TERRESTRIAL ECOLOGICAL REPORT FOR A PROPOSED PROSPECTING APPLICATION ON FARM 124 KURUMAN, NORTHERN CAPE PROVINCE

CLIENT: MCHROME

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DECLARATION OF CONSULTANTS INDEPENDENCE

I Kennedy Lesetja Morulane hereby declares:

- act as the independent specialist in this application; regard the information contained in this report as it relates to my specialist input/study to be true and correct, and do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act;
- have and will not have any vested interest in the proposed activity proceeding; have disclosed, to the applicant, EAP and competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act;
- am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations, 2014 (specifically in terms of regulation 13 of GN No. R. 326) and any specific environmental management Act, and that failure to comply with these requirements may constitute and result in disqualification;
- have provided the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not; and
- am aware that a false declaration is an offense in terms of regulation 48 of GN No. R. 326.

Conditions relating to the report:

Findings, recommendations, and conclusions provided in this report are based on the authors best scientific and professional knowledge and information available at the time of compilation. No form of this report may be amended or extended without the prior written consent of the author. Any recommendations, statements or conclusions drawn from or based on this report must clearly cite or make reference to this report. Whenever such recommendations, statements or conclusions form part of the main report relating to the current investigation, this report must be included in its entirety.

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1 INTRODUCTION

1.1 Background information

NAG Consulting was appointed to conduct a terrestrial ecological and impact assessment for the Basic Assessment Report (BAR) process in support of a Prospecting Right application (PR). The survey primarily focussed on the development footprint area, referred to as the project area herein. Furthermore, the identification and description of any sensitive receptors were recorded across the project area, and the manner in which these sensitive receptors may be affected by the activity was also investigated.

1.2 Project Area

Farm 124 is situated 35 km west of Kuruman in the Northern Cape Province. The application is for the development of six prospecting drill sites, six trenches and one access road. The infrastructure for the proposed development will only impact on a small portion of the overall PRA area.

1.3 Scope of Work

The terms of reference (TOR) for this study are as follows:

- Produce a baseline analysis of the botanical characteristics of the study area as a whole.
- This report should clearly indicate any constraints that would need to be taken into account in considering the development proposals further.
- The baseline report must include a map of the identified sensitive areas as well as indications of important constraints on the property.
- Describe what is the significance of the potential impact of the proposed project – with and without mitigation – on biodiversity pattern and process at the site, landscape, and regional scales.
- Recommend actions that should be taken to prevent or mitigate impacts. Indicated how these should be scheduled to ensure long-term protection, management and restoration of affected ecosystems and biodiversity.

1.4 Limitations

The following limitations should be noted for the study:

- As per the scope of work, the fieldwork component of the assessment comprised of two site assessment only, thus the study has not assessed any temporal trends for the respective seasons;
- The proposed PR and environmental authorisation, is only applicable to the areas and impacts outlined in this report. If the prospecting finds economically feasible and mineable resources, a mining right application will need to be applied for and a full environmental impact assessment will need to be conducted;
- The assessment was based on the results of a one season survey only, and information provided should be interpreted accordingly;
- Field assessments were completed to assess as much of the site as possible with focus on the proposed directly impacted.

2. STUDY AREA

2.1. LOCATION & LAYOUT

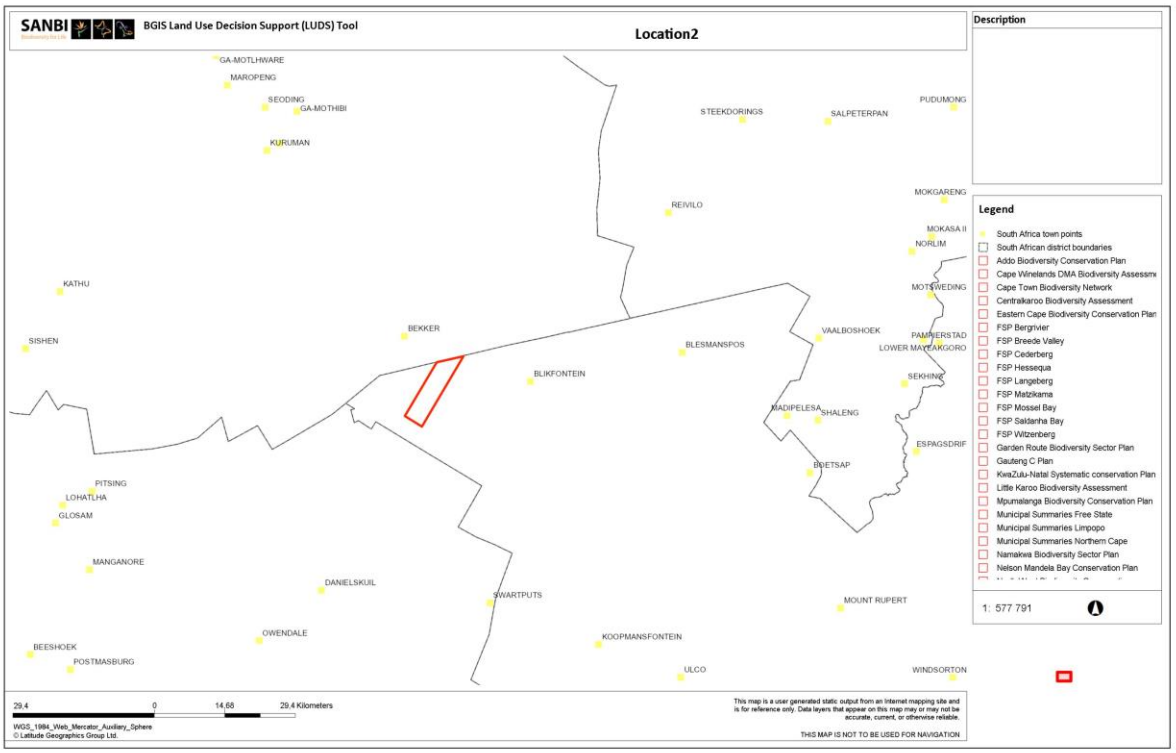

Figure 1: Location of the study site in relation to major town.

