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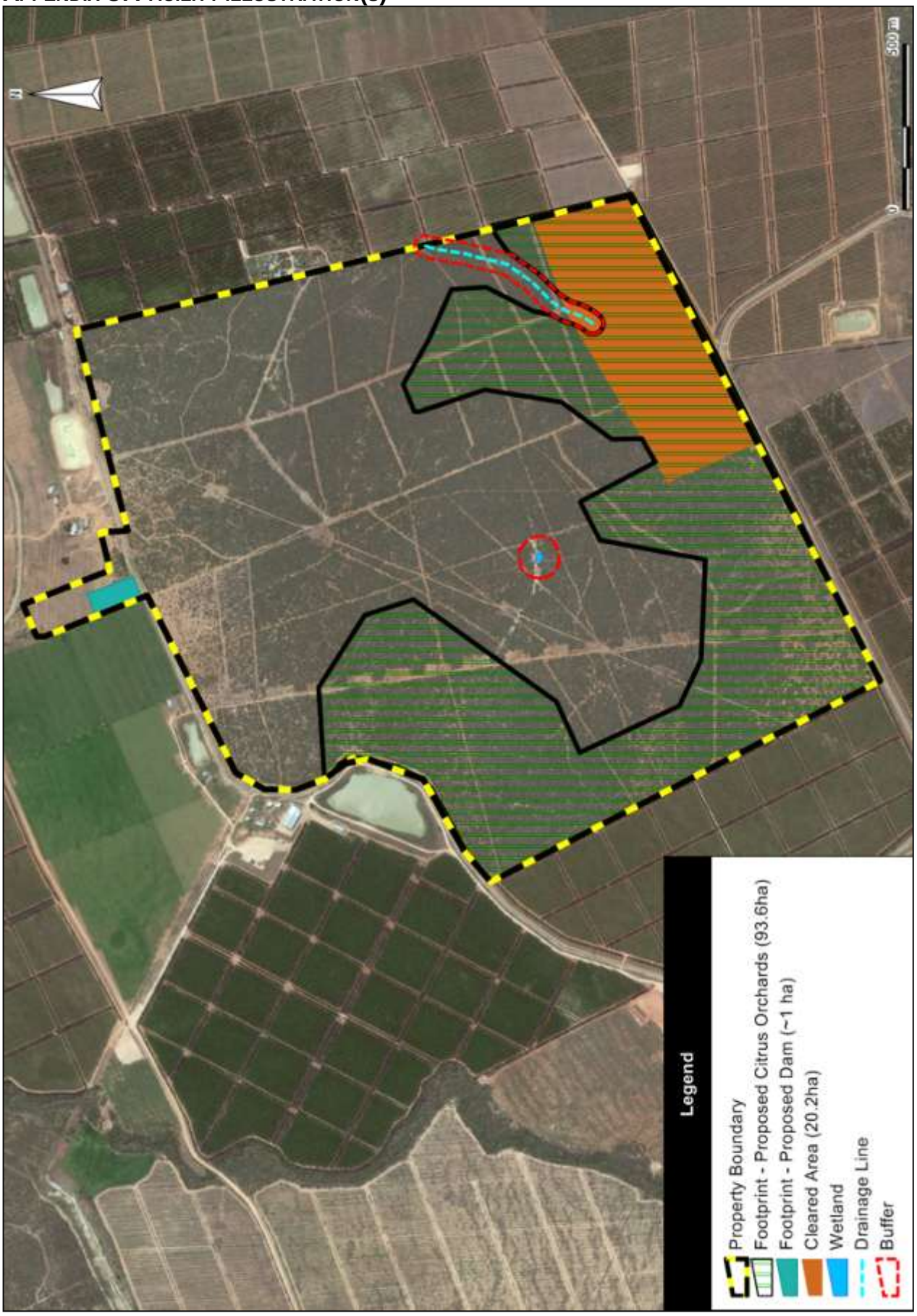

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A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT FOR THE PROPOSED EXPANSION OF AGRICULTURAL ACTIVITIES ON PORTION 23 OF FARM 104 SWANEPOELS KRAAL AND THE REMAINDER OF FARM 650, KIRKWOOD, SUNDAYS RIVER VALLEY MUNICIPALITY, EASTERN CAPE PROVINCE

Prepared for: Public Process Consultants
P.O. Box 27688
Greenacres, 6057
Tel.: 041-374 8426
Fax.: 041-373 2002
Contact person: Ms M. Jacoby
Email marisa@publicprocess.co.za

Compiled by: Dr Johan Binneman
On behalf of: Eastern Cape Heritage Consultants
P.O. Box 689
Jeffreys Bay
6330
Tel: 042 2960399
Cell: 0728006322
Email: kobusreichert@yahoo.com
J.Binneman@ru.ac.za

Date: November 2012

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A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT FOR THE PROPOSED EXPANSION OF AGRICULTURAL ACTIVITIES ON PORTION 23 OF FARM 104 SWANEPOELS KRAAL AND THE REMAINDER OF FARM 650, KIRKWOOD, SUNDAYS RIVER VALLEY MUNICIPALITY, EASTERN CAPE PROVINCE

Compiled by: Dr Johan Binneman
On behalf of: Eastern Cape Heritage Consultants
P.O. Box 689
Jeffreys Bay
6330
Tel: 042 962096
Cell: 0728006322
email: kobusreichert@yahoo.com

Note: This report follows the minimum standard guidelines required by the South African Heritage Resources Agency for compiling Archaeological Phase 1 Impact Assessment (AIA) reports. The report is part of an Environmental Impact Assessment.

EXECUTIVE SUMMARY

Purpose of the study

The original proposal was to conduct a survey of possible archaeological sites on Portion 23 of Farm 104 Swanepoels Kraal and the remainder of Farm 650, Kirkwood, Sundays River Valley Municipality, Eastern Cape Province; to establish the range and importance of the archaeological sites/remains, the potential impact of the development and to make recommendations to minimize possible damage to these sites.

The location of the development

The proposed site for development is situated approximately 10 kilometres north of Addo and about 2,8 kilometers south of the gravel road between Kirkwood and the R335 Zuurberg Road.

Type of development

The proposed development is to expand the existing agricultural activities with 92 hectares for additional orchards and associated agricultural infrastructure.

The investigation

Due to the dense/impenetrable thicket and grass vegetation it was difficult to find archaeological sites/materials, but occasional Middle Stone Age stone tools were observed in areas where the dense vegetation has been cleared, in vehicle tracks and where river gravels were exposed.

Cultural sensitivity

The development is near the Coerney River and freshwater shell middens may be exposed during the clearing of the dense vegetation. In general the proposed property for development appeared to be of low archaeological sensitivity. Development may proceed as planned (see recommendations).

Recommendations

1. If freshwater shell middens or any other concentrations of other archaeological material are uncovered during the development it should be reported immediately to the nearest archaeologist, museum and/or the South African Heritage Resources Agency.

2. Construction managers/foremen should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites. It is suggested that a person be trained to be on site to report to the site manager if sites are found.

3. It is suggested that an archaeologist should conduct a walkthrough when the remainder of the area for development is cleared of vegetation.

PROJECT INFORMATION

The type of development

The proposed agricultural development on Portion 23 of Farm 104 Swanepoels Kraal and the remainder of Farm 650 is to expand the existing agricultural activities with approximately an additional 92 hectares for orchards and associated agricultural infrastructure. The total size of the properties is 348 hectares.

The Developer

Mr. H. Potgieter
Tel: 042 2340126
Cell.: 0825588200

The Consultant

Public Process Consultants
P.O. Box 27688
Greenacres, 6057
Tel.: 041-374 8426
Fax.: 041-373 2002
Contact person: Ms M. Jacoby
Email marisa@publicprocess.co.za

Purpose of the study

The original proposal was to conduct a Phase 1 Archaeological Impact Assessment (AIA) of the proposed expansion of agricultural activities on Portion 23 of Farm 104 Swanepoels Kraal and the remainder of Farm 650, Kirkwood, Sundays River Valley Municipality, Eastern Cape Province. A survey was conducted to establish;

- the range and importance of possible exposed and *in situ* archaeological sites, features and materials,
- the potential impact of the development on these resources and,
- to make recommendations to minimize possible damage to these resources.

Site and Location

The development is located within the 1:50 000 topographic reference map 3325 BC Coerney (Map 1). The proposed development is situated approximately 10 kilometres north of Addo, some 24 kilometres west of Paterson and the same distance east of Kirkwood. It is located about 2,8 kilometers south of the gravel road between Kirkwood and the R335 Zuurberg Road. The proposed area for development is situated on the south-west side of a hill with a gentle slope towards the Coerney River (nearest point is about 500 m) (Maps 1-3). The property is covered by dense thicket vegetation and surrounded by existing citrus farming activities. A large Eskom powerline also runs from south-west to north-east through the property.

Relevant impact assessments, databases and collections

Binneman, J. 2012. A phase 1 archaeological impact assessment for the proposed expansion of the existing agricultural activities on River Bend citrus farm, remainder of Farm 82 Wolve Kop, Portion 1 of Farm 77 Wellshaven and Portion 3 of Farm 77 Honeyvale, near Addo, Sundays River Valley Municipality, Eastern Cape Province. Prepared for Public Process Consultants Greenacres.

The Albany Museum in Grahamstown houses collections and information from the wider region.

BRIEF ARCHAEOLOGICAL BACKGROUND

Literature review

Little systematic archaeological research and regional surveys/recordings have been conducted in the Addo area. The oldest evidence of the early inhabitants are large stone tools, called hand axes and cleavers, which can be found amongst river gravels and in old spring deposits in the region. These large stone tools are from a time period called the Earlier Stone Age (ESA) and may date between 1,5 million and 250 000 years old. In a series of spring deposits at Amanzi Spring near Addo, a large number of stone tools were found *in situ* to a depth of 3-4 metres. Remarkably, wood and seed material preserved in the spring deposits, possibly dating to between 250 000 to 800 000 years old (Inskeep 1965; Deacon 1970).

The large hand axes and cleavers were replaced by smaller stone tools called the Middle Stone Age (MSA) flake and blade industries. Evidence of MSA sites occur throughout the region and date between 250 000 and 30 000 years old. These stone artefacts, like the Earlier Stone Age tools are also found in the gravels along the banks of the Sunday's River and like hand axes are mainly in secondary context. Fossil bone may in rare cases be associated with MSA occurrences.

The majority of archaeological sites found in the area date from the past 10 000 years (called the Later Stone Age) and are associated with the campsites of San hunter-gatherers and Khoi pastoralists. These sites are difficult to find because they are in the open veld and often covered by vegetation and sand. Sometimes these sites are only represented by a few stone tools and fragments of bone (Deacon & Deacon 1999). The preservation of these sites is poor and it is not always possible to date them. There are many San hunter-gatherers sites in the nearby Suurberg and adjacent mountains. Here caves and rock shelters were occupied by the San during the Later Stone Age with well-preserved living deposits and paintings along the walls (Deacon 1976).

Some 2 000 years ago Khoi pastoralists occupied the region and lived mainly in small settlements. They were the first food producers in South Africa and introduced domesticated animals (sheep, goat and cattle) and ceramic vessels to southern Africa. Often archaeological sites are found close to the banks of large streams and rivers. Large piles of freshwater mussel shell (called middens) usually mark these sites. Prehistoric groups collected the freshwater

mussel from the muddy banks of the rivers as a source of food. Mixed with the shell and other riverine and terrestrial food waste are also cultural materials. Human remains are often found buried in the middens.

References

Deacon , H.J. 1970. The Acheulian occupation at Amanzi Springs, Uitenhage District, Cape Province. Annals of the Cape Provincial Museums. 8:89-189.

Deacon, H. J., 1976. Where hunters gathered: a study of Holocene Stone Age people in the Eastern Cape. South African Archaeological Society Monograph Series No. 1.

Deacon, H.J. & Deacon, J. Human beginnings in South Africa. Cape Town: David Phillips Publishers.

Inskeep, R.R. 1965. Earlier Stone Age occupation at Amanzi: preliminary investigations. South African Journal of Science. 61:229-242.

ARCHAEOLOGICAL INVESTIGATION

Methodology

The landowner was contacted prior to the investigation to inform him about the visit and to gain access to the property. He was also consulted during the visit on possible locations of archaeological remains, graves and historical buildings and features. Most of the property for development is covered by dense thicket vegetation and to cover as much of the terrain as possible the many tracks which run through the area were followed with a vehicle and investigated by spot checks on foot (Maps 2-3). GPS readings were taken with a Garmin and all important features were digitally recorded.

Limitations and assumptions

It was not feasible to do a complete survey due to the large size of the property and the dense vegetation. However, approximately 20 hectares were already cleared before the investigation was conducted. This provided an opportunity to investigate a relatively large area cleared of the dense thicket vegetation. This aspect as well as the experiences and knowledge gained from other investigations in the wider surrounding area, provided the information basis to make assumption and predictions on the incidences and significance of possible pre-colonial archaeological sites/material which may be covered by the dense vegetation.

Results

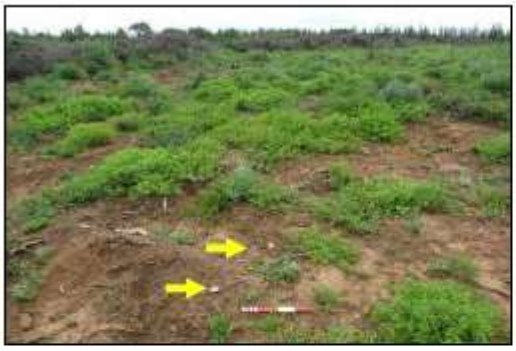
It was difficult to locate archaeological sites/materials because most of the area is covered by dense/ impenetrable thicket vegetation, low bushes and grass. Also areas cleared recently along the access tracks are covered by dense grass with little archaeological visibility (Figs 1-4). Therefore the investigation concentrated mainly on the large area recently cleared of the thicket vegetation (Figs 5-6). This area comprised of soft reddish loams and silts heavily disturbed and turned-over by the bulldozer when the vegetation was removed. Surprisingly, only a few Middle Stone Age stone flakes (older that 30 000 years) were observed, but it is possible that the tools were buried under the soil during the removal of the vegetation (Fig. 7). Nevertheless, these stone tools were in disturbed context and not associated with any other archaeological material.

Similar stone tools were also observed exposed in the tracks which were cleared through the dense thicket vegetation (Fig. 8). These quartzite Middle Stone Age stone tools display typical facetted striking platforms and were found randomly without any recognised distribution

patterns. Most of the tools were thick, small 'informal' flakes and chunks and were also in secondary context. The stone tools were not associated with any other archaeological material. Few cores, points and blades were observed.

Apart from the occasional stone tools no other archaeological sites/materials were found. In general it would appear that it is unlikely that any sensitive archaeological remains will be exposed during the development. However, because the proposed development is near the Coerney River, it is possible that freshwater shell middens may be exposed during the clearing of the dense vegetation. There are no graves or buildings older than 60 years on the properties.

Figs 1-6. Different views of the dense vegetation and the large area cleared of the thicket vegetation for the proposed agricultural development.



Figs 7-8. A view of two of the few stone tools (yellow arrows) exposed during the clearing of the dense vegetation (left) and an example of Middle Stone Age stone tools exposed in the vehicle tracks (right).

DISCUSSION AND MITIGATION

Most of the area investigated was covered with dense thicket vegetation which made it difficult to find archaeological sites. However, the large area cleared of the dense thicket vegetation provided a window to observe the range of possible archaeological sites/materials which may be covered by soil and vegetation. Only a few Middle Stone Age stone artefacts were found in clearance, but more stone tools were exposed in the many tracks which run through the area. The stone tools were not associated with other archaeological remains and were in secondary context and of low significance. Although it is unlikely that any sensitive archaeological remains will be exposed during the development, there is always a possibility that human remains and/or other archaeological and historical material may be uncovered during the development. Should such material be exposed then it must be reported to the nearest museum, archaeologist or to the South African Heritage Resources Agency (see general remarks and conditions below). Usually one would expect to find freshwater shell middens close and along the banks of rivers and streams such as the Coerny River. These are important archaeological sites and special care must be taken during development not to damage or to destroy them when found. The development may proceed, but it is recommended that;

1. The proposed development will take place close to the Coerney River, in an area where one would expect to find fresh water shell middens. If such features are exposed, work should stop immediately and reported to the Albany Museum and/or the South African Heritage Resources Agency.

2. If human remains or any other concentrations of archaeological or historical remains are uncovered during the development, then it must be reported to the Albany Museum and/or the Eastern Cape Provincial Heritage Authority immediately so that systematic and professional investigation/excavations can be undertaken. Sufficient time should be allowed to remove/collect such material (See Appendix B for a list of possible archaeological sites that maybe found in the area).

3. Construction managers/foremen should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites. It is suggested that a person be trained to be on site to report to the site manager if sites are found.

4. It is suggested that an archaeologist should conduct a walkthrough when the remainder of the area for development is cleared of vegetation.

GENERAL REMARKS AND CONDITIONS

Note: This report is a phase 1 archaeological impact assessment/investigation only and does not include or exempt other required heritage impact assessments (see below).

The National Heritage Resources Act (Act No. 25 of 1999, section 35) (see Appendix A) requires a full Heritage Impact Assessment (HIA) in order that all heritage resources, that is, all places or objects of aesthetics, architectural, historic, scientific, social, spiritual linguistic or technological value or significance are protected. Thus any assessment should make provision for the protection of all these heritage components, including archaeology, shipwrecks, battlefields, graves, and structures older than 60 years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects.

It must be emphasised that the conclusions and recommendations expressed in this archaeological heritage sensitivity investigation are based on the visibility of archaeological sites/features and may not therefore, reflect the true state of affairs. Many sites/features may be covered by soil and vegetation and will only be located once this has been removed. In the event of such finds being uncovered, (such as during any phase of construction work), archaeologists must be informed immediately so that they can investigate the importance of the sites and excavate or collect material before it is destroyed. The onus is on the developer to ensure that this agreement is honoured in accordance with the National Heritage Act No. 25 of 1999.

It must also be clear that Archaeological Specialist Reports (AIA's) will be assessed by the relevant heritage resources authority. The final decision rests with the heritage resources authority, which should grant a permit or a formal letter of permission for the destruction of any cultural sites.

APPENDIX A: brief legislative requirements

Parts of sections 35(4), 36(3) and 38(1) (8) of the National Heritage Resources Act 25 of 1999 apply:

Archaeology, palaeontology and meteorites

35 (4) No person may, without a permit issued by the responsible heritage resources authority—

(a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
(b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
(d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

Burial grounds and graves

36. (3) (a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—
(a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
(b) 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 a local authority; or
(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b)any excavation equipment, or any equipment which assists in the detection or recovery of metals.

Heritage resources management

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorized as –

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
(b) the construction of a bridge or similar structure exceeding 50m in length;
(c) any development or other activity which will change the character of the site –
(i) exceeding 5000m^2 in extent, or
(ii) involving three or more erven or subdivisions thereof; or
(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA, or a provincial resources authority;
(d) the re-zoning of a site exceeding 10 000m^2 in extent; or
(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must as the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

APPENDIX B: IDENTIFICATION OF ARCHAEOLOGICAL FEATURES AND MATERIAL FROM INLAND AREAS: guidelines and procedures for developers

Human Skeletal material

Human remains, whether the complete remains of an individual buried during the past, or scattered human remains resulting from disturbance of the grave, should be reported. In general human remains are buried in a flexed position on their side, but are also found buried in a sitting position with a flat stone capping. Developers are requested to be on alert for the possibility of uncovering such remains.

Freshwater mussel middens

Freshwater mussels are found in the muddy banks of rivers and streams and were collected by people in the past as a food resource. Freshwater mussel shell middens are accumulations of mussel shell and are usually found close to rivers and streams. These shell middens frequently contain stone tools, pottery, bone, and occasionally human remains. Shell middens may be of various sizes and depths, but an accumulation which exceeds 1 m^2 in extent, should be reported to an archaeologist.

Large stone cairns

They come in different forms and sizes, but are easy to identify. The most common are roughly circular stone walls (mostly collapsed) and may represent stock enclosures, remains of wind breaks or cooking shelters. Others consist of large piles of stones of different sizes and heights and are known as *isisivane*. They are usually near river and mountain crossings. Their purpose and meaning is not fully understood, however, some are thought to represent burial cairns while others may have symbolic value.

Stone artefacts

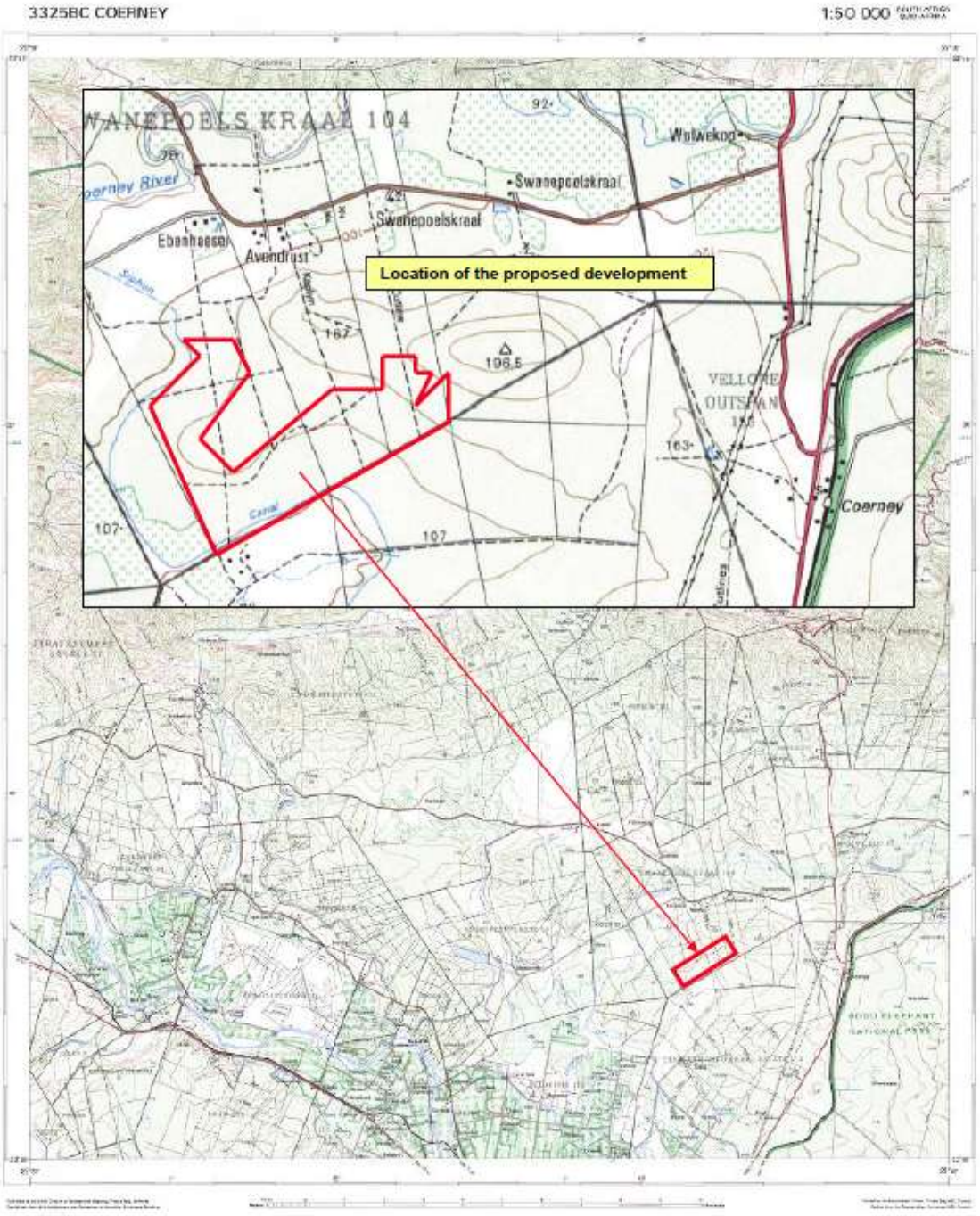
These are difficult for the layman to identify. However, large accumulations of flaked stones which do not appear to have been distributed naturally should be reported. If the stone tools are associated with bone remains, development should be halted immediately and archaeologists notified.

