

# OKHAHLAMBA LOCAL MUNICIPALITY

## NOGAGA 'A' RURAL HOUSING PROJECT PRELIMINARY ENVIRONMENTAL REPORT

Prepared for

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## **SECTION 1: INTRODUCTION AND BACKGROUND**

### ***1.1 INTRODUCTION***

The proposed Nogaga 'A' Rural Housing development (in Ward 9 of the Okhahlamba Local Municipality) is intended to be an in-situ upgrade of existing residential structures by construction of standardized 40m<sup>2</sup> government subsidized low income houses and VIP toilets (in some cases) within the compound of each qualified beneficiary. Often, one house is built per household. This type of developments, are usually not expected to follow a formal settlement layout plan as the new houses are put in the houses where they are currently located. No infrastructure development such as roads are expected.

Nature and Development Group of Africa was appointed to undertake an environmental investigation and to prepare an environmental report as part of the overall feasibility assessment to be submitted to the KZN Department of Human Settlement for project approval purposes. This report provides results, conclusions, and recommendations of the preliminary environmental investigations that was undertaken. The report is based on field investigation, assessment of potential issues, and verification of relevant environmental data bases. The content of this report is tailored to meet the environmental assessment requirements of the Department of Human Settlements and provides sufficient information for decision making regarding compliance to regulatory environmental requirements and the decision making needs of the housing development.

### ***1.2 PROJECT BACKGROUND***

Housing development is a prioritized development programme of the Okhahlamba Municipality in fulfillment of the broader National Human Settlement and Service Delivery Programme. In order to improve settlements and provide households with formal housing, the municipality proposes to provide more suitable housing in the Nogaga community. The project is referred to as Nogaga 'A' Rural Housing Project.

### ***1.3 OBJECTIVES OF THIS ENVIRONMENTAL SCOPING***

The principal objective of this environmental investigation is to identify any sensitive environments (biophysical or socio-cultural) within the project area and advice on the implications that these may have for the proposed development. The results of this environmental analysis are to include:

- Clear indications of whether or not there are significant physical, socio-cultural and legal barriers that will merit a 'no development' option;
- Clear indications of any significant issues relating to the project and whether or not any further studies are recommended and what such studies should entail;
- Whether any identified environmental limitations can be mitigated and what the mitigation recommendations are.
- What legal barriers or liabilities are associated with the project and what processes must be followed to fulfill such legal requirements

#### ***1.4 RELEVANT LEGISLATION AND REGULATORY REQUIREMENTS***

There are a number of legal and regulatory provisions, which are relevance to the Nogaga 'A' Rural Housing Project, particularly those that address issues relating to Health and Safety, limited development areas, and identified activities. The Acts and Regulations described below have environmental requirements that bind the municipality to uphold all environmental safety considerations under the relevant sections of the various Acts during the planning and implementation processes of this project. For example, the requirements of the National Environmental Management Act declares that no person shall cause an activity identified in terms of the regulations GNR 38282 of December 2014 and the amended regulations of April 2017, to be undertaken unless authorization is obtained from the relevant decision making authority.

Relevant provisions of these Acts were therefore considered during the scoping process so as to ensure that bottlenecks are eliminated at the implementation stage of the project. These regulatory requirements are briefly described below:

##### ***1.4.1 National Environmental Management Act 107 of 1998***

The objective of this Act is to provide for the conservation of natural resources by maintaining the production potential of land, combating and preventing erosion, preventing the weakening or destruction of water resources, protecting natural vegetation, and preventing and/or combating invader plants and weeds. The planning and implementation processes of the proposed Nogaga 'A' Rural Housing Project therefore need to take cognisance of relevant provisions of this Act.

Also relevant to this development are related Acts of NEMA including the National Environmental Management Biodiversity Act and the National Environmental Management Biodiversity Act.

#### **1.4.2 Occupational Health and Safety Act of 1993**

The specific requirements under this Act that are relevant to the Nogaga 'A' Housing Project, are the regulations on Major Hazardous Installations (MHI) and their potential health and safety impacts. Section 9 of the MHI regulation, which came into force in 1999, requires that where practicable the local authority shall prevent any development adjacent to an installation that has been declared a major hazardous installation.

This Act Also bears relevance to the National Environmental Management Act, which requires proponents of development to ensure a 'risk averse' approach where there is adequate information that a given development is associated with potential for health and safety risks to beneficiary and neighbouring communities. Where a given development involve the settlement of communities, as in the case of the Nogaga 'A' Rural Housing project, the requirements of this Act need to be carefully and adequately integrated in the settlement planning process.

#### **1.4.3 Spatial Planning and Landuse Management Act (SPLUMA)**

The above Act was established to facilitate the integration of strategic planning initiatives in all landuse activities. However, enshrined in this Act is the provision that developers are to ensure that adequate consideration is given to impacts and management of the impacts of the development on both the receiving and beneficiary environment.