2.2. TOPOGRAPHY, GEOLOGY AND SOILS

According to the Mucina & Rutherford (2006), the geology and soils can be described as Campbell Group dolomite and chert and mostly younger, superficial Kalahari Group sediments, with red wind-blown sand. Locally rocky pavements are formed in places. Exposed rock, believed to be exposed Campbell Rand carbonate bedrocks were observed in between deeper sandy soils (Almond, 2019). The soils are generally described as red well-drained sandy soils with a high base status.

3. METHODOLOGY

3.1 Assessment Approach and Philosophy

The study includes data searches, desktop studies, site walkovers/field survey of the proposed site location and baseline data collection, describing:

The broad vegetation characteristics of the site and its surrounds in terms of any mapped spatial components of ecological processes and/or patchiness, patch size, relative isolation of patches, connectivity, corridors, disturbance regimes, ecotones, buffering, viability, etc. The site visits also sought to identify possible impacts of the proposed development, and its impact on the surrounding ecological environment.

In addition to the site visit, key resources that were consulted include the following:

- Published scientific literature.
- National Biodiversity Management: Biodiversity Act (NEMBA) List of Threatened or Protected Species;
- National Biodiversity Management: Biodiversity Act (NEMBA) List of Alien Invasive Vegetation; and National Biodiversity Assessment (SANBI, 2018);
- National Environmental Management: Biodiversity Act (NEMBA), 2004: List of Threatened Ecosystems (2011);
- National Protected Areas Expansion Strategy (NPAES,2010);
- South African Vegetation Map (Mucina and Rutherford, 2018);
- Northern Cape Biodiversity Conservation Plan

3.2 Field Sampling Methods & Assessment (Terrestrial Fauna & Flora)

A detailed field survey of the site for the development footprint was undertaken (on the 12th August 2023 and 29th August 2023). A stratified random sampling approach was developed to evaluate the existing desktop interpretations observed from aerial imagery of the study area and make detailed information on the variations. The method considered the duration available for the study, the accessibility of different parts of the area, and opportunity such as the seasonality of the vegetation.

The stratification of the site was influenced by general appearance of the vegetation, such as the presence of visible species or vegetation structure. These factors may be largely independent of the floristic make-up of the vegetation, and by definition the biological communities present. Sample plots were analysed by determining the species presence in each plot, as well as recording any alien invasive species and potential SCC occurring within the plots:

- Inspecting the various habitat, vegetation and landscape units that are present and correlate such observations with the results of the desktop study.
- Identifying all observed species that were recorded within the development footprint.
- Providing a list of protected and red list species.

3.3 Fauna Survey

The faunal desktop assessment included the following:

- Compilation of expected species lists;
- Compilation of identified species lists;
- Identification of any Red Data or species of conservation concern (SCC) present or potentially occurring in the area; and
- Emphasis was placed on the probability of occurrence of species of provincial, national and international conservation importance.
- The field survey component of the study utilised a variety of sampling techniques including, but not limited to, the following:
- Visual observations;
- Identification of tracks and signs; and

  Utilization of local knowledge.

3.4 Habitat Unit Sensitivity Analysis

Habitat sensitivity was determined by subjectively assessing the ecological integrity/vulnerability and conservation importance/irreplaceability of identified habitat units in the study area, based on the results of the field programme and on information gathered during the literature review.

Table 2: Rating of habitat sensitivity

Ranking	Ecological Integrity/Vulnerability	Conservation Importance / Irreplaceability
HIGH	Habitats of high ecological integrity have compositional, structural and functional characteristics that are close to the natural/sustainable state (i.e. reference conditions). As such, they have a combination of the following attributes: • Key flora and faunal indictors are present or • highly likely to be present. • Large habitat patch that is mostly non-fragmented and has a high level of connectivity to adjacent natural habitat patches. • Has little to no evidence of anthropogenic • disturbances (pollution, earth works, etc.). • Little or no alien invasive species establishment	Habitats of high conservation importance or irreplaceability have one or a combination of the following attributes: • Pristine or relatively undisturbed habitat displaying high species richness. • Areas playing an important functional role in ecological processes at a landscape scale (e.g. high levels of connectivity, source patches, water attenuation, etc.). • Niche or relatively rare/unique habitat within the landscape which contributes to overall habitat heterogeneity. • Areas designated by provincial or national authorities as of high conservation importance, sensitivity or irreplaceability. • Areas with confirmed presence or high probability of occurrence of Red List and/or protected species.
MODERATE	Habitats of moderate ecological integrity have a combination of the following attributes: • Moderate levels of anthropogenic disturbance. • Despite disturbances, habitat maintains much of the same functional attributes as areas in a natural/sustainable state.	Habitats of moderate conservation importance have a combination of the following attributes: • Intermediate levels of species richness. • No or low probability of Red List and/or protected species as determined by critical habitat assessments. • Disturbed areas that are situated adjacent to habitat of high ecological integrity and/or conservation importance and therefore may play a role as an ecological support area
LOW	Habitats of low ecological integrity have a combination of the following attributes: • Severely modified from natural state as a consequence of anthropogenic activities, with poor species richness and all or most key flora and fauna indicators absent. • Highly fragmented areas, with little or no connectivity to adjacent natural habitat. • High incidence of alien species establishment. • Successful rehabilitation may restore some degree of habitat integrity.	Habitats of low conservation importance are typically transformed or highly disturbed, with little or no ecological integrity. • Species poor areas and in their current form play little role in ecological processes and thus cannot contribute toward biodiversity conservation.
VERY LOW	Completely transformed or developed areas with no natural habitat remaining and no scope for rehabilitation.	Completely transformed or developed areas with no natural habitat remaining and no scope for rehabilitation

