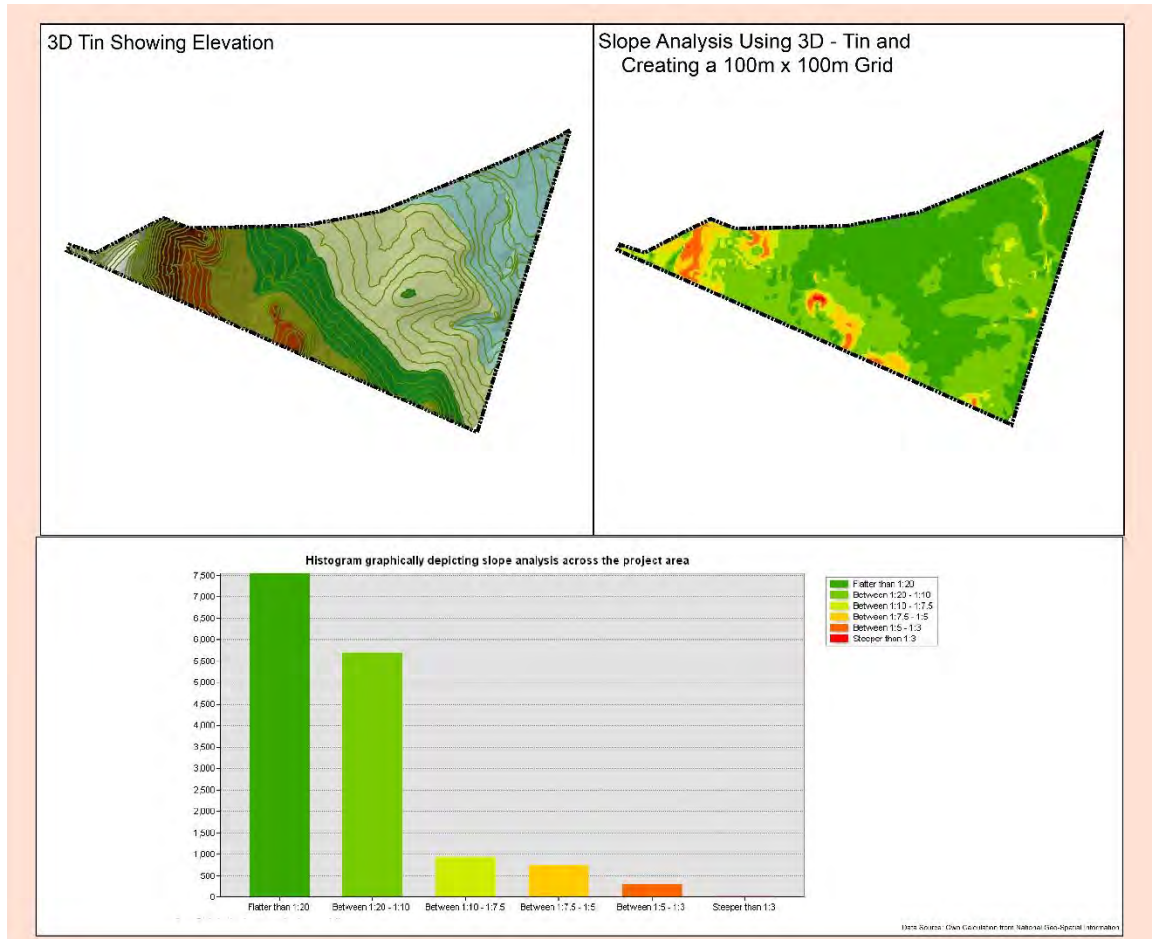
The overall land cover within the study area is graphically depicted on the Map 5.1 below. The dominant land cover within the project area is “Forest and Woodlands” with the central portion being classified as “Cultivated: temporary – semi-commercial/subsistence dryland”.

Map 5.1: Landcover



The overall topography of the study area is clearly depicted on Map 5.2 below. The site predominantly contains a gentle sloping topography.

