

# Ecological Desktop Study

The proposed Diamonds Alluvial & Diamonds General Prospecting Right near Windsorton on Portion 1 (Slypklip Siding), Portion 2 (Middelpunt), Portion 3 (Braklaagte), Portion 8 and Portion 9 of the farm Slypklip South Estate 36, the Remaining Extent of Portion 4 (Eiland Hoek), Portion 5 (Gras Vlakte), Portion 6 (Vervanhier), Portion 10 and Portion 11 (Portion Of Portion 11) of the farm Slypklip South 33, and the farm Morgenzon 35 (Previous Parcel No. 199), Registration Division: Kimberley, Northern Cape Province.

Reference No. : NC30/5/1/1/2/11880PR

Prepared by

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## Introduction

Milnex 189 CC was contracted by Vincent John Lewis as the independent environmental consultant to undertake the Ecological Desktop Study for the Environmental Impact Assessment process for a Prospecting Right of Diamonds Alluvial & Diamonds General, located approximately 15km South East of Windsorton in the Northern Cape Province on Portion 1 (Slypklip Siding), Portion 2 (Middelpunt), Portion 3 (Braklaagte), Portion 8 and Portion 9 of the farm Slypklip South Estate 36, the Remaining Extent of Portion 4 (Eiland Hoek), Portion 5 (Gras Vlakte), Portion 6 (Vervanhier), Portion 10 and Portion 11 (Portion Of Portion 11) of the farm Slypklip South 33, and the farm Morgenzon 35 (Previous Parcel No. 199), Registration Division: Kimberley. Milnex 189 CC is a specialist environmental consultancy with extensive experience in the mining 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 mining field held by its team that has been actively involved in undertaking environmental studies for a wide variety of mining related projects throughout South Africa. The Milnex 189 CC team has considerable experience in environmental impact assessment and environmental management, especially in the mining 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 mining 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.

It should be noted that the status of these vegetation may have changed as the data used from Mucina and Rutherford (2006) is 10 years old.



### **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: *Eragrostis 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*, *Piранthus 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*.

### 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 laricinus* (d), *A suaveolens* (d).

Woody Climber: *Clematis brachiate*.

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 cylindrica* (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 fluviatililis* var. *fluviatililis*, *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 protected areas, no portion fall within a Formally Protected Area, nor Threatened Ecosystems.

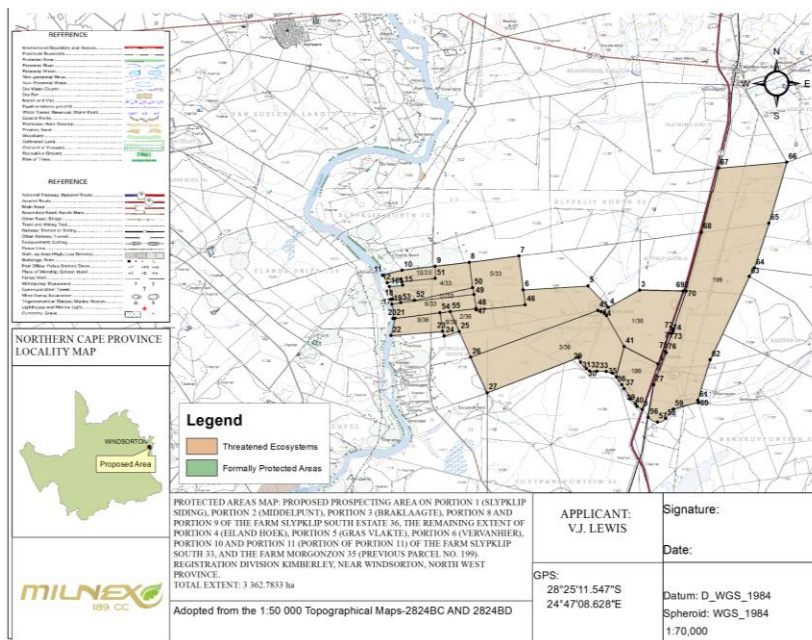






Figure 2: Protected Areas Map

### 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, the Namakwa District is the only district municipalities which have CBA maps in the Northern Cape. Thus, there is no CBD for Frances Baard District Municipality within whose jurisdiction the proposed mining right application falls.