3.5. Impact Assessment & Mitigation

To ensure a balanced and objective approach to assessing the significance of potential impacts, a standardized rating scale was adopted which allows for the direct comparison of specialist studies. This rating scale has been developed in accordance with the requirements outlined in Appendix 1 of the NEMA EIA Regulations (2014 and subsequent 2017 amendments).

4. BASELINE ECOLOGICAL CHARACTERISATION.

4.1 Vegetation of the study area

Ghaap Plateau Vaalbosveld is found in the Northern Cape and North-West Provinces on the flat plateau from around Campbell in the south, east of Danielskuil through Reivilo to around Vryburg in the north on altitudes varying from 1 100 -1 500 m (Mucina & Rutherford, 2006).

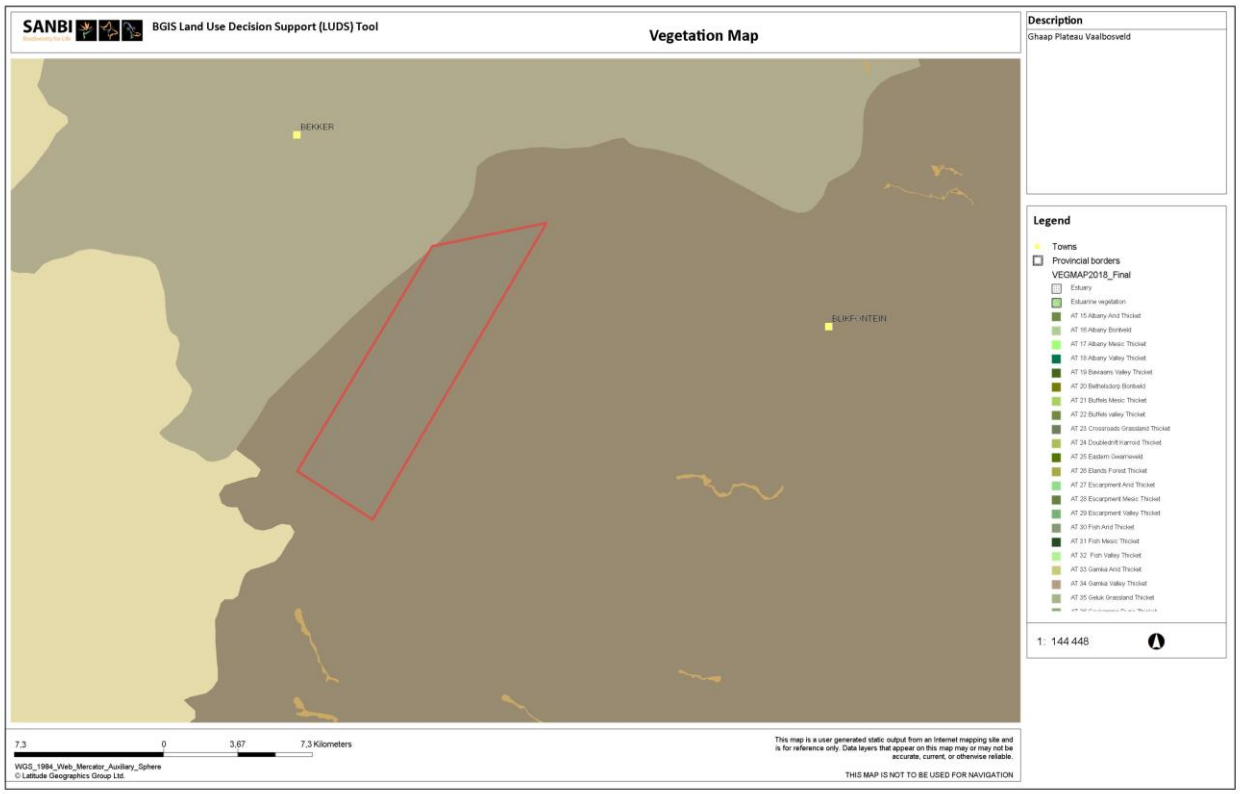

Figure 3: Study area in relation to the vegetation types (Mucina & Rutherford (2006).

Ghaap Plateau Vaalbosveld is described as flat plateau with well-developed shrub layer with *Tarchonanthus camphoratus and Vachellia Karroo* and a tree layer with *Olea europaea subsp. africana, Vachellia tortilis, Ziziphus mucronata and Searsia lancea.* According to Mucina & Rutherford (2006) *Olea* are more important in the southern parts of the unit, while *Vachellia tortilis,* Vachellia hebeclada and *Vachellia mellifera* are more important in the north and part of the west of the unit, while much of the central parts of this unit have remarkably low cover of Vachellia species for an arid savannah and is dominated by the non-thorny *Tarchonanthus camphoratus*, Searsia *lancea* and *Olea europaea* subsp. *africana*. Acocks (1953) described this vegetation as Kalahari Thornveld and Shrub Bushveld while Low & Rebelo (1996) described this vegetation as Kalahari Plateau

Bushveld.