Map 5.2: Slope Analysis

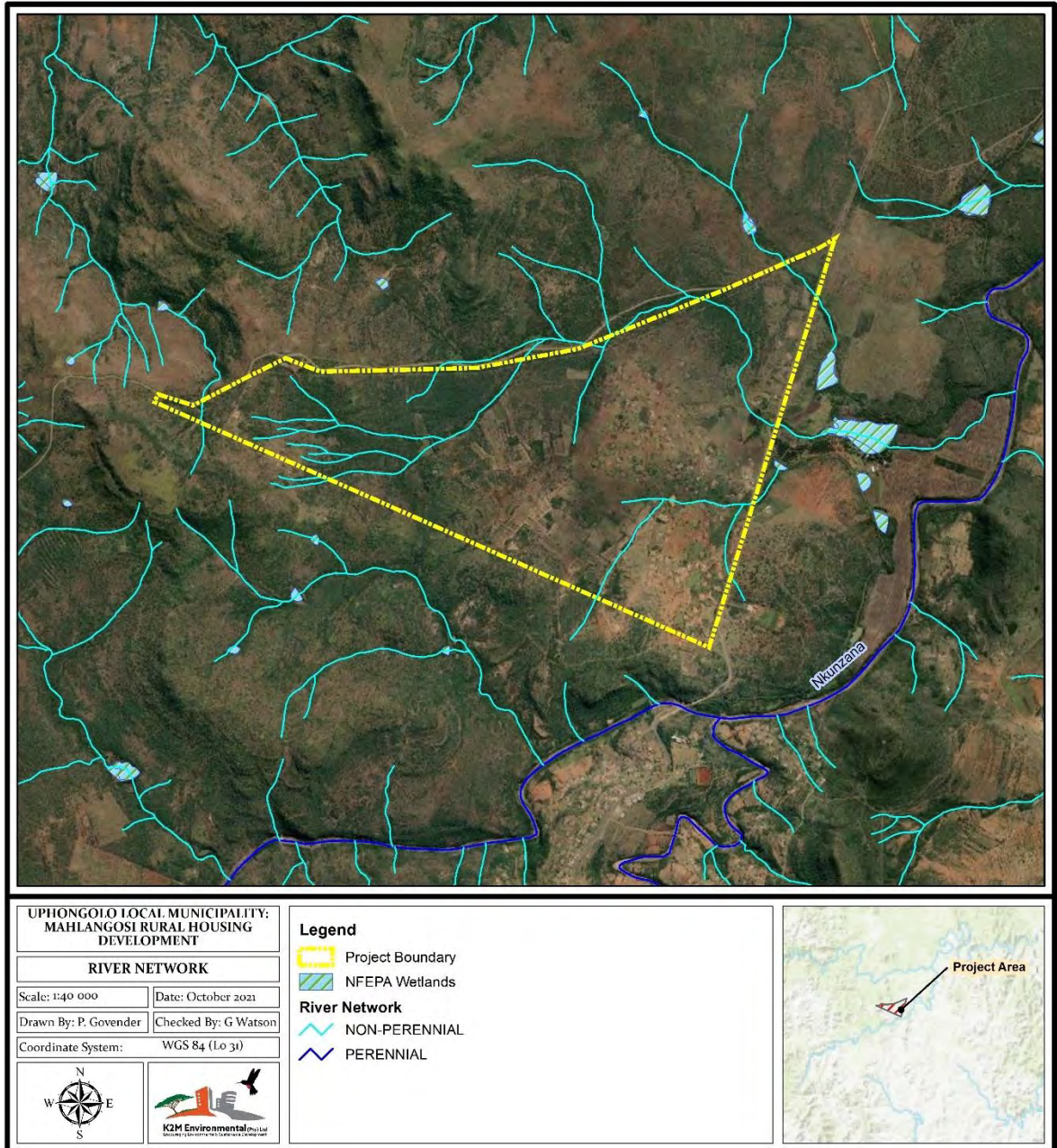


5.3 RIVER NETWORK

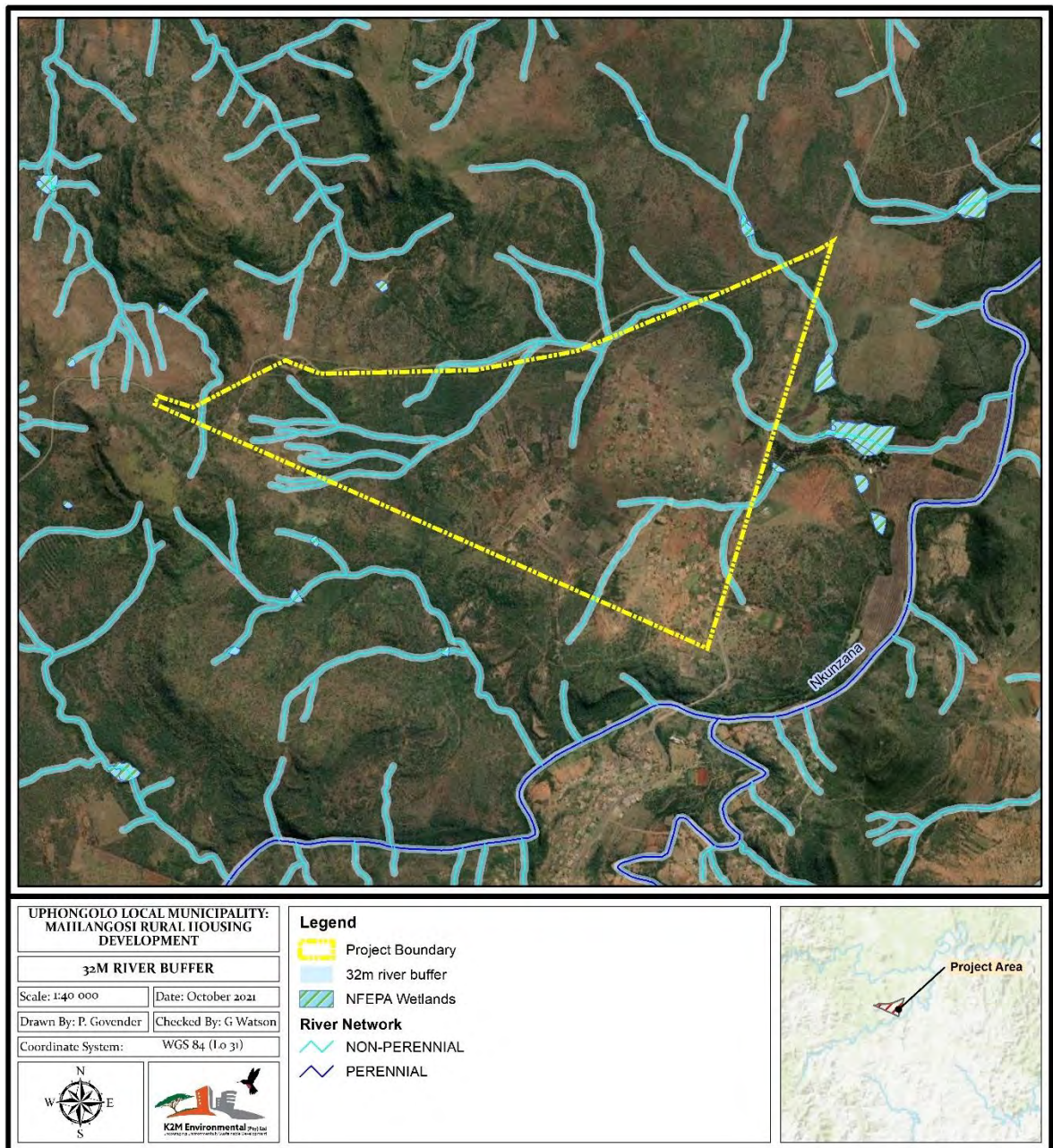
As indicated in Map 5.3, there is a number of non-perennial stream that traverses the project area which may be subject to periodic flooding depending on the rainfall and subsequent runoff at any point in time, either within or upstream of the specific catchment area. Therefore, in terms of the National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

However, in terms of the 2014 EIA Regulations, all new development should be located at least 32m's away from the bank of any river or stream. Should construction take place within 32m from the bank of any river or stream, then an EIA will need to be applied for. Map 5.4 below illustrates the 32m river network buffer.

