



NSOVO ENVIRONMENTAL CONSULTING

SPECIALIST ECOLOGICAL REPORT:

**THE ESKOM GARONA SUBSTATION AND CONSTRUCTION OF ± 0.5KM 5KV POWER
LINE FROM GARONA TO THE PROPOSED NEW TRANSNET GARONA TRACTION
FEEDER SUBSTATION**

AND

**CONSTRUCTION OF THE NEW 50KV TRANSNET GARONA TRACTION FEEDER
SUBSTATION WITHIN THE JURISDICTION OF !KHEIS LOCAL MUNICIPALITY,
NORTHERN CAPE PROVINCE**

DEA REF: 16/12/14/3/3/1/1241 AND DEA REF: 14/12/12/3/3/1/1240



PRODUCED BY SIMON TODD CONSULTING



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OCTOBER 2014

DECLARATION OF CONSULTANTS' INDEPENDENCE

- I Simon Todd, as the appointed independent specialist hereby declare that I:
- act/ed 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, 2010 and any specific environmental management Act;
- have and will not have no 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, 2010 and any specific environmental management Act;
- am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations, 2010 (specifically in terms of regulation 17 of GN No. R. 543) 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 offence in terms of regulation 71 of GN No. R. 543.

Note: The terms of reference must be attached.



Simon Todd Pr.Sci.Nat 400425/11.

October 2014

INTRODUCTION

The Sishen-Saldanha line, Transnet Freight Rail's (TFR) iron ore export corridor, forms the backbone of the company's growth strategy. As part of the Transnet Orex expansion, TFR will be replacing the 9E Electrical Locomotives and Diesel Locomotives with the new energy efficient 15E Electrical Locomotives. Eskom Holdings SOC Limited (Eskom) was therefore requested by TFR to provide advice and the necessary provisions in this regard. Consequently, to enable TFR to expand their operations without overloading and interruption of supply, Eskom proposes the following:

- Construction of approximately 500m of 50kV power line in parallel to the existing line from the existing Garona substation to the proposed new Transnet Garona Traction Feeder Substation. The new line will have three single phase supplies each rated at 60MVA;
- Installation of a 1x60MVA 400/50kV transformer;
- Connect in parallel existing 2x40MVA 400/50kV transformers and make them to feed north of the substation.
- Decommissioning of existing 50kV line; and
- Reroute the existing Transnet road in order to give space for the extension of the substation by approximately 1km.

In terms of the National Environmental Management Act: Environmental Impact Assessment Regulations (GN No. R 543 – 546 of 2010), a Basic Environmental Impact Assessment, is required before the development can proceed. In order to partly meet these requirements, Nsovo Environmental Consulting has commissioned Simon Todd Consulting to provide an ecological assessment of the proposed development site. This report provides a brief characterisation of the receiving environment and details the findings of a site visit that was conducted to assess the presence of sensitive vegetation or habitats within or near the proposed development footprint. Furthermore, mitigation and avoidance measures that should be implemented to reduce the potential impact of the development are identified and described.

RELEVANT ASPECTS OF THE DEVELOPMENT

The project site is located on the Farm Bokpoort 390 (Portions 4 and Remainder) within the jurisdiction of !Kheis Local Municipality in the Northern Cape Province of South Africa. The development involves the various elements as described above, but importantly, the proposed traction substation is located directly opposite the Garona substation, across the service road for the railway. As such, the distance from the substation to the proposed traction substation is very short. In addition, the proposed traction substation is located in the reserve between the railway line and the service road, which is highly disturbed as a result of past construction activities in this area.

