DRAFT ENVIRONMENTAL MANAGEMENT FRAMEWORK FOR THE UMGUNGUNDLOVU DISTRICT MUNICIPALITY: Agricultural Specialist Report

Institute of Natural Resources

DRAFT ENVIRONMENTAL MANAGEMENT FRAMEWORK FOR THE UMGUNGUNDLOVU DISTRICT MUNICIPALITY

AGRICULTURAL SPECIALIST REPORT

Prepared For

uMGUNGUNDLOVU
UMASIPALA WESIFUNDA
DISTRICT MUNICIPALITY
DISTRIK MUNISIPALITEIT

Prepared by

Institute of Natural Resources
P.O. Box 100396, Scottsville, 3209
67 St Patricks Road, Scottsville, 3201
Tel: 033 346 0796
Fax: 033346 0895
e-mail: info@inr.org.za

JULY 2017

TABLE OF CONTENTS

List of Tables

INTRODUCTION

High potential agricultural land is limited in South Africa. Thus the scope for expanding production areas is severely limited. Pressures for the development of non-agricultural land uses in high and medium potential agricultural lands are increasing, which if unchecked, has the potential to compromise national food security. In 2005, it was determined that there was approximately 0.31ha of high potential agricultural land per person. The 2014 estimate suggested that there is approximately 0.25ha of high potential land available per person (DAFF, 2014). Given the continued loss of high potential land combined with increasing population, it is critical to ensure that high potential agricultural land is secured for primary agricultural production to ensure current and future national food security.

This report summarises land capability classification in South Africa and outlines the preferred and discouraged types of land use based on two policy documents, namely the National Preservation and Development of Agricultural land discussion document (DAFF, 2014), and the KwaZulu-Natal Agricultural Land Potential Categories External Report (Collett and Mitchell, 2013).
The key objectives of the policies are:

- **KwaZulu-Natal Agricultural Land Potential Categories External Report**: To ensure long term food security for South Africa with particular focus to mitigate and limit the impact of any proposed change of land use on agricultural production and to protect agricultural land (specifically high and unique agricultural land) in view of the mandated responsibility of the national Department of Agriculture Forestry and Fisheries as well as the KwaZulu-Natal Department of Agriculture and Environmental Affairs.
- **Discussion Document on the Preservation and Development of Agricultural Land:** To implement a country-wide policy and regulatory framework for the preservation and development of agricultural land, which:
    - Encourages farming on agricultural land in collaboration with other role players as well as viable farming units from an economic, environmental and social perspective over the long term. Encourage provincial and local government to enable and promote the use of agricultural land for farming purposes and compatible uses in their policies, legislation and integrated development plans (IDP), spatial development frameworks and other relevant administrative frameworks and procedures.
    - Discourages and/or prohibits unrelated agricultural land uses, subdivision and rezoning of agricultural land those results in fragmentation of agro-ecosystems, reduced agricultural productivity, and/or land degradation.

MAPPING AGRICULTURAL POTENTIAL FOR THE EMF

The agricultural potential mapping relied on the KwaZulu-Natal Agricultural Land Potential Categories Demarcation Tool developed by the KwaZulu-Natal Department of Agriculture and Rural Development (KZNDARD). This was based on the concept of agro-ecological zones (AEZ), defined as a land resource mapping unit where climate, landform and soils and/or land cover, were sufficiently similar that a specific range of potential and constraints for land use could be estimated.

Agro-ecological zones therefore can form the basis for agricultural land use planning, but does require the collection of empirical data at a relevant scale for local level planning, including soil, vegetation, climate, hydrological and degradation data. In addition to this, PAAs, which designate larger areas across diverse natural resources, rather than individual land parcels in isolation, must be considered. PAAs can also direct non-agricultural developments to currently developed areas to intensify development where infrastructure is already in place. The principle of no net loss of agricultural land is provided for within PAAs (i.e. if land is lost to development, additional land should be added to the PAA). Furthermore, the addition of buffer regulations may be introduced at a later date to assist the protection of various categories of land (Collett and Mitchell, 2013). The datasets used in the compilation of the land potential maps included the following:

- The national land capability classification system - The land capability classes were re-classified into five agricultural land potential categories (See Table 3).
- Bioresource programme data – a provincial dataset that classifies the province into a set of Bioresource Units (BRUs), where soils, vegetation, climate and terrain form are sufficiently similar to provide for similar recommendations in terms of agricultural land management.
- Grazing potential – the KZN rangeland condition dataset was derived through extensive vegetation surveys conducted over the last three decades. Thus areas which are considered low potential in terms of arability were re-allocated as higher categories due to their high grazing potential (e.g. sweetveld on shallow soils).
- Permanently transformed dataset – the 2009 Landcover dataset was used to identify permanently transformed areas.
- Protected areas dataset – this identified areas proclaimed as protected under the National Protected Areas Act 57 of 2003.

Assumptions and limitations

These datasets formed that basis for mapping agricultural land potential in the study area. However, it should be noted that existing natural resources datasets cannot spatially depict, in sufficient detail, areas of varying land potential. For example, detailed soil survey information as a building block for determining agricultural production potential is not available for large portions of the Province. Thus, it is not possible to accurately map areas of, for example, high potential irrigable and/or arable land at a very fine scale. This implies that where localised specialists studies provide sufficient motivation for a change in land potential, a change in land potential classification can be justified.

Applications for change of land use from agriculture to non-agricultural use (including agroprocessing)

To understand requirements for applications for change of land use, it is necessary to first understand how agricultural land potential is classified. This is discussed below.

Land capability classification

Land capability classification determines the suitability of land to different forms of agriculture, based on climatic and biophysical characteristics. Land capability classes range from I to VII, with classes I-III considered suitable for annual cropping. Class IV can be used for annual cropping but has severe limitations and requires a high level of management. The Land Capability Classes are provided in Table 1.