Map 5.3: River Network



Map 5.4: 32m River Network Buffer



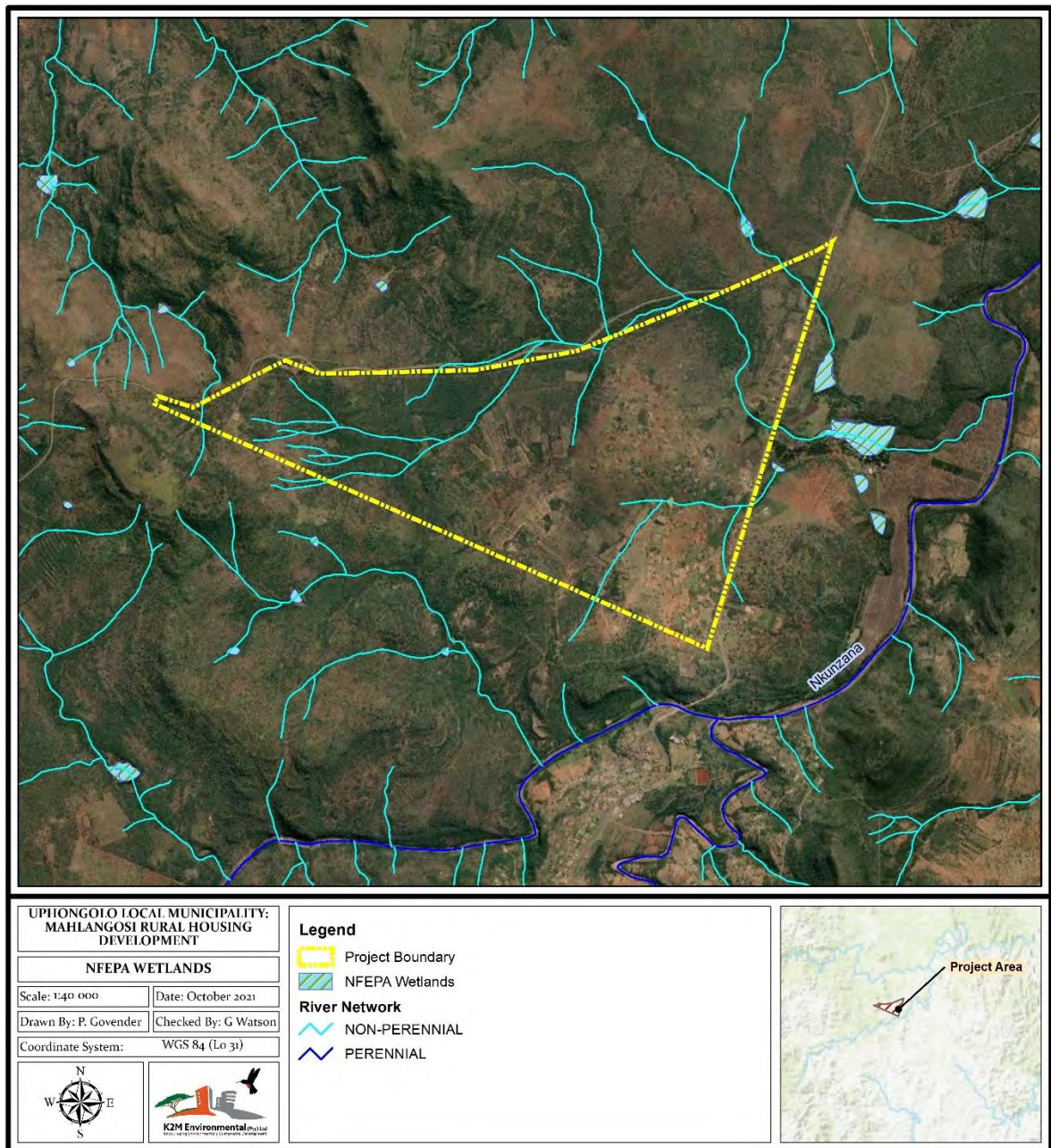
5.4 FRESHWATER ECOSYSTEM PROTECTED AREAS (FEPA'S)

Freshwater Ecosystem Protected Areas (FEPA's) according to the Water Research Council are strategic spatial priorities for conserving freshwater ecosystems and supporting sustainable use of water resources. Freshwater ecosystems refer to all inland water bodies whether fresh or saline, including rivers, lakes, wetlands, sub-surface waters and estuaries. FEPAs are often tributaries and wetlands that support hard-working large rivers, and are an essential part of an equitable and sustainable water resource strategy. FEPAs need to stay in a good condition to manage and conserve freshwater ecosystems, and to protect water resources for human use (Water Research Council).

According to the National Water Act (1998), a wetland is defined as *“Land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land, in normal circumstances, supports or would support vegetation typically adapted to life in saturated soil”*.

As illustrated in Map 5.5 below, there are no NFEPA Wetlands located within the project area. The closest NFEPA Wetland is situated approximately 82m east of the site.

Map 5.5: NFEPA Wetlands



5.5 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. Table 5.1 and Map 5.6 illustrate the agricultural potential categories within the site. A description of each category is provided below.

Majority (89.19%) of the site is classified as Category B: High Potential Agricultural Land. Land within Category B has the potential to be used sustainably, with few limitations to agricultural production (Collett and Mitchell, 2013). Land use will be restricted to those in support of primary agricultural production. Examples include agricultural infrastructure such as storage sheds, silos, hay barns, water reservoirs, collection and storage of agricultural waste and on-farm composting facilities (Collett and Mitchell, 2013).

Approximately 10.49% of the site is classified as Category C: Moderate Agricultural Potential Land. 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).

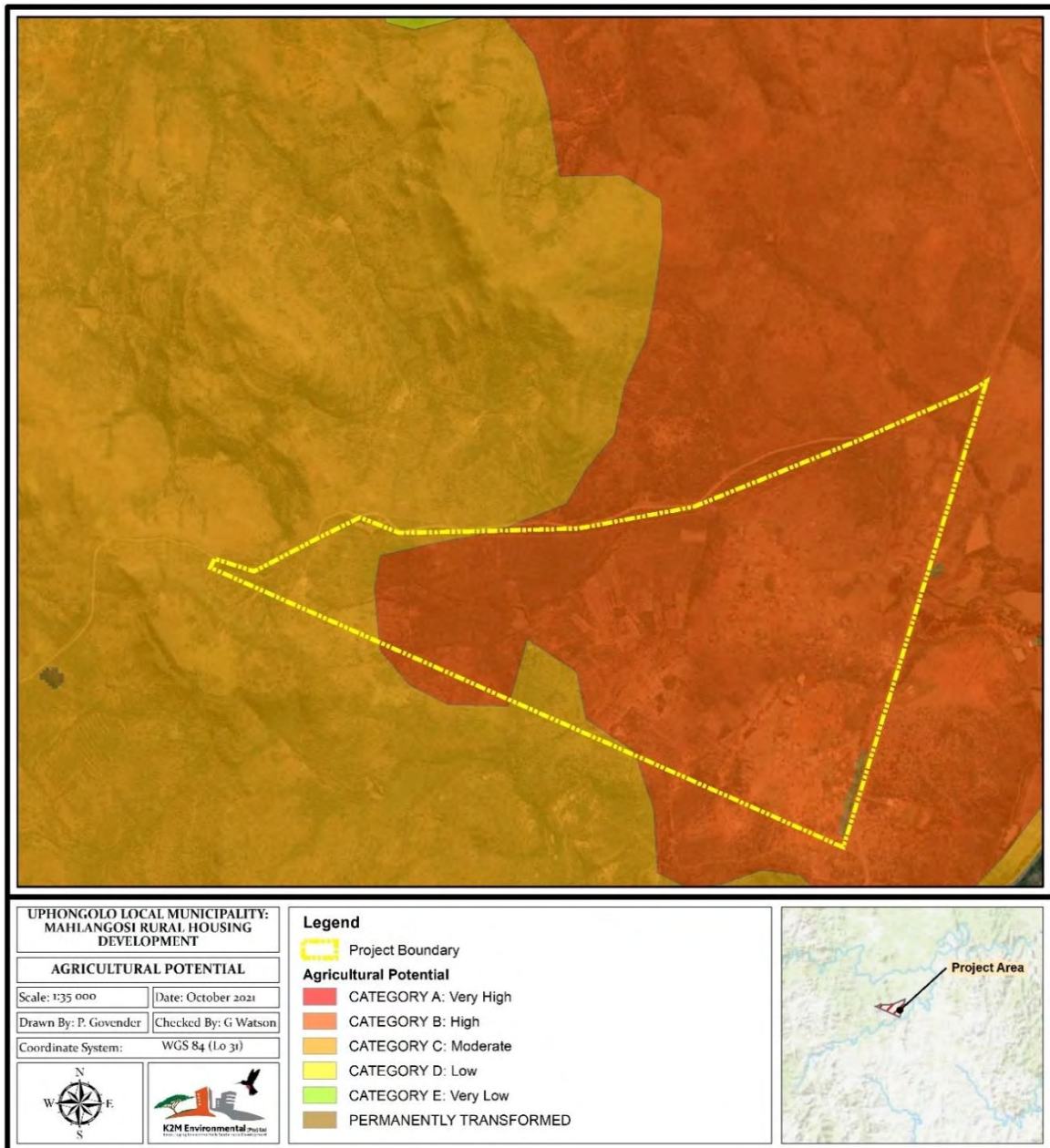
Approximately 2.28 ha of land within the project area is classified as being permanently transformed. According to Collett and Mitchell, 2013, areas demarcated as Permanently Transformed, applies to land that has been converted irreversibly to non-agricultural land uses. This includes urban/built up 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.

