

Ecological Desktop Study

The proposed Diamonds Alluvial & Diamonds General Prospecting Right near Windsorton on Portion 6 (Langverwacht), Portion 7 (Oskamp) and Portion 16 of the farm Slypklip South Estate 36;
Registration Division: Kimberley RD, Northern Cape Province

Reference No.: NC30/5/1/1/2/11806PR

Prepared by



PO Box 6484, Baillie Park, 2520. Tel: (018) 231 7021
PO Box 1086, Schweizer-Reneke, 2780. Tel: (018) 011 1925, Fax 087 231 7021
E-mail: danie@milnex-sa.co.za

Introduction

Milnex 189 CC was contracted by Rietput Delwery CC as the independent environmental consultant to undertake the Ecological Desktop Study for the Environmental Impact Assessment process for a Prospecting Right of Diamonds Alluvial and Diamonds General near Windsorton on Portion 6 (Langverwacht), Portion 7 (Oskamp) and Portion 16 of the farm Slypklip South Estate 36; Registration Division: Kimberley RD, Northern Cape Province. Milnex 189 CC is a specialist environmental consultancy with extensive experience in the prospecting industry which provides a holistic environmental management service, including environmental assessment and planning to ensure compliance with relevant environmental legislation. Milnex 189 CC benefits from the pooled resources, diverse skills and experience in the environmental and prospecting field held by its team that has been actively involved in undertaking environmental studies for a wide variety of prospecting related projects throughout South Africa. The Milnex 189 CC team has considerable experience in environmental impact assessment and environmental management, especially in the prospecting industry.

The EAP, Danie Labuschagne, which conducted the desktop study has experience in consulting in the environmental field. His key focuses are on environmental assessment, advice and management and ensuring compliance to legislation and guidelines, GIS and Water Use Licenses. He is currently involved in undertaking EIAs for several projects across the country. He's key qualifications include:

- Masters Degree in Environmental Management and Geography, North West University, SA.
- Honors in Environmental Management (Hons.Env.Man) (Cum Laude), North West University (NWU), SA.
- B. Sc in Geology and Geography, North West University (NWU), SA.
- Implementing Environmental Management Systems (ISO 14001) course from the CEM (Centre for Environmental Management).
- Environmental Law for Environmental Managers course from the CEM (Centre for Environmental Management).
- Environmental Management Systems ISO 14001 Audit: A Lead Auditor Course based on ISO 19011 and ISO 17021(SAATCA Registered) course at the CEM (Centre for Environmental Management).

It should just be noted that Danie Labuschagne ***is not*** a qualified Ecologist.

The Ecological habitat status of the proposed prospecting right area, was determined by means of a site visit and a desktop study. In this document a brief description of the ecology, as stated by Mucina and Rutherford (2006), will be given. This information will be supported with a map and site specific photographs.

Vegetation Map

The exact coordinates of the proposed prospecting right area are plotted to determine the vegetation unit(s), in which the proposed prospecting activities will take place. The data used, is that provided by Mucina and Rutherford (2006). A vegetation unit is defined by Mucina and Rutherford (2006) as a complex

of plant communities ecologically and historically occupying habitat complexes at the landscape scale. According to Mucina and Rutherford (2006) their vegetation units are the obvious vegetation complexes that share some general ecological properties such as position on major ecological gradients and nutrient levels, and appear similar in vegetation structure and especially in floristic composition.