Table 1: Agricultural use of land capability classes

Class	Definition	Conservation need	Use suitability
I	No or few limitations. Very high arable potential. Very low erosion hazard	Good agronomic practice	Annual cropping
II	Slight limitations. High arable potential. Low erosion hazard	Adequate runoff control	Annual cropping with special tillage or ley (25%)
III	Moderate limitations. Some erosion hazard	Special conservation practice and tillage method	Rotation of crops and ley (50 %)
IV	Severe limitation. Low arable potential. High erosion hazard	Intensive conservation practice	Long term leys (75%)
V	Water course and land with wetness limitations	Protection and control of water table	Improved pasture or wildlife
VI	Limitations preclude cultivation. Suitable for perennial vegetation	Protection measures for establishment e.g. Sod-seeding	Veld and /or Wild life
VII	Very severe limitations. Suitable only for natural vegetation	Adequate management for natural vegetation	Natural veld grazing and afforestation
VIII	Extremely severe limitations. Not suitable for grazing or afforestation	Total protection from agriculture	Wildlife

Agricultural land capability is an important determinant of whether or not a change of land use from agriculture to non-agricultural use will be allowed.

The preservation and development of agricultural land framework (PD-ALF)

The proposed preservation and development of agricultural land framework (PD-ALF – See Appendix 1 for more detail) is scheduled to be enacted in the next 12 – 18 months (Mitchell, pers comm). This draft legislation has classified agricultural land according to the following classifications and imposes the following land use change limitations (See Appendix 1 for more detail on the framework):

- **High potential cropping land (Land Capability Classes I to III, unique agricultural and, irrigated land and land suitable for irrigation):** In principle, the change in land use (rezoning) of high potential cropping land will not be allowed, with the exception of cases of land reform and in certain exceptional circumstances. Such applications have to be reviewed and considered by the **national DAFF Internal Technical Committee** which will make a recommendation to the **DAFF Minister and the Intergovernmental Committee**.
    - With regard to **high potential (or adjacent) agricultural land** located within, or in close proximity to urban areas, provincial government must consider urban agriculture as an appropriate entry point for new entrants to farming as well as an important additional component of food security. As a result, PDAs must oppose applications for the development on high potential cropping land that is located within, or in close proximity to the Urban Edge if such development applications do not support or promote urban agriculture.
- **Medium potential cropping land (Land Capability Classes IV - VII):** All applications will be considered and finalised by the province concerned, guided by a set of provincial policy guidelines, which must be aligned to national guidelines. Applications to be accompanied by an AIA. All decisions to be signed off by the provincial MEC responsible for agriculture.

The Draft KwaZulu-Natal Agricultural Land Potential Categories External Report

In the local provincial context, the Draft KwaZulu-Natal Agricultural Land Potential Categories External Report (Collett and Mitchell, 2013) notes that "high value agricultural land is a scarce, non-renewable and threatened resource which must be conserved for food production purposes, whilst concurrently addressing the need for economic growth and development in the Province". Thus, for food security, it is necessary to identify and retain suitable land for agricultural production and expand production to currently unutilised land. As a result, based on the datasets used to identify land potential, the various categories of land potential, allowable land uses and requirements for subdivision or rezoning were developed by KZNDARD, which are summarised in Table 2.

Table 2: Land uses for different categories of agricultural land

Category	Description	Allowed land uses	Requirements for subdivision / rezoning
Category A: Irreplaceable (Includes 'unique agricultural land').	Regarded as very high potential agricultural land that should be retained exclusively for agricultural use	Land use restricted to those that support primary agricultural production only (e.g. silos, sheds, reservoirs), which should all be preferably located on the lowest potential areas within the category.	Detailed agricultural impact assessment by SACNASP registered scientist that has sufficient motivation for a change of land use (e.g. where available zoning data is broad, and a down grading of the category is justified where site-specific studies show that land potential should be downgraded)
Category B: Threatened	Regarded as high potential land and efforts should be focussed on retaining this land for predominantly agricultural use.	No major change of land use within this category. Limited changes of land use will be supported only if in direct support of primary agricultural production.	
Category C: Primary agricultural land use	Regarded as land with moderate agricultural potential. Arable areas may be restricted and scattered through the landscape – may be more suited to fodder crops and extensive grazing in support of livestock production. Category C areas may also be retained as a buffer to protect Category A & B areas.	Land use within this category may include those mentioned in A&B but could also include: • Storage and processing facilities for farm products • Limited footprint agri-tourism, small education and research structures supporting scientific awareness (preferably in lower potential areas)	
Category D: Secondary agricultural land use	Regarded as land with restricted to low agricultural potential. Change of land use may be supported as long as it does not conflict with the surrounding agricultural activity. Change should also not interfere with existing agricultural activities.	Land use within this category may include those mentioned in A,B&C but could also include: • Intensive farming (e.g. poultry, piggeries) • Packhouses and processing plants • Recreation facilities • Small wedding / conference venues and renewable energy farms	

Category E: Mixed land use	Regarded as land with very restricted to very low potential for agricultural production in terms of both arability and grazing.	Should there be a reason to retain a land parcel within this Category for agricultural purposes, DAFF and KZN DARD must offer supporting documentation as to why the application should be denied. A proposed change of land use within this category will therefore most likely be supported.	Basic / semi-detailed natural resources survey could be requested should there be a reason to retain this land for agricultural use.

Combining the categories identified by the PD-ALF and those of KZNDARD gives the following details in terms of how land is classified (Table 3). It should be noted that because agriculture is a provincial competency, the provincial classification of land potential and agricultural land use limitations are considered to be the prevailing approach when considering applications for land use change. Furthermore, these requirements stand for the current Subdivision of Agricultural Land Act 70 of 1970, and the proposed PD-ALF.

Table 3: Land capability classifications according to PD-ALF and KZN classifcation

Class	PD-ALF Classification	KZN Classification	Concepts
I	High potential agricultural land	Category A (Very high potential)	Land in Class I has few permanent limitations that restrict its use and has very high potential for intensive crop production; the land is nearly level and the soils are deep; moisture supply capacity is particularly favourable; soils are easily worked, and are either fairly well supplied with plant nutrients or are highly responsive to inputs of fertilizer; when used for crops, the soils need ordinary management practices to maintain productivity; the local climate is favourable for growing many of the common field crops.
II			Land in Class II has some permanent limitations that reduce the degree or intensity of crop production but is nevertheless of high potential; require moderate conservation practices; this land provides slightly less latitude in the choice of crops or management practices than Class I; the limitations are few and the practices are easy to apply.
III		Category B (High potential)	Land in Class III has severe permanent limitations that restricts the choice of alternative uses and the intensity of crop production and is of moderate potential; the land is suitable for cropping, pasture, afforestation and other less intensive uses; when used for cultivated crops, the conservation practices are usually more difficult to apply and to maintain; the number of practical alternatives for average farmers is less than that for soils in Class II.