Table 5:1: Agricultural Potential

Agricultural Potential	Area (Ha)	Percentage of Total Area
Category B: High	636.45	89.19
Category C: Moderate	74.84	10.49
Permanently Transformed	2.28	0.32
Total Area	713.57	100%

Source: Department of Agriculture and Rural Development

Map 5.6: Agricultural Potential



Source: Department of Agriculture and Rural Development

5.6 VEGETATION

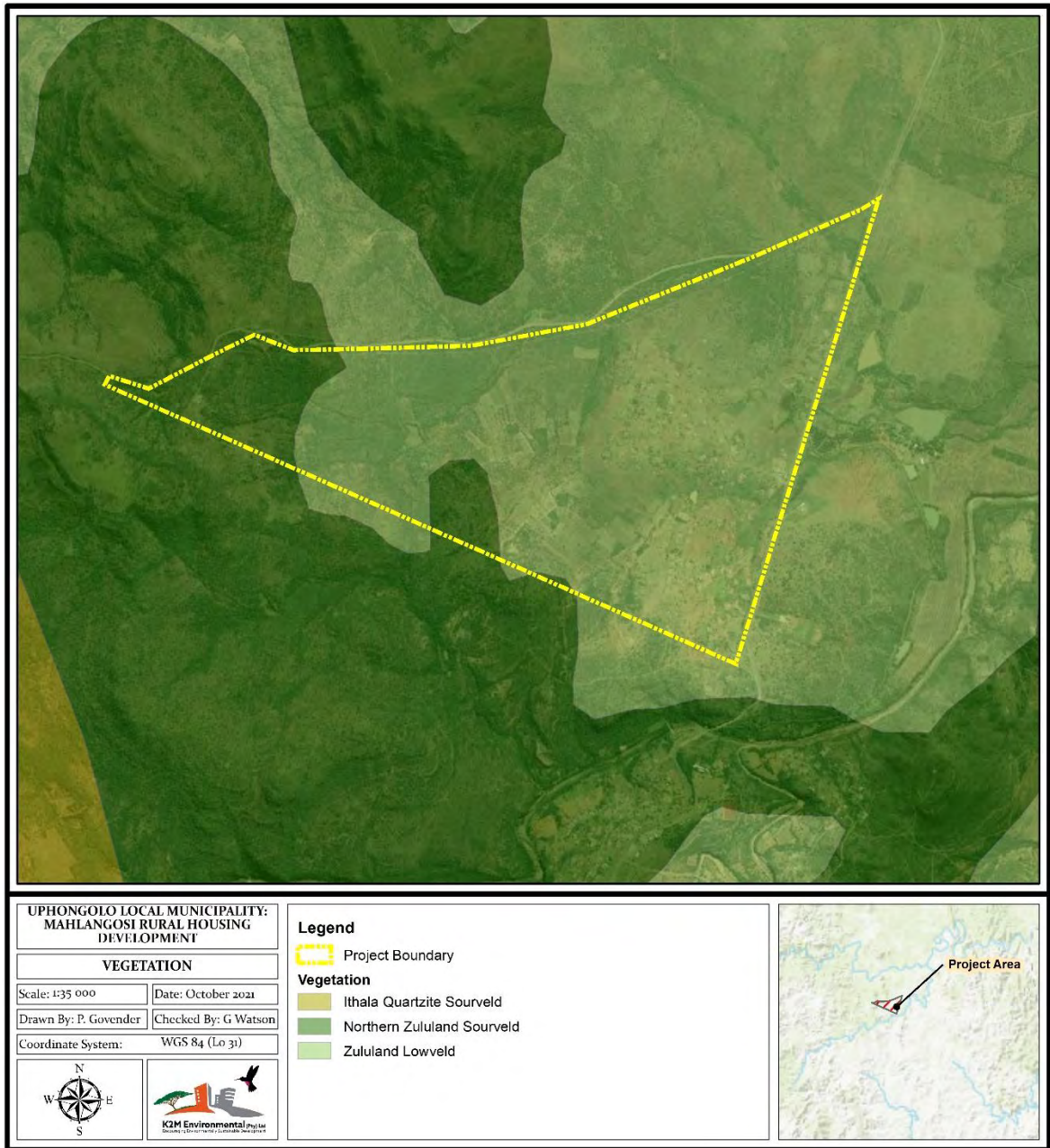
As indicated in Table 5.2 and Map 5.7, the project area is characterised by two vegetation types, the Northern Zululand Sourveld and Zululand Lowveld. The dominant (86.58%) vegetation type within the project area is the “Zululand Lowveld” followed by the “Northern Zululand Sourveld” vegetation type which covers approximately 13.42% of the site.

Table 5:2: Vegetation

Vegetation	Area (Ha)	Percentage of Total Area
Northern Zululand Sourveld	95.76	13.42
Zululand Lowveld	617.73	86.58
Total Area	713.49	100.00%

Source: KZN Wildlife

Map 5.7: Vegetation



Source: KZN Wildlife

As per the data provided by Mucina and Rutherford (2006), the dominant vegetation units that occurs within the Mahlangosi Rural Housing project area is discussed in further detail below:

5.6.1 Zululand Lowveld

Vegetation distribution and Landscape: The Zululand Lowveld vegetation is distributed in the province of KwaZulu-Natal and Parts of the neighbouring country Swaziland. The main extent of this vegetation is Big Bend south to Mkuze, Hluhluwe, Ulundi to just about the north of the Ongoye Forest.

The vegetation and landscape is distributed as extensively flat or only slightly undulating landscapes supporting complex of various bushveld units ranging from dense thickets of *Dichrostachys cinerea* and *Acacia* species, through park-like Savanna with flat-topped *A. Tortilis* to tree-dominated woodland with broad leaved open bushveld.

Geology and Soils: The geology and soil are characterized by black-clay soils and duplex soils derived from a distinct variety of clastic sediments of the Dwyka, Ecca, Beaufort and igneous rocks of the Lebombo Groups. With well-drained soil forms, that occur on the stony slopes within the area. The climate proclaiming within the Zululand Lowveld vegetation region is measured throughout the year as high summer rainfall, with a measured MAP of 500-900 mm covering the region. The monthly average temperature ranges from minimum of 7.8°C and maximum of 38.5°C.

Conservation: Zululand Lowveld is marked as Vulnerable. The Hluhluwe-iMfolozi Park and Phongolapoort Nature Reserve is 11% conserved and protected.