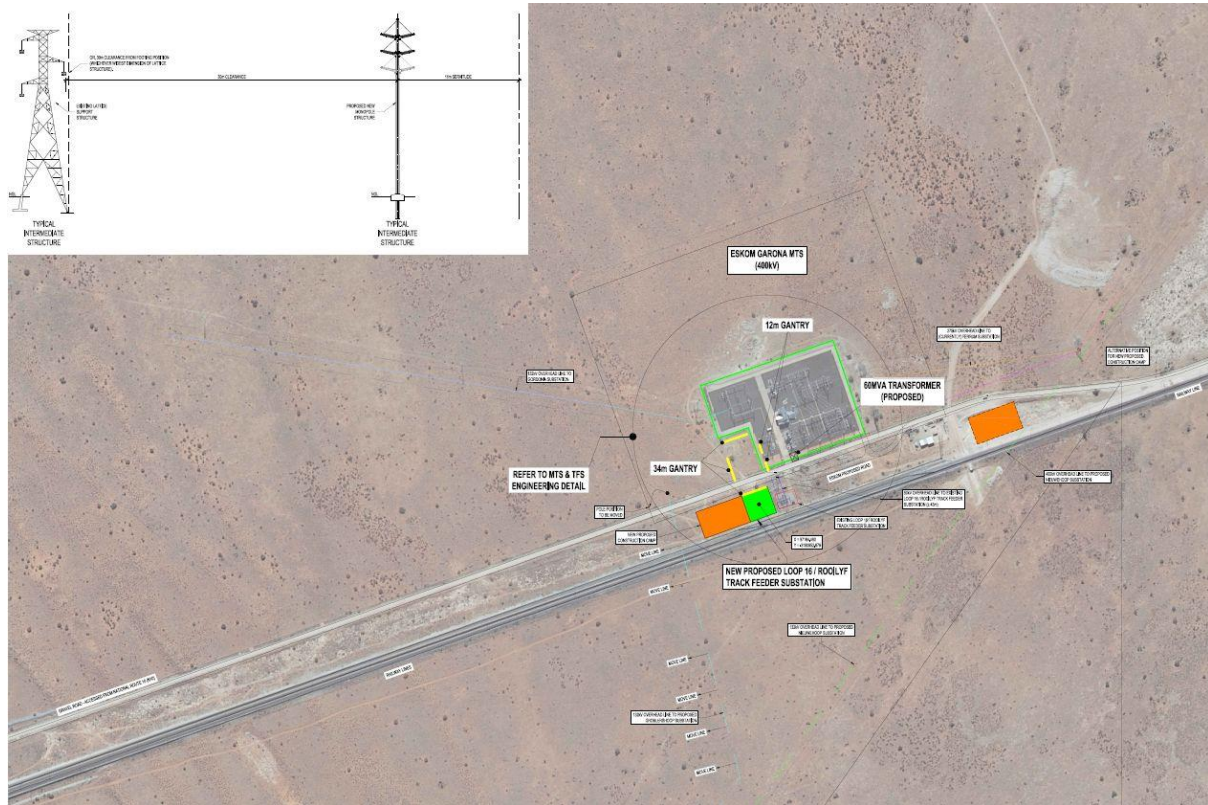


Figure 1. Layout of the planned development at the Garona substation, which lies directly opposite the Sishen-Saldanha railway line

SITE VISIT

The site visit was conducted on the 2nd of September 2014. During the site visit, the development footprint and adjacent areas were searched and a full plant species list for the affected area was developed. The presence of any plant species of conservation concern within the affected area was recorded and their locations recorded on a GPS if necessary. In addition to flora, the presence of any faunal habitats of concern within the footprint was noted in field where present. A variety of photographs of the site were taken in order to characterise the site and illustrate any sensitive features present. Conditions at the time of sampling were good as there had been some rain preceding the site visit and a variety of forbs and geophytes were present, suggesting that it is unlikely that any additional sampling would significantly add to the results. As a result, there are few limitations associated with the site visit and field assessment.

DESCRIPTION OF THE AFFECTED ENVIRONMENT

Broad-Scale Vegetation Types

According to the national vegetation map (Mucina & Rutherford 2006), the site straddles two vegetation types, namely Kalahari Karroid Shrubland and Gordonia Duneveld. Both Kalahari Karroid Shrubland and Gordonia Duneveld are classified as Least Threatened and have been little impacted by transformation and more than 99% of their original extent is still intact (Table 1). Kalahari Karroid Shrubland is considered Hardly Protected within formal conservation areas, while Gordonia Duneveld is Moderately Protected. Mucina & Rutherford (2006), do not list any known endemic species for either Kalahari Karroid Shrubland or Gordonia Duneveld.

Gordonia Duneveld is widely distributed and is among the most extensive vegetation types in South Africa while Kalahari Karroid Shrubland is less extensive, but represents a transitional vegetation type between the northern Nama Karoo and Kalahari (Savannah) vegetation types. Given the low threat level and lack of endemic species, these are not considered highly sensitive vegetation types.

Table 1. The basic conservation statics of the vegetation types that occur at the Garona site according to Mucina & Rutherford (2006).

Name	Extent km ²	Remaining	Conservation Target	Protected	Status
Kalahari Karroid Shrubland	8284	99.2%	21%	0.1%	Least threatened
Gordonia Duneveld	36772	99.8%	16%	14.2%	Least threatened

No fine-scale conservation planning has been conducted for the region and as a result, there are no Critical Biodiversity Areas defined for the area. In addition, the site does not fall within an NPAES focus area, suggesting that the area has not been identified as being important for broad-scale biodiversity maintenance of climate change buffering. In addition, the proximity of the prosed development to the railway line would ameliorate any potential impacts of the development on broad-scale ecological processes and in its absence; the scale of the development is too small to significantly impact such processes.