IV	Medium potential agricultural land	Category C (Moderate potential)	Land in Class IV has very severe permanent limitations that greatly restrict the choice of alternative uses and the potential for crop production; require very careful management; it may be used for cultivated crops, but more careful management is required than for Class III and conservation practices are more difficult to apply and maintain; restrictions to land use are greater than those in Class III and the choice of plants is more limited.
V		Category D (Restricted potential)	Land in Class V is unsuitable for the cultivation of annual crops, but has very slight erosion hazard under natural veld, established pastures, forestry or special crops that provides adequate cover; land may be sloping but is tillable for the establishment of pastures, forestry or special crops or nearly level with limitations impractical to remove such as stoniness, rockiness, wetness or frequently flooded; have climatic limitations, or have some combination of these limitations.
VI			Land in Class VI has permanent limitations that make it generally unsuited to cultivation and limit its use largely to natural grazing, veld re-inforcement, afforestation and game farming; continuing limitations that cannot be corrected include steep slope, severe erosion hazard, effects of past erosion, stoniness, shallow rooting zone, excessive wetness or flooding, low water-holding capacity; salinity or sodicity and severe climate.
VII		Category E (Very restricted potential)	Land in Class VII has very severe permanent limitations that make it unsuited to cultivation and that restrict its use largely to natural grazing, afforestation or game farming; restrictions are more severe than those for Class VI because of one or more continuing limitations that cannot be corrected, such as very steep slopes, erosion, shallow soil, stones, wet soil, salts or sodicity and unfavourable climate.
VIII			Land in Class VIII has permanent limitations that preclude its use for commercial agricultural production and restrict its use to recreation, wildlife, water supply or aesthetic purposes; limitations that cannot be corrected may result from past erosion or a severe erosion hazard, severe climate, wet soil, stones, low water-holding capacity, salinity or sodicity.

Reclassification of land potential

Given that there are scale issues when determining land potential using existing datasets, it is possible to verify or reclassify land potential, specifically where scale issues result in the inaccurate classification of land. Such land can be reclassified on the basis of an approved agricultural natural resources assessment, which should be submitted with the application for subdivision or rezoning. Studies should provide data in a format prescribed by KZNDARD of:

- Topography and hydrology of the site
- Type and characteristics of soil
- Water availability – quantity and quality for irrigation

- Size – tracts of high potential cropping land are considered to be agriculturally viable regardless of their size. AIA reports should demonstrate that the extent of such land is non-viable from a practical or economic perspective.
- Tracts of high potential cropping land adjacent to land with a different zoning classification are considered agriculturally viable, unless demonstrated otherwise through an AIA.

Application process and requirements for change of land use

Any application submitted to a municipality and / or KZN Department of Local Government and Traditional Affairs (herein after KZN DLGTA) for the establishment of a township, the extension thereof, zoning or rezoning, which involves, partly involves and / or may potentially impact on agricultural land, must also be submitted to KZN DARD in the prescribed format for processing and the making of recommendations to the DAFF Minister in accordance with Act 70 of 1970 (Sub-division of Agricultural Land Act) or to the requesting authority in instances where SALA is not applicable i.e. land administrated by the Ingonyama Trust (communal land) or land owned or managed by any entity within the three spheres of government or any organ of state.
With every application submitted, the following documentation must be submitted to both KZN DAEA Head Office Sub-Directorates (i.e: the offices the Natural Resources Sub-Directorate and the Land Use Regulatory Unit both of the Macro Planning Directorate of the KZN DAEA, Cedara, Pietermaritzburg).

- All relevant documentation as is stated under the requirements of the Sub-division of Agricultural Land Act 70 of 1970, which is the current prevailing legislation. The PD-ALF, which is expected to be enacted in the next 12-18 months (Mitchell, per comm) This include inter alia (but not limited to):
  - Relevant Land Act 70 application form
  - Motivation
  - Title deed
  - Locality plan with GPS co-ordinates
  - Sketch plan / Layout plans
  - Power of Attorney
  - Water licences / permit
  - Record of Decision (RoD)
  - Zoning permit / application
- A Natural Resources/Agricultural Survey report, conducted at the applicable scale and as per the requirements as stated in Appendix 2 of this document. (Data capture templates are available from the Natural Resources and Land Use Regulatory Sub-Directorates on request).
- Two copies of electronic / digital version of the spatial data gathered during the natural resources survey in shape file format (shp) and with the required attribute data, supported by the specified metadata.
- Any other documentation that the applicant deems fit to form part of the application documentation.

The criteria and specific supporting documentation requirements for each Category are documented below and are applicable in all instances. These criteria should be adhered to whenever a land use change is proposed. A natural resources/agricultural assessment will be required in all instances of proposed change of land use, in accordance with the guidelines for conducting such natural resource surveys (see Appendix 2 of this report) for that land category. Failure to adhere to the specified requirements will result in the application not being supported.

CATEGORY A: IRREPLACEABLE

Category A land is regarded as very high potential agricultural land that should be retained exclusively for agricultural use so as to ensure national food security. Included within this Category is also identified grazing land that has a very high production value for sustained livestock production.
Due to the very limited amount of Category A land in the province (and in the country), all efforts should be focussed on retaining land within this Category exclusively for agricultural production. Every effort should be made to limit degradation of the natural agricultural resources in accordance with CARA (Act 43 of 1983).
Arable land in Category A has no or very few limitations to agricultural production and can support intensive arable cropping systems. Few interventions would be required to bring this land into or maintain production. This Category also contains land identified and described under the definition of "Unique agricultural land".
Change of land use within this Category will require detailed motivation and will only be considered under extremely special circumstances. None or extremely limited change of land use from agricultural use (this includes land currently not actively used for agricultural purposes but with the inherent potential to do so) to non-agricultural land use may be supported within this Category but would depend on strongly motivated and extraordinary circumstances.

Requirements:

A detailed natural resources/agricultural study must be conducted should an applicant feel he/she has sufficient motivation to propose a change of land use (see Annexure 2 for criteria). For example: the application could be motivated on the basis that the available zoning data is broad and localized conditions may result in a relaxation or change to the original category specified in the spatial layer. However, the affected area may form part of a larger protected agricultural area Category and thus may have to remain in this Category as the proposed change of land use may impact negatively on surrounding agricultural land and impact negatively on the “right to farm” principle.