5.6.2 Northern Zululand Sourveld

Vegetation distribution and Landscape: The Northern Zululand Sourveld vegetation group can be found in the KwaZulu-Natal Province and Swaziland. From the Lusthof area in Swaziland southwards with scattered patches in northern Zululand in the surrounds of Hlomohlomo, east of Louwsburg, uPhongolo and the vicinity of Ulundi including Nkandla. In the Hluhluwe-iMfolozi Park it occurs at highest altitudes in the park. Altitude is mainly 450-900 m. The dominant structural vegetation type is wooded grassland, in places pure sour grasslands and rarely also dense bushveld thickets. Terrain is mainly low, undulating mountains, sometimes highly dissected, and also some moderately undulating plains and hills.

Geology and Soils: The geology and soils associated with this vegetation include well-drained and shallow soil forms (Glenrosa and Mispah forms) derived from various lithologies; predominantly,

Dwyka Group C diamictites, but also shale, siltstone and sandstone from the Madzaringwe and Pietermaritzburg Formations, all of the Karoo Supergroup. Archaean granite and gneiss are also significant. Land types mainly Fb and Fa, with some Ac.

Climate: The Northern Zululand Sourveld vegetation category occurs in areas characterized as receiving summer rainfall with a little rain in winter, with a mean annual precipitation of about 600 -1 050 mm reaching a maximum, for example, in the region northwest of uPhongolo, towards the mistbelt Ngome Forest. Frost occurs very infrequent to occasional. This vegetation type is regarded as being vulnerable, with a conservation target of 19%, of which only less than 4% statutorily conserved, mainly in the Hluhluwe-iMfolozi Park and Ithala Game Reserve. Approximately 22% has been transformed for cultivation and plantations. Erosion is generally moderate to high.

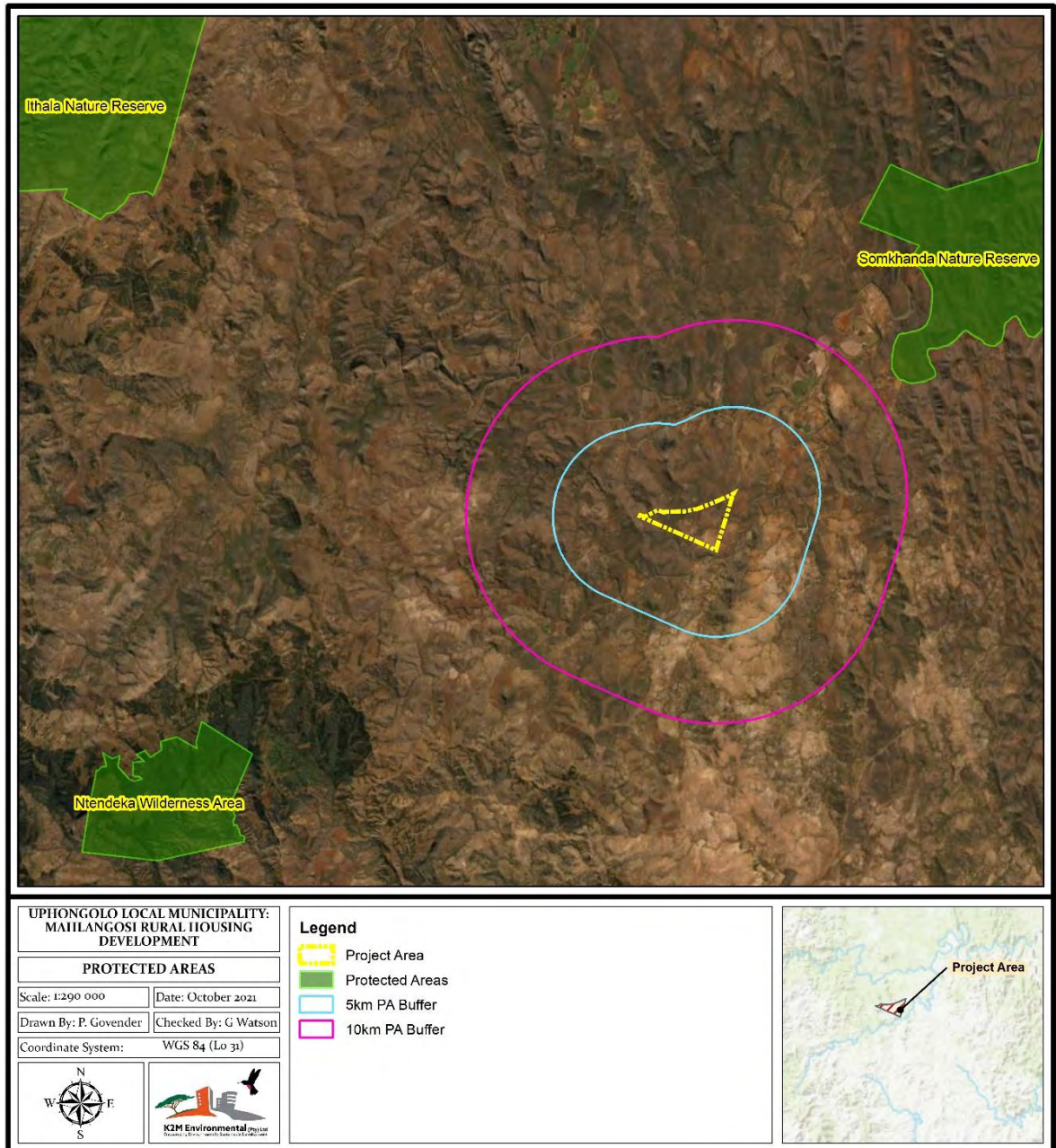
5.7 PROTECTED AREAS

According to the Protected Areas Act (57 of 2003), protected areas are:

- a) special nature reserves, national parks, nature reserves (including wilderness areas) and protected environments;
- b) world heritage sites;
- c) marine protected areas;
- d) specially protected forest areas, forest nature reserves and forest wilderness areas declared in terms of the National Forests Act, 1998 (Act No. 84 of 1998); and
- e) mountain catchment areas declared in terms of the Mountain Catchment Areas Act, 1970 (Act No. 63 of 1970).

As illustrated in Map 5.8, there are no protected areas located within the project area or within 10km of the site. The closest protected area is the Somkhanda Nature Reserve which is situated approximately 12.21km north east of the site.