#### **1.4.4 KwaZulu Natal Heritage Act and the National Heritage Resources Act**

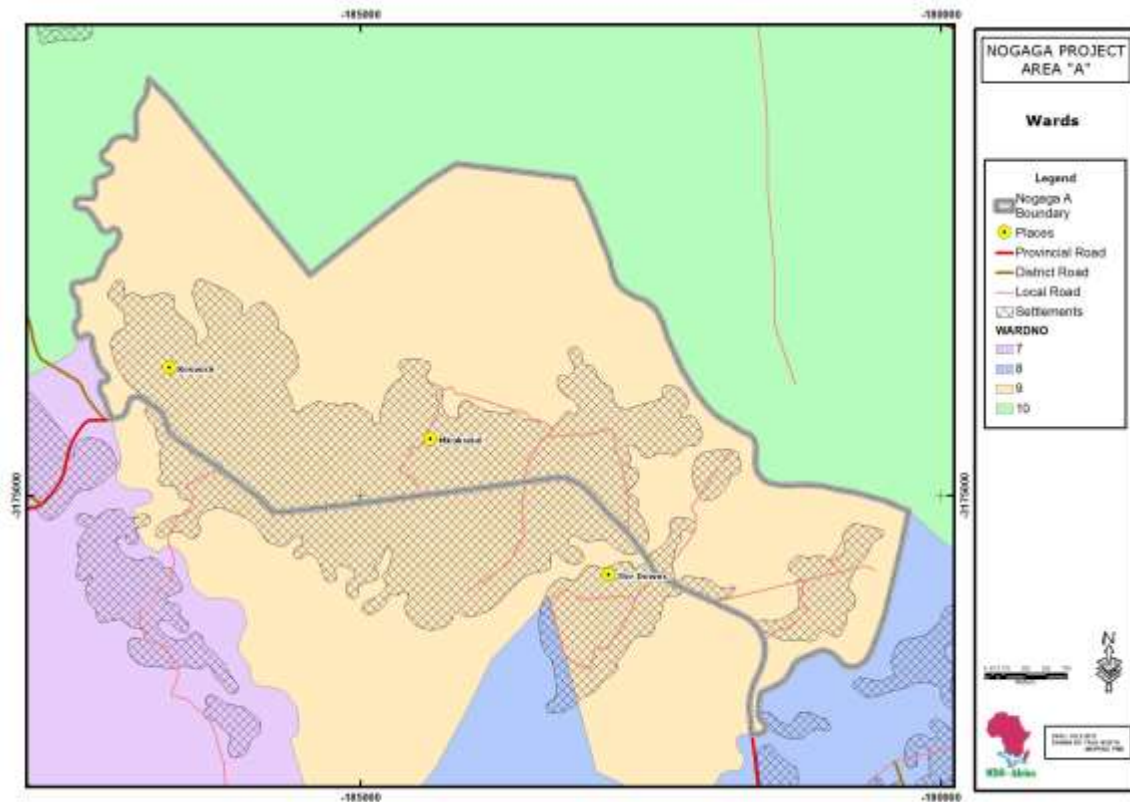
Informal settlements in many instances are areas where cultural resources such as burial sites are located. It is also possible that other heritage materials such as archaeological materials may be found in these informal settlements. Thus in the process of formalising informal settlements, it is always expedient to consider the legal requirements of identifying and handling cultural, historical or religious materials and all permit requirements associated with heritage resources.

## SECTION 2: DESCRIPTION OF ENVIRONMENTAL CHARACTERISTICS OF THE PROJECT AREA

### 2.1 CHARACTERISTICS OF THE EXISTING ENVIRONMENT

#### 2.1.1 Location of the Project

The project area is located within what could be described as a typical rural environment located at the southern boundary of Ward 9 of Okhahlamba Local Municipality. As a typical rural settlement, Nogaga has a rather scattered settlement pattern which covers the western and southern boundaries of the area. Map 1 shows the locality of the project area within Ward 9 of the Okhahlamba Municipality.