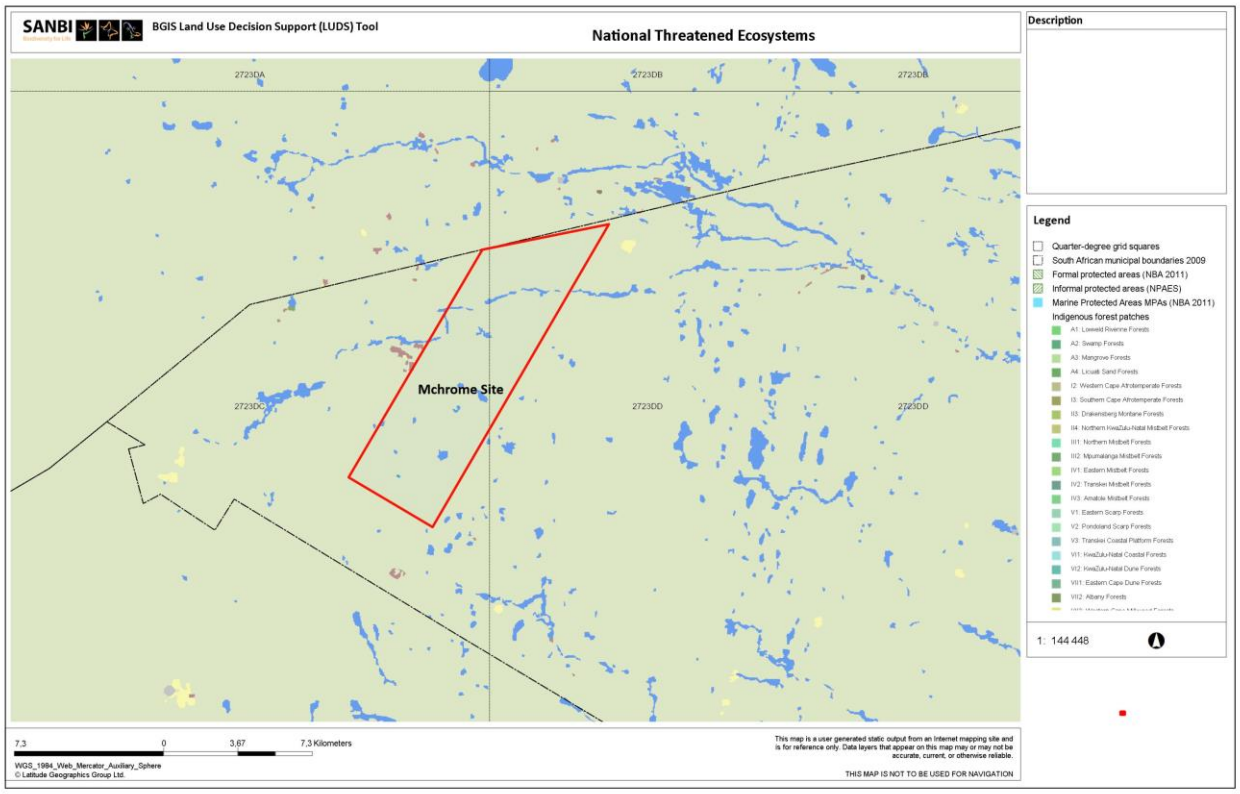

Figure 4: Ecosystem threat status of the area

Small trees: Vachellia mellifera subsp. detinens,Searsialancea, Vachellia karroo, Vachellia tortilis subsp. heteracantha and Boscia albitrunca. Tall shrubs: Olea europaea subsp. africana, Rhigozum trichotomum, Tarchonanthus camphoratus, Diospyros austro-africana, D. pallens, Ehretia rigida subsp. rigida, Euclea crispa, Grewia flava, Gymnosporia buxifolia, Lessertia frutescens andSearsiatridactyla. Low shrubs: Vachellia hebeclada, Aptosimum procumbens, Chrysocoma ciliate, Helichrysum zeyheri, Hermannia comosa, Lantana rugosa, Leucas capensis, Melolobium microphyllum, Peliostomum leucorrhizum, Pentzia globoza, P viridis and Zygophyllum pubescens. Succulent Shrubs: Hertia pallens and Lycium cinereum. Woody climber: Asparagus africanus. Graminoides: Anthephora pubescens, Cenchrus ciliaris, Digitaria eriantha, Enneapogon scoparius, Eragrostis lehmanniana, Schmidtia pappohoroides, Themeda triandra, Aristida adscensionis, A. congesta, A. diffusa, Cymbopogon pospischilii, Enneapogon species, Eragrostis species, Heteropogon species, Sporobolus species Stipagrostis species and Tragus species. Herbs: Barleria macrostegia, Geigeria filifolia, G. ornativa, Gisekia africana, Helichrysum cerastioides, Heliotropium ciliatum, Hibiscus marlothianus, H. pusillus, Jamesbrittenia aurantiaca, Limeum fenestratum, Lippia scaberrima, Selago densiflora, Vahlia capensis and Aloe grandidentata

4.2 National Threatened Ecosystems

Figure 4: Threatened ecosystem status associated the study area

The study area comprises natural habitat partitioned into various farms & are generally very large with active utilization. The most common land use activities are small livestock (goats and sheep) and game farming. Farms are typically enclosed and internally partitioned by fencing, which, most often takes the form of a standard livestock fence (height: 1.5 m) but can take the form of taller game fencing (height: 2.25 - 2.4 m). Farmers manage their respective farms independently and control factors such as inter alia animal stocking rates, species mixes, grazing frequency and intensity, water provision and veld burning (Tainton, 1999).