Map 5.8: Protected Areas

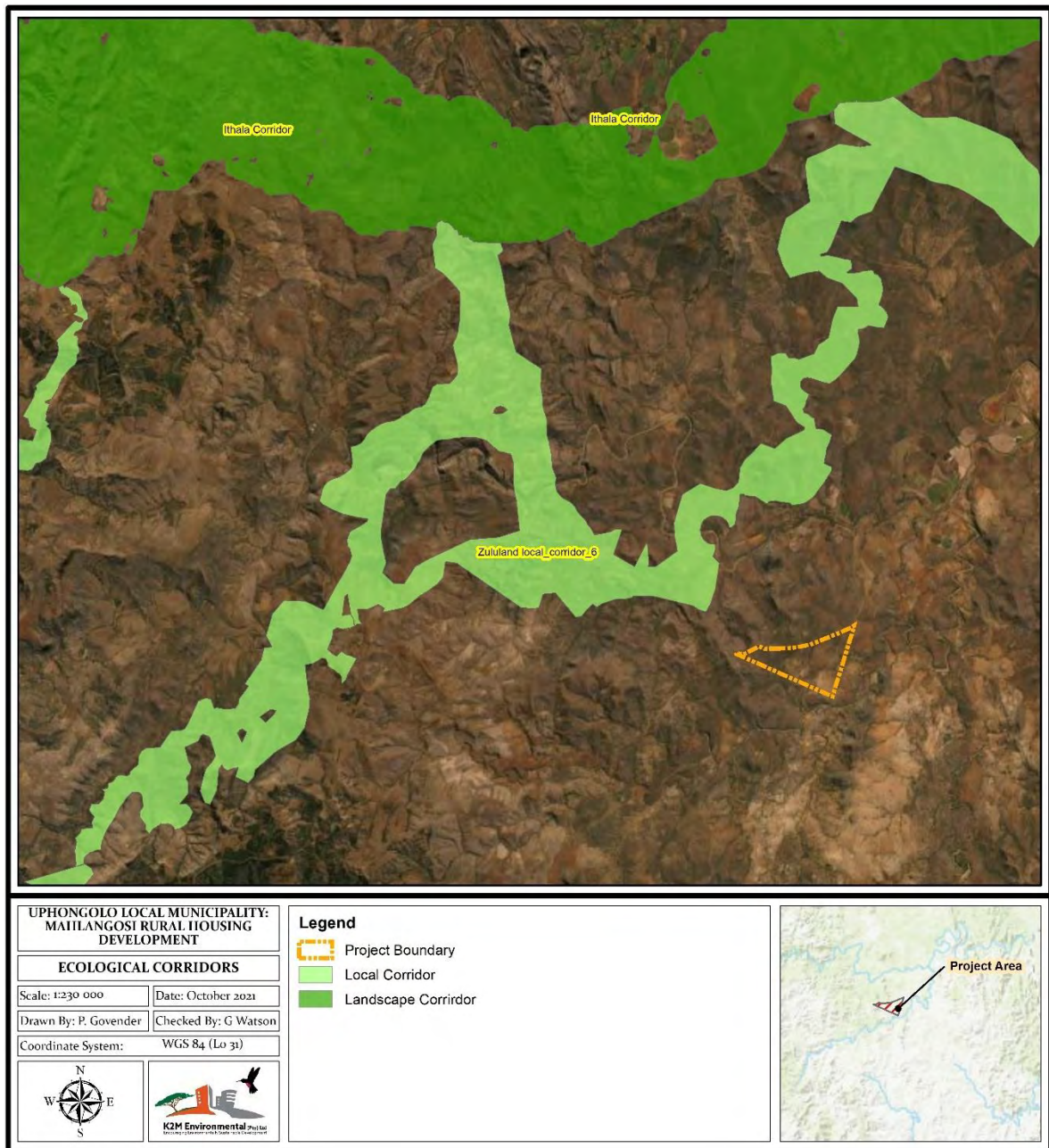


5.8 ECOLOGICAL CORRIDORS

There are two different types of corridors that have been created by Ezemvelo KZN Wildlife, namely, the Landscape Corridors and the Local Corridors. Landscape Corridors are a series of biogeographic corridors, created to facilitate evolutionary, ecological and climate change processes to create a linked landscape for the conservation of species in a fragmented landscape. Local corridors were developed at a district scale to create fine scale links within the landscape that facilitate ecological processes and ensure persistence of critical biodiversity features.

As depicted in Map 5.9, there are no corridors located within the site. The Zululand Local Corridor is located approximately 3.59km west of the project area.

Map 5.9: Ecological Corridors



5.9 CRITICAL BIODIVERSITY AREAS

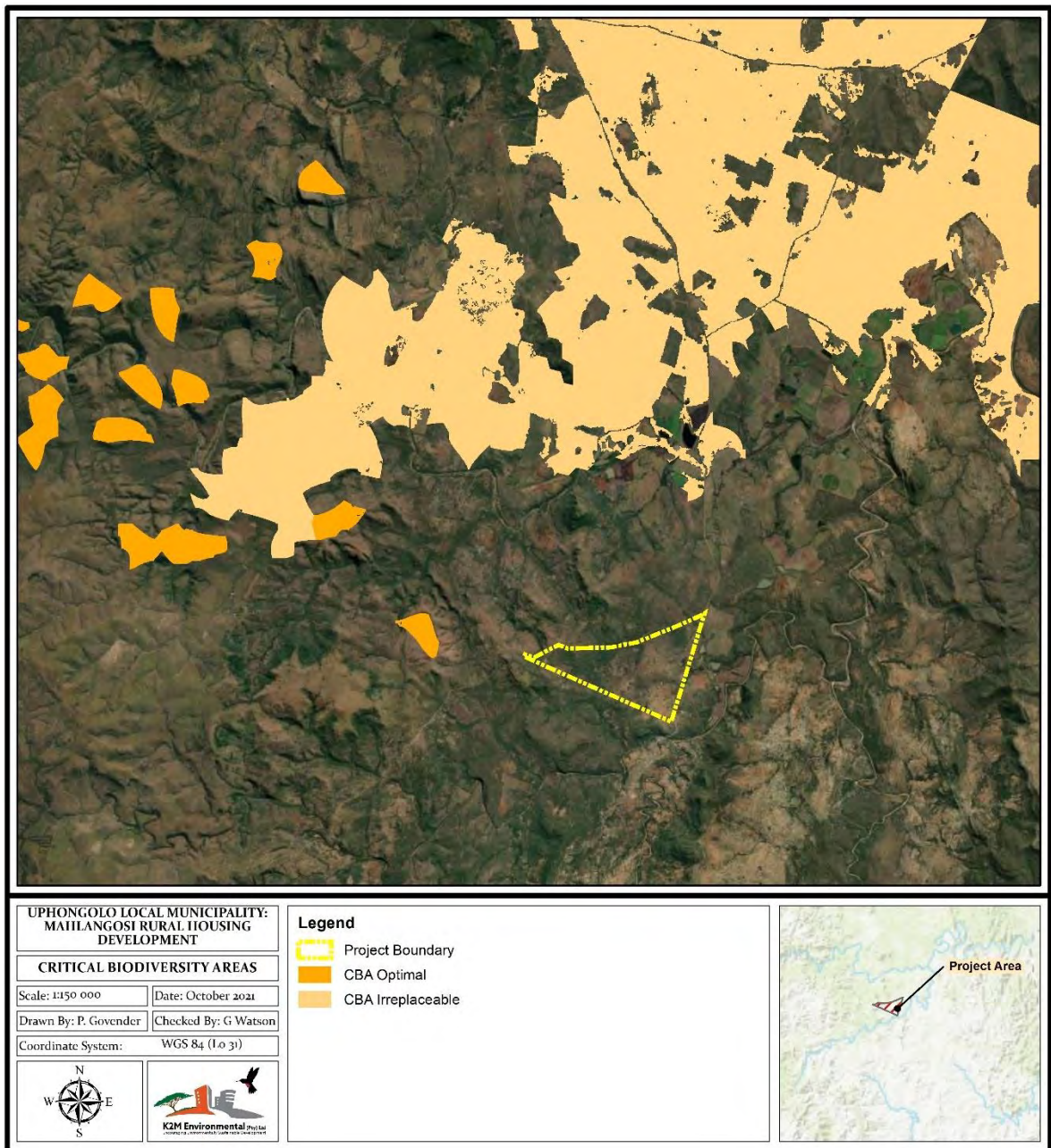
The Critical Biodiversity Areas (CBAs) can be divided into two subcategories, namely Irreplaceable and Optimal. The CBA categories are based on the optimised outputs derived using systematic conservation planning software, with the Planning Units (PU) identified representing the localities for which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

Map 5.10 below depicts that there no Critical Biodiversity Areas situated within the project area. A CBA: Optimal area is located approximately 3.89 ha west of the site.