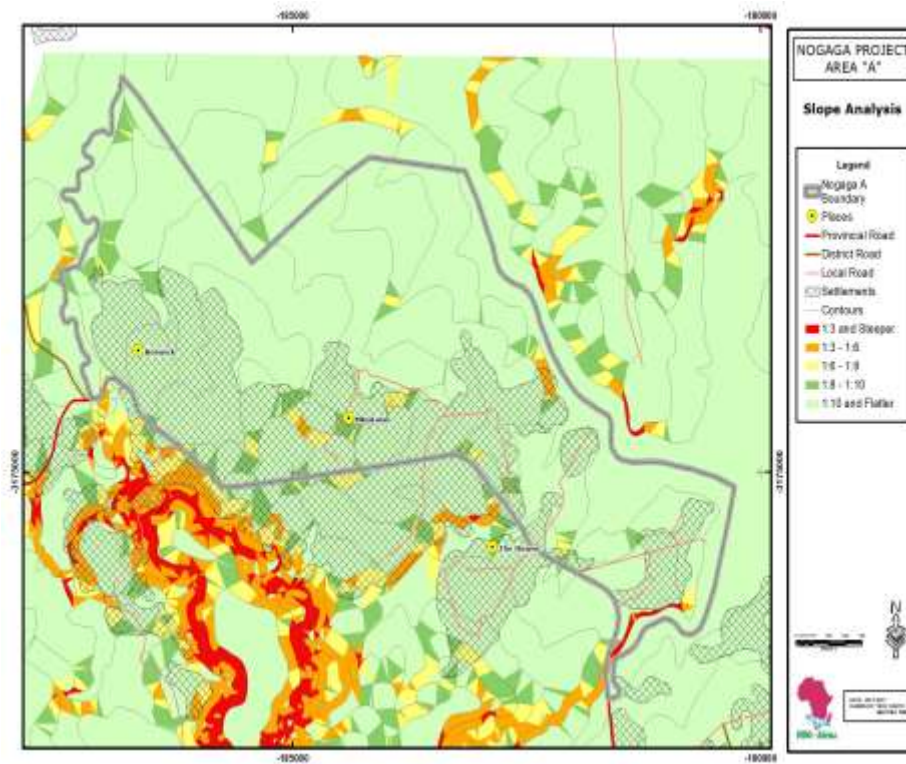


Map 1: Location of Nogaga A Project Area

#### 2.1.2 Physical and Landscape Characteristics

The Nogaga A settlement area is located on a rather generally flat to undulating terrain throughout the project area. Slope appears to be uniform in the project area, the

predominant slope category is the flatter and gentle rolling terrain with slopes estimated to be between 1:10 and flatter (See Map 2).