Fossil bone

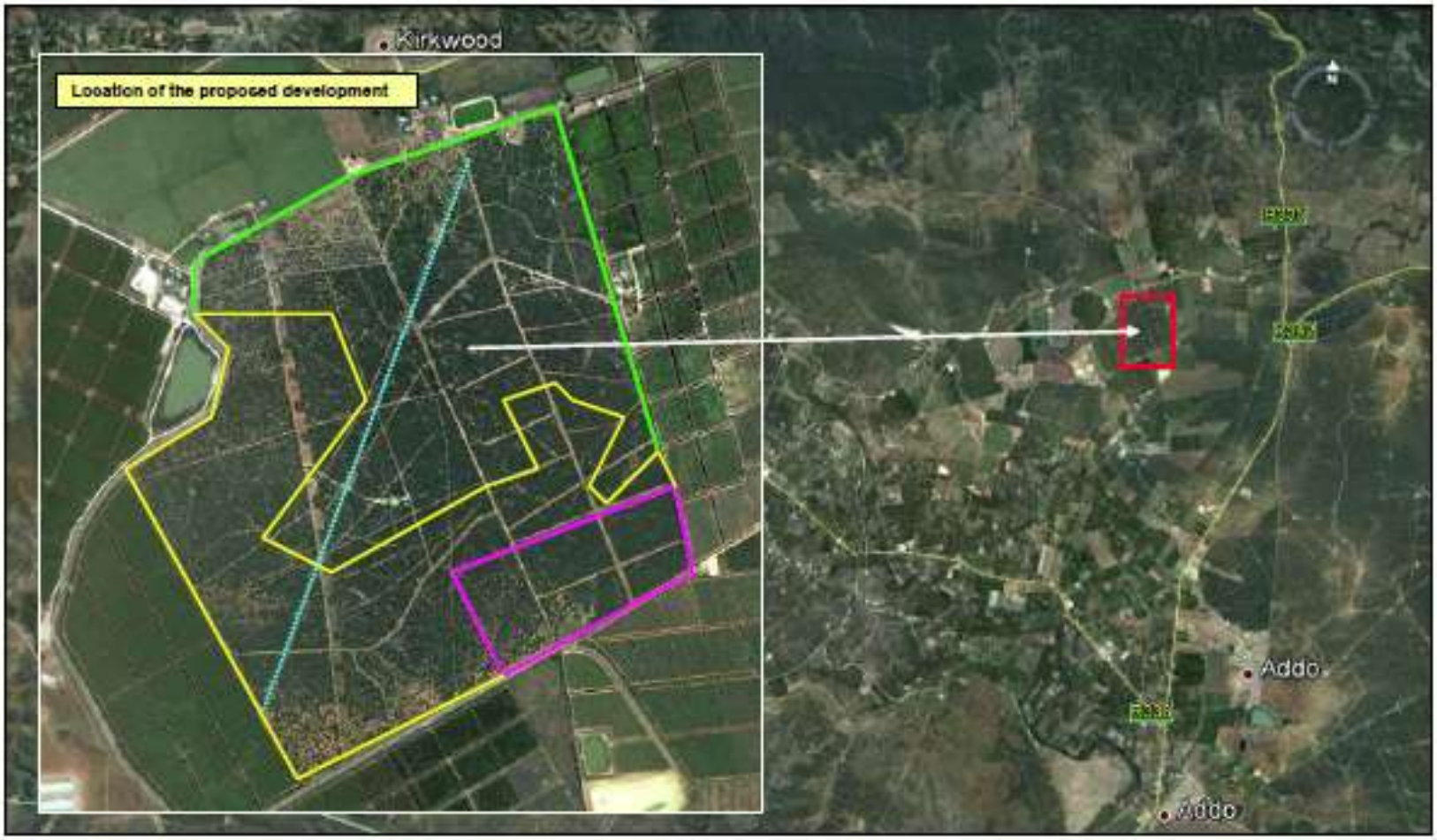
Fossil bones may be found embedded in geological deposits. Any concentrations of bones, whether fossilized or not, should be reported.

Historical artefacts or features

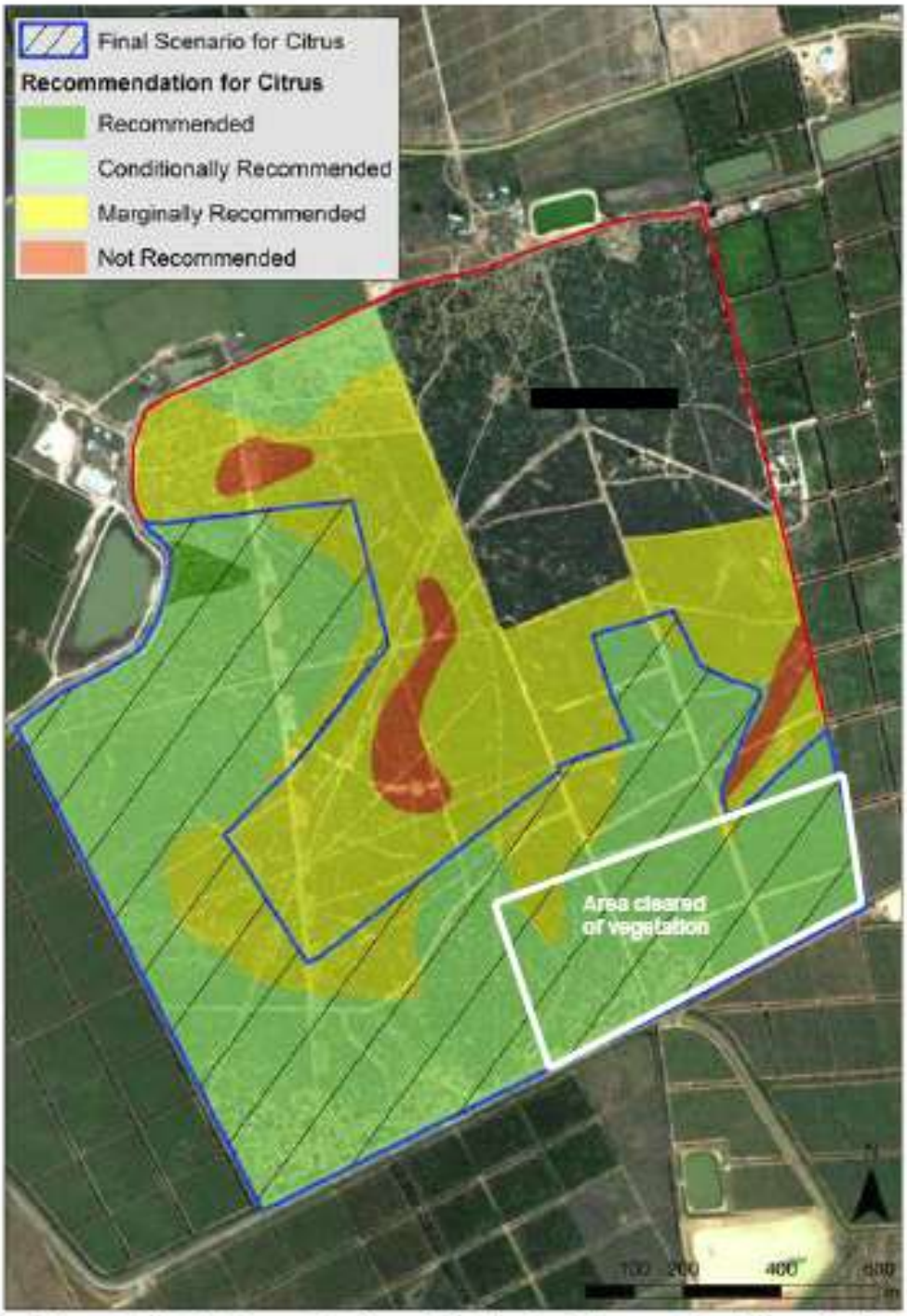
These are easy to identify and include foundations of buildings or other construction features and items from domestic and military activities.



Map 1. 1:50 000 Maps indicating the location of the development. The red lines outline the approximate size of the development.



Map 2. Aerial images indicating the location of the proposed development. The yellow lines outline the approximate size of the footprint for clearing and the pink lines the area already cleared. The green lines mark the property and the blue dotted line the powerline.



Map 3. A map indicating the area to be cleared (blue lines0 and the area already cleared (white lines) (map courtesy Public Process Consultants).

RECONNAISSANCE SOIL SURVEY OF THE MISKRUIER FARM, ADDO

September 2012

DRAFT REPORT

Report compiled by:

F Ellis* & JJN Lambrechts
University of Stellenbosch
Private Bag X1
Matieland
Stellenbosch 7602
(* Pr. Sci. Nat. Reg. No. 400158/08)

Report submitted to: Sandy Wren

Environmental Scientist
Public Process Consultants
PO Box 27688, Greenacres, 6057
120 Diaz Road, Adcockvale, PE, 6001

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TABLES

Table 1 Soil forms and families listed alphabetically according to soil form abbreviation symbol

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Table 7 Soil type symbols and areas associated with the recommended section for development

ANNEXURE 1

Table 1 Coordinates of soil profiles - Miskruier Farm, Addo

Table 2 Map units and soil types with complete list of profiles and soil codes - Miskruier Farm, Addo

ANNEXURE 2

Structure of soil code and explanation of symbols

ANNEXURE 3

Figure 1 Reconnaissance soil map of Miskruier Farm, Addo

Figure 2 Soil suitability map for citrus, Miskruier Farm, Addo

Figure 3 Map showing suggested area to be deforested for the planting of citrus

1 INTRODUCTION

During August 2012 the authors of this report were requested by Dr Paul-Pierre Steyn (PhD), Environmental Scientist, Public Process Consultants, Adcockvale, Port Elizabeth, to do a reconnaissance soil survey on Miskruier Farm, Addo, on behalf of the owner Mr. HHJ (Hermanus) Potgieter.

The Applicant is proposing the agricultural development of Miskruier Farm, Addo, as an extension of his existing farming activities in the Addo district. The total area of the farm is approximately 223.5 ha. The land proposed for development represents an area of about 180. The property is located adjacent to the present development on the existing Miskruier Farm, and can readily be tied into the access and irrigation infrastructure of the current farming operation. The site is located about 40 km from Port Elizabeth, and falls within the Sundays River Municipality.

In terms of the NEMA EIA Regulations: GN R543, 544 and 546 promulgated under Chapter 5 of the National Environmental Act (Act 107 of 1998) ("NEMA"), a Basic Assessment is required for this project. The applicant has appointed Public Process Consultants as the independent Environmental Assessment Practitioner to undertake the Basic Assessment.

At present Public Process Consultants are busy with an environmental impact study for deforestation of approximately 100 ha of the farm. The cleared land will be used for the production of *citrus* for export purposes and other crops.

In support of the application Public Process Consultants require a report in terms of the suitability of the soils in that part of the farm that will be used for future agricultural production purposes. If the soils are not suitable for agricultural production the Department of Environmental Affairs will not necessarily approve the request for deforestation.

Public Process Consultants do not require a detailed analysis of the total production area. The only requirement is the determination whether the soils are generally suitable for the production of the intended crops. If necessary the owner will in future be responsible for more detailed soil studies.

The proposed development will entail the following activities on the site:

- Clearing of vegetation from portions of the site proposed for development.
- Levelling and landscaping the site to provide runoff control and to facilitate the planting of crops.
- Establishment of internal roads to provide access to cultivated lands.
- Installation of an appropriate irrigation system.

Once the necessary infrastructure has been established, the lands will be used for citrus planting. The applicant proposes to use existing nearby infrastructure as offices and service buildings, thus negating the need for any associated infrastructure such as water, electricity and sanitation, other than the water required for the irrigation of the crops.

2 TERMS OF REFERENCE

The initial terms of reference for the reconnaissance soil survey requested by Public Process Consultants, on behalf of the applicant for the application for clearing of the natural vegetation for agricultural purposes included the following:

- Test pits spread over the affected section of the farm that is considered for crop production.
- Soil analyses of soil samples from the test pits (following discussion with applicant this is not required at this stage of the soil survey).
- A report and soil map with conclusions based on the analysis of *inter alia*:
    - The suitability of the soils on the affected portions for the proposed crops.
    - Specific limitations that the soils may have on agriculture and crop production.
    - Specific precautionary measures required for the production of crops on the soils.

Following discussions with the applicant (owner) and Public Process Consultants the following terms of reference were finalized:

- A reconnaissance soil survey of the whole farm (approximately 223.4 ha) to determine the inherent properties, mainly physical and morphological, of the soils based on observations made in 40 randomly spaced soil pits. Approximately 41.8 ha were not included in the survey.

- Compilation of a soils map on a suitable scale (e.g. 1 : 10 000) to describe the natural distribution of the soils.

- Description of the soils in the different soil types in terms of their physical and morphological properties.

- To identify the more important soil physical and/or morphological limitations of the soil types. No chemical soil analyses will be required at this stage

- Evaluation of the relative suitability of the different soil types in terms of irrigated crops; especially citrus but also for watermelons and cabbage.

3 FIELD SOIL SURVEY AND THE RECONNAISACE SOIL MAP

Due to the fairly large area of the proposed development a detail soil survey at this stage was considered as an “over-kill”. It was therefore decided that a reconnaissance survey would be sufficient to identify the agricultural suitability of the soils for the use of citrus, watermelons and cabbage.

In consultation with the owner, Mr. Hermanus Potgieter, a total of 40 soil pits were mechanically excavated to a depth of approximately 1 200 mm or down to any restricting subsoil limitation. The latitude and longitude of the excavated soils profile pits were determined by GPS during the field soil survey (see **Annexure 3: Figure 1)**.

During the field soil survey the individual soil profiles were investigated and the important soil properties (e.g. texture, colour, mottling, structure, coarse fragments, hardpans, horizon depths, etc.) were described following standard procedures as prescribed by the Institute for Soil, Climate and Water, Pretoria. Based on recognizable, as well as inferred properties, the soils were classified according to the South African soil classification system (Soil Classification Working Group, 1991) into soil forms and soil families.

This system is based on the recognition of diagnostic soil horizons and materials. Soil forms are defined in terms of the type and vertical sequence of diagnostic horizons or materials. For communication, soil forms are given locality names, e.g. Augrabies, and abbreviated to a two-

letter symbol, e.g. Ag. Soil forms are subdivided into soil families using properties that are not used in the definition of diagnostic horizons or materials. Reference to a soil family is by combining the soil form abbreviation and a four-digit symbol, e.g. Ag 1110 is family number 1110 of the Augrabies soil form. In **Table 1** all the soil forms and families described during the reconnaissance survey are listed.

Table 1 Soil forms and families listed alphabetically according to soil form abbreviation symbol

Abbre-viation	Soil form and vertical sequence of diagnostic horizons and/or materials

Ad **ADDO FORM**

Orthic A
Neocarbonate B
Soft carbonate horizon

SOIL FAMILIES

1000 A horizon not bleached
- 1100 Non-red B horizon
  - 1120 Luvic B1 horizon
    - 1121 No signs of wetness in carbonate horizon
- 1200 Red B horizon
  - 1220 Luvic B1 horizon
    - 1221 No sign of wetness in carbonate horizon

Ag **AUGRABIES FORM**

Orthic A
Neocarbonate B
Unspecified material

SOIL FAMILIES

1000 A horizon not bleached
- 1200 Red B horizon
  - 1210 Non-luvic B1 horizon
  - 1220 Luvic B1 horizon

2000 A horizon bleached
- 2200 Red B horizon
  - 2220 Luvic B1 horizon

Br **BRANDVLEI FORM**

Orthic A
Soft carbonate horizon

SOIL FAMILIES

1000 No signs of wetness in carbonate horizon
2000 Signs of wetness in carbonate horizon

Km **KLAPMUTS FORM**

Orthic A
E horizon
Pedocutanic B

SOIL FAMILIES

1000 Colour of E horizon “grey” when moist
- 1100 Non-red B horizon
  - 1120 Medium/coarse angular B horizon

Oa **OAKLEAF FORM**

Orthic A
Neocutanic B
Unspecified material

SOIL FAMILIES

1000 A horizon not bleached
- 1100 Non-red B horizon
  - 1120 Luvic B1 horizon

Pr **PRIESKA FORM**

Orthic A
Neocarbonate B
Hardpan carbonate horizon

SOIL FAMILIES

1000 A horizon not bleached
- 1200 Red B horizon
  - 1210 Non-luvic B1 horizon
  - 1220 Luvic B1 horizon

Va **VALSRIVIER FORM**

Orthic A
Pedocutanic B
Unconsolidated material without signs of wetness

SOIL FAMILIES

1000 A horizon not bleached
- 1100 Non-red B horizon
  - 1120 Medium/coarse angular B horizon
    - 1122 Calcareous B or upper C horizon
- 1200 Red B horizon
  - 1210 Subangular/fine angular B horizon
    - 1212 Calcareous B or upper C horizon
  - 1220 Medium/coarse angular B horizon
    - 1222 Calcareous B or upper C horizon

2000 A horizon bleached
- 2200 Red B horizon
  - 2210 Subangular/fine angular B horizon
    - 2212 Calcareous B or upper C horizon
  - 3220 Medium/coarse angular B horizon
    - 2222 Calcareous B or upper C horizon

In addition to the standard description the individual profiles were coded in detail according to a system used for detail soil survey in the fruit and wine industry in the Western Cape (Lambrechts *et al*. 1978; **Note**: In **Annexure 2** the symbols used during this survey are

explained). The coded soil information was used to subdivide the soil families on an *ad hoc* basis into **soil types** using mainly subsoil properties. Soil types are identified by means of a symbol that consists of the abbreviation for the soil form followed by an Arabic number (e.g. Ag 1). The number suffix has no intrinsic meaning. It only serves as an identifier for different soil types that consist of soils belonging to the same soil form, but differ in one or more important soil properties. In **Table 2** the soil types that were defined are briefly described in terms of soil form, diagnostic horizons, family criteria, additional features and effective depth before and after amelioration of physical limitations.

Table 2: Brief description of soil types on Miskruier Farm, Addo

Explanation of superscripts

[1)] Effective depth before mechanical amelioration of physical limitations
[2)] Effective depth after mechanical amelioration of physical limitations

Addo form soils: *Soils with an orthic A on a neocarbonate B horizon on a soft carbonate horizon*

Soil type symbol:	**Ad 1**	**Ad 2**
Soil family	Ad 1121	Ad 1221 & 11/221
Family criteria:		
Bleaching of A horizon	Non-bleached	Non-bleached
Colour of B horizon	Non-red	Red (locally marginally red)
Clay increase from A to B	Luvic	Luvic
Signs of wetness in the soft carbonate horizon	No signs of wetness	No signs of wetness
Additional features:		
Free lime in topsoil	Non-calcareous	Non-calcareous
Clay content topsoil	10-20 %	10-20 %
Depth to soft carbonate horizon	40-60 cm	≈ 50 cm
Coarse fragments in B horizon	Non-gravelly	Non-gravelly
Effective depth: (cm)	40-60[1)]; 75+[2)]	≈ 50[1)]; 75+[2)]

Augrabies form soils: *Soils with an orthic A on a neocarbonate B horizon on unspecified material*

Soil type symbol:	**Ag 1**	**Ag 2**
Soil family	Ag 1220, 121/20 & 1/220	Ag 2220
Family criteria:		
Bleaching of A horizon	Non-bleached to marginally bleached	Bleached
Colour of B horizon	Red (locally marginally red)	Red
Clay increase from A to B	Luvic	Luvic
Additional features:		
Free lime in topsoil	Usually non-calcareous	Usually non-calcareous
Clay content topsoil	10-20 %	10-17 %
Coarse fragments in B horizon	Non-gravelly	Non-gravelly
Depth to and type of unspecified material	Usually deeper 50-65 cm; variety of material that varies from red, blocky clay to weathered bedrock	Deeper than 70 cm; red, blocky clay
Effective depth: (cm)	50-65[1)]; 75+[2)]	>70[1)]; 75+[2)]

Brandvlei form soils: *Soils with an orthic A horizon on a soft carbonate horizon on unspecified material*

Soil type symbol:	**Br 1**	**Br 2**
Soil family:	Br 1000	Br 2000
Family criteria:		
Signs of wetness in soft carbonate horizon	No signs of wetness	With signs of wetness
Additional features:		
Depth of soft carbonate horizon	20-30 cm	10-20 cm
Clay content topsoil	10-20 %	10-17 %
Coarse fragments in topsoil	Non-gravelly	Non-gravelly
Effective depth: (cm)	20-30[1)]; 75[2)]	10-20[1)]; 75[2)]

Klapmuts form soils: *Soils with an orthic A on an E on a pedocutanic B horizon*

Soil type symbol:	**Km 1**
Soil family	Km 1120
Family criteria:	
Colour of E horizon in moist state	Grey
Colour of B horizon	Non-red
Structure of pedocutanic B horizon	Medium/coarse angular blocky
Additional features:	
Clay content topsoil	≈10 %
Coarse fragments in A/E horizon	Non-gravelly
Depth to pedocutanic B horizon	≈ 40 cm
Depth and nature of underlying material	≈ 60 cm; calcareous wet clay
Effective depth: (cm)	≈ 30[1)]; ≈ 60+[2)] depending on stability clay

Oakleaf form soils: *Soils with an orthic A on a neocutanic B horizon on unspecified material*

Soil type symbol:	**Oa 1**
Soil family	Oa 1120
Family criteria:	
Bleaching of A horizon	Non-bleached
Colour of B horizon	Non-red
Clay increase from A to B	Luvic
Additional features:	
Clay content topsoil	10-15 %
Coarse fragments in B horizon	Non-gravelly
Depth to and type of unspecified material	Blocky material
Effective depth: (cm)	≈30[1)]; 75+[2)]

Prieska form soils: *Soils with an orthic A on a neocarbonate B horizon on a hardpan carbonate horizon*

Soil type symbol:	**Pr 1**
Soil family	Pr 121/20
Family criteria:	
Bleaching of A horizon	Non-bleached
Colour of B horizon	Red
Clay increase from A to B	Marginally luvic
Additional features:	
Clay content topsoil	10-20 %
Depth to hardpan carbonate horizon	≈ 50 cm
Coarse fragments in A/B horizon	Non-gravelly
Effective depth: (cm)	≈ 50[1)]; 75+[2)] depending on hardness of hardpan

Valsrivier form soils: *Soils with an orthic A on a pedocutanic B horizon on unconsolidated material without signs of wetness*

Soil type symbol:	**Va 1**	**Va 2**	**Va 3**
Soil family	Va 1212 & 1222	Va 2222	Va 1122
Family criteria:			
Bleaching of A horizon	Non-bleached	Bleached	Non-bleached
Colour of B horizon	Non-red and red	Red	Non-red
Structure of pedocutanic B horizon	Usually medium/coarse angular blocky	Medium/coarse angular blocky	Medium/coarse angular blocky
Presence of free lime in B/C horizon	Calcareous	Calcareous	Calcareous
Additional features:			
Clay content topsoil	10-20 %	10-17 %	15-20 %
Depth to pedocutanic B horizon	10-20 cm	10-20 cm	≈10 cm
Coarse fragments in A horizon	Non-gravelly	Non-gravelly	Non-gravelly
Effective depth: (cm)	10-20[1)]; 75+[2)] depending on stability clay	10-20[1)]; 75+[2)] depending on stability clay	≈10[1)]; 75+[2)] depending on stability clay

In **Annexure 1: Table 2** the soil types are listed alphanumerical according to the soil type symbol together with all the profiles and codes in the different soil types.