Name	Description	Projects	Data Partner	Province
Namakwa District Aquatic CBAs <a href="#">View Spatial Dataset »</a>	Namakwa District critical biodiversity assessment aquatic polygons	☑ Projects(1)	Botanical Society of South Africa 	Northern Cape 
Namakwa District Terrestrial CBAs <a href="#">View Spatial Dataset »</a>	Namakwa District critical biodiversity assessment terrestrial polygons.	☑ Projects(1)	Botanical Society of South Africa 	Northern Cape 

Showing 1 to 2 of 2 entries (filtered from 463 total entries)

Previous **1** Next

Figure 3: Critical Biodiversity Areas Map.







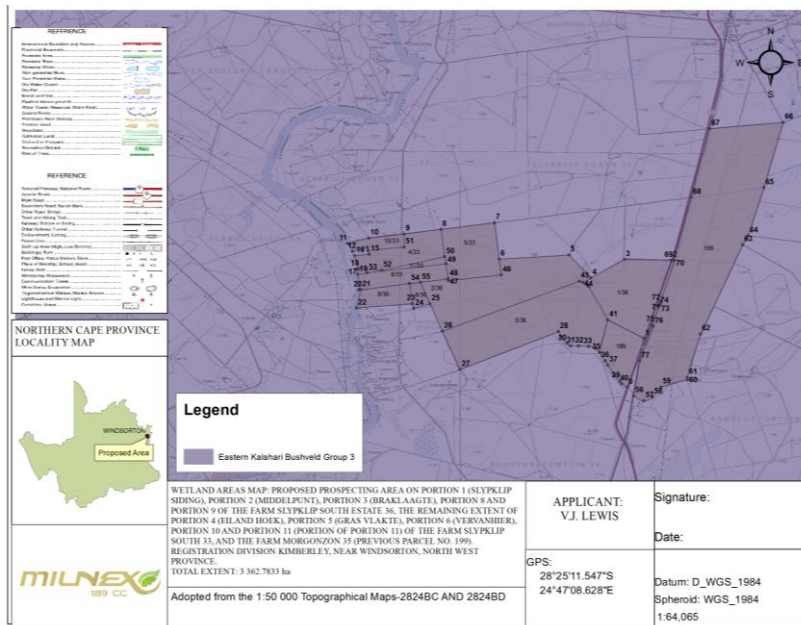


Figure 6: Wetland vegetation type on the proposed site.

### River Ecosystem Status

The status of the river in question is largely modified (Class D) in this area. The figure below depicts the river ecosystem status

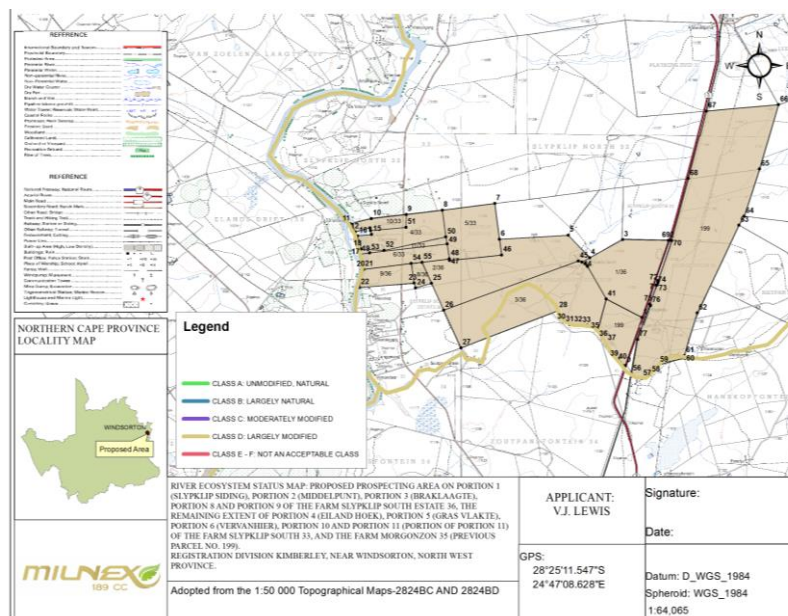


Figure 5: River Ecosystem Status

### **Recommendations**

- Protected trees and plants shall not be removed or damaged without prior approval and permits or licenses from the relevant authority.
- 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.

A handwritten signature in black ink, appearing to read 'Danie Labuschagne', written in a cursive style.

Signature of the EAP: Danie Labuschagne

Date: 02/11/2016