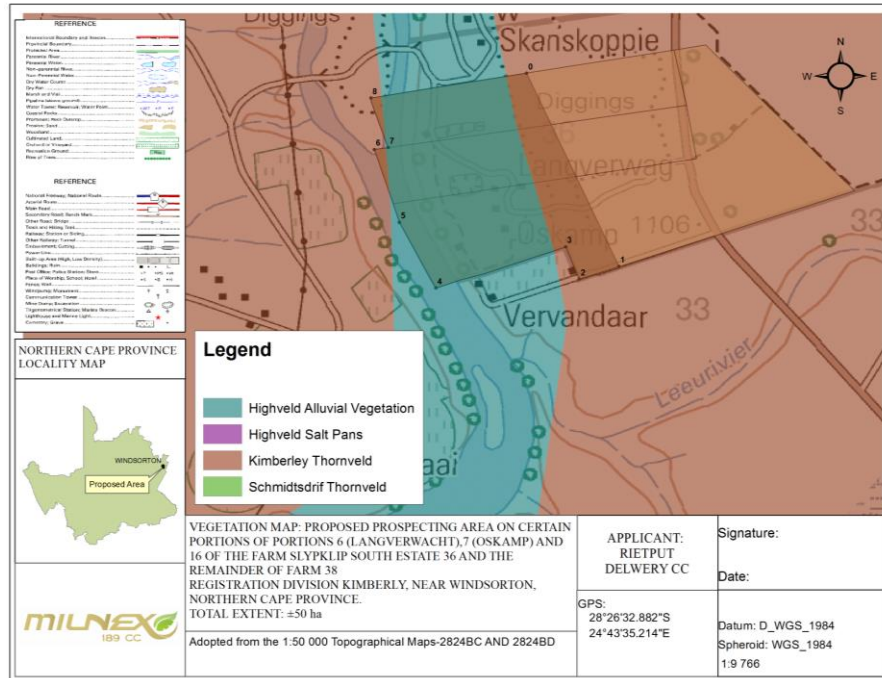


Figure 1: Vegetation Unit Map

The result obtained by plotting the coordinates are as follow:

The proposed area falls within vegetation unit SVk 4 and Aza 5, which is known as the Kimberley Thornveld and Highveld Alluvial Vegetation. The Kimberly Thornveld is part of the Eastern Kalahari Bushveld Bioregion, which is a sub-bioregion for the Savanna Biome. While the Highveld Alluvial Vegetation is part of the Alluvial Vegetation Bioregion which is a sub-bioregion for the Inland Azonal Vegetation.

The proposed site is adjacent to the Bloemhof dam.

Kimberley Thornveld

According to Mucina and Rutherford (2006:516), the Kimberley Thornveld vegetation covers the North West, Free State and Northern Cape Provinces: Most of the Kimberley, Hartswater, Bloemhof and Hoopstad Districts as well as substantial parts of the Warrenton, Christiana, Taung, Boshof and to some extent the Barkley West District. This thornveld is situated on an altitude of 1050m – 1400m.

The area often has slightly irregular plains with a well-developed tree layer with *Acacia Erioloba*, *A. tortillis*, *A. karoo* and *Boscia albitrunca* and a well-developed shrub layer with occasional dense stands of *Tarchonanthus camphoratus* and *A. mellifera*. Grass layer open with much uncovered soil.

Some other important Taxa found on in the area:

Tall Tree: *Acacia erioloba* (d).

Small Trees: *Acacia karroo* (d), *A. mellifera* subsp. *detinens* (d), *A. tortilis* subsp. *heteracantha* (d), *Rhus lancea*.

Tall Shrubs: *Tarchonanthus camphoratus* (d), *Diospyros pallens*, *Ehretia rigida* subsp. *rigida*, *Euclea crispa* subsp. *ovata* *Grewia flava*, *Lycium arenicola*, *L. hirsutum*, *Rhus tridactyla*.

Low Shrubs: *Acacia hebeclada*, subsp. *hebeclada* (d), *Anthospermum rigidum* subsp. *pumilum*, *Helichrysum zeyheri*, *Hermannia comosa*, *Lycium pilifolium*, *Melolobium microphyllum*, *Pavonia burchelli*, *Peliostomum leucorrhizum*, *Plinthus sericeus*, *Wahlenbergia nodosa*.

Succulent Shrubs: *Aloe hereroensis* var. *hereroensis*, *Lycium cinereum*

Graminoids: *Eragrotis lehmanniana* (d), *Aristida canescens*, *A. congesta*, *A. mollissima* subsp. *argentea*, *Cymbopogon pospischilli*, *Digitaria argyrograpta*, *D. eriantha* subsp. *eriantha*, *Enneapogon cenchroides*, *E. scoparius*, *Eragrostis rigidior*, *Heteropogon contortus*, *Themeda triandra*.

Herbs: *Barleria macrotegia*, *Dicoma schinzii*, *Harpagophytum procumbens* subsp. *procumbens*, *Helichrysum cerastioides*, *Hermbstaedtia odorata*, *Hibiscus marlothianus*, *Jamesbrittenia aurantiaca*, *Lippia scaberrima*, *Osteospermum muricatum*, *Vahlia capensis* subsp. *vulgaris*.

Succulent Herbs: *Aloe grandidentata*, *Piaranthus decipiens*.