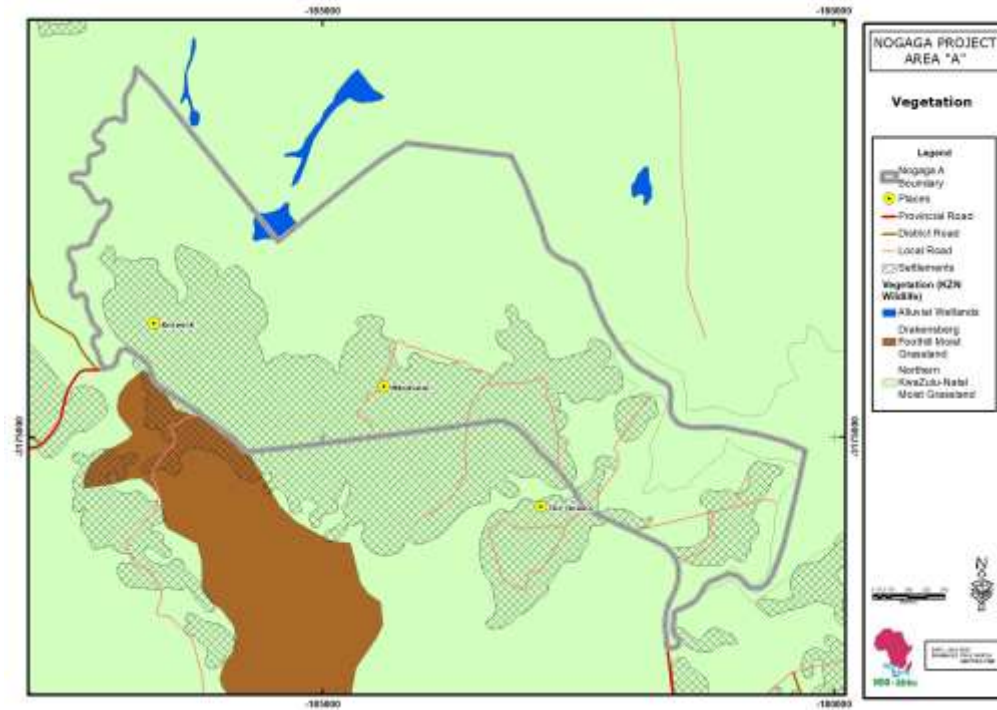


**Map 2: Topography and Slope Characteristics of the Area**

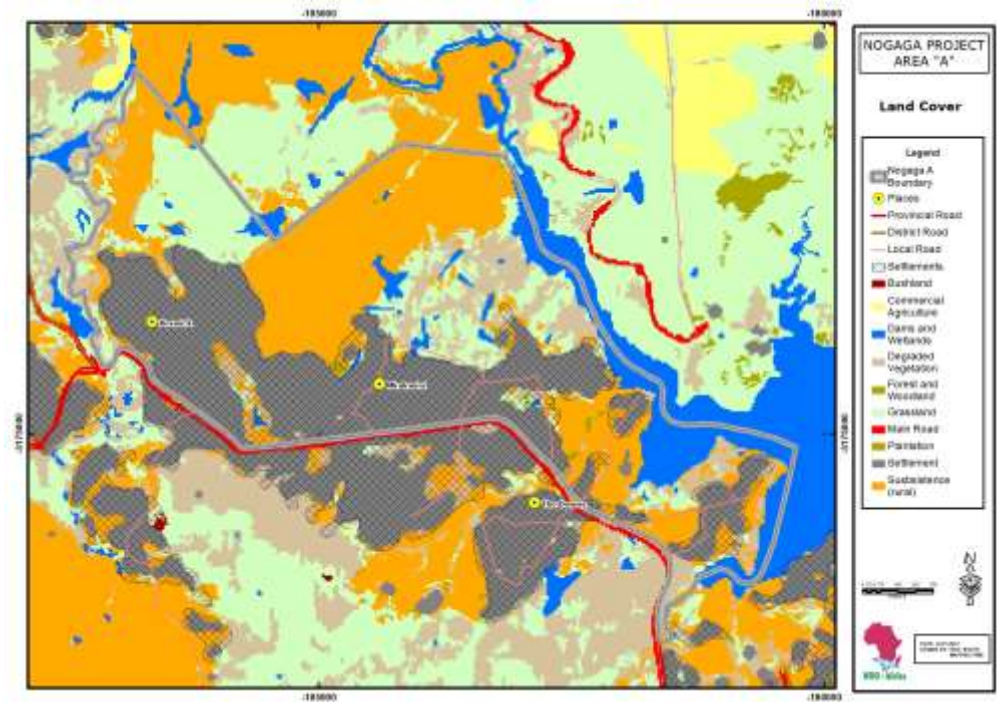
### **2.1.3 Ecological Characteristics**

The area is dominated by two vegetation types according to Mucina and Rutherford 2006 namely the KwaZulu Natal Moist Grassland which is the dominant vegetation type occupying an estimated 80% of the project area, and the Drakensberg Foothills Moist Grassland, which is about 20% of the area and occupies the western highland region. (see Map 3a). Map 3b, showing the land cover character of the project area, indicates the vegetation areas that have been transformed and the main agents of the modification. In this map settlement and subsistence farming appear to be the main agents of transformation of vegetation in the area. It is also noted that vegetation degradation as a result of other factors such bush fires and erosion also make significant contribution to the modification of vegetation in the area especially in the central and eastern half of the project area.