Certain properties (e.g. diagnostic horizons or materials) of the soil types are specified **Table 2**. Additional properties can be abstracted from the:

i) properties of diagnostic horizons and materials (Soil Classification Working Group, 1991),

ii) differentiating family criteria (Soil Classification Working Group, 1991), and

iii) additional information specified in the soil code (Lambrechts *et al*. 1978; refer to **Annexure 2**.

A reconnaissance soil map of the farm was compiled using the soil types as listed in **Table 2** (see **Annexure 3: Figure 1**). A Google Earth image of the survey area was used as background map. In addition to the soil type symbols and boundaries, the positions of the soil pits are also indicated on the map together with a line scale.

In addition to the soil type properties the characteristics of individual soil pits in a soil type unit were used for interpretation of the suitability of the soils as indicated on the maps and the attached tables.

4 SUITABILITY OF SOIL TYPES FOR CROP PRODUCTION

The most common limitations of the soils on Miskruier Farm, Addo, are high topsoil clay content, dense subsoil clay layers, dense subsoil hardpan carbonate layers, presence of free lime at various depths through the profile and localised wetness.

During the field soil survey the individual soil pits were evaluated by the soil surveyor in terms of its general suitability as well as the suitability for the commercial production of annual crops. Annual crops included irrigated watermelons and cabbage. Because citrus is adapted to the climatic conditions in the Addo region, the suitability of the soils was also evaluated during the writing of the report. The suitability rating ranges from 1 to 10, with 1 the lowest and 10 equal to the highest or best suitability. For both annual and perennial crops the suitability rating refers to vigour and potential production potential without considering product quality. Although fairly subjective, suitability ratings by an experienced soil scientist with many years of field experience are a handy tool to group soil types into production potential classes and for land use recommendations. The ratings can be interpreted according to the guidelines in **Table 3**.

Table 3 Interpretation of suitability ratings

Rating	General suitability	
≤2	Very low	Not recommended (NR)
>2 - ≤3	Low	
>3 - ≤4	Low-medium	Marginally recommended (MR)
>4 - ≤5	Medium	Conditionally recommended (CR)
>5 - ≤6	Medium-high	Recommended (RE)
>6 - ≤8	High	Highly recommended (HR)
>8	Very high	

For annual crops the variation in the suitability rating of different soil profiles and soil types were fairly small. The main reason for this small variation is the relatively shallow effective soil depth (*viz*. 30 - 40 cm) required by these crops for optimum production under irrigated conditions. Most of the soils were rated as moderately (medium) suitable for these crops. Only in localised areas the ratings were lower and only marginally suitable for crop production.

The suitability ratings for irrigated citrus largely depend on limiting soil properties/features such as free lime in the subsoil (and locally in the topsoil) and high clay content in upper subsoil. These limitations will be discussed in the following chapter.

The general suitability ratings on a profile basis are listed in **Annexure 1: Table 2** and the average rating for each soil type in **Table 4**. In **Table 4** the recommendation for watermelons (annual crops) and citrus are also given. The average suitability rating for soil types was calculated from the individual profile ratings.

Table 4 Average suitability rating of soil types for the production of irrigated citrus and watermelons (see **Table 3** for abbreviations)

Soil type	Area (ha)	Average soil type field suitability rating	Recommendation of map units for after amelioration	
			Watermelon	Citrus
Addo soil form: *Soils with an orthic A horizon on a neocarbonate B horizon on a soft carbonate horizon*				
Ad 1	2.52	4.3	RE	CR
Ad 2	19.34	4.2	RE	CR
Augrabies soil form: *Soils with an orthic A horizon on a neocarbonate B horizon on unspecified material*				
Ag 1	41.83	4.8	RE	CR
Ag 2	9.76	4.9	RE	CR
Brandvlei soil form: *Soils with an orthic A on a soft carbonate horizon on unspecified material*				
Br 1	70.74	3.3	MR	MR
Br 2	5.93	2.8	NR	NR
Klapmuts soil form: *Soils with an orthic A horizon on an E horizon on a pedocutanic B horizon*				
Km 1	2.00	3.8	MR	MR
Oakleaf soil form: *Soils with an orthic A horizon on a neocutanic B horizon on unspecified material*				
Oa 1	1.38	6.0	HR	RE
Prieska soil form: *Soils with an orthic A on a neocarbonate B horizon on a hardpan carbonate horizon*				
Pr 1	2.69	4.3	RE	CR
Valsrivier soil form: *Soils with an orthic A- on a pedocutanic B horizon on unconsolidated material without signs of wetness*				
Va 1	15.60	4.7	CR	CR
Va 2	5.78	4.3	CR	CR
Va 3	1.59	3.0	NR	NR

Total area surveyed	179.99
Not surveyed	44.30
Total area farm	223.45

Based on the average suitability rating (see **Table 4**) most of the soil types (Ad 1, Ad 2, Ag 1, Ag 2, Pr 1, Va 1 and Va 2) can be conditionally recommended for irrigated crop production that may include watermelon, cabbage and perennial citrus, while the Oakleaf (Oa 1; 1.38 ha) soil type has a higher suitability and can be recommended for annual and perennial crops. Due to the more severe soil limitations soil types Br 1and Km 1 (total area 72.73 ha) can only be marginally recommended while Br 2 and Va 3 (total area 7.52 ha) cannot be recommended for these crops. Refer to **Annexure 3: Table 2** for soil suitability map for citrus.

5 SOIL LIMITATIONS

All the profiles investigated during the field survey have one or more soil physical and/or morphological properties that will negatively effect root development, plant growth and production potential. In **Table 5** the most important limitations are listed per soil type.

Table 5 Limitations of soil types

Notes:

i) The following classes and abbreviations are used to qualify the physical soil limitations of the map units:

Limitation class	Abbreviation
None	(no symbol)
Low	Low
Moderate	Mod
Severe	Sev
Variable	Var

ii) Low clay content refers to a topsoil clay content of < 5 %.

iii) The depth to subsoil limitations is specified in centimetres (cm) following the limitation class.

Soil type	High clay content in topsoil	High alkalinity due to free lime		Dense subsoil clay layer	Hardpan carbonate horizon
		In topsoil	In upper subsoil		
Addo soil form: *Soils with an orthic A horizon on a neocarbonate B horizon on a soft carbonate horizon*					
Ad 1	Low-Mod	Low-Mod	Mod		
Ad 2	Low-Mod	Low-Mod	Mod		
Augrabies soil form: *Soils with an orthic A horizon on a neocarbonate B horizon on unspecified material*					
Ag 1	Low-Mod	Low-Mod	Mod	Low-Mod 70+	
Ag 2	Low-Mod	Low-Mod	Mod		
Brandvlei soil form: *Soils with an orthic A on a soft carbonate horizon on unspecified material*					
Br 1	Low-Mod	Mod	Sev		
Br 2	Low	Mod	Sev		
Klapmuts soil form: *Soils with an orthic A horizon on an E horizon on a pedocutanic B horizon*					
Km 1	Low			Mod-Sev ≈40	
Oakleaf soil form: *Soils with an orthic A horizon on a neocutanic B horizon on unspecified material*					
Oa 1	Low				
Prieska soil form: *Soils with an orthic A on a neocarbonate B horizon on a hardpan carbonate horizon*					
Pr 1	Low	Low-Mod	Mod-Sev		Sev ≈50
Valsrivier soil form: *Soils with an orthic A- on a pedocutanic B horizon on unconsolidated material without signs of wetness*					
Va 1	Low-Mod			Mod 10-20	
Va 2	Low-Mod			Mod 10-20	
Va 3	Low-Mod			Mod ≈10	

In the following paragraphs the individual limitations will be discussed.

5.1 High clay content in topsoil

Except for soil types Km 1, Oa 1 and Pr 1 with less than 15 % clay in the topsoil, all the other soil types have 10 – 20 % clay in the topsoil. Crops with a weak root system might be negatively affected when the clay content is more than 15 %.

Depending on chemical nature in terms of magnesium and sodium saturation, some of these soils might tend to set hard on drying and could develop a surface crust. These negative aspects could be ameliorated by judicious application of gypsum and mulching.

5.2 High alkalinity

Free lime in the subsoil associated with neocarbonate B, soft carbonate and hardpan carbonate horizons may pose a problem for crops sensitive to alkaline pH conditions especially if the lime is powdery form as in the neocarbonate B and soft carbonate B horizon. The more powdery the lime, the higher the solubility in water.

Nutritional problems such as low phosphorous availability and trace element deficiencies (especially iron, zinc, manganese and copper) may occur if the calcareous material is moved to the surface during deep physical cultivation (e.g. deep ploughing or during ridging).

High pH sensitive crops might experience these nutritional problems especially when the topsoil is calcareous.

5.3 Dense subsoil clay layers and hardpan carbonate layers

Both these layers are impenetrable for roots and therefore restrict the effective depth that plants roots can penetrate the soil.

Hardpan carbonate horizons (soil types Pr 1 and Pr 2) can be broken up during deep soil preparation with a tine implement to improve effective rooting depth.

A dense clay layer (soil types Km 1, Va 1, Va 2 and Va 3) can be loosened during soil preparation but, depending on the chemical composition in terms of exchangeable magnesium and/or sodium, the loosening effect is not long term and tends to re-compact over time.

In the case of the Km 1 soil type the clay layer is so dense that a water table periodically develops above the clay layer resulting in a bleached E horizon. These soils should be drained to prevent the development of a water table above the clay layer.

5.4 Wetness

This refers to the presence of free water at varying depths in a soil profile.

The Km 1 and Br 2 soil types have signs of wetness in the E horizon and below the soft carbonate horizon respectively. If they should be used drainage is recommended on these soil types.

5.5 Other limitations

Other soil properties that might be considered as a limitation for crop production could

be hard-setting and crusting in the topsoil. Soil types with a bleached topsoil, e.g. Ag 2 and Va 2 are more severely affected than soil types with a non-bleached topsoil. Mulching is therefore a practice that is strongly recommended to prevent hard-setting and crusting.

6 AMELIORATION MEASURES

For annual crops no specific physical soil amelioration measures are required accept ridging in the case of soils with shallow subsoil clay layers and levelling and landscaping the site to provide runoff control and to facilitate the planting of crops, *inter alia* melons and cabbage.

For the production of perennial crops, e.g. citrus, the following amelioration measures could be used to improve the soils for deep rooted crops:

- **Drainage**
- **Ridging**
- **Deep soil tillage:** Shift ploughing and/or
  Ripping

In **Table 6** the recommended physical soil amelioration measures for deep rooted crops are listed per soil type.

Table 6 Recommended physical soil amelioration measures for deep rooted crops

Notes:

i) The following classes are used to qualify the necessity for a particular amelioration measure:

Necessity	Symbol
Not necessary	(No symbol)
Recommended	Recom
Essential	Essen

ii) The following depth classes are used with the recommendations for shift ploughing or ripping:

Depth class	Symbol
Shallow	SH
Moderately deep	MD
Deep	DE
Very deep	VD

Soil type	Amelioration measures			
	Drainage	Ridging	Deep soil tillage	
			Shift plough (depth)	Ripping (depth)
Addo soil form: *Soils with an orthic A horizon on a neocarbonate B horizon on a soft carbonate horizon*				
Ad 1				Recom DE
Ad 2				Recom DE
Augrabies soil form: *Soils with an orthic A horizon on a neocarbonate B horizon on unspecified material*				
Ag 1				Recom DE
Ag 2				Recom DE
Brandvlei soil form: *Soils with an orthic A on a soft carbonate horizon on unspecified material*				
Br 1		Essen		Recom DE
Br 2	Recom	Essen		Recom DE
Klapmuts soil form: *Soils with an orthic A horizon on an E horizon on a pedocutanic B horizon*				
Km 1	Essen	Essen	Essen MD	Recom DE
Oakleaf soil form: *Soils with an orthic A horizon on a neocutanic B horizon on unspecified material*				
Oa 1			Essen DE	Recom DE
Prieska soil form: *Soils with an orthic A on a neocarbonate B horizon on a hardpan carbonate horizon*				
Pr 1		Essen		Essen DE
Valsrivier soil form: *Soils with an orthic A- on a pedocutanic B horizon on unconsolidated material without signs of wetness*				
Va 1		Essen		Recom DE
Va 2		Essen		Recom DE
Va 3		Essen		Recom DE

6 RECOMMENDATION

According to the reconnaissance survey, the Ad 1, Ad 2, Ag 1, Ag 2, Pr 1, Va 1 and Va 2 soil types with a total area of 97.52 ha are conditionally recommended for annual watermelon, cabbage and citrus production under irrigation, while Oa 1 (1.38 ha) is recommended.

Br 1 and Km 1 (total area 72.73 ha) soil types can only be marginally recommended while Br 2 and Va 3 (total area 7.52 ha) soil types cannot be recommended for these crops.

Provided that there is sufficient irrigation water available, approximately 100 ha conditionally recommended and recommended soil types could be deforested for the production of citrus,

watermelons or cabbage. An additional 73 ha that is marginally recommended can also be developed provided that the specified amelioration measures are followed and high pH resistant citrus rootstocks are selected.

The specific area where the best and most appropriate area of suitable soils that occur adjacent to each other can be developed to suite the applicant's requirements is shown on **Annexure 3: Figure 3**. In **Table 7** the soil type symbols and areas that are associated with the recommended section for development is listed. All the soil types in the recommended section are conditionally recommended for citrus.

Table 7 Soil type symbols and areas associated with the recommended section for development

Soil type	Area (ha)
Ad 1	1.79
Ad 2	19.06
Ag 1	41.74
Ag 2	9.76
Oa 1	1.38
Pr 1	2.69
Va 1	15.60
Va 2	1.28
Total	**93.30**

7 REFERENCES

Lambrechts, JJN; Van Zyl, J; Ellis, F and Schloms, BHA. 1978. Grondkode en kaartsimbool vir detailkartering in die Winterreënstreek. Technical Communication No. 165, Dept. Agric. Tech. Services, Pretoria.

Soil Classification Working Group. 1991. Soil Classification: A Taxonomic System for South Africa. Mem. Natural Agric. Resources for S.A. No. 15.

Annexure 1

Table 1

Coordinates of soil profiles - Miskruierveld - Addo

Pit number	Coordinates					
	South			East		
	°	'	"	°	'	"
1	-33	26	40.3	25	40	44.3
2	-33	26	43.0	25	40	37.7
3	-33	26	47.7	25	40	26.4
4	-33	26	57.0	25	40	29.7
5	-33	27	5.8	25	40	20.6
6	-33	27	8.7	25	40	17.7
7	-33	27	5.9	25	40	30.2
8	-33	26	50.3	25	40	34.4
9	-33	27	4.3	25	40	36.6
10	-33	26	54.5	25	40	51.1
11	-33	26	59.3	25	40	45.1
12	-33	27	2.0	25	40	49.6
13	-33	27	10.1	25	40	38.5
14	-33	27	19.4	25	40	39.3
15	-33	27	26.4	25	40	39.4
16	-33	27	32.2	25	40	40.4
17	-33	27	36.8	25	40	41.0
18	-33	27	38.3	25	40	35.4
19	-33	27	30.1	25	40	30.5
20	-33	27	25.4	25	40	27.7
21	-33	27	19.5	25	40	24.4
22	-33	27	16.8	25	40	30.1
23	-33	27	23.6	25	40	40.0
24	-33	27	25.0	25	40	48.0
25	-33	27	21.7	25	40	50.2
26	-33	27	17.1	25	40	52.3
27	-33	27	18.4	25	40	53.2
28	-33	27	21.6	25	40	59.2
29	-33	27	33.1	25	40	50.6
30	-33	27	30.2	25	40	57.4
31	-33	27	25.9	25	41	6.7
32	-33	27	19.2	25	41	3.4
33	-33	27	17.3	25	41	2.5
34	-33	27	15.0	25	41	1.8
35	-33	27	13.5	25	41	5.4
36	-33	27	10.5	25	41	11.5
37	-33	27	7.1	25	41	20.5
38	-33	27	19.2	25	41	23.4
39	-33	27	2.9	25	41	18.2
40	-33	27	6.6	25	41	9.1

Annexure 1
Table 2

Map units and soil types with complete list of profiles and soil codes - Farm Miskruierveld, Addo

Map unit	Pit #	Depth codes	Form & Family	Subsoil limitations/properties				Topsoil properties		Transi-tional form	Suita-bility rating
				Upper	Middle	Lower	Coarse fragments	Sand grade	Clay class		
Addo soil form: *Soils with an orthic A horizon on a neocarbonate B horizon on a soft carbonate horizon*											
Ad 1	1	2 6	Ad 1121	nc	sk/vp			fi	3		4.5-5.0
Ad 1	26	1 4	Ad 1121	nc/vp	sk			fi	4		3.5-4.0
Ad 2	15	2 5	Ad 1221	nc	sk/nc+vr			fi	3/4		4.0
Ad 2	35	2 5	Ad 1221	nc	sk/hk1			fi	3/4		4.0
Ad 2	36	2 5	Ad 1221	ne/nc	nc			fi	3	Et	4.5-5.0
Ad 2	40	2 5	Ad 11/221	nc	sk			fi	4		4.0
Augrabies soil form: *Soils with an orthic A horizon on a neocarbonate B horizon on unspecified material*											
Ag 1	16	2 6	Ag 1220	nc/ne	nc/vr+ca			fi	4		4.5
Ag 1	18	2 6	Ag 1220	nc/ne	vr/nc/db+ca			fi	3/4		4.5-5.0
Ag 1	19	2 5	Ag 121/20	nc	vr/nc			fi	3/4		4.5-5.0
Ag 1	27	2	Ag 1/2220	nc/vr				fi	3/4	Weak Va	5.5
Ag 1	30	1 6	Ag 1/2220	nc/vr	so/sw			fi	3/4	Red Va	4.5
Ag 1	31	2 7	Ag 1/2220	ne/nc	nc/vr			fi	3/4		4.5-5.0
Ag 1	32	2 7	Ag 1/2220	ne/nc	nc/vr			fi	3/4		4.5-5.0
Ag 1	33	2 7	Ag 1/2220	ne/nc	nc/vr			fi	3/4		4.5-5.0
Ag 1	38	2 6	Ag 1220	nc/ne/vr	nc/vr			fi	4		4.5-5.0
Ag 2	7	2 7	Ag 2220	nc/ne	ne/vr			fi	3		5.0-5.5
Ag 2	25	2	Ag 2220	nc				fi	3/4		4.5
Brandvlei soil form: *Soils with an orthic A on a soft carbonate horizon on unspecified material*											
Br 1	3	1 1	Br 1000	sk			2k	fi	3		3.5
Br 1	10	3	Br 1000	sk				fi	3/4		3.5-4.0
Br 1	11	2	Br 1000	sk				fi	2		3.5-4.0
Br 1	13	2	Br 1000	sk				fi	3/4		3.0-3.5
Br 1	14	2	Br 1000	sk				fi	3/4		3.0-3.5
Br 1	22	2	Br 1000	sk				fi	3		3.5
Br 1	23	2	Br 1000	sk				fi	3/4		3.5
Br 1	24	2	Br 1000	sk				fi	3/4		3.0
Br 1	28	3	Br 1000	sk				fi	3/4		3.5
Br 1	34	3	Br 1000	sk				fi	4		3.0-3.5
Br 2	12	2	Br 2000	sk				fi	2		2.5-3.0
Br 2	39	1	Br 2000	sk/gl				fi	3/4		2.5-3.0
Klapmuts soil form: *Soils with an orthic A horizon on an E horizon on a pedocutanic B horizon*											
Km 1	37	3 4 6	Km 1120	gs	vp	gc+ca		fi	2/3		3.5-4.0
Oakleaf soil form: *Soils with an orthic A horizon on a neocutanic B horizon on unspecified material*											
Oa 1	4	3	Oa 1120	ne	ne/vp			fi	3		6.0
Prieska soil form: *Soils with an orthic A on a neocarbonate B horizon on a hardpan carbonate horizon*											
Pr 1	20	2 5	Pr 121/20	ne/nc	hk2			fi	3		4.5
Pr 1	21	1 3	Pr 121/20	ne/nc	hk2			fi	3		4.0
Valsrivier soil form: *Soils with an orthic A- on a pedocutanic B horizon on unconsolidated material without signs of wetness*											
Va 1	5	2 6	Va 1222	vr/ne	vr+ca			fi	3	Ag	4.5-5.0
Va 1	6	2 6	Va 1222	vr	vr+ca			fi	3		4.5-5.0
Va 1	9	1 5	Va 1/2212	vr	vr+ca			fi	4	Weak Ag	4.5-5.0
Va 1	17	1 5	Va 1212	vr/ne	ve/ne+ca			fi	4		4.5
Va 2	2	1 6	Va 2222	vr	vr+ca			fi	3		4.0
Va 2	29	2 6	Va 2222	vr/ne	vr+ca			fi	3/4		4.5
Va 3	8	1 3	Va 1122	vp	vp+ca			fi	4		3.0

Annexure 2

Structure of soil code and explanation of symbols

1 Structure of soil code

The code consists of two series of letter-number symbols, separated by a horizontal line, arranged in the following order:

Position to horizontal line	For description refer to section
Above the line	
Depth of horizons and/or materials	2.1
Soil form	2.2
Soil family	2.3
Subsoil limitations or properties	2.4
Below the line	
Coarse fragments in the topsoil horizon and outcrops	3.1
Texture of topsoil horizon and underlying E or apedal B1	3.2
Soil water conditions	3.3

In a Microsoft Word or Excel table the letter-number symbols can be written in a single line with the "above the line" letter-number symbols followed by the "below the line" letter-number symbols.

In uncultivated soils the term topsoil horizon refers to the natural A horizon, while for cultivated soils it refers to the upper 150 - 300 mm of the soil profile affected by tillage.

2 Classes and symbols for properties above the line

2.1 Horizon and/or effective depths

The depths of all the diagnostic as well as non-diagnostic horizons and/or materials encountered in a profile are coded with a number symbol in front of the soil form symbol. Depth classes and symbols used are:

Depth class (mm)			Symbol	Depth class (mm)			Symbol
0	-	150	1	750	-	950	7
150	-	250	2	950	-	1 150	8
250	-	350	3	1 150	-	1 350	9
350	-	450	4	1 350	-	1 550	0
450	-	550	5	>1 550			no symbol
550	-	750	6				

Depth symbols for diagnostic horizons or materials specified in a particular soil form are arranged from shallow (topsoil transition) to deep (deepest subsoil transition) before the form symbol. Depth symbols for subsoil limitations or properties (arranged from shallow to deep) are written between the depth symbols for diagnostic horizon transitions and the form symbol.

2.2 Soil Form

Soil forms and abbreviations used in the soil code are explained by the Soil Classification Working Group (1991). For example Ag is the abbreviation for a Augrabies form soil.

2.3 Soil family

Soil families are identified by a locality name or coded by means of a four-digit symbol (Soil Classification Working Group, 1991). For example 1120 is the four-digit symbol for the Giyani soil family of the Augrabies soil form. In the code the four-digit symbol is used directly after the soil form abbreviation symbol; e.g. Ag 1120.