Although the precise causal factors leading to bush encroachment remain poorly understood (Ward 2005), it is generally agreed that these 'controlled' factors, in conjunction with rainfall and soils, act at varying intensities and combination as to drive and shape vegetation characteristics across the landscape. As such, the ecological drivers from one farm to the next potentially differ, which can result in significant variations in vegetation characteristics between farms and between the different management 'camps' on a single farm.

Figure 5-6: Typical look of how farm settlement look with more trampling effect observed. Notice the invasive Bluegum tree. The above image indicate how each farm is managed as some have moribund and some have little to bare soil.

4.3 Habitat Units

4.3.1 Open Shrubland

This habitat unit characterises the flat an undulating plains of the study area. The underlying soils tend to be deep, reddish brown wind-blown sands, with occasional calcrete extrusions.

Terrestrial vegetation at the site is an open savanna with few trees that are taller than shrub-height. Patches of shrub-height *Diospyros lycioides* subsp. *lycioides* are present in some areas. Other indigenous tree species at the site include *Vachellia hebeclada* subsp. *hebeclada*, *Senegalia mellifera* subsp. *detinens* (Black Thorn), *Ziziphus mucronata* (Buffalo-thorn), *Tarchonanthus camphoratus* (Camphor Bush), *Grewia flava* (Velvet Raisin Bush) and *Searsia lancea* (Karee). *Vachellia erioloba* (Camel Thorn) is sparsely distributed across the site.

The herbaceous layer in this habitat unit is generally well-developed and dominated by grasses. Areas with little herbaceous were noted and these are attributed to heavy grazing. Grasses recorded include a mixture of tall and medium sized species such as *inter alia*, *Aristida adscensionis, Aristida congesta* var. *congesta, Aristida diffusa, Aristida meridionalis, Cenchrus ciliaris, Eragrostis echinochloidea, Eragrostis lehmanniana, Eragrostis pallens, Eragrostis rigidior, Eragrostis trichophora, Fingerhuthia africana, Cymbopogon* sp., *Melinis repens, Pogonarthria squarrosa,*

Schmidtia pappophoroides, Sporobolus fimbriatus, Stipagrostis ciliata, Stipagrostis uniplumis and *Themeda triandra.*

Forbs recorded include amongst others *Barleria* sp.*, Blepharis marginata, Blepharis* sp.*, Boophane disticha, Cleome sp., Cucumis sp., Geigeria ornativa, Gomphocarpus fruticosus, Gomphrena celosioides, Harpagophytum procumbens, Helichrysum aureonitens, Helichrysum zeyheri, Indigofera daleoides, Kyphocarpa angustifolia, Ledebouria sp., Melhania virescens, Nolletia ciliaris, Pentzia calcarea*, *Salsola aphylla, Sarcostemma pearsonii, Selago densiflora, Senna italica, Sida cordifolia, Solanum sp., Tribulus terrestris and Verbesina encelioides.*

Site appears trampled and overgrazed in many areas. Numerous tracks and some diggings are found at the site. Some old dirt roads at the site are deeply eroded. Numbers of livestock i.e. sheep, cattle are likely cause of overgrazing. Site has farming settlements, roads, scraped areas and fences. Various alien invasive weeds are widespread at the site.

4.3.2 Ephemeral Drainage Lines

Several drainage lines are located in the vicinity of Kuruman. They are generally characterised by an open, flat channel, dominated by short grasses and fringed by tall (>5 m) woody vegetation. The transition from tall drainage corridor woody vegetation to dry terrestrial shrubland is generally abrupt. For the most part the drainage lines appear to be ephemeral, and probably only exhibit surface flow after heavy rains. This notwithstanding, flowing surface water was noted along a well-channelled stream that exits Kuruman to the north. The creeping grass *Cynodon dactylon* dominates the vegetation of the inner drainage line corridor. In some areas heavy grazing by cattle, goats and sheep have created very short, grazing lawns.

Woody vegetation forming the woodland fringe includes many of the same species that were noted in adjacent upland areas, such as *Vachellia karroo, Vachellia hebeclada var. hebeclada, Vachellia mellifera, Grewia flava, Searsia lancea, Tarchonanthus camphoratus and Ziziphus mucronata.* Drainage lines in residential areas were generally disturbed and often artificially canalised and used for crop growing. Alien invasive vegetation, such as *Melia azedarach* was common along the canalised portions of the natural drainage lines (Figure 16). The ecological integrity of this habitat unit is low, but considering the role drainage lines have in the landscape their conservation importance is High.

4.4 Species of conservation Concern

Species of conservation importance recorded in the habitat unit include *Vachellia erioloba, Vachellia haematoxylon, Boscia albitrunca* and *Boophane disticha – Vachellia erioloba* were recorded common in this habitat unit throughout the study area.

Four plant species of conservation importance were recorded in the study area during the field survey. Specie *Vachellia erioloba, Boscia albitrunca* and *Vachellia haematoxylon* and the *Boophone disticha.* All three tree species are listed as protected according to the National Forest Act (Act No. 84 of 1998), and *Vachellia erioloba* and *Boophone disticha* are both listed as Declining on the regional IUCN Red List (2009) *Boophone disticha* was recorded at a few localities in the study area with topical plant features largely absent.

As per the South African Biodiversity Institute's BRAHMS database of species recorded in the relevant QDS, an additional three species of conservation importance may potentially occur in the study area.