Map 3a: Vegetation types in the project area

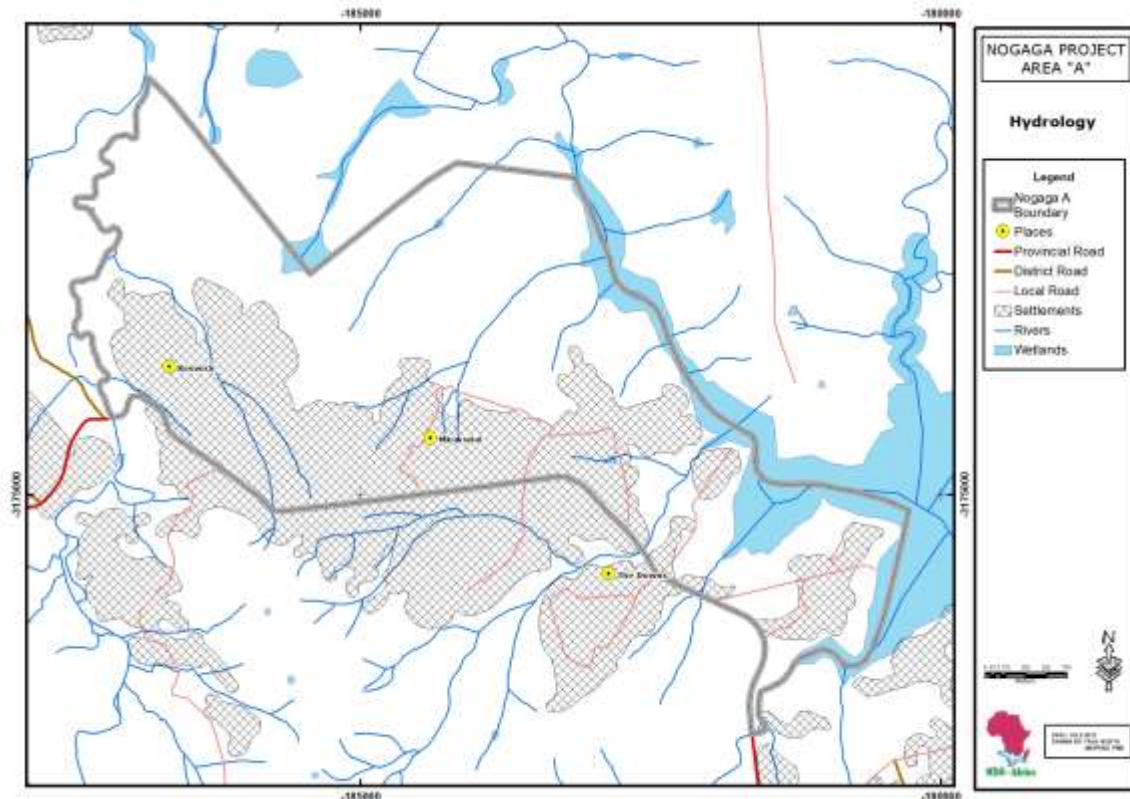


Map 3b: Land cover



### 2.1.4 Hydrological Characteristics

The character of the terrain within and around the project area accounts for the nature of drainage lines in the area. A few drainage lines arise from southern midlands and drain into a narrow portion of the Woodstock Dam located at the north eastern boundary of the project area. Map 4 shows the drainage system of the area.



**Map 4: Hydrology of the project area**

### 2.1.5 Current and Potential Land-uses

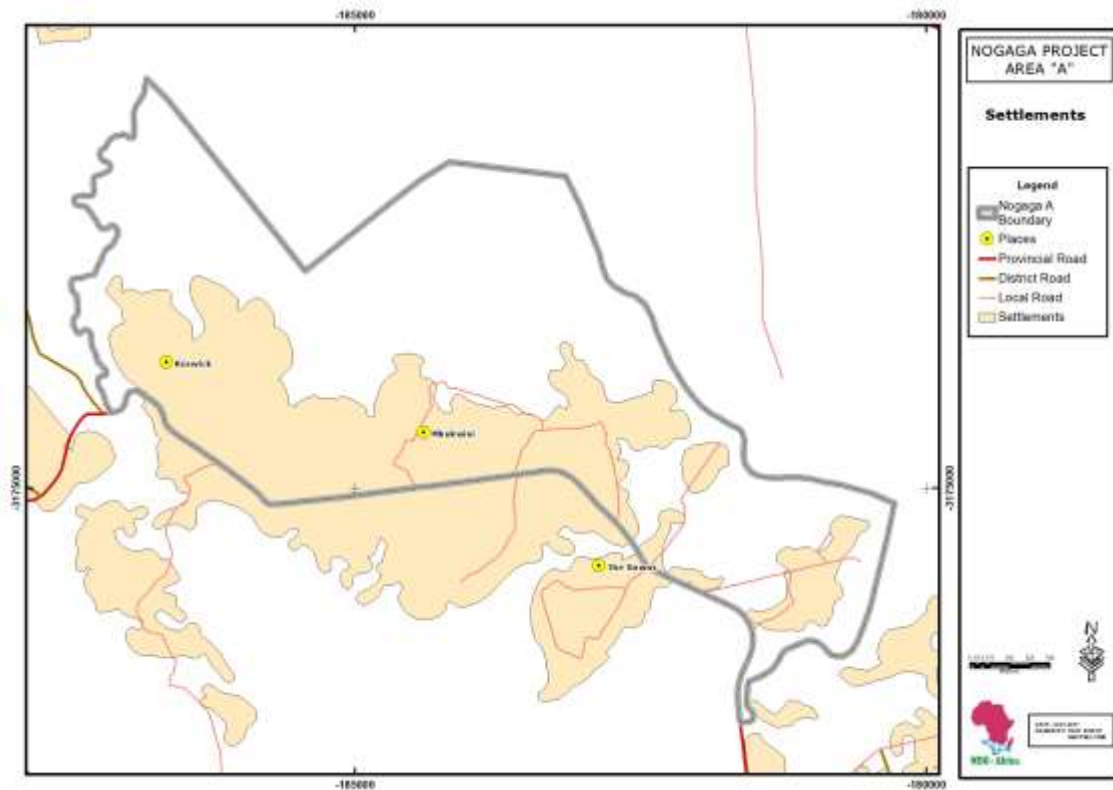
Investigations indicate that the project site is surrounded predominantly by relatively untransformed bushland and grassland. The main landuse feature of significance is settlement. Subsistence agriculture is also a significant landuse activity especially in the central and eastern low lying areas, implying that livelihood is largely derived from household farming activities. Map 3b shows the general landuses in the area.

**2.1.6 Proximity to Major Hazardous Installations (MHI)**

Assessment of the project area indicates that there are no known major hazardous installations of industrial nature within reasonable range of the area. However, the indirect mining effects of the mine in the vicinity of the project area could be hazardous to the residents in close proximity to the mine.

**2.1.7 Existing Infrastructure and Services**

The settlement consists of clusters of rural residential homesteads (Map 5) expanses of vegetation and drainage lines. There are a few primary schools but only one secondary school and no health center within the boundary of the project area. Roads consist of untarred gravel poorly distributed in the project area. Since this settlement is informal it has limited social services which may not entirely meet the needs of population size.