2.4 Subsoil limitations and properties

The depth of soil utilized by plant roots is determined by a variety of soil materials and factors. For example, in the Klapmuts soil form the maximum effective root depth is determined by the pedocutanic B.

In those forms where the limiting horizon is part of the defined sequence of horizons that is diagnostic of the soil form, the symbol for the limiting material or horizon do not have to be coded. It is, however, recommended that symbols for all diagnostic horizons are included in the code. If the limiting horizon or material is not included in the sequence of diagnostic horizons, the symbol for the specific horizon or material must be specified after the family number in the code. The depth symbol for such horizons is written between the depth symbol for diagnostic horizons and the soil form symbol.

The more important materials that may affect root penetration and water infiltration to a greater or lesser extent are one or more of the following:

- **Hardpans; irreversibly cemented**

  This is soil material cemented by one or more compounds to such an extent that it does not soften in water.

  db - Dorbank: cemented by silica. Calcium carbonate and iron oxide are permissible as secondary cementing agents. It meets the requirements of a diagnostic dorbank horizon.

  hk - Calcrete: cemented by calcium and/or magnesium carbonate. It meets the requirements of a hardpan carbonate horizon.

  The degree of cementation is distinguished in terms of the intensity and continuity of cementation:

  1 - **Hard**: Numerous vertical fracture planes, or vesicular; moderate degree of cementation; more than 25% of the layer is accessible and penetrable to roots; sufficient fracture planes for free drainage through the pan under normal conditions.

  2 - **Very hard**: Platy and/or massive with occasional vertical fracture planes; moderate to high degree of cementation; predominantly impenetrable to roots; locally (<25% over a horizontal section) soft enough for root penetration; sporadic accumulation of free water on the pan.

  3 - **Extremely hard**: Massive and/or continuously platy with no fracture planes in which root development can occur; under normal conditions impermeable to water; regular accumulation of free water on the pan.

  Example: A hardpan cemented primarily by iron with vertical cracks approximately 10 mm to 15 mm apart is coded by the symbol **hp2**.

- **Moderate to strongly structured, unconsolidated material without signs of wetness**

  vp - Blocky clay: a non-gleyed soil material with a non-uniform non-red colour and a moderate or stronger structure when moist. It largely meets the requirements of a pedocutanic B horizon

  vr - Blocky clay: a non-gleyed soil material with a uniform red colour and a moderate or stronger structure when moist. It largely meets the requirements of a red structured B horizon

- **Weaker than moderately structured, unconsolidated material without signs of wetness**

  nc - Calcareous unconsolidated material with signs of soil development, e.g. aggregation, clay illuviation and/or disappearance of original stratification. It largely meets the requirements of a neocarbonate B horizon. Red as well as non-red variants occur.

  ne - Non-calcareous unconsolidated material with signs of soil formation, e.g. aggregation, clay illuviation and/or disappearance of original stratification. It largely meets the requirements of a neocutanic B horizon. Its colour must not qualify for diagnostic red or yellow-brown apedal, although red and yellow-brown variants occur.

  sk - Calcareous material which largely meets the requirements of a soft carbonate horizon.

- **Unconsolidated material with signs of wetness; predominantly gleyed**

  gc - Gleyed clay, usually with a firm or firmer consistency; it is firmer than the overlying horizon. If the structure is prismatic or columnar, it is usually weakly developed; moderate to strong blocks are permitted. It largely meets the requirements of a G horizon.

  gl - Gleyed loam, usually with a consistency not firmer than firm; it is usually not firmer than the overlying horizon. If the structure is prismatic or columnar, it is usually weakly developed; moderate to strong blocks are not permitted. It largely meets the requirements of a G horizon.

  gs - Gleyed, coarse textured material, usually friable, non-sticky and non-plastic. It largely meets the requirements of a sandy E horizon.

- **Diagnostic and non-diagnostic material with signs of weathering residual rock**

  Material in various stages of weathering and alteration that ranges from hard rock to completely homogenized soil that has cutanic character expressed as tongues or prominent colour variegation resulting from residual soil formation and illuviation occurs in many soils. It may occur in soils as diagnostic (e.g. lithocutanic B horizon, saprolite, hard rock) or non-diagnostic horizons or materials. Such materials should always be coded when it occur as a non-diagnostic horizon of material in a soil. At times it may be essential to code it as a diagnostic horizon or material.

  Depending on the degree of weathering two kinds of weathering rock are recognized, viz:

  Saprolite (or lithocutanic B) is a horizon of weathering rock with general organization in respect of colour, structure or consistence that is clearly related to the underlying parent rock. With depth it grades into relatively unweathered rock and eventually fresh rock. It does not qualify as a diagnostic soft or hardpan carbonate horizon, dorbank or hard rock.

  Hard rock is, in contrast with saprolite, a continuous hard layer of rock, that even in the wet state, cannot be cut with a spade. The most important examples are igneous, metamorphic and indurated sedimentary rock and silcrete. It is a material that does not qualify as a hard plinthic B horizon, as a hardpan carbonate horizon or as a dorbank.

  The following variants are recognized in terms of degree of weathering and wetness:

so - It conforms to the requirements of saprolite (or lithocutanic B horizon). More than 70 % of the volume of such a horizon or material consists of rock, fresh or partially weathered, with at least a hard consistence in the dry, moist and wet state. No signs of wetness is present.

sw - Material as defined for so, except that it contains signs of wetness.

- **Predominantly gravelly, stony, or bouldery diagnostic and non-diagnostic horizons or materials**

Coarse fragments (> 2 mm) can occur in varying quantities either in a part of or throughout a horizon or layer. Such coarse material can seriously affect root development, water infiltration and water holding capacity and must be indicated in the soil code in terms of **size** and **quantity** (volume percentage).

The predominant size classes and symbols for coarse fragments used in the code are as follows:

Class name	Size	Symbol
Fine gravel	2 - 25 mm	f
Coarse gravel	25 – 75 mm	g
Stones	75 - 250 mm	k
Boulders	> 250 mm	r

The volume percent of coarse fragment classes is qualified by the following numerals:

Volume %	Symbol	Volume %	Symbol
0-10	1	30-40	4
10-20	2	40-50	5
20-30	3	50-60	6

If more than one size class and/or type of coarse material occur in a horizon, it must be indicated in the code (e.g. **3f + 2g**). If the coarse fragments are poorly sorted and range in size from fine gravel to stones, a forward slash is used to separate the size class limit symbols (e.g. **4f/g**).

- **Additional properties in diagnostic and non-diagnostic horizons or materials**

  In some diagnostic as well as non-diagnostic horizons or materials, properties occur that are important for soil use, but that cannot be inferred from the definition of such horizons or materials. The following additional properties are recognized in the Western Cape Province.

  ca - The presence of free lime; either powdery or concretionary.

3 Classes and symbols for properties below the line

3.1 Coarse fragments in topsoil horizon

The presence of coarse fragments (>2 mm) in the topsoil horizon or rock outcrops has an important effect on several physical (e.g. water holding capacity) and chemical (e.g. exchangeable cation content) properties, as well as on tillage and landuse.

The size and quantity of coarse fragments in the topsoil horizon (or plough layer) are indicated with the same symbols as those used to describe such materials as **Subsoil limitations or properties**.

3.2 Texture of topsoil and directly underlying E or apedal B1 horizon

The texture is coded in terms of the:

- sand grade for soils with less than 20% clay and
- clay content (percentage).

Classes and abbreviations for sand grade clay content are the following:

1 Sand grade	2 Symbol
3 coarse	4 co
5 medium	6 me
7 fine	8 fi

Clay content	Symbol
0 - 5	1
5 – 10	2
10 – 15	3
15 – 20	4
20 – 35	5

Examples:

- A topsoil with 13 % clay and fine sand grade is coded by the symbol **fi 3**.
- In cases where the clay content is on or near the boundary between two classes, e.g. 11 %, it should be coded as **fi 2/3**.

3.3 Soil water conditions

A wetness classification was developed based on the number of days and depth of saturation with water. Profile morphology is used to determine the depth of water saturation and the maximum height of signs of hydromorphy is used as depth limit. Climate, locality, aspect, vegetation and water conditions during the survey as well as profile morphology are used to evaluate the duration of water saturation. The expected number of days of saturation during the rainy season in "wet" years is used to determine duration. It is essential for free water to occur in the profile continuously for at least seven (7) days. However, the total number of days with free water need not be continuous.

Diagram for the determination of wetness classes

Depth range of upper boundary of free water surface (mm)	Wetness symbol			
0 - 300	6	7	8	9
300- 700	3	6	7	8
700 – 1 200	2	3	4	5
> 1 500	1			

0 30 90 180 365

Cumulative number of days with free water

Note: The numeral 1 is not used in the code.

Example: A soil with a wetness class symbol of 6 implies that the upper boundary of the free water surface can either be 0 – 300 mm with a maximum cumulative number of 30 days with free water, or a free surface depth of 300 – 700 mm with a cumulative duration of 30 – 90 days with free water.

4 Examples of a fully coded description

Although the sequential position of the symbols for certain components used in the soil code is fixed, the sequence of non-diagnostic subsoil limitations and their respective depth symbols can be coded in more than one way. The detail that soil surveyors want to include in the code may also differ. For this reason a few examples will discussed as guidelines for individuals that is not familiar with the code.

Example:

Estcourt form soil with a “grey” and non-black cutans in the B. The A/B transition is at 200 mm, E/B at 500 mm, soft saprolite with weakly developed signs of wetness at 750 mm and hard rock with strong signs of wetness at 1 000 mm. The topsoil contains 15 % fine and 25 % coarse gravel, 10 – 15 % clay, has a fine to medium sand grade and forms a crust on drying. The E horizon contains 35 % coarse gravel and 35 % stones and sets very hard when dry. The upper boundary of free water is 200 mm and the cumulative number of days with free water is between 90 and 180. The code for this soil may be written in one of the following ways

Field code 1 2 5 6/7 8 2 2 Es1100 pr lo/lw Rw yp 2f+3g
4g+4k fi/me3 7 cr

Field code 2 2 5 6/7 8 Es1100 gl+yp+2f+3g pr lo/lw Rw
4g+4k fi/me3 7 cr

Word/Excel format 1 2 5 6/7 8 2 2 Es1100 pr lo/lw Rw yp 2f+3g
followed in same line by a double forward slash and then
4g+4k fi/me3 7 cr

Word/Excel format 2 2 5 6/7 8 Es1100 gl+yp+2f+3g pr lo/lw Rw
followed in same line by a double forward slash and then
4g+4k fi/me3 7 cr

Note: In both examples Field code 1 and Word/Excel format 1 is the preferred way of coding.

It is recommended that when the code is captured in a Word or Excel format table, the separate items of the code should each constitute a separate column. The following can be used as an example of a Word format table:

Profile number	Depth codes	Soil form and family	Subsoil limitations/properties				Topsoil			Wetness class	Changed properties or condition
			Upper subsoil	Middle subsoil	Lower subsoil	Coarse fragments	Coarse fragments	Sand grade	Clay class		
1	2 4 6 2	Tu 2110	ne/ye	gs+4g	vp	3f+2g	2f	co	3	3	md 7
2	3 6 8 3	Es 1100	pr	sw		6f	4f	fi	2/3	6	dr

The subsoil limitations/properties are sequentially linked to the depth codes from right to left. For example:

Profile 1

Depth codes	2	4	6	2
	↓	↓	↓	↓
Subsoil limitations/properties	ne/ye	gs+4g	vp	3f + 2g
Upper and lower depth of subsoil limitation/property	20 - 40 cm	40 - 60 cm	60 cm and deeper	20 – 40 cm

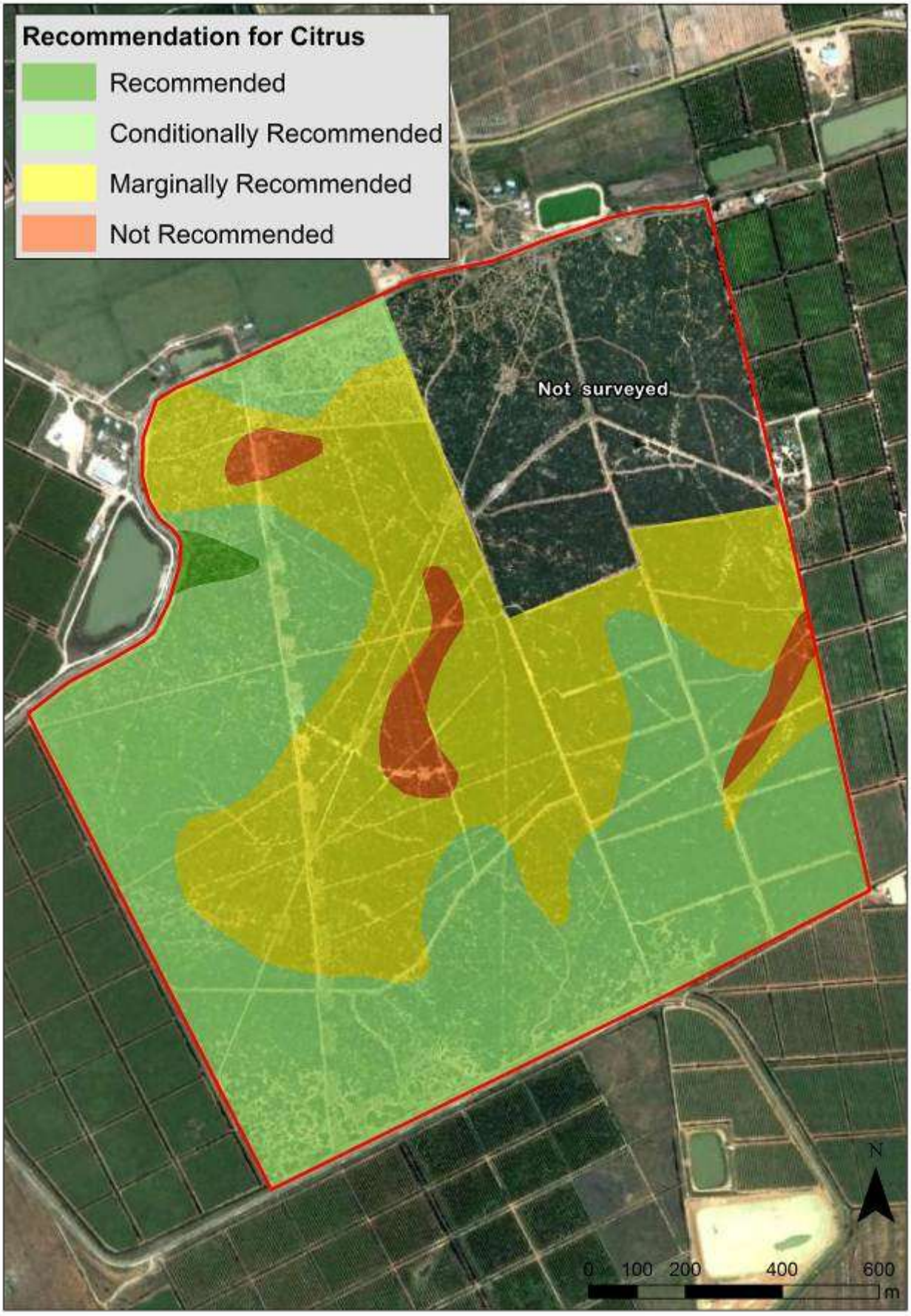
Profile 2

Depth codes	3	6	8	3
	↓	↓	↓	↓
Subsoil limitations/properties		pr	sw	6f
Upper and lower depth of subsoil limitation/property	30 - 60 cm	60 - 85 cm	85 cm and deeper	30 – 60 cm

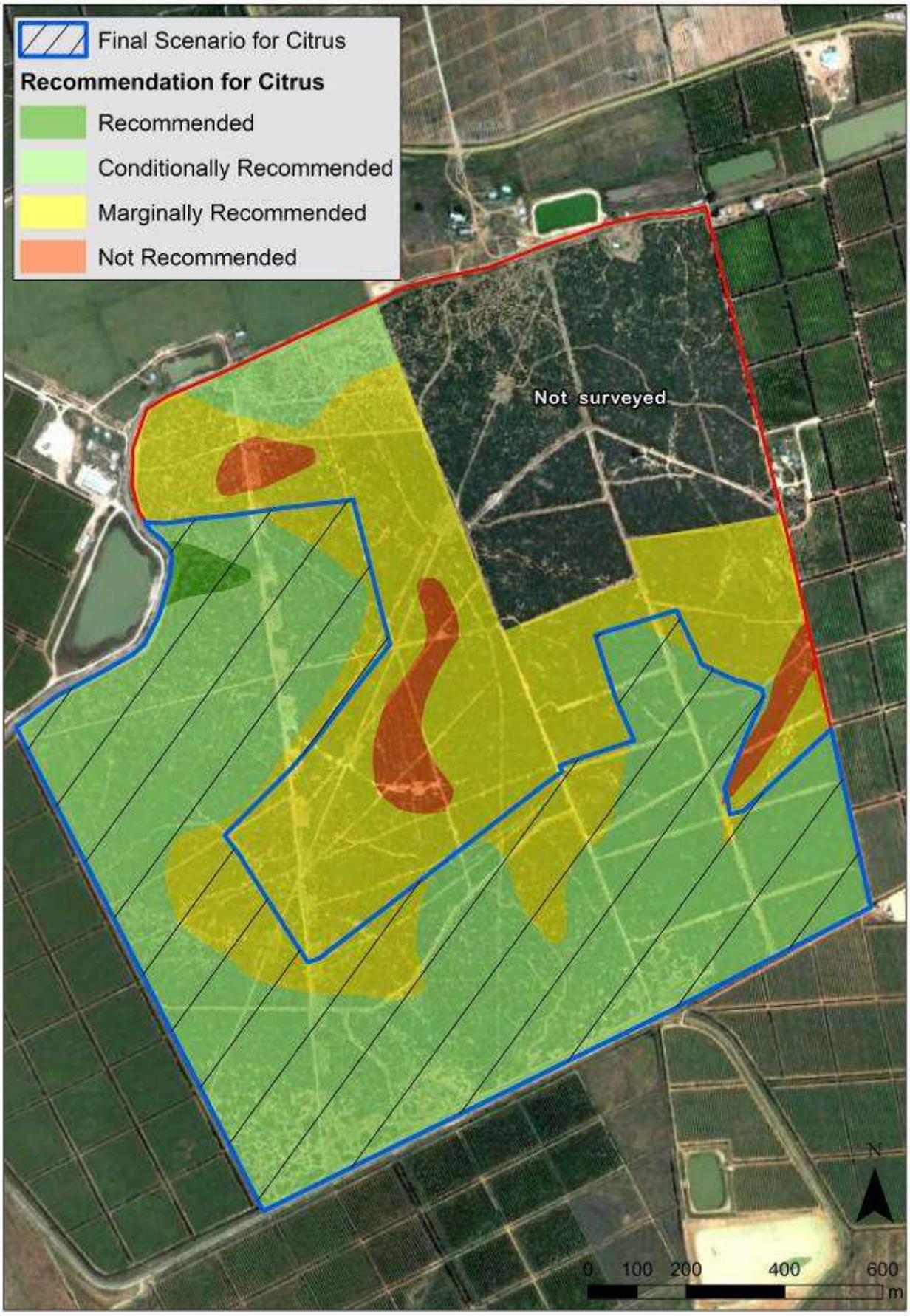
The first 3 in the depth code refer to the boundary between the orthic A and the E horizon.

ANNEXURE 3

Annexure 3
Figure 1 Reconnaissance soil map of Miskruier Farm, Addo



Annexure 3
Figure 2 Soil suitability map for citrus, Miskruier Farm, Addo



Annexure 3
Figure 3 Map showing suggested area to be deforested for the planting of citrus

APPENDIX E: COMMENTS AND RESPONSES REPORT

DRAFT BAR COMMENTS

1. Heritage

	Issue	Commentator	Date	Response
1.1	Thanks for the information provided. However, we will require Dr Steyn or Dr Almond to formally prepare a recommendation for exemption as they are both convinced that nothing of palaeontological significance will be impacted upon by the proposed development. An email such as the one below may not serve the purpose that a formal document can. They both know how to prepare a recommendation and it will take a fraction of their productive time	Mr Sello Mokhanya, ECPHRA	8 October 2012, email	The ECPHRA was provided with correspondence from Dr Almond, a Palaeontological Specialist, who advised Public Process Consultants, that in his professional opinion the proposed development is unlikely to have a significant impact on local palaeontological heritage, and a specialist palaeontological assessment would thus not be necessary. A copy of the correspondence sent to the ECPHRA including the correspondence between Public Process Consultants and Dr Almond has been included in Appendix G(iv). The client has been advised of the ECPHRA's request. Such a document will be prepared by a relevant specialist if environmental authorisation is granted.

2. Ecological

	Issue	Commentator	Date	Response
2.1	I acknowledge receipt of your notice of 17 October 2012 concerning the draft BAR for the Miskruier Farm orchard expansion. Having perused the document, WESSA has no objection at this stage. I would recommend the use of Yellowwood trees over the other species for the windbreak, solely on the basis that its fruit is a critical dietary component of the endangered Cape Parrot.	Morgan Griffiths, WESSA EP Region	31 October 2012, email	The applicant has been advised to consider the use of indigenous species such as Yellowwoods as a windbreak.

AGRICULTURAL DEVELOPMENT OF PORTION 23 OF FARM 104 AND THE REMAINDER OF FARM 650, SUNDAYS RIVER VALLEY MUNICIPALITY

(DEDEAT Reference Number: EC06/LN3/M/12-45)

Prepared for:
Mr Hermanus Potgieter
Hermanus Potgieter Familie Trust
PO Box 214
Kirkwood
6120

Prepared by:
Public Process Consultants
PO Box 27688, Greenacres, Port Elizabeth, 6057
Tel 041 – 374 8426
Fax 041 – 373 2002
E-mail: sandy@publicprocess.co.za
www.publicprocess.co.za

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BAR – Basic Assessment Report
CARA – Conservation of Agricultural Resources Act
CEMPr – Construction Phase Environmental Management Programme
DAFF – Department of Agriculture, Forestry and Fisheries
DEDEAT – Department of Economic Development, Environmental Affairs and Tourism
DWA – Department of Water Affairs
ECO – Environmental Control Officer
EIA – Environmental Impact Assessment
EMPr – Environmental Management Programme
EA – Environmental Authorisation
OEMPr – Operational Phase Environmental Management Programme

Definitions

"EIA Regulations" - these are the Environmental Impact Assessment Regulations published in Government Notice R. 543 of 18 June 2010 in terms of Chapter 5 of the National Environmental Management Act, Act 107 of 1998.

"The Department" - The Department of Economic Development and Environmental Affairs, Eastern Cape Province.

"Commencement" - Any physical activity on site that can be viewed as associated with the clearing and site preparation phase.

1 INTRODUCTION AND BACKGROUND

The Hermanus Potgieter Familie Trust (the applicant) is proposing the agricultural development of Portion 23 of Farm 104 Swanepoels Kraal and the Remainder of Farm 650, Kirkwood, Sundays River Valley Municipality, in order to expand existing citrus cultivation activities on the Miskruier Citrus Farm. The two parcels of land proposed for development represent an area totalling approximately 230ha in extent. It is proposed that approximately 74 ha (31% of the total area) is cleared for the establishment of citrus, predominantly for the export market. The remainder of the site, approximately 138 ha, is currently not proposed for development and will stay zoned as agriculture.

The proposed development requires the preparation and submission of a Basic Assessment in terms of the 2010 NEMA EIA Regulations: GN R543, 544 and 546; promulgated under Chapter 5 of the National Environmental Management Act (Act 107 of 1998) ("NEMA"), and published in Government Gazette 33306 on 18 June 2010, to the relevant authority (DEDEA). In compliance with the said regulations an Environmental Management Programme (EMPr) based on the potential environmental impacts identified in the Basic Assessment Report was prepared simultaneously.