Allowed land uses:

Land use will be restricted to those in support of primary agricultural production only. This may include agricultural infrastructure such as storage sheds, silo's, hay barns, water reservoirs, collection and storage of agricultural waste and on-farm composting facilities on condition that it is placed on the lowest agricultural potential areas within the larger high potential agricultural area.

CATEGORY B: THREATENED

Category B is regarded as high potential agricultural land. Due to the limited amount of Category B land in the province (and in the country), all efforts should be focussed on retaining land within this Category for predominantly agricultural use. Every effort should be made to limit degradation of the natural agricultural resources in accordance with CARA (43 of 1983).

Land within Category B has the potential to be used sustainably, with few limitations to agricultural production.

No major change of land use will be supported within this Category. Limited change of land use may be supported but only if in direct support to primary agricultural production practices or systems and then these developments must be located on the lowest potential areas within the higher potential zone. Change in land use must also be shown to be in support of the existing land use/s and the existing agricultural environment or enterprise on the land parcel in question and must not

negatively impact the existing farming practices nor those on surrounding land parcels. Thus, change of land use to non-agricultural land uses will be dependent on the type of land use proposed and each application would be considered on its merits.

Requirements:

A detailed natural resources study must be conducted should an applicant feel he/she has sufficient motivation to propose a change of land use in this category (See Annexure 2 for criteria).

Allowed land uses:

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.

Additional consideration may be given to small processing plants e.g. cheese making facilities, value adding food processing facilities, seedling nurseries, and temporary sawmills, small wildlife- / scenery- viewing structures e.g. bird hides and small on-farm farm stalls. These will however only be considered if located on the lower potential areas within the land parcel and will in no way negatively impact the existing farming activities on site, nor on surrounding land parcels, nor should they compromise the “right to farm”.

CATEGORY C: PRIMARY AGRICULTURAL LAND USE

Category C is regarded as land with moderate agricultural potential, on which significant interventions would be required to achieve viable and sustainable food production, although agriculture is the still the majority land use in the rural landscape.

From a crop production perspective, this Category is more limited in the extent of arable land available for cultivation. Arable areas may be restricted in area and scattered throughout the landscape: the minority rather than majority agricultural land use. 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. Every effort should be made to limit degradation of the natural agricultural resources in accordance with CARA (43 of 1983). This Category of land may however, have the potential to act as a buffer for adjacent higher potential agricultural land Categories. Thus, Category C land may be retained so as to act as additional protection for adjacent higher potential land.

Change of land use from agricultural land use to non-agricultural land uses which are not necessarily in support of the existing agricultural land use may be considered. The change of land use must not be located on the best available land within the land parcel concerned and should not negatively impact existing agricultural land use. The change of land use may be considered particularly if it adds to the viability of the farming unit as a whole. The "Right to farm" should be acknowledged.

Requirements:

A detailed natural resources study conducted should an applicant feel he/she has sufficient motivation to propose a change of land use (see Annexure 2 for criteria).

Allowed land uses:

Land use within this land Category may include those mentioned for categories A and B as well as storage, packing and processing facilities of farm products, limited-footprint agri-tourism facilities and small education or research structures in support of scientific awareness. These will however only be considered if located on the lower potential areas and will in no way negatively impact on

the existing farming activities on site and on surrounding land parcels Preference will be given to land uses which will enhance the viability of the farming enterprise.

CATEGORY D: SECONDARY AGRICULTURAL LAND USE

Category D land is regarded as land with restricted to low agricultural potential. This land requires significant interventions to enable sustainable agricultural production which could include terracing, contours, high levels of fertility correction, lower stocking rate, supplementary feed etc. Extensive areas of land are generally required for viable production (e.g. beef and game farming) although intensive production under controlled environmental conditions (e.g. green housing, poultry, piggeries) is not excluded, nor is intensive production on areas of arable land available e.g. along river systems. Every effort should be made to limit degradation of the natural agricultural resources in accordance with CARA (43 of 1983).

Change of land use may be supported from agriculture to other land uses as long as this change does not conflict with the surrounding agricultural activity. The activity must also not interfere with existing agricultural activities, especially where agricultural practices are still the main source of income. The "Right to farm" should in all instances be acknowledged.

This Category of land however may have the potential to act as a buffer for higher potential agricultural land and thus the right to retain this land in support of higher potential agricultural land may be exercised.

Requirements:

A detailed natural resources study must be conducted should an applicant feel he/she has sufficient motivation to propose a change of land use (see Annexure 2 for criteria).

Allowed land uses within this Category land may include those mentioned in categories A through C as well as poultry houses, piggeries, feedlots, greenhouses, farm retail sales facilities, wineries, pack houses and processing plants, agri-tourism facilities, sawmills, value adding processing plants, recreation facilities e.g. off road tracks, equestrian facilities, pet breeding and boarding facilities, unpaved airstrips and helipads. Consideration will also be given to small conference and wedding venues, renewable energy farms etc. These will however only be considered only if they in no way negatively impact on the existing farming activities on site and on surrounding land parcels.

CATEGORY E: MIXED LAND USE

Category E land is regarded as land with very restricted to very low potential for agricultural production. Cultivation within this land category is severely limited in both extent and in terms of the natural resources available and grazing value will be poor with a very low carrying capacity. Land within this Category however may have a high conservation or tourism status, depending on the locality, or may act as a buffer for as higher Category of adjacent land. In addition, these land parcels may be required to support the economic viability of an extensive grazing system on adjoining land parcels e.g. large dairy farming system. Every effort should be made to limit degradation of the natural agricultural resources in accordance with CARA (43 of 1983).

Should there be a reason to retain a land parcel within this Category for agricultural purposes, DAFF and KZN DAEA must offer supporting documentation as to why the application should be denied. DAFF and KZN DAEA however retain the right to request a more detailed study from the applicant specifically if there is reason to believe that due to the scale limitations of the dataset the land parcel may be regarded as land with a higher agricultural potential or regarded as unique agricultural land.

A proposed change of land use within this category will therefore most likely be supported, unless otherwise motivated by the relevant authorities (DAFF / KZN DAEA).

Requirements:

Basic / semi-detailed natural resources survey could be requested should there be a reason to retain this land for agricultural use. The specifications for the natural resources study will be dependent on the merit of the case submitted as determined by either DAFF or KZN DAEA and could be requested by the applicant from the opposing Department for clarity.