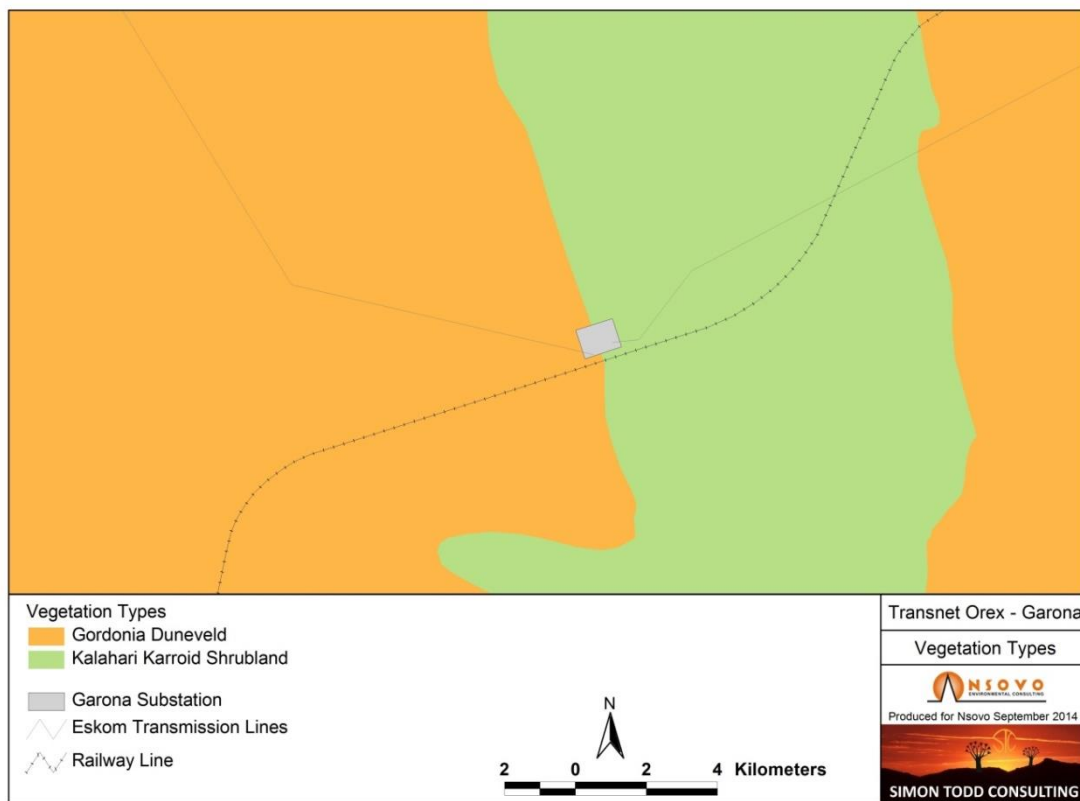


Figure 2. Vegetation map of the broad area around the Garona substation. There are no mapped drainage lines, pans or wetlands within this area.

On-Site Vegetation Description

The vegetation of the affected area is previously disturbed as a result of vegetation clearing, material dumping and construction activity. As a result, the vegetation is patchy and consists of reasonably intact areas alternating with previously cleared or currently disturbed areas. Dominant species include grasses such as *Stipagrostis uniplumis*, *Eragrostis echinochloidea* and *Stipagrostis obtusa*, shrubs such as *Zygophyllum lichtensteinianum*, *Hermannia tomentosa*, *Monechma genistifolium* subsp. *genistifolium*, *Aptosimum marlothii*, *Plinthus sericeus*, tall shrubs such as *Lycium cinereum*, *Lycium bosciifolium*, *Phaeoptilum spinosum* and trees such as *Acacia mellifera* subsp. *detinens*, *Ziziphus mucronata* and the alien *Schinus molle*. No species of conservation concern were observed in the footprint. An individual of *Boscia foetida* which is a protected species in the northern Cape was observed in the road reserve, but not within the current development footprint. Alien species present at the site include the individual of *Schinus molle*, as well as *Atriplex lindleyi* subsp. *inflata* and *Salsola kali*.