Environmental Management Programmes (EMPr), or Environmental Management Frameworks (EMF), serve to ensure that environmental impacts associated with particular activities are monitored, minimised and mitigated for the duration of the project. The practical management measures that should be employed to achieve monitoring and mitigation targets are detailed in the EMPr (DEAT 2004). The EMPr is a dynamic document which should be updated and reviewed on a regular basis so that it may be adapted to changing management styles, and to include improved impact mitigation technology as well as unforeseen environmental impacts. The EMPr should also be adapted if any changes are made to the project. If such changes will result in significant environmental impacts, which differ from those for which DEDEAT has granted authorisation, such changes must be submitted to the DEDEAT for approval before they are implemented. This EMPr includes, but is not limited to, the environmental impacts identified in the Basic Assessment Report and the proposed mitigation measures that must be employed to minimise the harmful effects that those impacts may have on the environment.

The EMPr report should be read in conjunction with the Basic Assessment Report as this document may contain additional, detailed information not included in this report.

1.1 Activities and Regulations for which Application has been made:

Authorisation Notice Register Number
Applicant Hermanus Potgieter Familie Trust
Location of Activity Portion 23 of Farm 104 Swanepoels Kraal and the Remainder of Farm 650, Kirkwood, SRVM
Activity Description The project will entail the following activities on the site: • Clearing of vegetation from portions of the site proposed for agriculture (74 ha) • Levelling and landscaping the site to provide runoff control • Establishment of internal roads to provide access to orchards • Establishment of a storage dam for irrigation water • Installation of a drip irrigation system • Establishment of citrus trees • Establishment of wind breaks

Once the necessary infrastructure has been established, the lands will be used for the cultivation of citrus.

No additional infrastructure is proposed on the area planned for expansion. The existing administrative and technical infrastructure at Miskruier Farm will be utilised to service the expanded agricultural activities (offices, storage areas, and service buildings). The sanitation facilities at the Miskruier Farm will be used during the day to day maintenance of the orchards and associated infrastructure. During harvesting when there is a larger labour force present at the site, portable sanitation and washing facilities need to be provided.

Listed Activities

GN R546

4. "The construction of a road wider than 4 metres with a reserve less than 13,5 metres.
(a) In Eastern Cape…
(ii) Outside urban areas, in:
(gg) Areas within10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;

13. "The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, …:
(c) In Eastern Cape…
(ii) Outside urban areas, the following:
(ff) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve

14 ."The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation,….
(a) In Eastern Cape…
(i) All areas outside urban areas."

GN R544

18. "The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from:
(i) a watercourse;..."

1.2 Duration of Authorisation

Should an Environmental Authorisation be issued in respect of the project, the duration of the authorisation will be indicated in said document.

1.3 Legal Requirements

This Environmental Management Programme does not include all the legislative and regulatory requirements applicable to the development. The representative appointed by the applicant to manage the operation, and the persons responsible for the implementation of the EMPr, should also familiarise themselves with the specific legal requirements applicable to the described activities on site. These may include, but are not limited to:

- Applicable Environmental Law
- Atmospheric Pollution Prevention Act 45 of 1965
- Conditions of Employment Act, 75 of 1997
- Conservation of Agricultural Resources Act 43 of 1983
- Constitution of South Africa No 108 of 1996
- Environment Conservation Act 73 of 1989
- Extension of Security of Tenure Act 62 of 1997
- Hazardous Substances Act 15 of 1973

- Health Act No 63 of 1977
- Labour Relations Act 66 of 1995
- Land Reform (Labour Tenants) Act 3 of 1996
- National Building Regulations and Building Standards Act 103 of 1977
- National Environmental Management : Biodiversity Act 10 of 2004
- National Environmental Management Act 107 of 1998
- National Environmental Management: Air Quality Act 39 of 2004
- National Heritage Resources Act 25 of 1999
- National Road Traffic Act 93 of 1996 – GNR 225 of 17 May 2000
- National Veld and Forest Fire Act 101 of 1998
- National Water Act 36 of 1998
- Nature Conservation Ordinance Act 19 of 1974
- Noise Control Regulations GN R 154 in Government Gazette No. 13717 of 10 January 1992
- Occupational Health and Safety Act of 1994
- The Hazardous Substances Act 115 of 1973
- Local bylaws
- Provincial legislation

2 ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

The life of the agricultural development can be broadly divided into three phases:

A ***construction phase*** - which includes all the surveying, land clearing, and construction activities associated with the establishment of the infrastructure (drip irrigation and access roads) and preparation of the site before it can begin operating.

An ***operational phase*** - which constitutes the day to day operation of the site for the duration of its lifetime until it is discontinued / decommissioned. This would include the planting, cultivation and harvesting of crops on the site.

A ***decommissioning phase*** - which includes all the activities associated with the cessation of the described activity at the site. It is not anticipated that the development will be decommissioned, simply because it will be a cultivated farm land.

Environmental impacts, management practices and mitigation measures may differ for different phases of the development; however some impacts will be present in all phases of the development, resulting in some repetition in the EMPr.

2.1 Construction Phase EMPr (CEMPr)

During the construction phase land will be cleared of vegetation and prepared for the establishment of citrus orchards. This will include the installation of drip irrigation infrastructure and the establishment of internal access roads as well as the levelling and landscaping of the site to provide runoff control, as well as the planting of windbreaks within the plantation.

The vegetation clearing and site preparation phase will take place with the aid of a labour force on site, and with the aid of heavy earth moving machinery.

Environmental impacts associated with the vegetation clearing and site preparation phase of the development, as well as the appropriate mitigation actions, have been identified using specialist input for the various components of the affected environment provided in the Basic Assessment Report.

The management actions outlined below indicate the actions to be taken to minimise the potential negative impacts that this phase may have on the environment, as well as measures to enhance the potential benefits.

Destruction of plant species of special concern.

- Before site clearing commences the site must be surveyed for plant SSC by a suitably qualified botanist.
- It is recommended that these plants are transplanted prior to the commencement of site clearing, under the supervision of a qualified botanical / horticultural specialist, to to the portion of the properties that will remain intact.
- Permits for the removal of these plants need to be obtained from the Department of Economic Development, Environmental Affairs and Tourism (DEDEAT), or in the case of Protected Tree species, from the Department of Agriculture, Forestry and Fisheries (DAFF),

Vegetation disturbance and removal, and associated terrestrial habitat destruction and disturbance.

- Demarcate the areas to be cleared and limit vegetation clearing, and disturbance, as well as pedestrian and vehicle traffic to the demarcated area.
- Identify and demarcate already cleared / disturbed areas for material lay-down, workers rest areas and equipment storage, and limit these activities to the demarcated areas.
- Clearly demarcate the no-go areas using chevron tape.
- The collection of firewood or the collection of plants or plant material for medicinal or other use should not be permitted.
- Employees should undergo environmental awareness training and be sensitized to the need to avoid disturbance to the vegetation in the no-go areas on the site.

Loss of indigenous Sundays Spekboom Thicket vegetation.

- Thicket vegetation and associated topsoil which needs to be cleared from the site should be used to rehabilitate degraded portions of the site that are not proposed for development.
- Species of special concern that are removed from the vegetation prior to vegetation clearing must be transplanted into the portions of the site where thicket vegetation is to remain.
- The retained and rehabilitated vegetation must be cleared of invasive alien species and kept clear of these by conducting regular follow-up clearing operations.

Destruction and removal of exotic plants.

- The retained and rehabilitated vegetation must be cleared of invasive alien species and kept clear of these by conducting regular follow-up clearing operations.

Disturbance and injury to fauna during construction and the associated loss of habitat.

- A faunal search and rescue operation should be undertaken prior to commencement of vegetation clearing on site.
- Site clearing must be done in a phased manner to allow fauna the chance to move off the site.
- No fauna encountered at the site may intentionally be harmed or killed.
- All personnel should be made aware of the need to prevent harm to fauna on site.
- All open excavations must be securely fenced or barricaded.
- Speeds travelled by vehicles must be kept to a minimum.
- Excavations must be checked daily for trapped fauna; and trapped animals rescued and released.
- Injured fauna should be referred to an appropriate faunal rehabilitation or care centre (e.g. SPCA, African Dawn Wildlife Sanctuary).

Destruction of riparian vegetation and associated habitat.

- Apply a 32 metre no-development buffer around the drainage line.
- Rehabilitate the portion of the drainage line that has been cleared using thicket vegetation that has been removed from other portions of the site.

The outbreak of fire on the site during construction.

- Open fires used for cooking should be avoided where possible.
- If such a fire is truly necessary then it should only be made in a demarcated area that has little vegetation or other flammable substances in close proximity.
- Fires should never be left unattended and should be extinguished if not in use.
- Cigarettes buttes must be disposed of in one of the litter bins provided.
- Exotic vegetation on the site must be eradicated.

Significance & Status with mitigation: Very Low Negative (-)

Increased stormwater runoff due to the removal of the vegetation.

- Limit vegetation disturbance outside the portions to be cleared.

- Stormwater on the site must be controlled for the duration of the site preparation phase by employing appropriate temporary stormwater control structures e.g. cut-off berms.
- Cleared areas must be re-vegetated (cultivated) as soon as possible after the initial vegetation clearing.

Soil erosion of disturbed and unconsolidated soil once vegetation has been cleared.

- Material lay-down areas, access routes, and No-Go areas should be clearly demarcated.
- Stormwater on the site must be controlled for the duration of the site preparation and vegetation clearing phase by employing appropriate temporary stormwater control structures e.g. cut-off berms.
- Topsoil should be cleared in a phased manner to avoid large areas of unconsolidated soils.
- Topsoil should be removed and stockpiled in an appropriate manner:
    - Stockpiled separately from subsoil, monitored for- and protected from erosion, kept clear of exotic vegetation
- Should erosion scars begin to form on the landscape, erosion counter measures should be implemented immediately.
- Erosion control and development disturbance should be an important monitoring facet falling under the control of an Environmental Control Officer (ECO), who should be appointed to implement the environmental management programme (EMPr) during the site preparation and vegetation clearing as well as the site rehabilitation phases of this project.

Dust generation during the vegetation clearing and site preparation phase.

- Vegetation should be cleared in a phased manner to avoid large areas of unconsolidated soils.
- Topsoil and soil stockpiles should be covered, wetted or otherwise stabilised to prevent wind erosion and dust generation.
- A water cart or sufficient watering equipment should be available to wet soils during windy days if wind-blown sand and dust becomes a problem.

Noise and disturbance during the vegetation clearing and site preparation phase.

- Limit activities, as far as possible, to working hours (ie. 7am-6pm weekdays).
- Encourage labourers to not make unnecessary noise.
- Should after hours work take place nearby residents should be notified.
- Signage with the contact details of the responsible person should be provided at the site for residents with complaints in this regard.
- A complaints register should be kept to document complaints and the corrective action taken.
- No loud music to be allowed on site.

Generation of waste during the vegetation clearing and site preparation phase.

- Excavated material should be used at other sites where fill is required or disposed of at an appropriately licensed waste disposal facility.
- Any waste that may be produced during the site preparation phase must be disposed of at an appropriately licensed waste disposal facility.
- No waste is to be stockpiled on site.
- Adequate litter bins should be provided at the site for waste generated by labourers; these should be emptied on a regular basis and waste disposed of at an appropriately licensed waste disposal facility.
- Suitable potable sanitation facilities should be provided and maintained for the labourers during the vegetation clearing and site preparation phase.

Significance & Status with mitigation: Very Low Negative (-)

Pollution of surface and groundwater due to chemical, oil and fuel spills.

- Fuel supply needed during the site preparation phase must be placed on trays, which rest on clean sand. Once this phase is complete this must be removed from the site and disposed of at an appropriately registered waste disposal facility.
- Vehicles (bulldozers, tractors etc.) should not be serviced at the site to prevent pollution of the soils by hydrocarbons or oil.
- Vehicles should be checked for leaks to ensure no fuel, oil or other similar pollutant, pollutes the soils.
- Sufficient portable chemical toilets or similar sanitation facilities should be provided and suitably maintained at the site for the duration of the site clearing and preparation phase.

Impacts on potential undiscovered archaeological material or artefacts on site.

- It is recommended that in the unlikely event that any archaeological materials are exposed during the development, it should be reported immediately to the nearest museum/archaeologist or to the EC

Provincial Heritage Resources Authority (ECPHRA) so that a systematic and professional investigation can be undertaken.

- If any evidence of archaeological sites or artefact, palaeontological fossils, graves or other heritage resources are found during development or construction, ECPHRA and an accredited professional archaeologist or palaeontologist must be alerted immediately.
- If the newly discovered heritage resources prove to be of archaeological significance a phase 2 rescue operation might be necessary at the cost of the developer. Sufficient time must be allowed to remove / collect such material.
- Site foremen should be informed before vegetation clearing commences on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites: i.e. human skeletal material, mussel middens, stone artefacts, fossil bone, stone features and historical artefacts or features.

Fossilised material may be uncovered and/or destroyed during excavations for the proposed development.

- Should substantial fossil remains be exposed during vegetation clearing and site preparation, the ECO should safeguard these, preferably in situ, and alert EC Provincial Heritage Resources Authority (ECPHRA) as soon as possible so that appropriate action (e.g. recording, sampling or collection) can be taken by a professional palaeontologist.
- If any evidence of archaeological sites or artefact, palaeontological fossils, graves or other heritage resources are found during development, ECPHRA and an accredited professional archaeologist or palaeontologist must be alerted immediately.
- The palaeontologist will need to apply beforehand for a collecting permit from ECPHRA for which an approved depository for any fossil material collected will need to be designated (eg Albany Museum, Grahamstown).
- Sufficient time must be allowed to remove/collect such material.

Risk to human health and safety due to open excavations and earth moving machinery.

- Footprints, including site offices, excavations, storage areas, materials lay-down areas, stockpile area, and workers rest areas should be clearly demarcated or fenced off before site preparation and vegetation clearing commences.
- All activities should be limited to the demarcated area.
- Open excavations must be kept free of water.
- Access to the site must be controlled.
- Entry points and access routes to the site must be clearly marked and traffic limited to those areas as far as possible.
- Speed travelled by vehicles must be kept to a minimum and speed limits enforced.
- Ensure that there is a first aid facility and trained first aiders permanently on site.
- Residents of affected area must be notified timeously (two weeks minimum) prior to site preparation and vegetation clearing commencing.

Employment Generation

A number of temporary employment and skills development opportunities will be created during the vegetation clearing and site preparation phase. Efforts should be made to employ local labour as far as possible.

2.2 Operational Phase EMPr (OEMPr)

During its Operational Phase the site will be under cultivation. This will include the planting, cultivation and harvesting of citrus.

Potential negative impacts associated with the operational phase are limited mainly to impacts on the local resources and infrastructure associated therewith as well as the natural resources (vegetation and soil).

The management actions outlined below indicate the actions to be taken to minimise the potential negative impacts that the operation of the facility may have on the environment, as well as measures to enhance the potential benefits.

- **Alien plant invasion of remaining intact vegetation, particularly along the periphery.**

- The area should be monitored regularly and follow-up clearing done before problem plants can become established.

Increased stormwater runoff due to the removal of the vegetation.

- Implement suitable storm-water management measures within the orchards (E.g.: cut-off berms, diversion canals and appropriate planting configurations).
- Retain as much vegetation cover within the planted areas as possible (e.g. grass and small shrubs).

Increased soil erosion by wind and water due to the removal of the vegetation.

- Retain vegetative cover of the soil surface for as long as possible between tilling / planting operations.
- Should erosion scars begin to form on the landscape, erosion counter measures should be implemented immediately.
- Landscaping and erosion control measures should be implemented on steep portions of the site that may be sensitive to erosion.

Employment Generation

A number of employment and skills development opportunities will be created during the vegetation clearing and site preparation phase. Efforts should be made to employ local labour as far as possible.

2.3 Decommissioning Phase

Due to the fact that this site will be a cultivated farm, it is not anticipated that the site will be decommissioned in the foreseeable future. Should it be decommissioned in future, the Environmental procedures and statutory requirements applicable at the time should be complied with, and the area restored to its original conditions.

3 ENVIRONMENTAL PERFORMANCE MONITORING

Environmental Performance Monitoring has been defined as the activities implemented to measure environmental changes resulting from a particular development or activity (Davy & Paradine 1996). These include anticipated and unexpected changes in the environment. Any change from baseline conditions should initiate remedial action, or a change in mitigation or management approach. Performance monitoring could include both the collection of physical data, as well as input from potentially affected neighbours or affected parties.

3.1 Baseline data

Environmental Performance Monitoring includes the gathering of baseline data with which the future environmental conditions can be compared. For the purposes of this EMPr, much of the baseline data relating to environmental conditions at the site prior to development is provided in the Basic Assessment Report. This information can be used to assign accountability for environmental degradation. The monitoring programme will have to be in place before the vegetation clearing and site preparation phase commences so that realistic baseline conditions can be determined before the development results in any potential impacts on the environment.

It is anticipated that following the site preparation phase, the person responsible for the implementation of the CEMPr (the Environmental Officer) will also be responsible for environmental monitoring and record-keeping for the duration of the project lifetime.

3.2 Affected parties

Neighbours and parties affected by the development should be afforded opportunity to comment on problems and impacts that they may experience as a result of the development during the vegetation clearing and site preparation phase of the project. A complaints register should be kept of such comments, as well as the intervention initiated to address the comment or complaint, where appropriate. Such a register should thus be available on site and preferably be the responsibility of the foreman. In addition, it should be available to the ECO at his request. These comments will be used to adapt and improve existing mitigation measures.

3.3 Monitoring

During the site preparation phase the following should be monitored:

- The compliance with the conditions of approval as given in the environmental authorisation from the relevant departments, at least once every month.
- The compliance of the applicant as well as the labourers with the recommendations as set out herein, at least once every month.
- The conducting of environmental awareness training sessions with the labourers, as and when this occurs.
- The extent and location of alien invasive plants on the site within the vegetation that will remain on the site, at least once every six months.
- The extent and location of erosion scars and headcuts on the site, at least once every six months.

During the operational phase the following should be monitored:

- The extent and location of alien invasive plants within the indigenous vegetation that will remain on site, at least once every six months.
- The extent and location of erosion scars and headcuts on the site, at least once every six months.

4 INSTITUTIONAL ARRANGEMENTS

The ultimate responsibility for the effective implementation of the EMPr lies with the proponent (owner / developer) of the property at the time of the initiation of development. Responsibility may be delegated to environmental officers, or managers representing contractors or the proponent on the site during any stage of the development. The delegation of environmental responsibility will be determined by the institutional hierarchy of the organisation.

An Environmental Control Officer (ECO) should be appointed to monitor the implementation of the EMPr during the vegetation clearing and site preparation phase of the project. The ECO will be responsible for the monitoring of compliance with the conditions set out in the Environmental Authorisation and the conditions in the CEMPr. This may be supplemented by an internal Environmental Officer or Site Officer that will remain on site during the vegetation clearing and site preparation phase.

During the operational phase the landowner should ensure that all labourers and other personnel comply with all statutory requirements and appoint an environmental assessment practitioner (EAP) to conduct an annual environmental audit on the site so as to ensure the implementation of the OEMPr and the conditions of the environmental authorisation.

5 LEGAL ENFORCEABILITY

This EMPr is required by law in terms of the new Environmental Impact Assessment Regulations, 2010, (GN R543 33) and as such it is a legally binding agreement between the applicant, as well as all his / her sub-contractors, and the Department. Should the property be sold by the applicant, the responsibility to comply with the requirements of this document will then fall on the new owner of the property. The EMPr should be included in the contracts (tender documents or otherwise) entered into by the owner / developer and any subcontractors. This will ensure that sub-contractors have a legal obligation to abide by the conditions set out in the EMPr.

6 IMPLEMENTATION SCHEDULE AND REPORTING

The management measures outlined for the Construction Phase (vegetation clearing and site preparation phase) of the development will take effect as soon as development activities on the site are initiated, while the collection of baseline monitoring information should be completed prior to the commencement of this phase.

The management measures outlined for the Operational Phase of the development will take effect as soon as the development becomes operational (planting of crops).

Compliance monitoring reports will be kept as outlined in Section 3.3 above, and be made available at the request of the Department.

Environmental audit reports as well as reviewed amended EMPr reports will be kept up to date so that they can be made available at the request of the Department.

7 CODE OF CONDUCT FOR CONTRACTORS

Contractors performing work on the property should adhere to the conditions and codes of conduct set out in this EMPr as well as the Health and Safety Requirements and Environmental Policies as required by law. Should it be found that additional codes of conduct for contractors need to be included in this EMPr, this should be done at the first review opportunity.

8 AUDIT PROCEDURE & EMPr REVIEW SCHEDULE

The environmental audit is a systematic, objective investigation of the environmental information of a development to determine to what extent they conform to the environmental standards set out in the EMPr and Environmental Authorisation.

8.1 Construction Phase

During the vegetation clearing and site preparation phase the audit reports as produced by the Environmental Control Officer (ECO) after periodic (monthly) site visits will serve as the auditing mechanism. A schedule for site audits during this phase should be agreed upon during the appointment of the ECO. The ECO should comment on environmental impacts that are not adequately mitigated, as well as mitigation measures that are not effective, and suggest appropriate further management actions. These comments should be included in an amended CEMPr that must be made available to the Department on request.

8.2 Operational Phase

Once the land is under cultivation the landowner should comply with all statutory legislation as well as all of the recommendations as set out in the Basic Assessment Report. An annual audit should be conducted by a suitably qualified independent environmental assessment practitioner appointed by the landowner during the operational phase. These audits should assess the effectiveness of existing management and mitigation measures, and compliance with the OEMPr and conditions of the EA. The findings of the audit reports should feed into the EMPr ensuring that management and mitigation measures are adjusted and updated to ensure that impacts are managed effectively and efficiently. Audit reports should be made available to DEDEAT at the request of the Department.

9. ENVIRONMENTAL EDUCATION

Environmental education should be provided as part of the environmental induction process for the labourers that will be employed on site prior to the commencement of the vegetation clearing and site preparation processes at the site.

Environmental induction training should include the relevant requirements of the EIA, EMPr and Environmental Authorisation, and should include at a minimum:

- Designation of No-Go areas, workers rest areas, and sanitation facilities.
- Clarification of the meanings of warning signage used at the site.
- Appropriate sanitation and waste disposal practices.
- Procedures to be followed if heritage artefacts are discovered.
- Procedures to be followed if wild fauna are encountered.

Weekly toolbox talks should comment on environmental issues on which non-compliance has been noted during periodic audits.