CATEGORY: WATERBODIES

Demarcated areas within this Category mainly consist of water bodies (all dams - natural or man-made) as well as wetlands, pans and estuaries and may not be used for agricultural production purposes, as stipulated by legislation.

Based on the scale of available data sets, not all waterbodies may be reflected in the spatial maps. This information may be updated without prior notification, and will result in an amended Category area calculation.

CATEGORY: PERMANENTLY TRANSFORMED

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.

CATEGORY: PROCLAIMED RESERVES

Land within this Category has been formally proclaimed as either a national or provincial nature reserve under the relevant legislation and is therefore not available for agricultural purposes. However, should this land be removed from such protected status this land, this land would be re-evaluated and assigned to the applicable Category.

References

Collett, A and Mitchell, F.J. 2013. KwaZulu-Natal agricultural land potential categories external report Version 2: KZN Report N/A/2012/15. KwaZulu-Natal Department of Agriculture and Rural Development.

Department of Agriculture Forestry and Fisheries. 2014. Discussion document on the preservation and development of agricultural land: Document number: 19.P.2/PD-ALF. Republic of South Africa

Department of Agriculture Forestry and Fisheries. 2016. Draft policy on the preservation and development of agricultural land: Document number: 19.P.2/PD-ALB. Republic of South Africa.

Department of Agriculture Forestry and Fisheries. 2016. Version 2.1. Preservation and development of agricultural land Bill. Republic of South Africa.

KwaZulu-Natal Department of Cooperative Government and Traditional Affairs (COGTA). 2011. KwaZulu-Natal Land Use Management System: Guidelines of preparation of schemes for Municipalities.

Mitchell, F.J and Van der Pol, B. 2015. KwaZulu-Natal policy for agricultural land potential, development rights and application processes: KZN Report: N/A/2015/4. KwaZulu-Natal Department of Agriculture and Rural development.

Mitchell, F.J, pers comm. Telephonic communication. 8 May 2017.

Appendix 1: Discussion document on the preservation and development of agricultural land

This draft policy document for the proposed Preservation and Development of Agricultural Land Framework Act (PD-ALF) document notes that it is necessary to implement a policy to preserve agricultural land, regulate change in land use and the further subdivision of agricultural land. Reasons for this include:

- South Africa has a limited supply of high potential cropping land. The scope for expanding cropping and or irrigated areas is severely limited due to the unavailability of additional suitable land and water for these purposes.
- Non-agricultural developments on high and medium potential agricultural land are increasing. Pressures associated with mining, urban, infrastructure and residential development in respect of high potential cropping land are currently major contributors to the alienation and reduced availability of agricultural land for agricultural production.
- A significant portion of land suitable for crop production has already been irrevocably converted to non-agricultural land uses and is no longer available to provide the food, feed, fodder and fibre that is necessary for the continued welfare of the people of South Africa.
- The change in land use from agriculture to other forms of (unrelated) development (including urban expansion, mining, tourism, infrastructure and other new developments that are in conflict with established or proposed Protected Agricultural Areas) are often not compatible with agricultural land uses. These include the following:
    - Conflicts may arise due to issues such as the redirection of water flows, transport routes near dwellings, odour, dust, noise, pollution from, and the use of chemicals in, farming practices.
    - In addition, such developments and subdivisions often result in land and/or environmental degradation (i.e. land degradation such as erosion, contamination of surface and ground water and the destruction of biodiversity).
    - Other uses can also lead to increased property values in rural areas, increasing pressure to develop the land for urban purposes, making it more attractive for the farmer to sell, or casting doubts about the advisability of new or continued farm investments.
    - Unsustainable land use changes undermine the economic base of rural municipalities, as agriculture is the main economic activity in most of these areas, and long-term food security a challenge. It also poses a threat to the sustainable use of the natural agricultural resources and biodiversity.
    - In addition, competing land uses, e.g. power generation, renewable energy projects (i.e. solar and wind energy), communication and transport networks and industrial expansion pose a risk to agricultural land.
- Subdivision and non-viable development patterns lead to the fragmentation of farms into unsustainable and non-economical units, and results in farming units becoming unviable and unsustainable, reducing agricultural production. Subdivision of rural lots may mean the loss of prime agricultural opportunities and the 'economies of scale' that sustain some forms of agricultural production (e.g. sugar cane).
- The loss of agricultural land poses a direct threat to national (and household) food security, increases rural unemployment, results in the declining contribution of agriculture to the GDP, diminishes the positive link between agriculture and rural development, and impacts negatively on the potential of affected areas for agricultural development and thus undermines the economic development potential of these areas.
- There is a lack of protection of the right to farm (i.e. the protection of farmers against local government laws and non-agricultural policies or programme initiatives which would interfere

with normal farming practices and promote change in land use). The current *status quo* is evidence of the weak rights of farmers to protect and manage agricultural land and a lack of accountability for land use decisions that affect the availability and viability of agricultural land.

In response to these matters, the policy focuses on the following

- Custodianship of agricultural land – agricultural land is the common heritage of all people of South Africa and DAFF is the custodian of this at a national scale.
- Recognition of the right to farm – landowners and users of agricultural land are entitled to farm with an agricultural enterprise of their choice and be protected against adjacent land use decisions and local government laws that would unreasonably interfere with their normal farming practices.
- The promulgation of the Preservation and Development of Agricultural Land Framework Act (PD-ALF) to replace the Subdivision of Agricultural Land Act, Act 70 of 1970, and to establish an intergovernmental panel (including provincial and national agricultural competencies) which:
    - Will apply a general rule that that no applications for rezoning to non-agricultural land uses will be considered for high potential cropping land (however, subdivision and rezoning on high potential cropping land will be considered in exceptional circumstances)
- Will establish norms and standards for the approval of subdivision and change in land use applications.
- Develop coordinated national and local spatial plans.
- Provincial government will be obliged to adopt provincial agricultural planning frameworks which will be binding on all relevant parties and be aimed at the protection and sustainable use of agricultural land, including:
    - Provincial strategic plans that evaluate alternative forms of development and give significant weight to strategies that minimise impact on high potential cropping land
    - Develop a provincial statutory planning framework in respect of high potential cropping land;
        - Integration of the protection of high potential cropping land and Protected Agricultural Areas (PAAs) within the provincial Spatial Development Plan
        - A requirement that municipalities incorporate in their IDPs agricultural spatial planning, high potential cropping land, PAAs and classification of agricultural land as outlined in their SDPs
    - Municipalities are responsible for the continuous alignment and integration of all agricultural land in the SDPs as part of the IDP process, where land must be earmarked for agricultural production.
- The establishment of agricultural sector plans, based on Spatial Agricultural Plans per local municipality, developing with the participation of the farming community.
- The demarcation and designation of specific agricultural land as protected agricultural areas (cropping and grazing land).
- The development of an electronic geo-referenced national agricultural land register (NALR)
- All applications submitted for subdivision or rezoning should include an agricultural impact assessment (AIA), performed by a SACNASP registered scientist.
- The following general rules regarding change in land use will apply:
    - **High potential cropping land (Land Capability Classes I to III, unique agricultural and, irrigated land and land suitable for irrigation):** In principle, the change in land use (rezoning) of high potential cropping land will not be allowed, with the exception of cases of land reform and in certain exceptional circumstances. Such applications have to be reviewed and considered by the **national DAFF Internal Technical Committee** which will make a recommendation to the **DAFF Minister and the Intergovernmental Committee**.
        - With regard to **high potential (or adjacent) agricultural land** located within, or in close proximity to urban areas, provincial government must consider urban agriculture as an appropriate entry point for new entrants to farming as well as an important additional component of food security. As a result, PDAs must oppose applications for the