4.5 Fauna Assessment

4.5.1 Mammals

The presence of mammal species was noted during the field survey, and considering the extent of natural habitat across the entire the study area and surrounding landscape, it is expected that the region has a rich and almost intact mammal assemblage. Species observed during the field survey include Steenbok, Kudu, Aardvark, Yellow Mongoose, Striped polecat, Black-backed Jackal, Porcupine, Springhare and Ground Squirrel. Majority of this species were identified using the track and droppings observed during the sampling and while some were observed from a drive by.

Figure 7: Droppings sighted along the transect of reedbuck

Figure 8: Demolition of Anthills typically this is done by ant eating animals such as the Aardvark.

Figure 9: Evidence based dung of a small cats indicating presence of mammal life

Anecdotal evidence from local land-users also indicates the presence of predators such as Caracal, Brown Hyena, Aardwolf and various ungulates, such as Warthog, Common Duiker Springbok and Red Hartebeest Unlike the Kudu, it was noted that Springbok, Red Hartebeest & Gemsbok are generally part of actively managed populations and are not free range.

4.6 Habitat Sensitivity Mapping

The terms of reference for the project, a sensitivity map is required in order to identify sensitive features in terms of the relevant specialist discipline/s within the project area, especially in reference to the defined prospecting footprint and access road. The sensitivity scores identified during the field survey for the habitat were then visually mapped.

Areas that were classified as having low or very low sensitivities are those areas which were deemed by the specialists to have been most impacted upon and/or were modified from their original condition due to factors such as over-grazing, human activity and/or presence of alien invasive species.

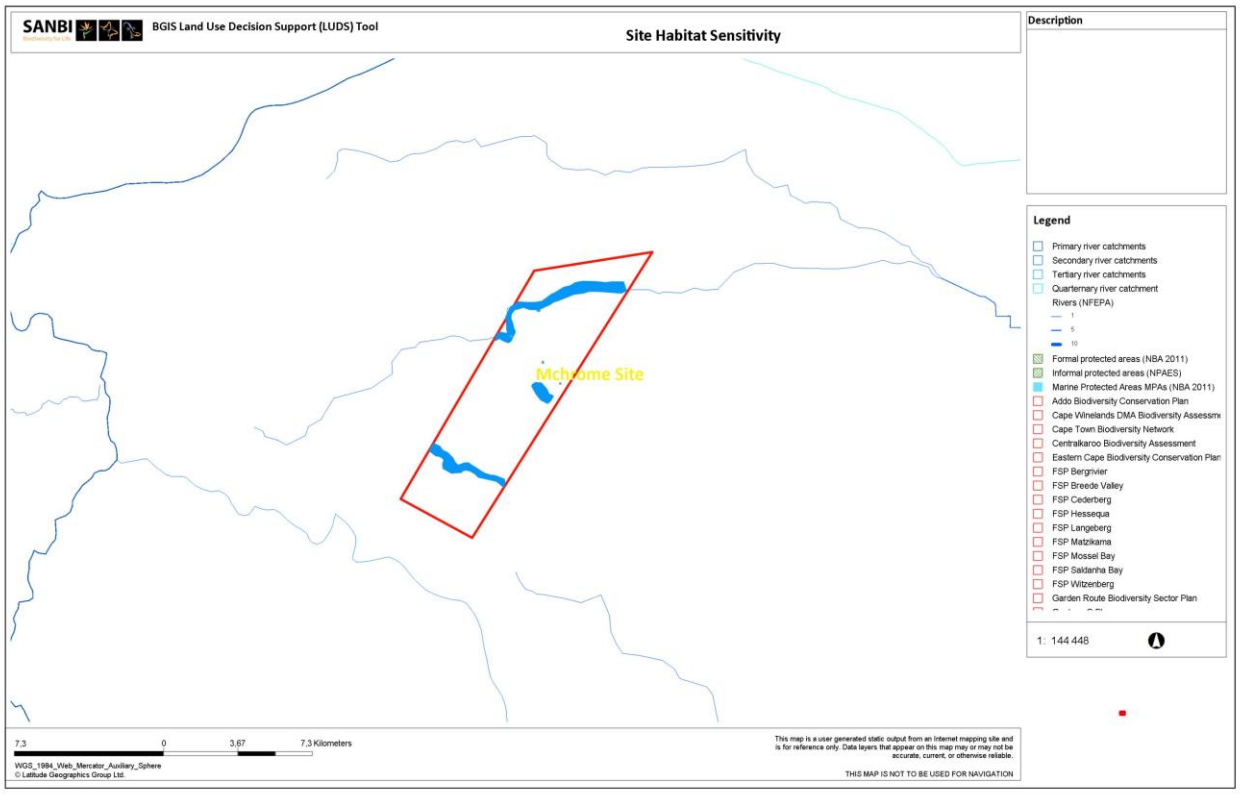

Figure 10: Habitat sensitivity map of the project area

The areas given a very high sensitivity rating

are those areas with existing natural vegetation, are classified as a functional CBA or areas that have the capacity to serve as habitat or important corridors for various species (especially potential SCC).

For this project, the southern portions of the project area, although altered, were given a moderate-high sensitivity rating due to the important role this area functions as from an ecological point (corridor and an ESA).