Mucina and Rutherford (2006:517) also states that the conservation of this thornveld type, is Least Threatened with a target of 16%. Only 2% of this thornveld is statutorily conserved in Vaalbos National Park and in Sanveld, Bloemhof Dam and S.A. Lombard Nature Reserve. As much as 18% is already transformed, mostly by cultivation. Low erosion is associated with this type of thornveld. The area is mostly used for cattle farming or game ranching. Overgrazing leads to encroachment of *Acacia mellifera* subsp. *detinens*.

The EAP that compiled the report is also aware that the presence of *Acacia erioloba* dominates these areas, but during the desktop study no such tall tree was identified on site.

Highveld Alluvial Vegetation

According to Mucina and Rutherford (2006:640), the Highveld Alluvial Vegetation covers the Free State, North-West, Mpumalanga and Gauteng Provinces as well as Lesotho and Swaziland: with Alluvial drainage lines and floodplains along rivers embedded within the Grassland Biome and marginal (eastern) units of the Kalahari (Savanna Biome), such as along the upper Riet, Harts, upper Modder, upper Caledon, Vet, Sand, Vals, Wilge, Mooi, middle and upper Vaal Rivers etc. and their numerous tributaries. Altitude ranging from 1 000 – 1 500 m.

The area has a relative flat topography supporting riparian thickets mostly dominated by *Acacia karroo*, accompanied by seasonally flooded grasslands and disturbed herblands often dominated by alien plants.

Some other important Taxa found on in the area:

Riparian thickets

Small trees: *Acacia karroo* (d), *Salix mucronata* subsp. *Mucronata* (d), *S. mucronata* subsp. *woodii* (d, within subescarpment grasslands of Kwazulu Natal) *Ziziphus mucronata* (d), *Celtis Africana*, *Rhus lancea*

Tall shrubs: *Gymnosporia buxifolia* (d), *Rhus pyroides* (d), *Diospyros lycioides*, *Ehretia rigida*, *Grewia flava*

Low shrubs: *Asparagus larycinus* (d), *A suaveolens* (d).

Woody Climber: *Clematis brachiata*.

Succulent Shrub: *Lycium hirsutum* (d)

Graminoids: *Setaria verticillata* (d), *Panicum maximum*

Herb: *Pollichia campestris*

Red beds *Megagraminoids: Phragmites australis* (d)

Flooded grasslands & herblands

Low shrubs: *Gomphocarpus fruticosu* (d), *Felicia muricata*.

Succulent Shrub: *Salsola rabieana*

Graminoids: *Agrostis lachnantha* (d), *Andropogon eucomus* (d), *Chloris virgate* (d), *Cynodon dactylon* (d), *Eragrostis plana* (d), *Hemarthria altissima* (d), *Imperata cylindrca* (d), *Ischaemum fasciculatum* (d), *Micanthus junceus* (d), *Paspalum distichum* (d), *Andropogon appendiculatus*, *Brachiaria marlothii*, *Cyperus denudatus*, *C. longus*, *Echinochloa holubii*, *Eragrostis odtusa*, *E. porosa*, *Firmbristylis ferruginea*, *Panicum coloratum*, *Pycreus mundii*, *Sporobolus africanus*, *S. fimbriatus*, *Themeda trianda*, *Urochloa panicoides*

Herbs: *Parsicaria lapathifolia* (d), *Alternanthera sessilis*, *Baleria macrostegia*, *Corchorus asplenifolius*, *Equisetum ramosissimu*, *Galium capens*, *Hibiscus pusillus*, *Lobelia angolensis*, *Nidorella resedifolia*, *Persicaria amphibian*, *P. hystricula*, *Pseudognaphalium oligandrum*, *Pulicaria scabra*, *Rorippa fluviatilis* var. *fluviatilis*, *Senecio inornatus*, *Stachys hyssopoides*, *Vahlia capensis*

Geophytic Herbs: *Crinum bulbispermum*, *Haplocarpha lyrata*,

Open water Aquatic Herb: *Myriophyllum spicatum*

This has a conservation which is Least threatened with a 31% target. Nearly 10% statutorily conserved in Barberspan, Bloemhof dam, Christiana, Faan Mentjies, Sandveld, Schoonspruit, Soetdoringand Wolwespruit Nature Reserves. More than a quarter has been transformed for cultivation and by building of dams. These areas are prone to invasion by a number of weeds, encouraged by the high nutrient status of soils and ample water supply. The undergrowth of the alluvial riparian thickets and the accompanying grasslands suffer from heavy overgrazing in many places (Mucina and Rutherford, 2006:640).

