

ECOLOGICAL SCAN

(Feasibility study)

FOR THE PROPOSED DEVELOPMENT
ON KLIPRIVIERSBERG

v.2



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TABLE OF CONTENTS

INDEMNITY AND CONDITIONS RELATING TO THIS REPORT	II
COPYRIGHT	III
TABLE OF CONTENTS	IV
LIST OF FIGURES	IV
1 INTRODUCTION AND TERMS OF REFERENCE.....	1
1.1 Terms of Reference.....	1
1.2 Site Description	1
1.3 Current Land Use	2
2 SCOPE OF WORK	3
3 METHODS OF INVESTIGATION	3
4 RESULTS AND DISCUSSION	3
4.1 Literature Review	3
4.1.1 Veld Type of Property.....	3
4.1.2 Geology and Soils	4
4.2 Ecological Assessment.....	4
4.2.1 Floral Assessment.....	4
4.2.2 Faunal assessment	5
4.2.3 Sensitivity of the Site	5
4.2.3.1 Sensitivity Analysis.....	5
4.2.3.2 Sensitivity Mapping	6
5 CONCLUSIONS	7
6 RECOMMENDATIONS.....	8
APPENDIX A – SPECIALIST QUALIFICATIONS	10
APPENDIX B - GDACE CORRESPONDENCE	11

LIST OF FIGURES

Figure 1: Locality of the property – black thick set. Google Earth (http://earth.google.com , 2009).	2
Figure 2: Ecological sensitivity as determined for each proposed development Google Earth (http://earth.google.com , 2009).	7

1 INTRODUCTION AND TERMS OF REFERENCE

1.1 *Terms of Reference*

Greenline Environmental Consulting was requested to attend to a Baseline Floral and Faunal Assessment on Erf 1202 South Hills, Holding 88 Klipriviersberg Estate and Portion 65 of the farm Klipriviersberg 106 I.R. The aim is to determine the sensitivity of the site in relation to the proposed development and to establish whether specific specialist studies are required, as indicated by the Gauteng Department of Agriculture and Rural Development (GDARD), for the following (Refer to Appendix B):

1. Vegetation
2. Wetlands
3. Ridges

1.2 *Site Description*

Erf 1202 South Hills, Holding 88 Klipriviersberg Estate and Portion 65 of the farm Klipriviersberg 106 I.R is situated in Johannesburg and is accessed from the N17 Highway, turning into Vickers and Southern Klipriviersberg road. The site is approximately 204 hectares in extent. Figure 1 indicates the locality of the property in black thick set.



Figure 1: Locality of the property – black thick set. Google Earth (<http://earth.google.com>, 2009).

1.3 Current Land Use

The area whereupon the development is proposed, is currently an open space. Some sections of the proposed site are used by football clubs, Pikitup waste removal site and the Linhill Water Reserve South Hills Reservoir. Informal settlements and vagrants are situated in the proximity of the Riparian system.

2 SCOPE OF WORK

The Scope of Work encompasses an ecological scan of the property that would be affected by the proposed development. The Ecological Sensitivity of the site in general is to be assessed.

3 METHODS OF INVESTIGATION

General information on the veld type, geology and soils and current activity on the site was acquired prior to the field assessment of the property. A literature review on the faunal and floral species was conducted prior to the field assessment to gain a thorough understanding of the habitat type occupied by these species, as well as their identification in the field.

A general ecological assessment was conducted on the property during a site visit in September 2009. An investigation was undertaken by a team of specialists (Refer to Appendix A for project team details) to determine the ecological sensitivity of the site. Any important observations were noted and photographic records were taken.

4 RESULTS AND DISCUSSION

4.1 Literature Review

4.1.1 Veld Type of Property

The North West section of the property earmarked for development and the surrounding area falls within the Mesic Highveld Grassland bioregion of the Grassland biome, with the dominant vegetation type being *Soweto Highveld Grassland* (Mucina *et al.* 2005). This vegetation type was mapped as Bankenveld (veld type 61) (Acocks 1988) and Rocky Highveld Grassland (Vegetation Type 34) (Bredenkamp & Van Rooyen 1996).

Soweto Highveld Grassland occurs on moderately undulating landscapes on the Highveld plateau supporting short to medium-high, dense, tufted grassland dominated almost entirely by *Themeda triandra* and accompanied by a variety of other grasses such as *Elionurus muticus*, *Eragrostis racemosa*, *Heteropogon contortus* and *Tristachya leucothrix* (Mucina &

Rutherford 2004). In places not disturbed, only scattered small wetlands, narrow stream alluvia, pans and occasional ridges or rocky outcrops interrupt the continuous grassland cover.

The Southern section of the property and surrounding areas falls with the Central Bushveld bioregion of the Savanna Biome, with the dominant vegetation type being *Andesite Mountain Bushveld* (Mucina and Rutherford. 2006). This vegetation type was mapped as Bankenveld (veld type 61) (Acocks 1988), Moist cool highveld grassland (veld type 39) and Rocky Highveld Grassland (Vegetation Type 34) (Bredenkamp & Van Rooyen 1996).