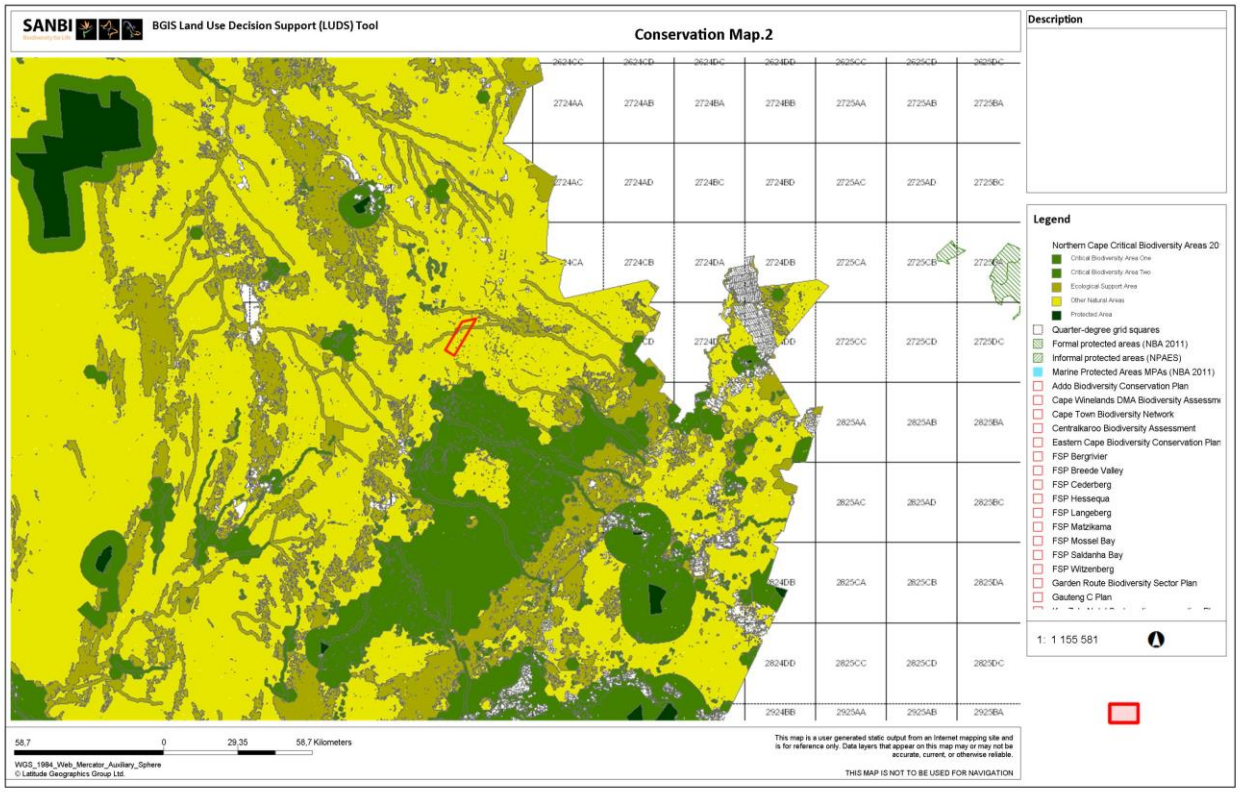

Figure 11: Conservation map of the study area as per NCCBA.

5. IMPACT ASSESSMENT AND MITIGATION MANAGEMENT

5.1 Methodology

Potential impacts were recorded against the data captured during the fieldwork to identify relevance to the project area, specifically the proposed prospecting footprint. The relevant impacts were then subjected to a prescribed impact assessment methodology as prescribed by the standard impact assessment methodology used in the capture of generic anticipated impacts and potential mitigation measures for Basic Assessment Reports and Environmental Impact Assessment (EIA) Reports. The methodology described herein complies with the requirements of the EIA Regulations (2014), promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998).

Impacts were assessed in terms of the construction, operational, decommissioning phases. The operational phase refers to that phase of the project where the prospecting is being conducted and once complete, the decommissioning phase will begin. Mitigation measures were only applied to impacts deemed relevant based on the impact analysis.

Field survey showed and identified current impacts that are having a negative impact on the area:

- Extensive erosion;
- Livestock
- Presence of alien and invasive plant species;

5.2 Identification of Impacts

The proposed development is associated with the prospecting activities, namely the construction of an access road, digging of trenches and boreholes. The proposed construction may result in loss and disturbance of habitats and displacement of fauna and flora.

5.3 Mitigation Measure Objectives

The focus of mitigation measures should be to reduce the significance of potential impacts associated with the prospecting and thereby to:

Prevent further loss and fragmentation of the vegetation community (including portions of a Vulnerable vegetation type and an area classified as Irreplaceable CBA).

Prevent the loss of the faunal community (including potentially occurring species of conservation concern) associated with this vegetation community.

The potential impacts associated with the various prospecting project stages are discussed below.

5.4 Impacts and recommended mitigation measures

Nature of potential impact: Impact of proposed prospecting activities on terrestrial indigenous vegetation and associated mapped terrestrial CBAs and ESAs

Discussion: To prevent any potential direct or indirect detrimental impacts on these remnants mitigation measures as listed must be implemented throughout the proposed prospecting activities.

Cumulative impacts: Erosion, loss of conservation worthy species and natural vegetation habitat during prospecting activities.