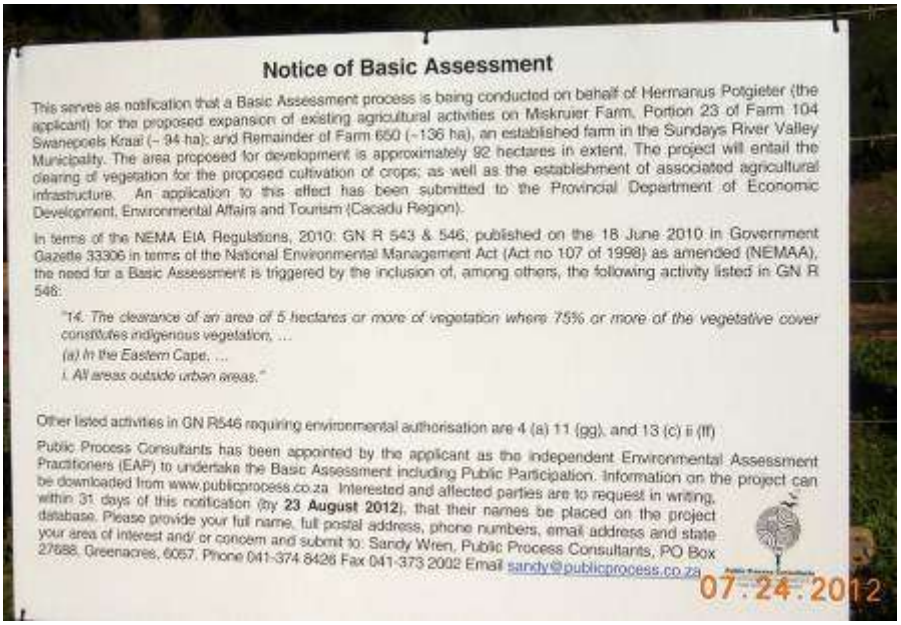
10. REFERENCES

DEAT (2004) Environmental Management Plans, Integrated Environmental Management, Information Series 12, Department of Environmental Affairs and Tourism (DEAT), Pretoria.

A. Davy & Paradine, P. 1996. Environmental Performance Monitoring and Supervision. Environmental Assessment Source Book – Update. World Bank Environment Department. Pp. 8.

APPENDIX G: OTHER INFORMATION
APPENDIX G (i): SITE NOTICE BOARD AND NEWSPAPER ADVERTISEMENT

The site notice board placed at the entrance to the site.



Close-up of the site notice board placed at the entrance to the site.

NOTICE OF BASIC ASSESSMENT

This serves as notification that a Basic Assessment process is being conducted on behalf of Hermanus Potgieter (the applicant) for the proposed expansion of existing agricultural activities on Miskruier Farm, Portion 23 of Farm 104 Swanepoels Kraal (~94ha); and Remainder of Farm 650(~136ha), an established farm in the Sundays River Valley Municipality. The area proposed for development is approximately 92 hectares in extent. The project will entail the clearing of vegetation for the proposed cultivation of crops; as well as the establishment of associated agricultural infrastructure. An application to this effect has been submitted to the Provincial Department of Economic Development, Environmental Affairs and Tourism (Cacadu Region).

In terms of the NEMA EIA Regulations, 2010: GN R 543 & 546, published on the 18 June 2010 in Government Gazette 33306 in terms of the National Environmental Management Act (Act no 107 of 1998) as amended (NEMAA), the need for a Basic Assessment is triggered by the inclusion of, among others, the following activity listed in GN R 546:

"14. The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation,.

(a) In the Eastern Cape,.

i. All areas outside urban areas."

Other listed activities in GN R546 requiring environmental authorisation are 4 (a) ii (gg), and 13 (c) ii (ff)

Public Process Consultants has been appointed by the applicant as the independent Environmental Assessment Practitioners (EAP) to undertake the Basic Assessment including Public Participation. Information on the project can be downloaded from www.publicprocess.co.za. Interested and affected parties are to request in writing, within 31 days of this notification (by 23 August 2012), that their names be placed on the project database. Please provide your full name, full postal address, phone numbers, email address and state your area of interest and/ or concern and submit to: Sandy Wren, Public Process Consultants, PO Box 27688, Greenacres, 6057. Phone (041) 374-8426, Fax (041) 373-2002, Email sandy@publicprocess.co.za

Newspaper advertisement placed in "The Herald" of 24 July 2012

APPENDIX G (ii): DATABASE OF I&APS

Name	Surname	Capacity	Organisation	Position	Let 1: Notice of BAR	Req to Reg	Comment Pre BAR	Let 2: Notice of DBAR	Comment DBAR
Harms	du Plessis	Service Provider	Sundays River Water Users Association	Service Provider	x				
S	Engelbrecht	Pn11/Fm104	Neighbour	Neighbouring Landowner	x				
Mariagrazia	Galimberti	CEO Archaeology, Palaeontology & Meteorite Unit	SA Heritage Resources Agency	Authority	x				
Morgan	Griffiths	EIA Manager	WESSA	Environmental NGO					
Rudi	Herholdt	Local authority	Sunday's River Valley Municipality	Town Planning	x				
Norman	Johnson	Park Manager	Addo Elephant National Park	SANParks	x				
Rufus	Maloma	Soil Scientist	Provincial Dept of Agriculture	Provincial Authority	x				
Sharlene	Mathews	Agriculture	Agri Eastern Cape	Agriculture NGO	x				
Lonwabo	Ngoqo	Sunday's River Valley Municipality	Municipal Manager	Local Authority/ Adjacent Landowner (468/42)	x				
Pieter	Nortje	Pn2/Fm650	Citrus Rand Landgoed	Neighbouring Landowner	x	x			
HJ	Potgieter	Applicant	Re/650; 19/104; 341/113	Neighbouring Landowner	x				
Bukelwa	Snoek	Sunday's River Valley Municipality	Ward 8 Councillor	Local Authority	x				
Andries	Struwig	Deputy Director	Department of Economic Development, Environmental Affairs and Tourism (DEDEAT)	Provincial Authority	x				
Megan	Taplin	Communications Officer	Addo Elephant National Park	SANParks	x				
Boeram	Venter	Farm 654&21/104	Boeram Venter Trust	Neighbouring Landowner	x				
Clayton	Weatherall-Thomas	PE CREW Representative	CREW c/o NMMU Botany Dept.	Environmental NGO	x				
Gcinile	Dumse	Resource Auditor	Dept of Agriculture, Forestry & Fisheries: LUSM	Provincial Authority	x				
Sello	Mokhanya	Eastern Cape Provincial Heritage Resources Authority						x	x
Marisa	Bloem	Dept of Water Affairs: PE	Water Use Authorisation Sector	Water Authority				x	
Lizna	Fourie	Dept of Water Affairs: East London	Permit Officer	Water Authority				x	

APPENDIX G (iii): CORRESPONDENCE SENT TO I&APS AND AUTHORITIES
Correspondence Sent Prior to the Review of the Draft BAR

BAR Notification Letter to DEDEAT

PO Box 27688 Greenacres 6057
120 Diaz Road Adcockvale, PE 6001
Phone 041-3748426 Fax 041-3732002
Email sandy@publicprocess.co.za
Ck 97/32984/23 VAT 44601 68273

Public Process Consultants
Environmental Impact Assessment and Public Participation Management

23 July 2012

Attention: Mr Andries Struwig

Department of Economic Development, Environmental Affairs and Tourism
Collegiate House, cnr Belmont Terrace & Castle Hill, Central, Port Elizabeth
Private Bag X 5001, Greenacres 6057
Fax: 041-508 5865

Dear Sir,

RE: NOTIFICATION OF INTENTION TO SUBMIT A BASIC ASSESSMENT: EXPANSION OF AGRICULTURAL ACTIVITIES ON PORTION 23 OF FARM 104 SWANEPOELS KRAAL & THE REMAINDER OF FARM 650, KIRKWOOD; SUNDAYS RIVER VALLEY MUNICIPALITY

In terms of the NEMA EIA Regulations, 2010: GN R543 and 546 promulgated under Chapter 5 of the National Environmental Management Act (as amended), and published in Government Gazette 33306 on 18 June 2010, this serves as notification to the competent authority, in this case the Provincial Department of Economic Development, Environmental Affairs and Tourism, that a Basic Assessment is being conducted for the agricultural development of Portion 23 of Farm 104 Swanepoels Kraal and the Remainder of Farm 650, Kirkwood; Sundays River Valley Municipality.

PROJECT APPLICANT
Hermanus Potgieter

PROJECT NAME
Expansion of Agriculture on Portion 23 of Farm 104, Swanepoels Kraal and the Remainder of Farm 650, Kirkwood; Sundays River Valley Municipality.

PROJECT LOCALITY
The site is located on an existing citrus farm (Portion 23 of Farm 104 Swanepoels Kraal, and the Remainder of Farm 650, Kirkwood); near the town of Kirkwood, in the Sundays River Valley Municipality. The farm is situated adjacent to the gravel road that extends between the town of Kirkwood and the R335 regional road (Zuurberg Road). The entrance to the site is located directly off the gravel road, approximately 2.8 kilometers west of the intersection of the Kirkwood Road and the Zuurberg Road (R335). The locality map attached provides an overview of the location of the property under assessment.

BRIEF PROJECT DESCRIPTION
The applicant intends expanding the existing citrus cultivation on Portion 23 of Farm 104 Swanepoels Kraal (~ 94 ha in extent) and Remainder of Farm 650 (~136 ha in extent), in the Kirkwood / Addo area, by developing approximately 92 hectares of this area for additional orchards and associated agricultural infrastructure. The area proposed for development (92 ha) is located on an operational citrus farm, which is bound on all sides by existing citrus farming activities. The proposed additional orchards can be readily tied into the access and irrigation infrastructure of the existing citrus farming operation. The erven that will form part of this assessment process are currently zoned for agriculture.

The proposed development will entail the following activities on the site:

• Clearing of vegetation from portions of the site proposed for agriculture (92 ha)
• Levelling and landscaping the site to provide runoff control
• Establishment of internal roads to provide access to orchards
• Establishment of a storage dam for irrigation water
• Installation of a drip irrigation system
• Establishment of citrus trees
• Establishment of wind breaks

Once the necessary infrastructure has been established, the area will be used for the cultivation of citrus crops. The applicant proposes to use existing offices and service buildings on the farm, thus negating the need for any additional associated services infrastructure such as electricity and sanitation, other than the water required for the irrigation of the crops.

The final design and layout of the development will be informed by technical and environmental specialist input during the Basic Assessment process.

APPLICABLE LEGISLATION
The Basic Assessment is being undertaken in line with the NEMA EIA Regulations, 2010 (as Amended): GN R543 and 546 promulgated under Chapter 5 of the National Environmental Management Act (as amended), and published in Government Gazette 33306 on 18 June 2010. The need for a Basic Assessment is triggered by the inclusion of activities listed in GN R 546, in particular:

"14 The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation…
(a) In Eastern Cape…
i. All areas outside urban areas."

Public Process Consultants has been appointed by Hermanus Potgieter (the applicant), as the Environmental Assessment Practitioner to undertake the Basic Assessment including Public Participation. The purpose of this letter is to notify the competent authority and other relevant organs of state that have jurisdiction over any aspect of the proposed project, of the submission of an application for Environmental Authorisation in respect of the above project. The other organs of state to which this notification is being sent are indicated below.

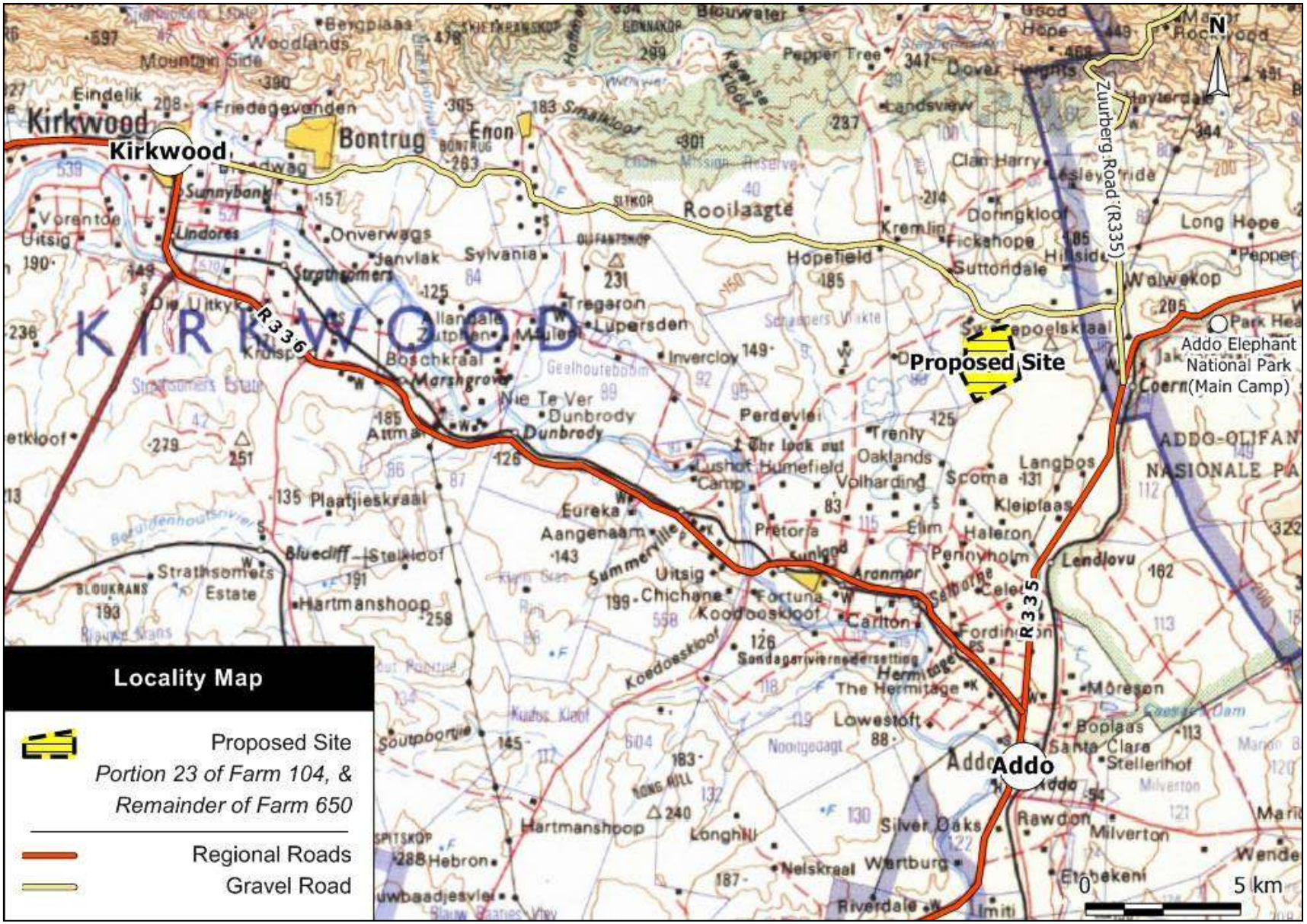
Please find attached with this correspondence the following documentation:
- Application Form for Environmental Authorisation including A3 size Locality Map
- Details of EAP and Declaration of Interest

We trust that you will find the above in order. Please do not hesitate to contact Sandy or Marisa at the contact details above should you have any comments or queries with regards to this submission.

Regards,

Sandy Wren
Environmental Assessment Project Leader

cc.
Dr Mariagrazia Galimberti, SA Heritage Resources Agency
Mr Lonwabo Ngoqo, Municipal Manager, Sundays River Valley Municipality


Locality Map
Proposed Site
Portion 23 of Farm 104, &
Remainder of Farm 650
Regional Roads
Gravel Road
Proposed Site
Addo
Kirkwood
Bontrug
Addo Elephant
National Park
(Main Camp)
Zuurberg Road (R335)
R336
R335
N
0
5 km

BAR Notification Letter to I&APs

PO Box 27688 Greenacres 6057
120 Diaz Road Adcockvale, PE 6001
Phone 041 374 8426 Fax 041 373 2002
Email sandy@publicprocess.co.za
www.publicprocess.co.za
Ck 97/32984/23 VAT 44601 68273

Public Process Consultants
Environmental Impact Assessment and Public Participation Management

24 July 2012

«Title» «Name» «Surname»
«Organisation»
«Address1»
«Address2»
«City»
«Code»

Dear «Title» «Surname»

RE: NOTICE OF BASIC ASSESSMENT PROCESS - EXPANSION OF AGRICULTURAL ACTIVITIES ON PORTION 23 OF FARM 104 SWANEPOELS KRAAL & THE REMAINDER OF FARM 650, KIRKWOOD; SUNDAYS RIVER VALLEY MUNICIPALITY

In terms of the NEMA EIA Regulations, 2010: GN R543 and 546 promulgated under Chapter 5 of the National Environmental Management Act (as amended), you have been identified as an interested and/or affected party (I&AP) for the above project. This serves as notification that a Basic Assessment process is being conducted on behalf of Hermanus Potgieter (the project applicant) for the expansion of the existing agricultural activities on Portion 23 of Farm 104 Swanepoels Kraal (~ 94ha), and the Remainder of Farm 650 (~ 136ha), Kirkwood; Sundays River Valley Municipality. The erven proposed for development are currently zoned for *Agriculture*. The applicant is proposing to clear 92 ha of indigenous vegetation for citrus cultivation; as well as establishing associated agricultural infrastructure (storage dam, irrigation, internal roads).

The need for a Basic Assessment is triggered by the inclusion of, but not limited to, the following activity listed activity in GN R 546:

"14. The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, …
(a) In the Eastern Cape, …
i. All areas outside urban areas."

Other listed activities triggered by the project, and which require authorisation from the Department of Economic Development, Environmental Affairs and Tourism, are included in the attached Background Information Document.

Public Process Consultants has been appointed by the applicant as the independent Environmental Assessment Practitioners (EAP) to undertake the Basic Assessment including Public Participation for the project. In order to be placed on the project database and receive further information on the project, you are required to register your interest in writing. Kindly notify us of your request to register, and state your area of interest / concern in this matter, within 31 days of receipt of this notification, by **23 August 2012**. Additional issues and concerns may be raised once the Draft Basic Assessment Report (BAR) is released for public review, anticipated by the end of August 2012.

To assist you in the submission of issues and concerns we have included with this correspondence a Background Information Document, Locality Map and a Comment Form. Project information can be accessed through the website www.publicprocess.co.za

Should you have any queries or require additional information please contact Wandile Jundundu, Sandy Wren, or Marisa Jacoby using the contact details provided above.

Yours sincerely

SANDY WREN

Comment Form

PUBLIC INVOLVEMENT PROCESS REPLY FORM

BASIC ASSESSMENT REGISTRATION AND COMMENT FORM

Expansion of Agriculture on Portion 23 of Farm 104 Swanepoels Kraal, and Remainder of Farm 650, Kirkwood; Sundays River Valley Municipality

Applicant: Hermanus Potgieter

Listed Activity: GN R546 Activity 14 (a) (i).

Return Completed Reply Form by **23 August 2012**, to:

Public Process Consultants, PO Box 27688, Greenacres 6057
Phone: 041 – 374 8426 or Fax 041-373 2002 or Email sandy@publicprocess.co.za

Please Complete all Relevant Sections Below

Please provide your full contact details:

FIRST NAME:	*SURNAME:*
ORGANISATION:	*POSITION:*
POSTAL ADDRESS:	
CODE:	
PHONE:	*FAX:*
CELL:	*EMAIL:*

Would you like to register as an interested and affected party? (please tick the appropriate box)

NOTE: You are required to register as an I&AP in order to receive further correspondence regarding the Basic Assessment.	**YES**
	NO

Please clearly list your issues, concerns, views and/or questions you may have regarding the project (use additional pages if required)

Background Information Document

BASIC ASSESSMENT PROCESS

EXPANSION OF AGRICULTURAL ACTIVITIES ON PORTION 23 OF FARM 104 SWANEPOELS KRAAL & THE REMAINDER OF FARM 650, KIRKWOOD; SUNDAYS RIVER VALLEY MUNICIPALITY

BACKGROUND INFORMATION DOCUMENT, JULY 2012

Public Process Consultants
Environmental Impact Assessment and Public Participation Management

INTRODUCTION

The applicant (Hermanus Potgieter) is proposing to expand the existing citrus cultivation on Portion 23 of Farm 104 Swanepoels Kraal (~ 94 ha in extent) and Remainder of Farm 650 (~136 ha in extent); by developing approximately 92 hectares for additional orchards and associated agricultural infrastructure. The area proposed for development (92 ha) is located on an operational citrus farm, which is bound on all sides by existing citrus farming activities. The affected farm portions are currently zoned for Agriculture. The site is located in the Sundays River Valley Municipality, and is located directly off the gravel road between Addo/Zuurberg and the town of Kirkwood.

In terms of the NEMA EIA Regulations 2010: GN R543 and 546 promulgated under Chapter 5 of the National Environmental Management Act (Act 107 of 1998) ("NEMA"), and published in Government Gazette 33306 on 18 June 2010 (as amended); a Basic Assessment is required for this project. The applicant has appointed Public Process Consultants as the independent Environmental Assessment Practitioner to undertake the Basic Assessment including public participation for this project.

PROJECT LOCALITY

The site is located in the Sundays River Valley Municipality; the nearest towns are Addo and Kirkwood. The town of Addo is located approximately 10 kilometres south of the site, while Kirkwood is situated about 20 kilometres to the west. The farm is situated adjacent to the gravel road which extends between the town of Kirkwood and the R335 regional road (Zuurberg Road). The entrance to the site is located directly off the gravel road, approximately 2.8 kilometres west of the intersection of the Kirkwood Road and the Zuurberg Road (R335) (see attached locality map).

HOW CAN I PARTICIPATE IN THIS PROCESS?

In terms of regulation 55 (1) (b) of Government Notice R 543 interested and affected parties are to request in writing that their names be placed on the register of interested and affected parties. In order to register on the database complete the comment and registration form attached to this correspondence or submit your contact details (via fax or email), stating your full name, address and contact numbers to the consultant indicated in this documentation. Clearly state any interest that you may have in this matter. By registering on the project database you will be notified as and when information on the project is available.

WHAT DOES THIS DOCUMENT TELL YOU

This document provides you, as an interested and or affected party (I&AP), with background information on the proposed project, the Basic Assessment as well as public participation process. It indicates how you can become involved in the project, receive information and raise issues that

may interest and/or concern you. The sharing of information forms an important component of the public participation process and provides you with the opportunity to become actively involved in the environmental assessment process from the outset. The input received from I&APs together with scientific and technical investigations assists the responsible authority, in this instance the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT), with their decision-making.

WHAT DOES THE PROJECT ENTAIL

The affected farm portions; Portion 23 of Farm 104 Swanepoels Kraal (~ 94 ha), and Remainder of Farm 650 (~136 ha); are part of an existing citrus farming operation (Miskruier Citrus Farm), in the Kirkwood / Addo area. The applicant intends to expand the current citrus farming operation by developing approximately 92 hectares of this area for additional orchards and associated agricultural infrastructure. The proposed additional orchards can be readily tied into the access and irrigation infrastructure of the existing citrus farming operation. The erven that will form part of this assessment process are currently zoned for agriculture.

The proposed development will entail the following activities on the site:

- Clearing of vegetation from portions of the site proposed for agriculture (~92 ha)
- Levelling and landscaping the site to provide runoff control
- Establishment of internal roads to provide access to orchards
- Installation of a drip irrigation system
- Establishment of citrus trees
- Establishment of a storage dam for irrigation water
- Establishment of wind breaks

Once the necessary infrastructure has been established, the area will be used for the cultivation of citrus crops. The applicant proposes to use existing offices and service buildings on the farm, thus negating the need for any additional associated services infrastructure such as electricity and sanitation, other than the water required for the irrigation of the crops.

The final design and layout of the development will be informed by technical and environmental specialist input during the Basic Assessment process.