Andesite Mountain Bushveld occurs in dense, medium-tall thorny bushveld with well-developed grass layers on hill slopes and some valleys with undulating landscapes.

4.1.2 Geology and Soils

The geology of *Soweto Highveld Grassland* is dominated by Shale, sandstone or mudstone of the Madzaringwe Formation (Karoo Supergroup) or the intrusive Karoo Suite dolerites which feature prominently in the area. In the south, the Volksrust Formation (Karoo Supergroup) is found and in the west, the rocks of older Transvaal, Ventersdorp and Witwatersrand Supergroups are most significant. Soils are deep, reddish on flat plains (Mucina & Rutherford 2006).

The geology of *Andesite Mountain Bushveld* is dominated by Tholeitic basalt of the Klipriviersberg Group, also dark shale, micaceous sandstone and siltstone and thin coal seams of the Madzaringwe Formatio. Weathering of these rocks gives rise to shallow, rocky, clayey soils of mainly Mishap and Glenrosa soil forms (Mucina & Rutherford 2006).

4.2 Ecological Assessment

The field assessment was undertaken in September 2009 in order to determine the current ecological sensitivity of the proposed development site.

4.2.1 Floral Assessment

The field assessment was undertaken in September 2009 in order to determine the current ecological sensitivity of the vegetation of the proposed development site. The proposed site was divided into five different communities, according to the vegetation type. The five

communities are (1) grassland, (2) rocky outcrops, (3) riparian system, (4) transformed areas and (5) areas of exotic species.

1. The grassland community was dominated by species such as *Hyparrhenia hirta*; and *Eragrostis curvula*. Dominant forbs species that were noted during the scan were *Ledebouria ovatifolia*; *Bidens pilosa*; *Helichrysum* species and *Verbena bonariensis*.
2. The rocky outcrops community contained species such as sensitive species such as *Ledebouria ovatifolia*; *Milinis repens*, *Khandia acutipetala* and *Becium obovatum*
3. The Riparian system contained mostly exotic and invader species such as *Eucalyptus* sp. and *Acacia mearnsii*. Other wetland species occurring in close proximity includes *Imperata cylindrica* and *Typha capensis*.
4. The transformed areas included football clubs, Pikitup waste disposal, Linhill Water Reserve and land used for agricultural purposes.
5. The community classified with exotic species included species such as *Stoebe vulgare*, *Eucalyptus* sp., *Acacia mearnsii* and *Tagetes minuta*

The feasibility study was done before the rain season. Thus the list of dominant floral species is by no means an indication of the vegetation diversity present on the site. Other species and more important, RDL species could be present on the site.

4.2.2 Faunal assessment

A desktop study was conducted for the proposed site. Small mammal droppings and skulls were found during the site visit. Bird species such as Blackheaded Heron and Blacksmith Plover were noted. Possible spider holes were noted in the rocky outcrops areas.

4.2.3 Sensitivity of the Site

4.2.3.1 Sensitivity Analysis

The Rocky outcrops are considered to *sensitive* areas since it is a habitat for possible Red Data Listed (RDL) species and other small mammals, reptiles and invertebrates. Most of the rocky outcrops are still intact and undisturbed. The Riparian system is also considered to be a *sensitive* area, since it still has a functionality (refer to Wetland delineation report).

The grassland community is considered to be *medium sensitive*. A thorough investigation is required to identify the vegetation diversity. It is possible that RDL species can occur in this community.

Sections of the proposed development site are encroached with exotic and invader species. These exotica and invader species cause a decrease in sensitivity value, thus making it *not sensitive*. The transformed areas are considered to be *not sensitive* because of the degraded state and transformation of the site.

4.2.3.2 Sensitivity Mapping

Figure 2 indicates the ecological sensitivity of the rocky outcrops community of the study site. The sensitivity is illustrated as follows:

- Orange: Medium sensitivity
- Red: High sensitivity
- Blue: Riparian zone boundary