**Map 5: Settlement pattern of the project area**

**2.1.8 Current and Possible Levels of Pollution**

Being a rural area, litter is limited and observed waste is mainly domestic waste materials of both degradable and non-degradable character. Human waste disposal in the Nogaga community is mainly by pit latrines and VIP toilets. Should the community not be formalized, future pollution levels is likely rise and could be a source of health hazard to the community.

## **SECTION 3: POTENTIAL ENVIRONMENTAL ISSUES**

### ***3.1 POTENTIAL ENVIRONMENTAL ISSUES RELATING TO THE BIOPHYSICAL ENVIRONMENT***

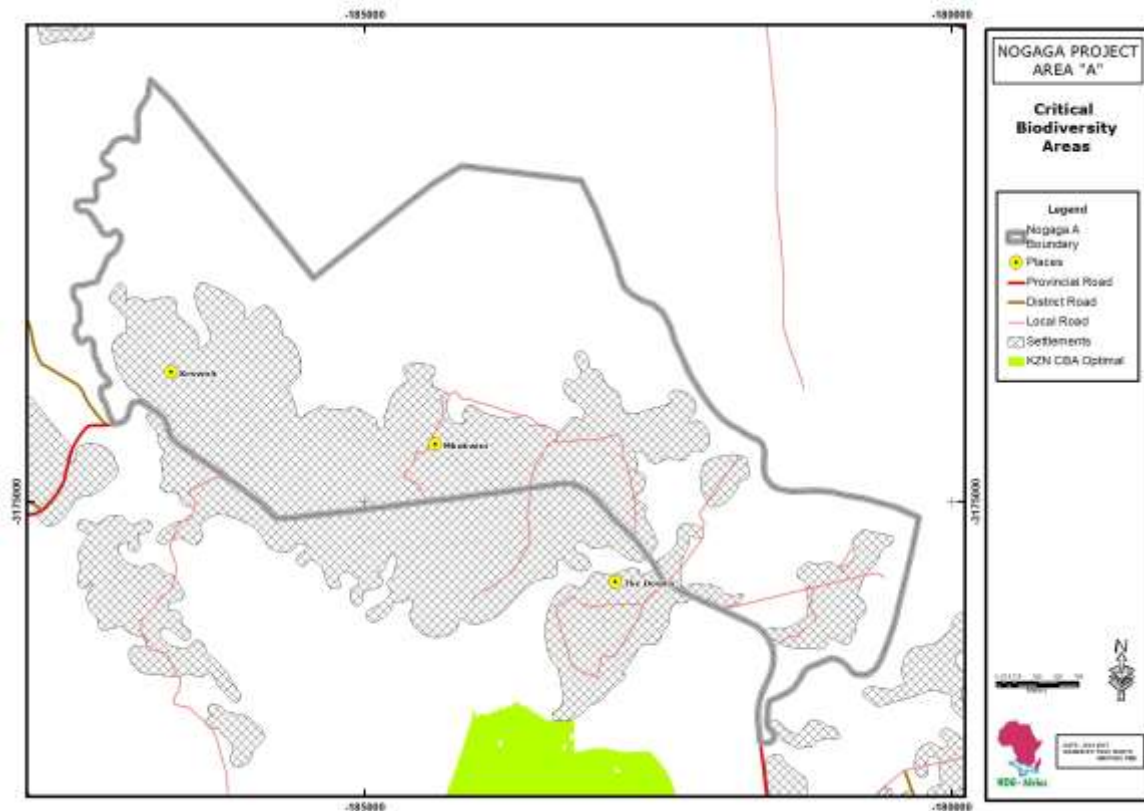
#### ***3.1.1 Landscape Issues***

Majority of the existing buildings are located on slopes that are within the permissible gentler than 1:3 range of slope for settlement purposes. Due to the fact that majority of the area is located on a slope it is recommended that geotechnical investigation be conducted during detail planning stage of the housing development process.

#### ***3.1.2 Ecological Issues***

Being and existing informal settlement, vegetation in the settlement areas is highly degraded with indications of significant alien plant infestation. Few trees of ecological significance are found in the areas that have already being settled. However, the fringes of the drainage lines emanating from the western hills and untransformed areas have maintained a relatively denser vegetation cover with few indigenous tree species. Since this vegetation act as protection against erosion, the planning process of this development should consider a buffer large enough to ensure the protection along the drainage lines.

It is further noted that Critical Biodiversity Areas, do not occur in the project area. Map 6 does show that these CBA is currently not affected by the development since the area is far from any existing settlement. In the case of this development it is noted that the potential impacts on the vegetation is likely to be low since activities are expected to occur within homesteads where transformation has already occurred. However, unnecessary removal of vegetation must be avoided and great caution need to be exercised especially in the identified the CBA to ensure that activities in the vicinity do not extend into CBA.