OVERVIEW OF THE ENVIRONMENTAL BASIC ASSSESSMENT (BAR) PROCESS

In terms of Regulations 543, and 546 promulgated under Chapter 5 of the NEMA in Government Gazette 33306 on 18 June 2010, the project requires Basic Assessment because it includes, amongst others, the following listed activities in GN R546:

NEMA 2010 EIA Regulations, GN R 546, requiring Basic Assessment	
4. The construction of a road wider than 4 metres with a reserve less than 13,5 metres. *(a) In Eastern Cape….:* *ii. Outside urban areas, the following:* *(gg) Areas within10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;*	This site is within approximately 3km of Addo Elephant National Park. Internal access roads wider than 4 meters may be created to facilitate access and agricultural production at the site.
13. The clearance of an area of 1 hectare or more of vegetation where 75% or more of the	This site is within approximately 3km of Addo Elephant National Park. It is anticipated that

vegetative cover constitutes indigenous vegetation, *(c) In Eastern Cape…* *ii. Outside urban areas, the following:* *(ff) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;*	more than 1 hectare of indigenous vegetation will be cleared.
14. "The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation... *(a) In Eastern Cape….:* *i. All areas outside urban areas."*	The vegetation proposed for clearing will exceed 5 ha and is predominantly indigenous. No spatial instruments identifying areas for agriculture or afforestation have been adopted by the competent authority. The site is located outside an urban area.

The listed activities require authorisation from the DEDEAT prior to the commencement of any activities on the site. The environmental assessment needs to show the responsible authority, DEDEAT, and the project proponent, Hermanus Potgieter, what the consequences of their choices will be in biophysical, social and economic terms. The steps in the Basic Assessment Process are outlined below.

The Basic Assessment Process including Public Participation can be summarised into the following stages:

Stage 1: Notification to Authorities and I&APs
The first stage in the process entails notification to the DEDEAT as well as interested and affected parties (I&APs) of the intention to proceed with the BAR. I&APs are required to register their interest on the project database and raise issues of concern.

Stage 2: Draft Basic Assessment (BAR) for Public Comment
The Basic Assessment is undertaken in order to identify and assess potential environmental impacts, both positive and negative, that may be associated with the proposed project. This includes mitigatory measures to reduce potential negative impacts and maximise positive benefits. The Basic Assessment will include an overview of the affected environment on which the activity is proposed to take place. Specialist information for inclusion in the Draft Basic Assessment Report has been identified as follows:

- Biophysical Site Assessment (to include vegetation and ecology)
- Soil suitability assessment
- Archaeological heritage assessment

The Draft Basic Assessment, together with comments received from I&APs will be made available for a 30 day review period. Reasonable and feasible alternatives identified to date and to be included in the draft BAR are:

- No-go: to leave the land as is and not commence with the activity
- Go: the project alternative as proposed, including alternative layouts.
- Reasonable and feasible alternatives as raised by I&APs

All I&APs on the project database will be notified in writing of the 30 day comment period for the Draft Basic Assessment, copies of the Draft Report and project information can be downloaded from the following project website **www.publicprocess.co.za**.

Step 3: Submit Final Basic Assessment Report and Application
The comments received from I&APs will be included in the Final BAR before it is submitted to the DEDEAT for their decision making.

Step 4: Notification of Environmental Authorisation and Appeal Period
The final step in the process entails providing written notification to all I&APs on the project database of the issuing of the environmental authorisation and appeal period, including the manner of appeal. Project construction may only commence once approval has been received from the DEDEAT.

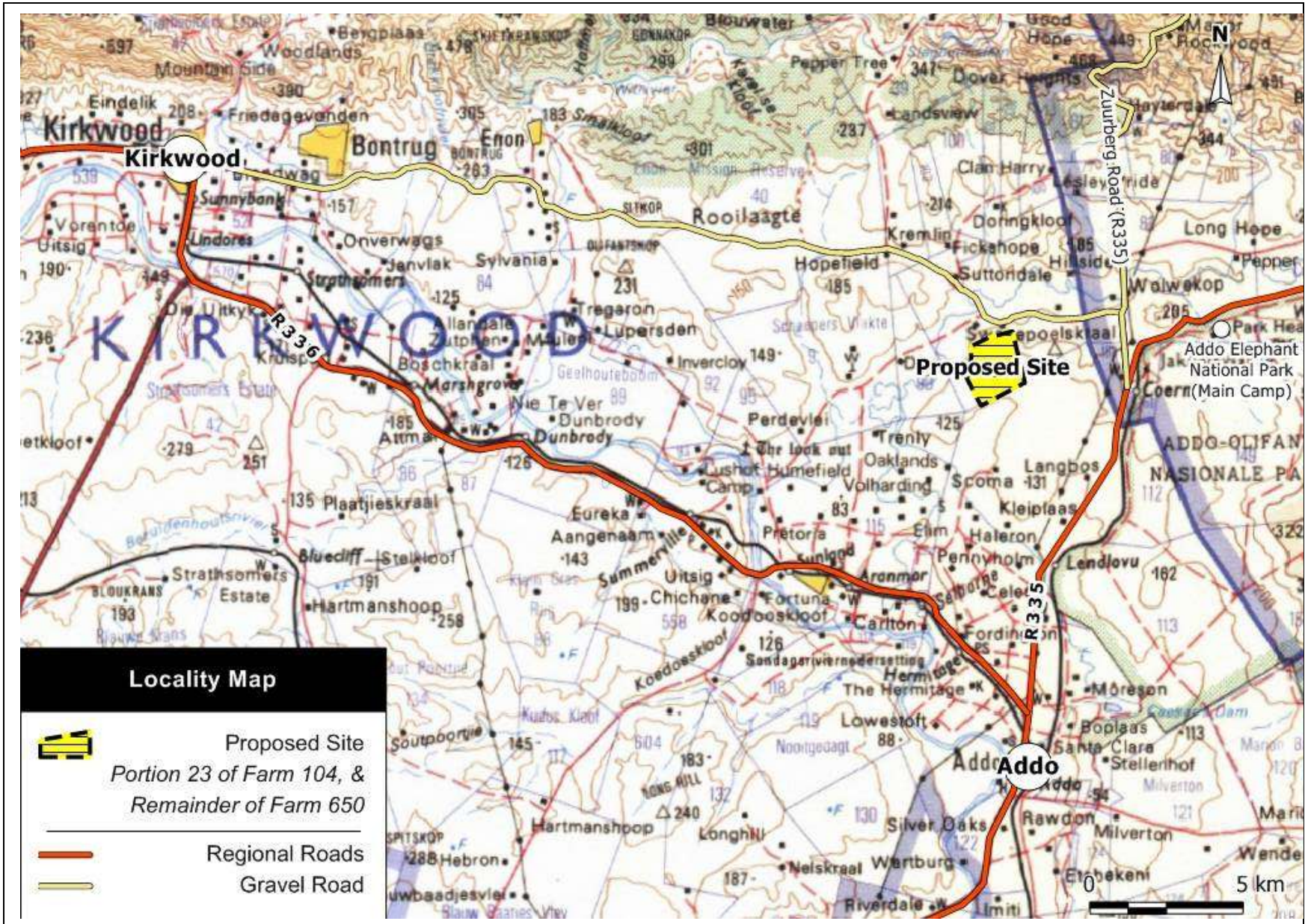
WHAT IS YOUR ROLE AS AN I&AP?

1. I&APs are required to respond to the letters of notification and/or newspaper advertisements and register their interest on the project database
   - By emailing, faxing or mailing a comment form to the participation consultant indicated below.

   By registering your interest in the project you will be kept informed of the process and will be notified of any opportunities to comment
2. I&APs are required to state their area of interest and/or concern in the matter
   - By emailing, faxing or mailing a comment form to the public participation consultant indicated below.
3. By telephonically contacting the public participation consultant if you have a query, comment, or require further project information.
4. By reviewing the Draft and Final BAR and submitting any comments within the specified comment periods.

WHO SHOULD YOU CONTACT?
Sandy Wren, Public Process Consultants, PO Box 27688, Greenacres, 6057, Phone 041-374 8426 Fax 041-373 2002 Email sandy@publicprocess.co.za

Information on the project can be downloaded from the following website: www.publicprocess.co.za



Locality Map for the Proposed Site (Portion 23 of Farm 104, and Remainder of Farm 650.

Comment Form

PUBLIC INVOLVEMENT PROCESS REPLY FORM

DRAFT BASIC ASSESSMENT REPORT COMMENT FORM

Expansion of Agriculture on Portion 23 of Farm 104 Swanepoels Kraal, and Remainder of Farm 650, Kirkwood; Sundays River Valley Municipality (DEDEAT Ref. No: EC06/LN3/M/12-45)

Applicant: Hermanus Potgieter

Listed Activity: GN R546 Activity 14 (a) (i).

Return Completed Reply Form by **15 November 2012**, to:

Public Process Consultants, PO Box 27688, Greenacres 6057
Phone: 041 – 374 8426 or Fax 041-373 2002 or Email sandy@publicprocess.co.za

Please Complete all Relevant Sections Below

Please provide your full contact details:

FIRST NAME:	*SURNAME:*
ORGANISATION:	*POSITION:*
POSTAL ADDRESS:	
CODE:	
PHONE:	*FAX:*
CELL:	*EMAIL:*

Please clearly state any interest that you may have in this matter.

Please clearly outline comments you may have in response to the Draft Basic Assessment Report (use additional pages if required).

Letter 2 to I&APs for the Review of the Draft BAR

PO Box 27688 Greenacres 6057
120 Diaz Road Adcockvale, PE 6001
Phone 041 374 8426 Fax 041 373 2002
Email sandy@publicprocess.co.za
www.publicprocess.co.za
Ck 97/32984/23 VAT 44601 68273

Public Process Consultants
Environmental Impact Assessment and Public Participation Management

17 October 2012

«Title» «Initial» «Last_Name»
«Organisation»
«Address_1_»
«Address_2»
«Town»
«Code»

Dear «Title» «Last_Name»

RE: NOTICE OF DRAFT BASIC ASSESSMENT REPORT COMMENT PERIOD - EXPANSION OF AGRICULTURAL ACTIVITIES ON PORTION 23 OF FARM 104 SWANEPOELS KRAAL & THE REMAINDER OF FARM 650, KIRKWOOD; SUNDAYS RIVER VALLEY MUNICIPALITY (DEDEAT Ref. No: EC06/LN3/M/12-45).

As a registered interested and affected party on the database for the above project you are hereby notified of the **30 day** review period for the Draft Basic Assessment Report for the expansion of the existing agricultural activities on Portion 23 of Farm 104 Swanepoels Kraal (~ 94ha), and the Remainder of Farm 650 (~ 136ha), Kirkwood; Sundays River Valley Municipality. The applicant is proposing to clear indigenous vegetation for citrus cultivation; as well as establish associated agricultural infrastructure (storage dam, irrigation, internal roads).

Our initial correspondence regarding this application, dated the 24 July 2012, indicates that the applicant is of the intention to clear 94 ha of indigenous vegetation. In preparation of the Draft Basic Assessment Report and during a site visit to the affected properties it was identified that a portion of vegetation on Portion 23 of Farm 104 and the Remainder of Farm 650 had been cleared. The applicant has commenced with a Section 24 G application process in terms of NEMA, for the already cleared portions of vegetation on the properties (approximately 20 hectares). The cleared area is thus being addressed through a separate assessment process. This Draft Basic Assessment Report thus focuses on the remaining intact portions of vegetation on the site (approximately 74 hectares),

Comments on the Draft Basic Assessment Report should be submitted to Public Process Consultants (contact details above) by no later than **15 November 2012**.

In order to assist you in making your comments please find attached an Executive Summary of the Draft Basic Assessment Report as well as a comment form. A copy of the full report may be downloaded from the project website www.publicprocess.co.za

The next stage in the Basic Assessment Process entails compiling and including the comments received in the finalising of the Basic Assessment Report for submission to the Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) for their decision making. You will be notified in writing of the submission of the Final Report.

Should you have any queries or require additional information please contact Sandy Wren or Marisa Jacoby using the contact details provided above.

Yours sincerely

SANDY WREN
Environmental Assessment Project Leader

APPENDIX G (iv): CORRESPONDENCE FROM I&APS AND AUTHORITIES

Correspondence Received Prior to the Review of the Draft BAR

Correspondence from DEDEAT

Province of the
EASTERN CAPE
ECONOMIC DEVELOPMENT,
ENVIRONMENTAL AFFAIRS AND TOURISM
CACADU REGION

P/Bag X6001 GREENACRES
South Africa, 6057
Phone: +27 (041) 5085800
Fax: +27 (041) 5085866
Web: www.deaet.ecprov.gov.za
E-mail: Chuma.Gushu@deaet.ecape.gov.za

Public Process Consultants
P.O Box 27688
Greenacres
Port Elizabeth
6057

Ref: EC06/LN3/M/12-45
Enquiries: C. Gushu

Fax: 041 373 2002

Attention: Marisa Jacoby

ACKNOWLEDGEMENT OF RECEIPT: APPLICATION FOR AUTHORISATION IN TERMS OF SECTION 24 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, ACT 107 OF 1998 TO UNDERTAKE A LISTED ACTIVITY AS SCHEDULED IN THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS: PROPOSED EXPANSION OF AGRICULTURE ON PORTION 23 OF FARM 104, SWANEPOELS KRAAL AND THE REMAINDER OF FARM 660, KIRKWOOD WITHIN SUNDAYS RIVER VALLEY MUNICIPALITY

Receipt of the application by yourself on behalf of Mr. H.H.J (Hermanus) Potgieter dated 22 July 2012 and received on 23 July 2012 to undertake a listed activity as scheduled in Listing Notice 3 of 18 June 2010 is hereby acknowledged.

The reference number assigned to your application is EC06/LN3/M/12-45. Please quote the reference number provided in the event of any correspondence/queries in this regard.

The applicant's attention must be drawn to the fact that the activity may not commence prior to an Environmental Authorisation being granted by DEDEAT.

Gushu C

CHUMA GUSHU
ENVIRONMENTAL OFFICER: EIM
CACADU REGION

DATE: 10 AUGUST 2012

Correspondence from I&APs

PUBLIC INVOLVEMENT PROCESS REPLY FORM

BASIC ASSESSMENT REGISTRATION AND COMMENT FORM

Expansion of Agriculture on Portion 23 of Farm 104 Swanepoels Kraal, and Remainder of Farm 650, Kirkwood; Sundays River Valley Municipality

Applicant: Hermanus Potgieter

Listed Activity: GN R546 Activity 14 (a) (i).

Return Completed Reply Form by **23 August 2012**, to:

Public Process Consultants, PO Box 27688, Greenacres 6057
Phone: 041 – 374 8426 or Fax 041-373 2002 or Email sandy@publicprocess.co.za

Please Complete all Relevant Sections Below

Please provide your full contact details:

FIRST NAME:	Hermanus H. J.	SURNAME:	POTGIETER
ORGANISATION:	Miskeuik Farm	POSITION:	FARMER – Owner
POSTAL ADDRESS:	P.O. Box 214 KIRKWOOD		
CODE:	6120		
PHONE:	042-2340126	FAX:	086-6733205
CELL:	082-5588200	EMAIL:	hhj@sevalley.co.za.

Would you like to register as an interested and affected party? (please tick the appropriate box)

NOTE: You are required to register as an I&AP in order to receive further correspondence regarding the Basic Assessment.

YES	✓
NO	

Please clearly list your issues, concerns, views and/or questions you may have regarding the project (use additional pages if required)

Registration and comments form for Issues & Concerns

PUBLIC INVOLVEMENT PROCESS REPLY FORM

BASIC ASSESSMENT REGISTRATION AND COMMENT FORM

Expansion of Agriculture on Portion 23 of Farm 104 Swanepoels Kraal, and Remainder of Farm 650, Kirkwood; Sundays River Valley Municipality

Applicant: Hermanus Potgieter

Listed Activity: GN R546 Activity 14 (a) (i).

Return Completed Reply Form by **23 August 2012**, to:

Public Process Consultants, PO Box 27688, Greenacres 6057
Phone: 041 – 374 8426 or Fax 041-373 2002 or Email sandy@publicprocess.co.za

Please Complete all Relevant Sections Below

Please provide your full contact details.

FIRST NAME:	Pieter	SURNAME:	Nortje
ORGANISATION:	Sitrusrand	POSITION:	Owner
POSTAL ADDRESS:	Box 240, Kirkwood		
CODE:	6120		
PHONE:	042-2320132	FAX:	042-2320051
CELL:	—	EMAIL:	pieter@srvalley.co.za

Would you like to register as an interested and affected party? (please tick the appropriate box)

NOTE: You are required to register as an I&AP in order to receive further correspondence regarding the Basic Assessment.

YES	✓
NO	

Please clearly list your issues, concerns, views and/or questions you may have regarding the project (use additional pages if required)

From: Rob Wijnants [rob@endulini.co.za]
Sent: 15 August 2012 05:36 PM
To: Sandy Wren
Subject: FW:
Attachments: 20120815171533731.pdf

PUBLIC INVOLVEMENT PROCESS REPLY FORM

BASIC ASSESSMENT REGISTRATION AND COMMENT FORM

Expansion of Agriculture on Portion 23 of Farm 104 Swanepoels Kraal, and Remainder of Farm 650, Kirkwood; Sundays River Valley Municipality

Applicant: Hermanus Potgieter

Listed Activity: GN R546 Activity 14 (a) (i).

Return Completed Reply Form by **23 August 2012**, to:

Public Process Consultants, PO Box 27688, Greenacres 6057
Phone: 041 – 374 8426 or Fax 041-373 2002 or Email sandy@publicprocess.co.za

Please Complete all Relevant Sections Below

Please provide your full contact details:

FIRST NAME: PIETIE	SURNAME: FERREIRA
ORGANISATION: ENDULINI	POSITION: DIRECTOR
POSTAL ADDRESS: PO BOX 36, PATENSIE,	
CODE: 6335	
PHONE: 082 651 3074	FAX: 042 2830224
CELL: 042 283 0228	EMAIL: PIETIE@ENDULINI.CO.ZA.

Would you like to register as an interested and affected party? (please tick the appropriate box)

NOTE: You are required to register as an I&AP in order to receive further correspondence regarding the Basic Assessment.	YES
	X

Please clearly list your issues, concerns, views and/or questions you may have regarding the project (use additional pages if required)

Correspondence from DEDEAT

Province of the
EASTERN CAPE
ECONOMIC DEVELOPMENT,
ENVIRONMENTAL AFFAIRS AND TOURISM
CACADU REGION

P/Bag X5001 GREENACRES
South Africa, 6057
Phone: +27 (041) 5085800
Fax: +27 (041) 5085885
Web: www.deaet.ecprov.gov.za
E-mail:Chuma.Gushu@deaet.ecape.gov.za

Public Process Consultants
P.O Box 27688
Greenacres
Port Elizabeth
6057

Ref: EC06/LN3/M/12-45
Enquiries: C. Gushu

Fax: 041 373 2002

Attention: Marisa Jacoby

ACKNOWLEDGEMENT OF RECEIPT: APPLICATION FOR AUTHORISATION IN TERMS OF SECTION 24 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, ACT 107 OF 1998 TO UNDERTAKE A LISTED ACTIVITY AS SCHEDULED IN THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS: PROPOSED EXPANSION OF AGRICULTURE ON PORTION 23 OF FARM 104, SWANEPOELS KRAAL AND THE REMAINDER OF FARM 650, KIRKWOOD WITHIN SUNDAYS RIVER VALLEY MUNICIPALITY

Receipt of Draft Basic Assessment Report dated 17 October 2012 and received on the same date to undertake a listed activity as scheduled in Government Notice R. 546 of 18 June 2010 is hereby acknowledged.

The applicant's attention must be drawn to the fact that the activity may not commence prior to an Environmental Authorisation being granted by DEDEAT.

CHUMA GUSHU
ENVIRONMENTAL OFFICER: EIM
CACADU REGION

DATE: 30 OCTOBER 2012

Correspondence from I&APs

From: **S Mokhanya <smokhanya@ecphra.org.za>**
Sent: 08 October 2012 04:37 PM
To: **Marisa Jacoby**
Cc: 'MARIAGRAZIA GALIMBERTI'
Subject: RE: Request for exemption from Palaeontological Study: Swanepoels Kraal

Dear Marisa

Thanks for the information below. However, we will require Dr Steyn or Dr Almond to formally prepare a recommendation for exemption as they are both convinced that nothing of palaeontological significance will be impacted upon by the proposed development. An email such as the one below may not serve the purpose that a formal document can. They both know how to prepare a recommendation and it will take a fraction of their productive time.

Kind regards
Sello

From: Marisa Jacoby [mailto:marisa@publicprocess.co.za]
Sent: 04 October 2012 03:03 PM
To: smokhanya@ecphra.org.za
Cc: MARIAGRAZIA GALIMBERTI
Subject: Request for exemption from Palaeontological Study: Swanepoels Kraal

Mr Sello Mokhanya

RE: Request for exemption from having to undertake a Palaeontological Specialist Study: Establishment of Citrus Orchards on Ptn 23 of Farm 104 and Re of Farm 650 Swanepoels Kraal

Dear Sir

By means of this email we respectfully request exemption from having to undertake a Palaeontological Specialist Assessment for the Abovementioned project.

The site is located on Sundays River Formation rock. These rocks have been known to include some marine invertebrate fossils. However extensive outcrops of these rocks were not noted during the site visit. The bedrock was only visible in one small exposure; in an eroded area associated with the pan/dam near the centre of the site (See attached locality and geological maps).

The motivation for this request for exemption is outlined below and includes:

1. The establishment of citrus trees require substantial soil depth for rooting and sampling establishment. The planting area will therefore by necessity not be located in areas where there is shallow bedrock, or outcrops of the underlying Sundays River Formation.
2. Landscaping and earthworks associated with site preparation will be limited to the removal of the vegetation from the soil surface, and the grading of the site. No cut and fill works are proposed as part of the project.
3. No deep excavations for, e.g. foundation structures, bulk pipelines or infrastructure are proposed as part of the project.
4. The proposed irrigation dam will be an aboveground balancing dam for the storage of irrigation water from the SRWUA canals, and will not require significant excavation.
5. Irrigation water supply pipes are generally not buried very deep. The only other significant excavations that will be required as part of the project are the shallow holes (< 1 m) in which the citrus saplings will be planted.
6. Even if bedrock were to be encountered at the site it would in all likelihood be weathered and thus not be fossiliferous.

In light of the above and after consultation with Dr John Almond PhD (Cantab.) we are of the opinion that the proposed Swanepoelskraal development is unlikely to have a significant impact on local palaeontological heritage, and a specialist palaeontological assessment would thus not be necessary.

However since the presence of fossilised material cannot be confirmed or disproven at this stage of the project, the following mitigation measures are recommended for inclusion Final Basic Assessment Report and Environmental Management Programme, to form part of the Environmental Authorisation for the project, should it be granted:

- The construction phase of the project should monitored by an independent Environmental Control Officer (ECO), who should monitor excavations for potential fossilised material on an on-going basis while construction / excavation is commencing.
- Should substantial fossil remains be exposed during development, the responsible ECO should alert SAHRA so that appropriate mitigation measures may be considered.
- In the event that fossilised material is uncovered, construction on the affected excavation should cease until a palaeontologist has assessed the material.
- Fossilised material encountered at the site may only be removed or destroyed upon authorisation from the relevant Heritage Resources Authority by the issuing of an appropriate permit.

In order to assist you in your decision-making on this request we have included the following with this email.

- Locality Map of the area under assessment
- Geological Map indicating the Geology of the area (1:250 000)
- Background Information Document sent to I&APs at the initiation of the process
- The email correspondence between Public Process Consultants and Dr John Almond with regards to this assessment (shown below).

Your opinion on this matter is necessary for us to proceed with the Basic Assessment Process. This assessment process began before the 1st August 2012 and thus SAHRA was notified of the Basic Assessment Process. We are thus unsure as to whether this request will be dealt with by yourselves or by the National Agency. Therefore we have cc'ed Dr Mariagrazia Galimberti from SAHRA in this correspondence.

A Phase 1 Archaeological Assessment is being conducted by Dr Johan Binneman for the proposed development.