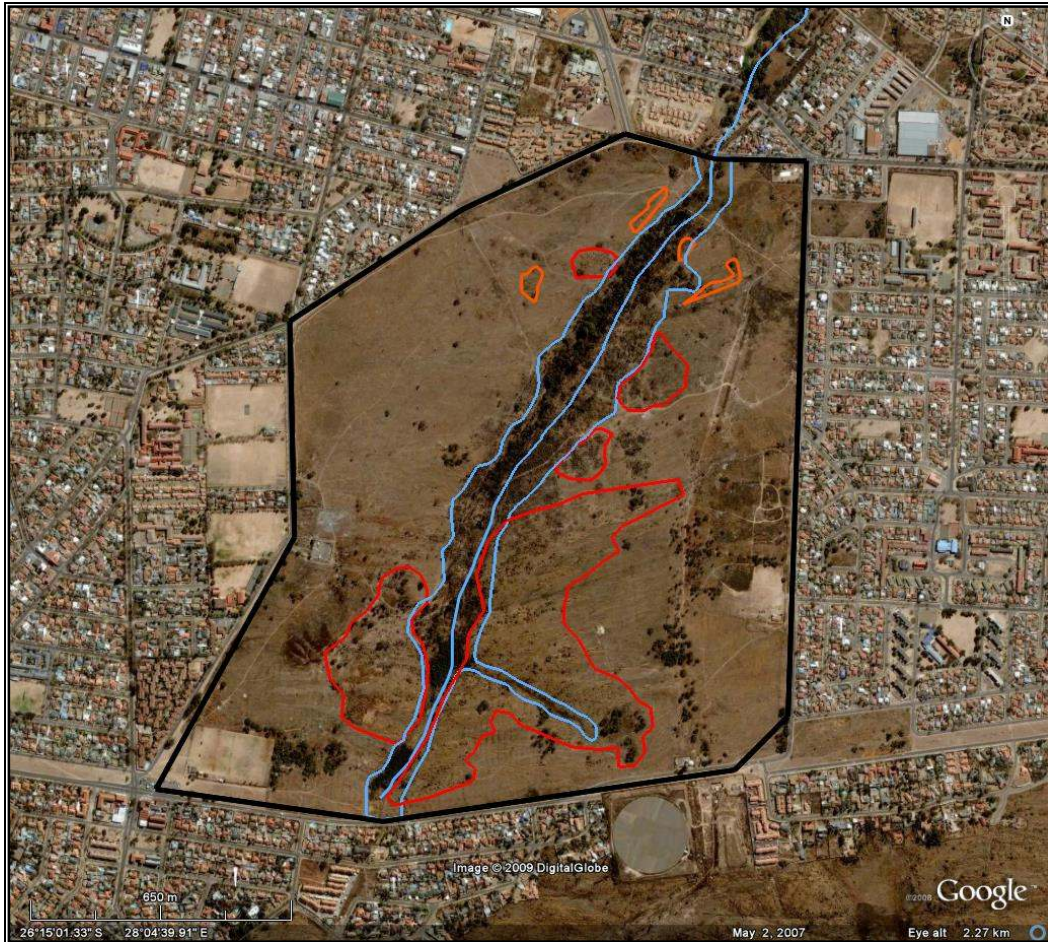


Figure 2: Ecological sensitivity as determined for each proposed development Google Earth (<http://earth.google.com>, 2009).

**Manual digitizing – accuracy not warranted*

5 CONCLUSIONS

- An Ecological scan was completed as requested by GDARD and the findings are as follows:
 - The Rocky outcrops are considered to *sensitive* areas since it is a habitat for possible Red Data Listed (RDL) species and other small mammals, reptiles and invertebrates. Most of the rocky outcrops are still intact and undisturbed.

6 RECOMMENDATIONS

- A full Biodiversity assessment is required to determine the occurrence of any Red Data Listed (RDL) species.
- A riparian and wetland delineation is required.

6 REFERENCES

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APPENDIX A – SPECIALIST QUALIFICATIONS

Table A1: Specialists consulted for this ecological assessment and their qualifications

ASPECT INVESTIGATED	SPECIALIST	QUALIFICATION	DATE OF FIELD SURVEYS
Vegetation, mammal and invertebrate assessments	N. Bezuidenhout (Assessor)	M.Sc. Botany B.Sc. Hons. Botany B.Sc. Botany and Zoology	September 2009
Wetland and River delineation, mammal and invertebrate assessments	D. Botha (Assessor and overseer)	DWAF accredited Wetland course M.A. Environmental Management B.A. Hons. Geography & Environmental Management, B.A. Humanities Post Higher Education Diploma Soil Classification and Wetland Delineation – TERRASOIL Science	September 2009
Wetland and River delineation, mammal and invertebrate assessments	T. Slabbert (Assessor and overseer)	M.A. Environmental Management B.A. Hons. Geography & Environmental Management, B.A. Humanities Post Higher Education Diploma Soil Classification and Wetland Delineation – TERRASOIL Science	September 2009

APPENDIX B - GDACE CORRESPONDENCE

With regard to the above project, specialist biodiversity studies are required to investigate the following aspects:

1. Vegetation
2. Wetlands
3. Ridges

Please note that this information is relevant solely for the study site specified in your request. Red/Orange List species information relevant to a wider geographic area can be obtained from Lorraine Mills (Lorraine.Mills@gauteng.gov.za).

All specialist studies must comply with GDACE Requirements for Biodiversity Assessments. The most recent version of this document (currently version 2) can be obtained by e-mailing GDACE_BiodiversityInfo@gauteng.gov.za or can be downloaded from www.gdace.gpg.gov.za.

Should the environmental assessment practitioner be of the opinion that any of the above specialist studies are unnecessary for the site/activity in question, then an ecologically-based motivation justifying why the studies are deemed unnecessary must be submitted to GDACE as part of the application. This submission will be evaluated and either accepted or returned to the applicant for the completion of the necessary studies.