Map 5.10: CBAs



Source: KZN Wildlife, 2016

5.10 MINERAL DEPOSITS

There are no mineral deposits occurring within the boundary of the Mahlongosi Rural Housing project area.

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 AmafaKwazulu-Natali (Heritage KwaZulu Natal) is to comment on the need for an archaeological assessment for proposed development if:

- Development area is larger than 5 000m²
- Development is longer than 3 00m
- The development area contains known archaeological sites.

However due to the fact that the proposed project constitutes an in-situ type upgrade, it is not expected that the implementation and operation of the proposed project will result in any new adverse impacts on any archaeological, historical or cultural sites which may be present within the area. It is however recommended that documentation pertaining to the proposed development be submitted to KZN AMAFA for their comment.

6 EXISTING SETTLEMENT PLAN

The project area is approximately 713.57 ha in extent and is located within Ward 1 of the Uphongolo Local Municipality. The total population of the Uphongolo Local Municipality, as recorded in the Census 2011 is estimated at 127 221 persons while the overall population of the Mahlongosi Rural Housing project area is approximately 1 799 persons.

The project area's leadership has the right to allocate residential sites to members of their Traditional Authority within the proclaimed Mahlongosi Rural Housing area. Each family is then permitted to build their own houses on these allocated sites, which are referred to as "iMuzi's". These iMuzi's comprise of a combination of a number of familial homesteads which are grouped together and constructed in close proximity to one another on the same "communal" patch of land, with patches of cultivated subsistence land which are made use of for subsistence agricultural purposes which are generally located adjacent to and around the homestead areas. Due to the fact that Zulu culture permits men to have more than one wife, this iMuzi settlement pattern is beneficial with regard to polygamous families, where one male may reside in an iMuzi with his various wives and their associated families. When children of the family's reach adulthood, they then generally build their own homesteads within the very same iMuzi. These homesteads also get passed down from one generation to the next.

Followers of traditional Zulu culture generally bury their dead within the iMuzi area. Such a practice results in residents being very reluctant to leave their traditional iMuzi areas to relocate to a new area, as their ancestors and loved ones would be left behind.

While most iMuzi's occurring within the project area had areas of land adjacent to their iMuzi which were cultivated and/or planted to be made use of for subsistence purposes, the land throughout the area is available to all its residents for communal livestock to graze on.

The project area is largely characterized by scattered medium to low density traditional rural iMuzi settlements which is predominantly located to the east of the site. While homesteads incorporating a mix of round and rectangular structures constructed making use of both traditional (mud brick, wattle and daub, thatch roof) and more modern (cement grouted concrete blocks and corrugated iron roof) materials and techniques were observed within the project area, the vast majority of the

homesteads encountered were of a traditional nature comprising of traditional homesteads constructed making use of traditional materials and traditional techniques.

The spatial distribution of households across the area seems to be determined by a number of influencing factors which will be discussed accordingly below:

- The settlement pattern across the project area to a large extent correlates with the existing Provincial, District network that provide access to the project area.
- A number of non-perennial river and stream networks traverse the project area. Aspects such as river networks are an influencing factor with regards to the settlement distribution of the project areas homesteads. Whereas previously the area may not have been adequately catered to with regards to water services and water infrastructure, residents would have traditionally relied predominantly on rivers and streams for their water needs. Historically, residents' dependence on water obtained from rivers and streams located within the area would have been an influencing factor with regards to their households' location. Households would therefore be located within close enough proximity to nearby rivers and streams but predominantly outside of low-lying, flat areas which may have been characterized by periodic flooding.

The spatial distribution of households within the project area is therefore influenced by a number of cultural, historical and natural features. It is important to note however that the spatial distribution of beneficiaries may pose a limiting factor with regards to the implementation of the proposed project. Those households which are located on steep slopes for example may be excluded from the beneficiary list for the project. Furthermore, due to the Zulu culture regarding the burying of one's deceased family members within the iMuzi area may result in households being reluctant to move in order to benefit from the proposed project and such households may also be excluded from the proposed project. Similarly, due to legislative constraints, those households which are located within the stipulated 32m buffer of all river, streams and wetlands will also be omitted from the Mahlongosi Rural Subsidised Housing development. The proposed projects "in-situ" type nature therefore implies that the existing settlement plan and spatial distribution of households may have repercussions with regards to the implementation of the proposed project. Such a notion would therefore require greater attention during the implementation phase of development. The "in-situ" type nature of the development is however very beneficial from an environmental perspective, this is due to the fact that the only construction activities associated with the project would occur within

already established iMuzi's, and therefore no new/additional areas will be impacted upon as a result of the implementation and operation of the Mahlongosi Rural Subsidised Housing development.

7 SUMMARY AND RECOMMENDATIONS

As indicated in the Introduction and Background to this report, the exact extent of the housing project in terms of the application of the subsidies for the purposes outlined in the housing code, and the exact spatial location and distribution of beneficiaries within the broader study area are currently not specified. What is however known is that the total number of households in need of housing (including those residing in traditional houses constructed of traditional materials, backyard structures or informal structures) is approximately 12.17%. The purpose of this preliminary assessment is thus 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:

- Majority (41.74% and 41.83%) of the population within the project area as well as the Local Municipality are younger than the age of 15 years. 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 large 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.
- As much as 50.95% of the population within the project area are male whilst 49.05% are female. In contrast to the project area, majority of the population within the Municipality (53.06%) are female. Measures with which to ensure gender equality will thus have to be implemented as part of the proposed projects development phase.
- Majority (35.48%) of the population within the study area have some form of secondary education. As much as 17.80% have no form of schooling and only 2.87% have a tertiary qualification.

- The predominant housing type with the project area (87.84%) and the Local Municipality (76.82%) is the “House / Brick Structure”.
- Approximately 59.71% of households within the study area earn a household monthly income of less than R1 600. Approximately 4.13% of households earn no income whilst 9.09% of households earn more than R6 400 per month.
- Majority of the population within the project area (50.93%) and the Uphongolo Local Municipality (51.28%) are employed whilst 10.52% within the project area and 28.28% with the Municipality are unemployed.