Mitigation:

- Clearly demarcate the 8m wide buffer areas proposed as measured from the edge of all remaining indigenous vegetation areas and undertake prospecting activities only in identified and specifically demarcated areas as proposed on completely transformed and cultivated areas.
- Demarcation method to be approved by an Environmental Control Officer (ECO).
- No disturbance should be allowed within the remaining indigenous vegetation areas. This includes no dumping of fill, no roads, and all forms of temporary disturbance.
- No natural vegetation areas edges may be cleared or impacted upon by the proposed prospecting activities.
- The proposed buffer areas to be located within existing cultivated land may only be used as roads and for storm water management and no other activities associated with the proposed prospecting of the site may occur within the buffer areas.
- Implement erosion and storm water runoff management measures as according to EMP requirements to prevent (or if prevention is not possible limit) any erosion from occurring on the prospecting activity areas and surrounds.
- Backfill proposed prospecting trenches and boreholes immediately (same day) with onsite excavated material after samples have been collected.
- Monitor excavated prospecting areas for signs of erosion for at least six months after sampling and implement erosion rectification and prevention measures as and if required.
- Avoid areas mapped as sensitive areas
- Drilling of holes should be done 100 meters away from a stream

Without Mitigation		With Mitigation
Extent	2	1
Duration	3	1
Magnitude	6	2

Probability	4	2
Significance	44 – Medium	8 - Low
Status	Medium Negative	Low Negative Significance
Reversibility	100% Reversible	
Irreplaceable loss of resources	2-Partial loss of resources but can be rehabilitated	100% Reversible
Degree to which impact can be mitigated	1 – Can be completely mitigated	1 – Resource will not be lost

Nature of potential impact: Potential erosion of the site and surrounds due to proposed prospecting activities along steep slopes		
Discussion: Due to the undulating terrain on which the prospecting activities are proposed storm water runoff may cause erosion of the disturbed sites.		
Cumulative impacts: Erosion of the disturbed sites and surrounding environments.		
Mitigation: • Undertake prospecting activities only in identified and specifically demarcated areas as proposed on completely transformed and cultivated areas. • Implement erosion and storm water runoff management measures as according to EMP requirements to prevent (or if prevention is not possible limit) any erosion from occurring on the prospecting activity areas and surrounds. • Backfill proposed prospecting boreholes immediately (same day) with onsite excavated material after samples have been collected. • Monitor excavated prospecting areas for signs of erosion for at least six months after sampling and implement erosion rectification and prevention measures as and if required.		
Without Mitigation	**With Mitigation**	
Extent	2	1
Duration	3	1
Magnitude	6	2
Probability	4	2
Significance	44 – Medium	8 - Low
Status	Medium Negative Significance without Mitigation	Low Negative Significance with Mitigation
Reversibility	100% Reversible	100% Reversible
Irreplaceable loss of resources	2-Partial loss of resources but can be rehabilitated	1 – Resource will not be lost
Degree to which impact can be mitigated	1 – Can be completely mitigated	

Nature of potential impact: Introduction of alien and weed plant species during rehabilitation		
Discussion: Indirect impacts occur mostly during the rehabilitation phase and in this case the nature would vary from the introduction of alien and weed vegetation, to partial disruption of ecological processes due to the effects of the alien and weed species. The extent of the indirect impact in this case will be local.		
Cumulative impacts: Disturbance of the site due to proposed prospecting activities may lead to introduction of alien and weed vegetation encroachment during rehabilitation, which may in turn lead to infestation of surrounding remaining natural areas and drainage lines resulting in disruption and destruction of ecological processes.		
Mitigation: • Only use topsoil and excavated material as derived and conserved from the proposed prospecting site to backfill and rehabilitate impacted areas. • Alien invasive and weed vegetation monitoring and removal must be undertaken for at least a year after sampling on disturbed prospecting areas or until the landowner starts with the annual cultivation activities on the affected land.		
Without Mitigation	**With Mitigation**	
Extent	3	1
Duration	5	1
Magnitude	6	2
Probability	4	2
Significance	56 - Medium	8 - Low
Status	Medium Negative Significance without Mitigation	Low Negative Significance with Mitigation
Reversibility	100% Reversible	100% Reversible
Irreplaceable loss of resources	2-Partial loss of resources	1 – Resource recovery
Degree to which impact can be mitigated	1 – Can be completely mitigated	

Nature of potential impact: Potential erosion of the site and surrounds during decommissioning		
Discussion: Disturbance of the land during prospecting activities could lead to soil erosion which can occur due to wind (wind erosion cause dust pollution); and due to overland storm water flow should heavy rains fall on disturbed and rehabilitated areas.		
Cumulative impacts: Exposing and disturbing soil may lead to erosion of site and surrounds if not mitigated.		
Mitigation: • Undertake prospecting activities only in identified and specifically demarcated areas as proposed on completely transformed and cultivated areas. • Implement erosion and storm water runoff management measures as according to EMP requirements to prevent (or if prevention is not possible limit) any erosion from occurring on the prospecting activity areas and surrounds. • Backfill proposed prospecting trenches and boreholes immediately (same day) with onsite excavated material after samples have been collected. • Monitor excavated prospecting areas for signs of erosion for at least six months after sampling and implement erosion rectification and prevention measures as and if required.		
Without Mitigation	**With Mitigation**	
Extent	2	1
Duration	3	1
Magnitude	6	2
Probability	4	2
Significance	44 – Medium	8 - Low
Status	Medium Negative Significance without Mitigation	Low Negative Significance with Mitigation
Reversibility	100% Reversible	100% Reversible
Irreplaceable loss of resources	2-Partial loss of resources but can be rehabilitated	1 – Resource will not be lost
Degree to which impact can be mitigated	1 – Can be completely mitigated	

6. CONCLUDING REMARKS AND RECOMMENDATIONS

The study area comprises natural, relatively undisturbed vegetation that provides habitat for a potentially rich assemblage of fauna and flora. It is therefore important that efforts are made during all phases of the proposed project to mitigate negative impacts on flora and fauna communities.

The proposed prospecting area is situated within the CBA: 1 and Ecological support areas. Field surveys confirmed the low ecological integrity of the irreplaceability of this area, and low listed floral species. Considering the above-mentioned conclusions, it is the opinion of the specialists that due to these findings, it is unlikely that the stringent mitigation measures recommended will sufficiently not reduce the associated impacts to within acceptable levels for environmental functioning.

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