development on high potential cropping land that is located within, or in close proximity to the Urban Edge if such development applications do not support or promote urban agriculture.

    - **Medium potential cropping land (Land Capability Classes IV - VII):** All applications will be considered and finalised by the province concerned, guided by a set of provincial policy guidelines, which must be aligned to national guidelines. Applications to be accompanied by an AIA. All decisions to be signed off by the provincial MEC responsible for agriculture.
- Prospecting, mining and energy production will only be considered in medium potential land, would be subject to stringent conditions to ensure remaining land is used for agricultural purposes and requires and AIA.
- Agricultural water licenses should be retained for agricultural use where subdivision or rezoning is granted unless reallocation is shown to have no negative impacts on agricultural production. Where reallocation of WULs occurs, this should be done by the minister responsible for water in consultation with DAFF.
- Where corridor developments are considered, both DAFF and the relevant PDA must be consulted and their approval is a prerequisite for the implementation of any corridor development. PDAs may consider urban and industrial development of potential agricultural land within Provincial Growth and Development corridors on condition that developments do not:
    - Occur in PAAs
    - Reduce the agricultural potential of adjacent agricultural land
    - Impact negatively on agricultural activities in adjacent land
- With regard to construction and expansion of roads, AIAs will be required and such activities should not lead to increased thoroughfare, fragmentation and inappropriate development of PAAs.
- All agricultural land should be used to optimal agricultural potential and incentives (e.g. tax breaks) to retain agricultural land will be used along with enforcing the use of agricultural land for agricultural purposes.
- Verification / reclassification of land potential – where scale issues result in the inaccurate classification of land, such land can be reclassified on the basis of an approved AIA, which should be submitted with the application for subdivision or rezoning. Studies should provide data in a format prescribed by DAFF of:
    - Topography and hydrology of the site
    - Type and characteristics of soil
    - Water availability – quantity and quality for irrigation
    - Size – tracts of high potential cropping land are considered to be agriculturally viable regardless of their size. AIA reports should demonstrate that the extent of such land is non-viable from a practical or economic perspective.
    - Tracts of high potential cropping land adjacent to land with a different zoning classification are considered agriculturally viable, unless demonstrated otherwise through an AIA.
- Mitigation and trade-offs against the loss of agricultural land will be considered as a final resort after all attempts to reasonably avoid the impact of the development have been exhausted.
- Provincial policies will assist in establishing norms and standards for the subdivision and change in use of agricultural land.

Institutional arrangements

An agricultural land advisory commission is to be established at a national scale through the PD-ALF and will be responsible for the evaluation of policies and strategies regarding the preservation, development and sustainable use of agricultural land. It will also advise the DAFF minister on the demarcation and designation of specific agricultural land as PAAs after consultation with DAFF and the relevant PDA concerned. PDAs will submit any subdivision or change in land use application to

the land use official allocated by DAFF to each province. In addition, a national Intergovernmental Committee on the Preservation of Agricultural Land will be established, including the National Planning Commission, DAFF, DTI, DWS, DEA, DRDLR and DMR. This committee will consider subdivision and rezoning of high potential agricultural land in exceptional circumstances. A land use official will be allocated to each province and the relevant PDA should submit applications, documentation and recommendations to the DAFF official.

At provincial scale, an Internal Technical committee will be responsible for evaluating and deciding on applications. Every application for subdivision or rezoning of medium potential land (excluding class IV for a period of five years, must have a proper AIA, and be considered and approved by the LM, DM and provincial MEC for agriculture.

At a municipal scale, applications for the subdivision or rezoning of agricultural land sent by the PDA must be considered and a recommendation should be made by the relevant municipality. Municipalities are also required to establish municipal internal PD-ALF technical committees, who will be responsible for evaluating and deciding on applications.

Appendix 2: Natural Resources Survey Report Requirements

NATURAL RESOURCES AND/OR AGRICULTURAL SURVEY SPECIFICATIONS

SURVEY STANDARDS

VERSION 2

MAY 2015

1. INTRODUCTION

It is important that this document be read carefully prior to commencing a Natural Resources/Agricultural Assessment Survey as all requirements stated should be adhered to.

This survey must be undertaken and/or signed off by a **registered professional scientist** (SACNASP registration number and surveyor details must be provided with the complete report). **Failure to do so will result in the report not being acknowledged.**

NOTE: A list of registered practitioners per Province and per field of expertise can be found on the SACNASP website at http://www.sacnasp.org.za

2. NATURAL RESOURCES SURVEY SPECIFICATIONS

Each Natural Resources Survey should include the specifications as stated below:

A. GENERAL AREA DESCRIPTION

The purpose of the general area description is to provide an overview of the area concerned, and must include, but not be limited to, the following information:

1. Property description (Farm name, farm number and portion number)
2. Contact details of land user
3. Date of survey
4. Total land parcel size as well as affected area (foot print) for the purposes of the application
5. Bio-resource Group
6. Bio-resource Units (Bioresource programme developed by KZN DAEA – Camp,1995)
7. Current land use on land parcel
8. Land use/development on all adjacent neighbouring land parcels
9. Access to site
10. Signs of degradation (type; extent and degree – soil and vegetation).
11. Water resources (water availability, type of water resources)
12. Current zoning as per existing town planning scheme / Land Use Management Scheme / Spatial Development Framework.