Protected Areas

According to the data for the protected areas the different portions of the farm Slypklip South Estate 36, do not fall within any protected area.

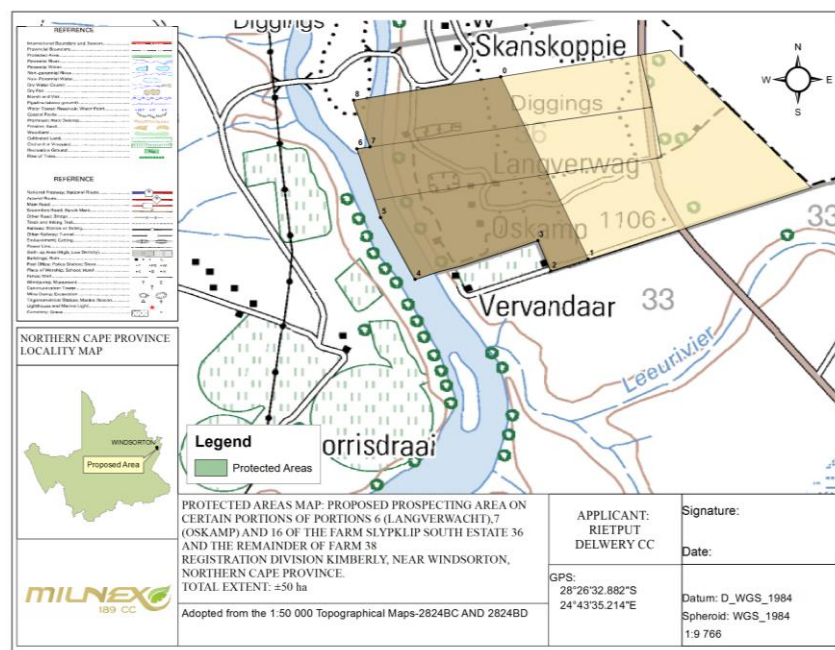


Figure 2: Protected Areas Map

Critical Biodiversity Area

According to B-GIS "Critical biodiversity areas (CBAs) are areas of the landscape that need to be maintained in a natural or near-natural state in order to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services", therefore the purpose of CBA's is simply to indicate spatially the location of critical or important areas for biodiversity in the landscape.

According to the figure 3, these are the only local municipalities which have CBA maps. Thus there is no CBD for Magareng Local Municipality within whose jurisdiction the proposed prospecting right falls. However, according to figure 4, Magareng Local Municipality does not fall within any critical endangered terrestrial ecosystems.

LUDS Map: Namakwa District Critical Biodiversity Areas (CBAs) cover the municipalities of the Namakwa District which are Richtersveld (NC061), Nama Khoi (NC062), Kamiesberg (NC064), Hantam (NC065), Karoo Hoogland (NC066) and KhGi-Ma (NC067) - [go to map page](#)

Figure 3: Municipalities which have CBD maps.

Biodiversity Summary - Magareng Municipality

Size of municipality	154163.1ha
Areas remaining natural	137516.1ha (89.2%)
Areas where no natural habitat remains	16646.6ha (10.8%)

Protected areas

Land-based protected areas (formal)	None
-------------------------------------	------

Terrestrial Ecosystems

Biomes	Savanna 154163ha
--------	------------------

Vegetation Types	4
------------------	---

Threatened Terrestrial Ecosystems

<i>Critically endangered</i>	None
------------------------------	------

<i>Endangered</i>	None
-------------------	------

<i>Vulnerable</i>	None
-------------------	------

Figure 4: Biodiversity Summary for Dikgatlong Local Municipality

Recommendations

- The EAP shall be notified should the occurrence of the tree, *Acacia erioloba*, or any other valuable Flora specie be identified. If the EAP finds that the prospecting activities will have an impact on such a tree(s)/flora specie or that the tree/flora specie needs to be removed, the needed permit will be applied for.
- Vegetation clearance, if any, should be kept to the minimum required for the operation.

The EAP herewith confirms the correctness of the information provided in this report.



Signature of the EAP: Danie Labuschagne

Date: 12/05/2016