**Map 6: Critical Biodiversity Areas**

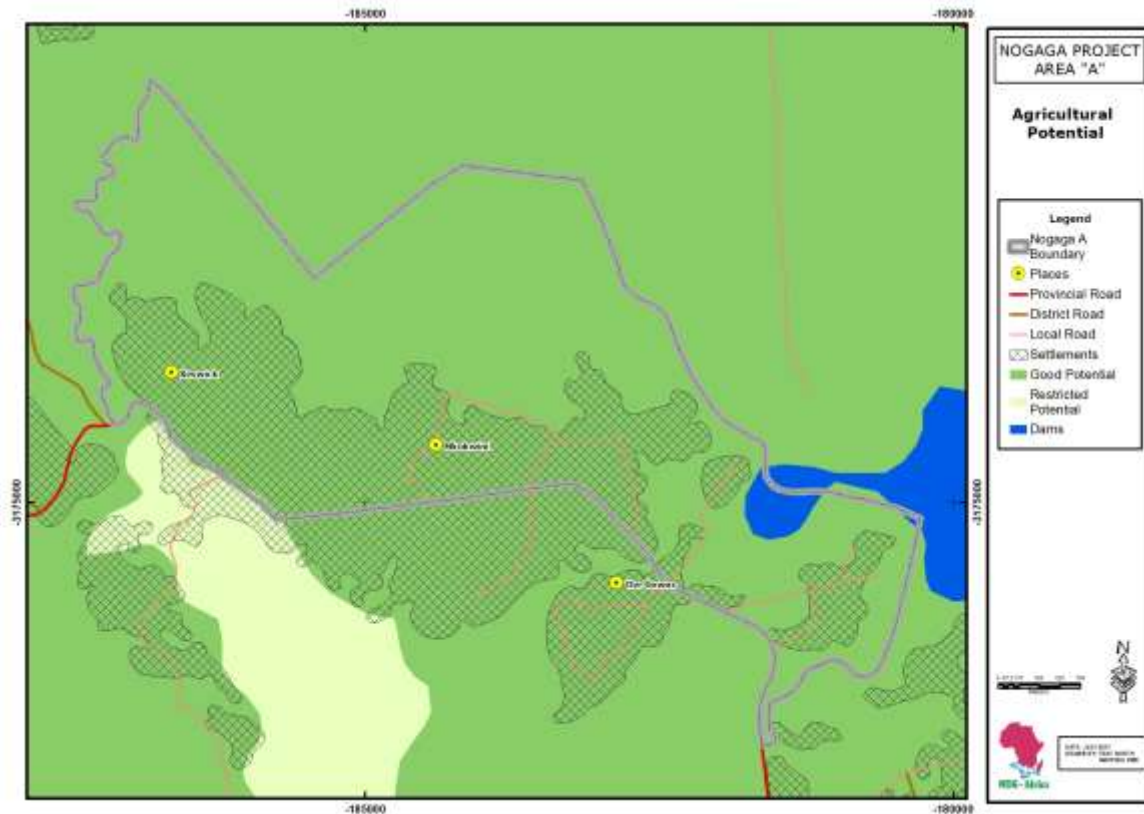
### **3.1.3 Hydrological Issues**

It should be noted that all drainage lines are important environments that require protection especially in the current state of water crises in the country. It is noted however that, there are no households that appear to be living within or close to any river or wetland areas along the drainage lines in the project area. However, the areas close to the edge of the Woodstock dam must be carefully relooked during detail assessment. It should be stressed that the 1:100 years floodlines for major rivers need to be established and the development kept outside of floodline limits.

### **3.1.4 Land use Issues**

Current land use in the area is predominantly settlement. There will be very little change of land use from the current system due to the proposed development. Additionally, the proposed development will not significantly affect surrounding land uses. However, the community relies largely on subsistence agriculture and vegetable gardening as a main or supplementary source of household income. Given that the agricultural potential of the area is said to be of the category of GOOD (Map 7), the planning should integrate

the current agricultural practices into the general settlement planning process. Further, implementation of the project should not disrupt or interfere with the current agricultural activities taking place in the area.



**Map7: Agricultural Potential of the area**

### ***3.1.5 Health and safety issues from major hazardous installations***

The proposed project area is not in close proximity to any industry classified as a major hazardous installation. Thus health and safety issues are likely to be insignificant as far as this development is concerned.

### ***3.1.6 Pollution and sanitation issues***

#### ***3.1.6.1 Sanitation***

Current levels of pollution and sanitation pose limited health risks to the community. However, inadequate stormwater drainage systems coupled with a potentially high surface water runoff in the area, could result in water pollution and contamination risks

in the area. Given that impacts on life support systems (such as water) at a given point is propagated over long distances, water contamination within the community could be a source of severe health risks for downstream users should the contaminants reach the Woodstock Dam.