B. SOIL RESOURCE ASSESSMENT

Soil information plays a vital role in land use planning and management. As the soil survey data is extremely important, the following criteria are considered essential in the soil survey process and should be provided in both hard copy and digital format and **must be supplied for all applications**.

SOIL CLASSIFICATION AND DESCRIPTION

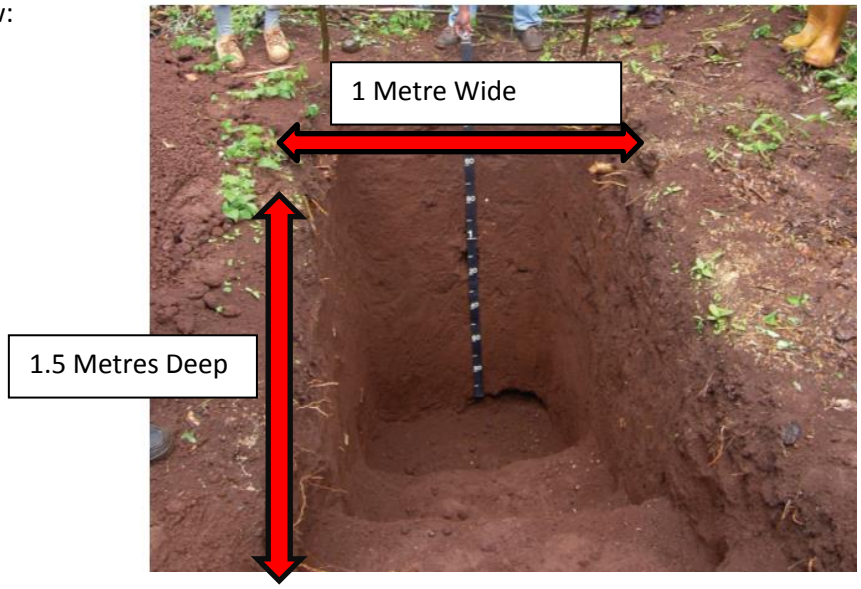
1. Identification of soils to the family level must be undertaken according to: '*SOIL CLASSIFICATION: A TAXONOMIC SYSTEM FOR SOUTH AFRICA'* (Soil Classification Working Group, 1991) commonly referred to as the “Blue Book”.

2. A soil observation point should be in the form of a soil pit or soil auger point to a minimum depth of 1.5m except in the case of hard rock or an impervious layer being encountered at shallower depth

SOIL OBSERVATION PITS

- Should be dug as per the sampling map and co-ordinates.
- Should be dug to a depth of at least 1.5 m, to a maximum of 2 m, or until rock or water is encountered
- Should have a clean, flat face.
- Should be around 1m wide for ease of access.
- Should be dug approximately 2 – 3 days prior to survey
- Should be re-filled after the survey for safety reasons (livestock and children)

Examples below:



3. The following features must be documented whilst in the field and supplied for each observation point (see Appendix 1 for sample soil survey sheet):

   a. Terrain Description:

   i. Terrain unit description (as per terrain morphological units in the "Blue Book")
   ii. Slope %
   iii. Access to each observation point
   iv. Surface Rockiness (%)

   b. Soil Profile Features

   i. A GPS co-ordinate (degrees, minutes, seconds) in WGS 84.
   ii. Parent material/geology
   iii. Classification of soil to soil family level;
   iv. Colour of each diagnostic soil horizon as required for classification (Munsell chart)
   v. Depth of each diagnostic soil horizon
   vi. Texture of each diagnostic horizon
   vii. Permeability Class of Upper B
   viii. Signs of calcareousness (where calcareousness is observed, samples for laboratory analysis must be taken for laboratory analysis to determine salinity/sodicity and dispersion hazard)
   ix. Depth of hydromorphic horizon
   x. Effective rooting depth (mm)
   xi. Extent of surface crusting

4. Minimum number of Observation Points required per land parcel which must be representative of all terrain units on that land parcel (please refer to the Agricultural Land Potential Categories' requirements for intensity guidelines)

Observation area **Hectares (ha)**	**Intensity** **(minimum number of points)**	**Intensity** **(minimum number of points on currently irrigated land)**
<1ha	2	2
1 - 5ha	4	5
5 - 10ha	8	1 per ha
10 - 20ha	12	1 per ha
20 - 50ha	25/30	1 per ha
50 -100	35/40	1 per 2ha
100 - 500	50	1 per 4ha

500 - 1000	75	1 per 5ha
>1000	1 per 10ha	1 per 5ha

5. Major soil boundaries must be clearly defined. This may require extra auger observations if the number of observation points as specified above is not sufficient to clearly delineate soil boundaries.

6. The interior of wetlands and indigenous forests need not be surveyed in detail but their boundaries must be clearly defined as per the published guidelines and labelled as such.

7. All empirical data is to be captured in digital format as per attached soil standards specifications, mapped in GIS and metadata, field observation data per point and the final soil map is to be submitted in both hard copy and digital format (DVD) to both Natural Resources and Land Use Regulatory Unit of the KZN DAEA. For further information with regards accepted standards, contact the Natural Resources Sub-Directorate.

C. CLIMATE DESCRIPTION

A general description of the agro-climatic conditions for the area concerned must be provided and must include the following information:

1. Mean and median annual rainfall,
2. Mean maximum and mean minimum monthly temperature data,
3. Evapotranspiration
4. Relative Humidity (Mean Daily %)
5. Frost (incidence, severity as well as seasonal occurrence and duration)
6. Hail incidence
7. Heat and chill units for appropriate crop production (depending on current or potential land use)

D. VEGETATION RESOURCE ASSESSMENT

The vegetation assessment is required **for all land parcels on which natural rangeland occurs**.
NOTE: for the purposes of calculating grazing capacity of a unit of land on which wetlands occur, these areas must be assessed as forming part of the grazeable area.