I phoned the Provincial office today and they indicated you would only be back in the office on Monday. I will try to contact you telephonically on Monday so as to discuss the above correspondence.

Your timeous response in this regard would be greatly appreciated.

Thank you
Regards
Marisa Jacoby (BSc Hons)
Environmental Assessment Practitioner
Public Process Consultants
120 Diaz Road
Adcockvale
Port Elizabeth
Phone: 041 374 8426
Fax: 041 373 2002
Cell: 083 233 5612
Website: www.publicprocess.co.za

From: **John Almond <naturaviva@universe.co.za>**
Sent: 04 October 2012 10:14 AM
To: **Marisa Jacoby**
Subject: Re.: Paleontological Specialist Study - Swanepoelskraal

Dear Marisa,

I concur with the conclusion reached by Dr Paul Steyn that the proposed Swanepoelskraal development is unlikely to have a significant impact on local palaeontological heritage, and in my view a specialist palaeontological assessment is not necessary.

I recommend that you include in the Management Plan the requirement that the ECO is made aware of the possibility of subsurface fossil material in the area. Should fossil remains be exposed during development, these should be safeguarded and reported to ECPHRA so that appropriate mitigation measures may be considered.

Best wishes,
John Almond

Dr John E. Almond
Palaeontologist
Natura Viva cc
021-462 3622

From: Marisa Jacoby [mailto:marisa@publicprocess.co.za]
Sent: 04 October 2012 09:53 AM
To: John Almond
Cc: Sandy Wren
Subject: FW: Re.: Paleontological Specialist Study - Swanepoelskraal

Hi John

As per our telephonic discussion of this morning, below please find the email sent by Paul Steyn. Please could you indicate whether you would agree with the reasons that he provided for motivating for exemption from a Palaeontological assessment. In addition to what is outlined below, I note from our earlier discussion, that in your opinion, even if bedrock were to be encountered at the site it would in all likelihood be weathered and thus not be fossiliferous. The proposed development is thus unlikely to significantly impact on palaeontological resources at the site.

Your assistance in this regard is greatly appreciated.

Regards
Marisa Jacoby (BSc Hons)
Environmental Assessment Practitioner
Public Process Consultants
120 Diaz Road
Adcockvale
Port Elizabeth
Phone: 041 374 8426
Fax: 041 373 2002
Cell: 083 233 5612
Website: www.publicprocess.co.za

From: Steyn, Paul (Dr) (Summerstrand Campus South) [mailto:Paul.Steyn@nmmu.ac.za]
Sent: 03 October 2012 03:35 PM
To: Marisa Jacoby
Subject: Re.: Paleontological Specialist Study - Swanepoelskraal

Hi Marisa

Re.: Paleontological Specialist Study
The site is indeed located on Sundays River Formation rock. These rocks have been known to include some marine invertebrate fossils. However extensive outcrops of these rocks were not noted during the site visit.

The bedrock was only visible in one small exposure; in an eroded area associated with the pan/dam near the centre of the site.

- The establishment of citrus trees require substantial soil depth for rooting and sampling establishment. The planting area will therefore by necessity not be located in areas where there is shallow bedrock, or outcrops of the underlying Sundays River Formation.
- Landscaping and earthworks associated with site preparation will be limited to the removal of the vegetation from the soil surface, and the grading of the site. No cut and fill works are proposed as part of the project.
- No deep excavations for, e.g. foundation structures, bulk pipelines or infrastructure are proposed as part of the project.
- The proposed irrigation dam will be an aboveground balancing dam for the storage of irrigation water from the SRWUA canals, and will not require significant excavation.
- Irrigation water supply pipes are generally not buried very deep. The only other significant excavations that will be required as part of the project are the shallow holes (< 1 m) in which the citrus saplings will be planted.

In view of the above, it is in my opinion unlikely that the agricultural development will result in potentially significant impacts on possible fossil resources at the site.

I would confirm the above project related details with the client, and motivate to the ECPHRA for an exemption from a paleontological specialist study on this basis.

Kind regards
Dr Paul-Pierre Steyn
Senior Lecturer
Department of Botany, Nelson Mandela Metropolitan University
PO Box 77000, Port Elizabeth 6031, South Africa
Tel(w): +27 (0)41-504 4873
Fax(w):+27 (0)41-583 2317
Paul.Steyn@nmmu.ac.za

From: **Morgan Griffiths [morgan@wessaep.co.za]**
Sent: 31 October 2012 11:36 AM
To: **Sandy Wren**
Subject: Miskruier Citrus Farm expansion proposal

Hi Sandy

I acknowledge receipt of your notice of 17 October 2012 concerning the draft BAR for the Miskruier Farm orchard expansion. Having perused the document, WESSA has no objection at this stage.

I would recommend the use of Yellowwood trees over the other species for the windbreak, solely on the basis that its fruit is a critical dietary component of the endangered Cape Parrot.

Regards

Morgan Griffiths
Senior Conservation Officer

WESSA
PEOPLE CARING FOR THE EARTH

WESSA Eastern Province
Tel: +27 (0)41 585 9606
Fax: +27 (0)86 6149701
Cell: +27 (0)72 4175793
Email: morgan@wessaep.co.za
Skype: morgan_griffiths
URL: www.wessa.org.za
Street: 2b Lawrence Street, Central Hill, Port Elizabeth, 6001
Post: PO Box 12444, Centrahil, Port Elizabeth, 6006, South Africa

APPENDIX G (v): EAP'S CV

Curriculum Vitae

Marisa Jacoby

120 Diaz Road
Adcockvale
Port Elizabeth
6001

Phone: 041 374 8426
Fax: 041 373 2002
E-mail: marisa@publicprocess.co.za

PERSONAL INFORMATION

Nationality	South African
Language Proficiency	English (fluent) Afrikaans (proficient) Xhosa (limited)
Gender	Female

Marisa has a BSc Honours degree (*cum laude*), majoring in Botany and specialising in Environmental Management from the Nelson Mandela Metropolitan University. In partial fulfilment of the requirements for this degree she completed two treatises entitled: "Germination inhibition in Syncarpha recurvata" and "A GIS approach to designation of a nature reserve for the PPC mine at Grassridge".

EDUCATION

Nelson Mandela Metropolitan University (formerly University of Port Elizabeth)

2009	BSc Hons -Botany
2006 -2008	BSc – Botany and Geography

WORK EXPERIENCE

March 2011 - Present

Public Process Consultants

- ***Environmental Assessment Practitioner***

Tasks and Responsibilities:

Conduct Biophysical, Botanical and Ecological Assessments.

Prepare Specialist Reports and Chapters in capacity as Botanical and Ecological Specialist.

Preparation of Environmental Assessment Reports (Basic Assessment & Scoping and EIA) and Environmental Management Programmes.

Liaison and communication with clients, authorities (local, provincial and national authorities as required by the project) as well as interested and affected parties.

Basic GIS based mapping and spatial data analysis.

Content management for resources and public review documents on the company website.

March 2010 - February 2011

Enspec – Consulting Structural Engineers

- *Secretarial Assistant*

Tasks and Responsibilities:

Data capture and document management

Client invoicing and liaison

Answering calls and handling queries

Taking dictation

February 2009 – November 2009

Nelson Mandela Metropolitan University

- *Practical Demonstrator: Botany Department*

Tasks and Responsibilities:
Assisting undergraduate students during practical exercises

FIELDS OF INTEREST

Environmental Management, Terrestrial Ecology, Geographic Information Systems

BASIC ASSESSMENT EXPERIENCE

The following provides an overview of the Basic Assessment Processes that Marisa has been involved in.

- Theesecombe erf 722, new residential development
- Theesecombe erf 2377, new residential development
- Photovoltaic Solar Energy Project, Graff Reinet
- New Agricultural Development for Habata Boerdery,
  - Oliphantskop
  - Logan Braes
  - Falcon Ridge
- Agrivillage Nomathamsanqa, Addo
- Sewerage Reticulation for Weston, Hankey
- Establishment of a Technical High School, Jeffreys Bay, Kouga Municipality

SCOPING AND EIA EXPERIENCE

The following provides an overview of the Scoping and EIA Processes that Marisa has been involved in.

- EIA for the Weston Waste Water Treatment Works, Weston, Hankey
- EIA for Portion 62 of 10, Little Chelsea, residential development
- EIA for Riverbend Citrus, clearing of agricultural land
- EIA for Venter Fert, Composting and Fertiliser Processing Plant

REFERENCES

Prof E.E. Campbell, Head of Department - Department of Botany, Nelson Mandela Metropolitan University, Tel.: +27 41 504 2329, e-mail: Eileen.Campbell@nmmu.ac.za (*Treatise Supervisor*)

Dr D.R. Du Preez, Director – School of Environmental Sciences, Nelson Mandela Metropolitan University, Tel.: +27 41 504 2721, e-mail: Derek.DuPreez@nmmu.ac.za (*Treatise Supervisor*)

Mr A. Malherbe, Owner – Enspec Consulting Structural Engineers, Tel.: +27 41 581 4685, e-mail: enspec@telkomsa.net (*Former Employer)*

APPENDIX G (vi): AUTHORITY CONTACT DETAILS

Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) – Cacadu Region, Eastern Cape
Mr Andries Struwig
Private Bag X 5001
Greenacres
Port Elizabeth
6057
Tel: 041 508 5815
Fax 041 585 1958
andries.struwig@deaet.ecape.gov.za

South African Heritage Resources Agency
Dr Mariagrazia Galimberti
PO Box 4637
Cape Town
8000
Tel: 021 462 4502
Fax: 021 462 4509
mgalimberti@sahra.org.za

Provincial Department of Agriculture
Mr Rufus Maloma
Agriland Building
9 Somers Rd
Sydenham
Port Elizabeth
6000
Tel: 041 402 6311
Fax: 041 402 6310
malomar@webmail.co.za

National Department of Agriculture - Directorate Land Use and Soil Management
Mr Gcinile Dumse
Private Bag X4
Tecoma
East London
5214
Tel: 043 704 6800/10
Fax: 043 704 6812
GcinileD@daff.gov.za

Sundays River Valley Municipality
Mr Lonwabo Ngoqo
PO Box 47
Kirkwood
6120
Tel: 042 230 7728
Fax: 042 230 0069
nellyn@srvm.gov.za

Department of Water Affairs
Ms Lizna Fourie
PO Box 7019
East London
5200
FourieL4@dwa.gov.za

Ms Marisa Bloem
Private Bag X6041
Port Elizabeth
6000
Tel: 041 586 4884
bloemm@dwa.gov.za

APPENDIX G (vii): PROOF OF NOTIFICATION TO LANDOWNER

The Landowner is the Applicant for the Basic Assessment Process. Thus proof of notification of the landowner is not required.

APPENDIX G (viii): DETAILS OF SPECIALISTS AND DECLARATION OF INTEREST
Soil Suitability Specialist

PROVINCE OF THE EASTERN CAPE
DEPARTMENT OF ECONOMIC DEVELOPMENT AND ENVIRONMENTAL AFFAIRS

DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

	(For official use only)
File Reference Number:	12/12/20/
NEAS Reference Number:	DEAT/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010

PROJECT TITLE

AGRICULTURAL DEVELOPMENT OF PORTION 23 OF FARM 104 AND THE REMAINDER OF FARM 650, SWANEPOELS KRAAL, SUNDAYS RIVER VALLEY MUNICIPALITY

Specialist:	Dr F Ellis		
Contact person:	Dr F Ellis		
Postal address:	5 Forelle, Stellenbosch		
Postal code:	7600	Cell:	082 552 5475
Telephone:		Fax:	021 808 4791
E-mail:	fe@sun.ac.za		
Professional affiliation(s) (if any)	Pr. Sci. Nat. Reg. No. 400158/08		

Project Consultant:	Public Process Consultants		
Contact person:	Marisa Jacoby		
Postal address:	PO Box 27688		
Postal code:	6057	Cell:	083 233 5612
Telephone:	041 374 8426	Fax:	041 373 2002
E-mail:	marisa@publicprocess.co.za		

4.2 The specialist appointed in terms of the Regulations_

I, **Freddie Ellis** , declare that --

General declaration:

- I act as the independent specialist in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of section 24F of the Act.

Signature of the specialist:

Name of company (if applicable):

Date:

Signature of the Commissioner of Oaths:

Date:

Designation:

Official stamp (below)

SOUTH AFRICAN POST OFFICE
MATIELAND
15 NOV 2012
BRANCH MANAGER

KOMMISSARIS VAN EDE
COLIN GEDULD
RG 00 73 BLUE DOWNS
29 HAKEA STREET
SOMERSET HEIGHTS
KLEINVLEI
7100
TEL. (021) 904-2162 (H)
(021) 889-5435 (W)
COMMISSIONER OF OATHS

Archaeological Specialist

PROVINCE OF THE EASTERN CAPE
DEPARTMENT OF ECONOMIC DEVELOPMENT AND
ENVIRONMENTAL AFFAIRS

DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

	(For official use only)
File Reference Number:	12/12/20/
NEAS Reference Number:	DEAT/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010

PROJECT TITLE

Agricultural Development of Portion 23 of Farm 104 and the Remainder of Farm 650, Swanepoels Kraal, Sundays River Valley Municipality

Specialist:	Dr Johan Binneman (JB)		
Contact person:	Mr Kobus Reichert (KR)		
Postal address:	Eastern Cape Heritage Consultants P.O. Box 689, Jeffreys Bay		
Postal code:	6330	Cell:	0722411528 (JB) 0728006322 (KR)
Telephone:	042 296 0399	Fax:	
E-mail:	J.Binneman@ru.ac.za kobusreichert@yahoo.com		
Professional affiliation(s) (if any)	Member of the Association of Southern African Professional Archaeologists (ASAPA)		

Project Consultant:	Public Process Consultants		
Contact person:	Marisa Jacoby		
Postal address:	PO Box 27688		
Postal code:	6057	Cell:	083 233 5612
Telephone:	041 374 8426	Fax:	041 373 2002
E-mail:	marisa@publicprocess.co.za		

4.2 The specialist appointed in terms of the Regulations_

I, **J.N.F. Binneman** , declare that --

General declaration:

- I act as the independent specialist in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of section 24F of the Act.

Signature of the specialist:

Eastern Cape Heritage Consultants

Name of company (if applicable):

Date:

Signature of the Commissioner of Oaths:

Date:

16/11/2012

Designation: EXECUTIVE FINANCIAL ADVISOR

Official stamp (below)

DS FISH
EXECUTIVE FINANCIAL ADVISOR
COMMISSIONER OF OATHS (Ex-Officio)
OLD MUTUAL GRAHAMSTOWN
EASTERN CAPE

OLD MUTUAL LEWENSVERSEKERINGSMAATSKAPPY (SUID AFRIKA) BEPERK
OLD MUTUAL LIFE ASSURANCE COMPANY (SOUTH AFRICA) LIMITED
2012 -11- 16
GRAHAMSTOWN
PORT ELZIABETH

APPENDIX G (ix): SPECIES LIST OF ALL THE PLANTS RECORDED ON PORTION 23 OF FARM 104 AND THE REMAINDER OF FARM 650 SWANEPOELS KRAAL.

The plant species list for the site was based on collections made during a one day site visit to the study area on 24 July 2012. While the species list presented in this report is considered representative of the plant diversity at the study site, it is possible that certain plant species may have been dormant at the time of this site visit and are not reflected in this list nor recorded. However, this is not expected to significantly affect the findings of this report.

Family Name	Scientific Name	Status	Legislation
Malvaceae	*Abutilon sonneratianum*		
Fabaceae	*Acacia karoo*	Bush Encroacher	CARA
Asphodelaceae	*Aloe africana*	Protected Genus	CNECO
Asphodelaceae	*Aloe ferox*		
Asteraceae	*Arctotheca calendula*		
Asparagaceae	*Asparagus africanus*		
Asparagaceae	*Asparagus asparagoides*		
Asparagaceae	*Asparagus burchelli*		
Asparagaceae	*Asparagus racemosus*		
Asparagaceae	*Asparagus sp.*		
Asparagaceae	*Asparagus striatus*		
Chenopodiaceae	*Atriplex semibracata*		
Salvadoraceae	*Azima tetracantha*	Bush Encroacher	CARA
Acanthaceae	*Barleria irritans*		
Acanthaceae	*Blepharis capensis*		
Amaryllidaceae	*Brunsvigia gregaria*	Protected Family	CNECO
Asphodelaceae	*Bulbine frutescens*		
Asphodelaceae	*Bulbine narcissifolia*		
Capparaceae	*Capparis sepiaria*		
Apocynaceae	*Carissa bispinosa*		
Scrophulariaceae	*Chaenostoma polyanthum*		
Chenopodiaceae	*Chenopodium* sp.		
Asteraceae	*Cineraria lobata*	Near Threatened	Red List
Commelinaceae	*Commelina* sp.		
Crassulaceae	*Cotyledon velutina*		
Crassulaceae	*Crassula cultrata*		
Crassulaceae	*Crassula expansa*		
Crassulaceae	*Crassula glomerata*		
Crassulaceae	*Crassula muscosa*		
Crassulaceae	*Crassula ovata*		
Crassulaceae	*Crassula pellucida*		
Crassulaceae	*Crassula perforata*		
Crassulaceae	*Crassula spathulata*		
Asteraceae	*Curio radicans*		
Hyacinthaceae	*Cyanella lutea*		
Poaceae	*Cynodon dactylon*		

Cyperaceae	*Cyperus rubicundus*		
Lobeliaceae	*Cyphia sylvatica*		
Mesembryanthemaceae	*Delosperma echinatum*	Protected Family	CNECO
Hyacinthaceae	*Drimia capensis*		
Mesembryanthemaceae	*Drosanthemum hispidum*	Protected Family	CNECO
Apocynaceae	*Duvalia* sp.	Possibly Rare / Protected Former Family	Red List / CNECO
Poaceae	*Eragrostis curvula*		
Poaceae	*Eragrostis obtusa*		
Ebenaceae	*Euclea undulata*	Bush Encroacher	CARA
Euphorbiaceae	*Euphorbia ledieni*		
Euphorbiaceae	*Euphorbia mauritanica*		
Asteraceae	*Felicia filifolia*		
Asteraceae	*Felicia sp.*		
Aizoaceae	*Galenia secunda*		
Orchidaceae	Geophyte	Protected Family	CNECO
Malvaceae	*Grewia robusta*		
Celastraceae	*Gymnosporia polycanthus*		
Malvaceae	*Hermannia althaeifolia*		
Malvaceae	*Hermannia althaeoides*		
Convolvulaceae	*Ipomoea* sp.		
Scrophulariaceae	*Jamesbrittenia microphylla*		
Cucurbitaceae	*Kedrostis nana*		
Lobeliaceae	*Lachenalia ensifolia*		
Hyacinthaceae	*Ledebouria ensifolia*		
Brassicaceae	*Lepidium africanum*		
Lamiaceae	*Leucas capensis*		
Lobeliaceae	*Lobelia sp.*		
Solanaceae	*Lycium cinereum*		
Solanaceae	*Lycium ferocissimum*		
Mesembryanthemaceae	*Malephora* sp.	Protected Family	CNECO
Marsileaceae	*Marsilea* sp.		
Mesembryanthemaceae	*Mesembryanthemum aitonis*	Protected Family	CNECO
Mesembryanthemaceae	*Mestoklema tuberosum*	Protected Family	CNECO
Scrophulariaceae	*Nemesia fruticans*		
Oleaceae	*Olea europea subsp. africana*		
Cactaceae	*Opuntia ficus-indica*	Category 1	CARA
Poaceae	*Panicum deustem*		
Poaceae	*Panicum maximum*		
Sapindaceae	*Pappea capensis*		
Geraniaceae	*Pelargonium odoratissimum*		
Geraniaceae	*Pelargonium peltatum*		

Asteraceae	*Pentzia incana*		
Plumbaginaceae	*Plumbago auriculata*		
Portulacaceae	*Portulacaria afra*		
Ptaeroxylaceae	*Ptaeroxylon obliquum*		
Pteridaceae	*Pteris* sp.		
Celastraceae	*Putterlickia pyracantha*		
Bignoniaceae	*Rhigozum obovatum*		
Vitaceae	*Rhoicissus digitata*		
Mesembryanthemaceae	*Ruschia rigens*	Protected Family	CNECO
Dracaenaceae	*Sansevieria hyacinthoides*		
Apocynaceae	*Sarcostemma viminale*	Protected Former Family	CNECO
Cyperaceae	*Schoenoplectus decipiens*		
Fabaceae	*Schotia afra*		
Rhamnaceae	*Scutia myrtina*		
Anacardiaceae	*Searsia laevigata*		
Anacardiaceae	*Searsia longispina*		
Anacardiaceae	*Searsia pterota*		
Scrophulariaceae	*Selago cinerea*		
Solanaceae	*Solanum tomentosum*		
Lamiaceae	*Stachys aethiopica*		
Iridaceae	*Tritonia dubia*	Protected Family	CNECO
Rutaceae	*Vepris lanceolata*		
Viscaceae	*Viscum obscurum*		
Zygophyllaceae	*Zygophyllum morgsana*		

APPENDIX G (x): SUPPORTING DOCUMENTATION

Confirmation of Water Availability from the LSRWUA

Lower Sundays River
Water User Association

Laer Sondagsrivier
Watergebruikersvereniging

PO Box / Posbus 10, Belmont Road, Sunland, 6115
Tel: 042 234 0038 Fax / Faks: 042 234 0022 • E-mail / E-pos: info@sundaysriverwater.co.za
VAT No. 4630120287

HHJ Potgieter
Posbus 214
Kirkwood
6120

16 November 2012

Meneer

KANAAL KAPASITEIT

Met verwysing na u skrywe van 18 September 2012 het die Bestuurskomitee u aansoek oorweeg en na ontleding van die kanaal kapasiteit vir die vermelde eiendom, dat daar wel kapasiteit vir die addisionele 80 ha is.

Die nodige aanpassings tot die nodige uitlaat kan gedoen word wanneer die nodige water toekennings en of oorplasing na die eiendomme verkry is.

Indien enige verdere inligting benodig kan die ondertekende gekontak word.

Die uwe

JHH DU PLESSIS
HOOF UITVOERENDE BEAMPTE

Lower Sundays River
Water User Association

Laer Sondagsrivier
Watergebruikersvereniging

PO Box / Posbus 10, Belmont Road, Sunland, 6115
Tel: 042 234 0038 Fax / Faks: 042 234 0022 • E-mail / E-pos: info@sundaysriverwater.co.za
VAT No. 4630120287

HHJ Potgieter
Posbus 214
Kirkwood
6120

16 November 2012

Meneer

KANAAL KAPASITEIT

Met verwysing na ons skrywe van 16 November 2012 wil ons aanvullend tot daardie inligting byvoeg dat water op 'n tydelike basis uit die Poel van die Vereniging gehuur kan word, indien daar water wel beskikbaar is in die Poel.

In terme van die Nasionale Waterwet no 36 van 1998, klousile 25 dat water op 'n tydelike basis mag oorgeplaas word van een eiendom na 'n ander eiendom.

Die uwe

JHH DU PLESSIS
HOOF UITVOERENDE BEAMPTE
HDP/lf

Confirmation of Electricity Supply from Eskom

From: Andre Mostert
Sent: Wednesday, August 29, 2012 8:45 AM
To: hhj@srvalley.co.za
Subject: Availability of electrical supply.

Good day Mr Potgieter

As discussed I can confirm that Eskom is in the position to supply electricity (Additional 200kVA to the existing 200kVA SR717) to the property Ptn23 of Ptn5 of the Farm 104 Swannepoelskraal and Remainder of the Farm 650 Sundays River Valley Municipality.

Feel free to contact me should you have more queries regards your electricity supply.

Thank you