### **3.1.6.2 Sewage**

The management of pit latrines involves relocation of the pit once existing ones are full and is associated with pollution potential of both ground and surface water systems. Should pit latrines be used, such toilets should be carefully positioned so as to avoid contamination of natural water systems. Since there are no conventional waste treatment facilities in the area, the VIP toilets as an alternative sanitation system must be planned in such a way that water systems in the area is contaminated.

### **3.1.6.3 Noise levels**

It is likely that there would be increase in the level of noise in the project area during construction activities. This may be a significant nuisance to the more formalized settlements around the project area. Additionally, generation of excessive dust may be a source of pollution in the area and it's surrounding. These pollutants and period of pollution may be temporal and limited to the duration of construction activities and period only.

## **3.1 SOCIAL COSTS OF THE PROPOSED DEVELOPMENT**

- The social cost of the proposed development is low. The benefits that would be derived from the project by far outweigh the negative impacts.
- Perceptions obtained through survey indicate the community fully supports the project
- It is noted that most rural households bury their dead in the homestead. Given that graves and ancestral burial sites are sacred issues to the traditional African household, care needs to be taken project implementation is done in close consultation and participation of households members in order to avoid possible confrontations social unrests.

## **3.2 SUSTAINABILITY OF THE DEVELOPMENT**

- Each beneficiary household would take responsibility for the maintenance of the residential infrastructure. However, owing to acute unemployment and low income levels, regular payment for services may be burdensome to the



community. Thus the nature and quantity of services provided should be commensurate with what the community can afford to pay for.

## SECTION 4 CONCLUSIONS AND RECOMMENDATIONS

This environmental analysis is expected to provide the following answers:

- Whether or not there are significant physical, socio-cultural and legal barriers that will merit a no development option;
- Whether there are any significant issues relating to the project
- Whether or not any further studies are recommended and what such studies should entail;
- Whether any identified environmental limitations can be mitigated and what the mitigation recommendations are.

The environmental investigations conclude as follows:

- **Are there any significant biophysical, socio-cultural and legal barriers that will merit a no development option;**

On the above subject, this environmental assessment concludes that:

- ☞ The few drainage lines in the project area are sensitive environments that may be affected by the development
- ☞ However, the sensitive sites within the project area could be readily identified and delineated so that both the natural and social environments are protected.
- ☞ Since mitigation is readily possible, the presence of sensitive sites should not result in a 'no development' option.

- **Are there any significant environmental issues relating to the project**

On the basis of this investigation, it is concluded that there are no significant environmental issues related to the proposed development.

- **Whether any identified environmental limitations can be mitigated and what the mitigation recommendations are.**

- ☞ This preliminary assessment suggests that potential impacts currently identified can be appropriately and effectively mitigated. These impacts relate mainly to the drainage lines in the project area. The mitigation suggested is that, the floodline in the sites need to be identified. Construction of houses in the 1:100 year floodline must be avoided at all cost. Any residential structure found within in the 1:50 year floodline must be advised to relocate to safer grounds and any in

the 1:100 year should not be serviced or included in this development. It is also necessary to ensure that adequate plans are established towards risk averse measures in the event of floods in the 1:50 years flood area.

- **Are there any further studies recommended and what such studies should entail**
  - ☞ This assessment did not suggest that there is the need for further specialist studies.
  - ☞ However, a detail geotechnical assessment is required to ensure slope and site stability
  
- **What legal barriers or liabilities are associated with the project and what processes must be followed to fulfill such legal requirements**

Rural housing projects by their very nature are low impact developments especially on biodiversity and hydrology, for the reasons that they do not involve any other infrastructure development, and that they are undertaken within existing homesteads where land transformation has largely already occurred. The following key development considerations are made in all rural housing planning processes including the development under consideration:

- No development occurs outside of an existing Umuzi (household compound)
  - No development occurs on land steeper than the prescribed 1:3 slope
  - No development occurs within the 1:100 years floodline
  - Most developments already have VIP toilets since the provision of sanitation is a district function. Where VIP is provided as part of a housing project, it is invariably a replacement of an existing pit latrine, with a better sanitation facility, at a more suitable location where necessary;
  - No access roads are constructed since each target Umuzi, invariably already has access.
- ☞ Like in all rural housing developments, the Nogaga housing project is not expected to follow a formal settlement layout plan. Instead, houses will be constructed within existing homesteads where invariably, significant disturbances to vegetation in particular had already occurred. It is understood that one house will constructed per household.

Given these principles and the very nature of the Nogaga rural housing project, the project is largely a low impact development and does not appear to be limited by any

legislative requirement within the EIA regulations. However, other planning and development requirements need to be investigated as the case may be and compliance to such legal requirements adhered to.