VEGETATION DESCRIPTION

A general description of the vegetation for the area concerned must be provided and must include the following information:

1. A description of the general vegetation patterns and types (based on VegMap, Mucina and Rutherford, 2006) occurring on the area concerned (complete land parcel with focus on affected foot print)
2. Description of the management history of the land parcel for the last 5 years (burning regime, stocking rates, animal type etc.)
3. The vegetation structure per survey plot must be classified according to Edwards (1983).
4. The soils comprising for each vegetation survey site must be classified as part of the soil survey for the land parcel.

VEGETATION SURVEY PLOT FEATURES

A detailed vegetation survey must be undertaken which is representative of heterogeneity (e.g. aspect, terrain unit etc.) within each of the vegetation types occurring on the land parcel.

A vegetation survey should be conducted in the following format:

1. A vegetation survey plot area should be demarcated that must comprise of a square plot of 25 X 25m for savannah areas or a square plot 50X 50m for grassland areas (a belt transect of between 100 and 200m can be utilized in grassland areas).
2. A minimum of 200 nearest herbaceous-plant observations per plot should be recorded eg forbs, sedges and all grass plants must be identified to species level.
3. Additionally, within savannas, woody plants must be identified to species level and must include density and plant height, by using belt transects covering a minimum of 125m^2.
4. A GPS co-ordinate must be captured and supplied for each corner of every vegetation survey plot (degrees, minutes, seconds) and the start and end of each belt transect;
5. Collect additional habitat criteria such as basal cover, grass vigour, invader plants, and signs of degradation within the plot.

VEGETATION SURVEY RESULTS REPORTING

The following data needs to be supplied per each surveyed plot and specified as per the attached Vegetation spatial survey standards:

i. Complete species list and frequency;
ii. Calculation of range condition expressed as a % of a benchmark of the relevant vegetation type (available from KZNDAEA, Cedara);
iii. Calculate woody plant density in tree equivalents per hectare (1 TE = *Acacia karoo* tree of 1.5m height);
iv. Interpretation of the collected data in terms of the current vegetation health and status of the land parcel.
v. A spatial representation of rangeland condition and the woody vegetation density must be mapped as areas within the land parcel (Camp and Hardy, 1999).

E. FINAL REPORT AND DATA REQUIREMENTS

- All surveyed data must be geo-referenced (WGS84) and supplied in a digital format as a .shp file with a complete set of attribute data, as per the above survey standards, as well as the required metadata.
- All surveyed spatial data will become part of National Natural Resources database as assigned under the Spatial Data Infrastructure Act No 113 of 2004.
- A detailed written report must be supplied which encompasses the analysis and interpretation of surveyed soil, climate and vegetation data, into land capability and land potential classes (Smith, 2006). This information must then be integrated into a comprehensive document with recommendations on current and proposed land use.
- Copies of the report and spatial data and metadata must be submitted as per application procedure stated.

F. REFERENCES

1. Camp, K.G.T. 1995*. The Bioresource Units of KwaZulu-Natal*. Cedara Report N/A/95/32. KZN Department of Agriculture. Pietermaritzburg

2. Camp K.G.T. & Hardy M.B. 1999. Veld Condition assessment. In: Hardy M.B. Hurt C.R. Camp K.G.T. Smith J.M.B. and Tainton N.M. (eds). Veld in KwaZulu-Natal. KwaZulu-Natal Department of Agriculture, Cedara, Pietermaritzburg. 18-31.

3. Edwards D. 1983. A broad-scale vegetation classification of vegetation for practical purposes. *Bothalia* 14 (3&4): 705-712.

4. Mucina L. & Rutherford M.C (eds). 2006. The Vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute. Pretoria.

5. Soil Classification Working Group, 1991. Soil Classification: A Taxonomic System for South Africa. Pretoria: Soil and Irrigation Research Institute, Department of Agricultural Development.

6. Smith, B. 2006. *The Farming Handbook*. UKZN press. South Africa.

Soil Profile Datasheet

(Complete as many fields as possible)

Project Name: **Farm Name / Tribal Area:** **Date:**

BRG code (veg type)		BRU code		Name of Soil Surveyor			
SG No Deeds Office				Contact Number			
				GPS Point ID			
Land Use (Tick box)	Cultivation	Orchard	Timber	Riparian	GPS Latitude (South)		
	Old Lands	Pasture	Veld	Wetland	GPS Longitude (East)		
Terrain Unit (Tick box)	Crest				Top Soil Clay (%) (Tick box)	0-5%	
	Scarp (free face)					5-15%	
	Mid Slope					15-35%	
	Foot Slope					35-55%	
	Valley Bottom					>55%	
Slope Class (Tick box)	0-3				Effective Rooting Depth Class (mm) (Tick box)	0-200 mm	
	3-8					200-300 mm	
	8-12					300-500 mm	
	12-15					500-800 mm	
	15-35					> 800 mm	
	>35				Permeability of B1 (Seconds)(Tick box)	< 1	1-3 / 4-8
Geology						9-20	41-60
Altitude (m)						21-40	> 60
Top Soil	Name				Wetness Class (Tick Box)	W0 Well Drained	
	Thickness (mm)				W0 No Mot/Grey within 1.5m W1 Mot/Grey 0.5 – 1.5 m W2 Mot/Grey 0.2-0.5 m W3 Mot within 0.2 grey <0.5 m W4 Perm Wet at or above soil in wet season (dwf)	W1 Occasionally Wet	
	General Colour (e.g. Brown, Red...)					W2 Temp Wet	
E-Horizon	Yes / No					W3 Periodically Wet	
	Thickness (mm)					W4 Perm Wet	
G-Horizon	Yes / No				Rockiness (Tick box)	R0 No Rocks	
	Thickness (mm)					R1 2- 10% Rockiness	
Sub-Soil 1	Name					R2 10-20% Rockiness	
	Thickness (mm)					R3 20-30% Rockiness	
	General Colour (e.g. Brown, Red...)					R4 >30 % Rockiness	
Sub-Soil 2	Name				Crusting (Tick box)	t0 No Crust	
	Thickness (mm)					t1 Slight	
	General Colour (e.g. Brown, Red...)					t2 Unfavourable	

Soil Form		Notes:	
Soil Family			
Soil Sample Taken (Y/N)		Ref No/ Descrip:	
Total Soil Depth (mm)			
Effective Depth to Limiting Layer (mm)			
Erosion & Type			
Crop and Yield			
Soil Ecotope			

Return to: Natural Resources Section, Cedara or scan and email to Stephenie.Plenaar@kzndard.gov.za 033-3559505