7.2 SERVICES ASPECT

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

- Approximately 35.80% have piped water inside their dwelling, 20.58% piped water inside their yard. As much as 42.18% of households do not have access to piped water. Majority (40%) of households source water from a river or stream. Approximately 27.42% of households depend on boreholes and approximately 17.94% rely on rainwater which is collected and stored in tanks.
- Majority (47.22%) of the households in the project area do not have access to sanitation. Approximately 23.30% make use of the unimproved pit latrine, 11.55% make use of improved pit latrine and 7.84% have access to flush toilets connected to a sewer system.
- During the time of the survey, approximately 48.97% of households within of the study area indicated that they had access to electricity while 49.18% used candles.
- Majority (40.75%) of households within the project area make use of their own dump and approximately 26.65% of household do not have make use of any waste disposal. As little as 1.03% have their waste removed on a weekly basis.

7.3 INFRASTRUCTURAL ASPECTS

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

- There is a provincial, district road that traverses the project area, namely the P52 and the D124.

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 agriculture together with low to medium dense households.
- The dominant land cover within the project area is “Forest and Woodlands” with the central portion being classified as “Cultivated: temporary – semi-commercial/subsistence dryland”.
- There is a number of non-perennial stream that traverses 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. All new household structures will be located at least 32 m’s away from the bank of any river, wetland or stream.
- There are no FEPA wetlands that are within the project area. The closest NFEPA Wetland is situated approximately 82m east of the site.
- Majority (89.19%) of the site is classified as land with High Agricultural Potential
- The project area is characterised by two vegetation types, the Northern Zululand Sourveld and Zululand Lowveld. The dominant (86.58%) vegetation type within the project area is the “Zululand Lowveld” followed by the “Northern Zululand Sourveld” vegetation type which is covers approximately 13.42% of the site.

- There no Critical Biodiversity Areas situated within the project area. A CBA: Optimal area is located approximately 3.89 ha west of the site.
- There are no corridors located within the site. The Zululand Local Corridor is located approximately 3.59km west of the project area.
- There are no protected areas located within the project area or within 10km of the site. The closest protected area is the Somkhanda Nature Reserve which is situated approximately 12.21km north east of the site.
- There are no known archaeological, cultural or historical sites or artefacts located within the Mahlongosi Rural Housing project area. Due to the “in-situ” type nature of the proposed project, should any sites or artefacts of archeological, 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. Should there be any Greenfield Development, larger than 5 000m², a Heritage Impact Assessment will be required.
- No detailed quantifiable information is currently available on various forms of pollution in the study area. A number of important observations can however be made in this regard:
 - Elevated levels of air pollution, especially during the winter months, are common in the area due to the extensive use of firewood and fossil fuels for heating and cooking purposes.
 - High levels of environmental pollution are evident resulting from the absence of any form of waste collection and management system within the 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 project area is characterised by two vegetation types, the Northern Zululand Sourveld and Zululand Lowveld. The dominant (86.58%) vegetation type within the project area is the “Zululand Lowveld” followed by the “Northern Zululand Sourveld” vegetation type which covers approximately 13.42% of the site
- The project area is characterized by a low to medium density scattered rural iMuzi settlement.
- Residents are generally reluctant to move or relocate due to the fact that they bury their dead within their familial iMuzi.

7.6 RECOMMENDATIONS

Based on the existing available desktop overview, it does not appear as if there are any material barriers to the proposed rural housing development from an environmental impact perspective. The specific impacts which can be anticipated and may have to be managed during the implementation phase will only be known once the exact project extent, location and characteristics have been finalized. Some potential mitigation measures include the following:

- Remove invasive alien vegetation at the project sites
- Soil erosion on site must be prevented during the pre-construction, construction and operational phases.
- Suitable erosion control measures must be implemented in all areas potentially sensitive to erosion such as near water supply points edges of slopes etc.
- Ventilated improved pit toilets must be located away from drainage lines, boreholes and natural springs and at a sufficient distance from the 1: 100 year flood line in watercourses.
- AmafaAkwazulu Natali (Heritage KwaZulu-Natal) has to comment on the need for an archaeological assessment for the proposed development according to Section 27 of the KwaZulu-Natal Heritage Act, No. 10 of 1997.
- A solid waste management plan must be formulated for the areas addressing aspects such as the collection, sorting, recycling and disposal of waste.
- Provision of litter containers in public places to address the litter problem.
- No development is to take place within the 32m buffer of rivers, streams and wetlands.
- No development is to take place on slopes that are steeper than 1:3.

- The following waste management principles should be taken into consideration during construction and operation phases:
 - The excavation and use of rubbish pits on site or the burning of waste at the construction camp is forbidden.
 - Refuse must be placed in designated skips or bins in the camp area and at construction sites. These should remain within demarcated waste areas and should be covered to prevent refuse from being blown out by wind and attraction of vermin.
 - Recycling is to be encouraged by providing separate bins for different types of waste and making sure that staff is aware of their uses.
 - Littering in the camp area or on site is forbidden and the site must be cleared of litter at the end of each working day.
 - Skips and bins must be emptied regularly (at least two-weekly), removed from the camp site and construction sites and transported to a DEDTEA-registered recycling and waste facility.
 - Waste from chemical toilets should be disposed of regularly at a certified waste facility by a registered waste contractor. Care must be taken to avoid contamination of soils and water and pollution of construction sites and adjoining areas.
 - Beneficiaries are not to burn any form of waste.
 - Waste is to be moved on a weekly or bi-weekly basis.

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 rural 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 rural 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 neighborhood, 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 palaeontological 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 palaeontological 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 plans 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 take 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

8 CONCLUSION

In view of the summary conclusions outlined above, as well as the fact that the project entails the construction of new houses within the boundaries of existing iMuzi's (in-situ upgrading), it is our view that the project will not impact negatively on the environment. The project will in fact provide suitable living conditions to the rural community and contribute to Rural Development.

It should be noted that from past experience on similar projects, Environmental Authorisation was not required. There will be no construction of roads and no development within 32m of any watercourse. It is important to ensure that no listed activities are triggered during construction. Should there be removal of 1ha or more of indigenous vegetation or should activities listed below be triggered, Environmental Authorisation from DEDTEA will then be required for the proposed project. Specific attention needs to be paid to the following activities that could be triggered if contractors are not made aware of it:

Table 8:1: Activities that may be triggered without proper monitoring

Listed Activities	Listed Activities	Potential to be Triggered
Activity 12 of GN.R. 327	The development of – (ii) infrastructure or structures with a physical footprint of 100 square metres or more; Where such development occurs – (a) within a watercourse; (c) if no development setback exists, within 32 metres of a watercourse;	Although each imuzi to be constructed will be 42 square metres, the cumulative impact will be larger than 100 square metres hence no development is to take place within 32m of any watercourse.
Activity 19 of GN.R. 327	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging of, excavation, removal of soil, sand, shells, shell grit, pebbles or rocks of more than 10 cubic metres from a watercourse;	Temporary access to the project area might be through a stream. Therefore, no crossings of watercourses are permitted. There are to be no sanding wining activities that are to take place within the rivers or river beds.