Given the low sensitivity of the site and the footprint of the development within the railway reserve, it is highly unlikely that the development of the site would result in any significant impacts on biodiversity that warrant assessment. Therefore, it is concluded that the current study is sufficient and that a full assessment of the ecological impacts of the development is not warranted as there are no specific ecological impacts that would be triggered by the development.



Figure 3. Two views of the affected area, left looking northeast down the site and right looking southwest, various piles of rubble and waste can be seen among the vegetation.

CONCLUSIONS & RECOMMENDED MITIGATION ACTIONS

It is clear from the site visit that the development of the site would not generate any impacts of broader significance and as a site is already disturbed, the loss of the disturbed natural vegetation from the site is not deemed to be significant. No species of conservation concern were observed in the development footprint and it is highly unlikely that any such species would be affected by the development. Similarly, the site is not of importance for fauna as a result of regular human activity along the railway servitude as well as the disturbed nature of the site. As a result, it is highly unlikely that any fauna would be significantly impacted by

the development and as a result, no faunal impacts are assessed. In terms of minimising the overall ecological impact of the development, the following mitigation measures are recommended:

- The proposed development area should be demarcated and cordoned-off using construction tape, fencing or similar structure.
- Cement mixing, cleaning and similar 'dirty' activities should take place within a designated area with appropriate runoff control.
- All contaminated soil, litter and building rubble should be cleared from the site at the end of construction.
- If the substation must be lit at night for security reasons, then the lighting should be downward-directed and utilise low-UV emitting bulbs such as most LEDs which attract less insects.
- Any fauna disturbed or encountered during construction activities should be removed to safety by the ECO or other suitably qualified persons.

LITERATURE CITED

Mucina L. & Rutherford M.C. (eds) 2006. *The Vegetation of South Africa, Lesotho and Swaziland*. Strelitzia 19. South African National Biodiversity Institute, Pretoria.

Threatened Ecosystems in South Africa: Descriptions and Maps (available on BGIS website: <http://bgis.sanbi.org>).

Annex 1. List of Plant Species

List of plant species observed within the development footprint.

Family	Species
ACANTHACEAE	<i>Acanthopsis hoffmannseggiana</i>
ACANTHACEAE	<i>Monechma divaricatum</i>
ACANTHACEAE	<i>Monechma genistifolium</i> subsp. <i>genistifolium</i>
AIZOACEAE	<i>Plinthus sericeus</i>
ASPARAGACEAE	<i>Asparagus africanus</i>
ASTERACEAE	<i>Amellus strigosus</i> subsp. <i>pseudoscabridus</i>
ASTERACEAE	<i>Arctotis leiocarpa</i>
ASTERACEAE	<i>Berkheya annectens</i>
ASTERACEAE	<i>Felicia clavipilosa</i> subsp. <i>clavipilosa</i>
ASTERACEAE	<i>Felicia muricata</i> subsp. <i>cinerascens</i>
ASTERACEAE	<i>Geigeria ornativa</i>
ASTERACEAE	<i>Hirpicium echinus</i>
ASTERACEAE	<i>Leysera tenella</i>
ASTERACEAE	<i>Pegolettia retrofracta</i>
ASTERACEAE	<i>Pentzia lanata</i>
ASTERACEAE	<i>Pentzia spinescens</i>
ASTERACEAE	<i>Senecio niveus</i>
BIGNONIACEAE	<i>Rhigozum obovatum</i>
BIGNONIACEAE	<i>Rhigozum trichotomum</i>
CHENOPODIACEAE	<i>Atriplex lindleyi</i> subsp. <i>inflata</i>
CHENOPODIACEAE	<i>Exomis microphylla</i> var. <i>axyrioides</i>
CHENOPODIACEAE	<i>Salsola kali</i>
FABACEAE	<i>Acacia mellifera</i> subsp. <i>detinens</i>
FABACEAE	<i>Lessertia pauciflora</i> var. <i>pauciflora</i>
FABACEAE	<i>Melolobium adenodes</i>
FABACEAE	<i>Senna italica</i> ssp. <i>arachoides</i>
FABACEAE	<i>Sutherlandia frutescens</i>
HYACINTHACEAE	<i>Albuca setosa</i>
MALVACEAE	<i>Hermannia abrotanoides</i>
MALVACEAE	<i>Hermannia coccocarpa</i>
MALVACEAE	<i>Hermannia jacobefolia</i>
MALVACEAE	<i>Hermannia tomentosa</i>
Neuradaceae	<i>Grielum humifusum</i>
NYCTAGINACEAE	<i>Phaeoptilum spinosum</i>
POACEAE	<i>Brachiaria nigropedata</i>
POACEAE	<i>Cenchrus ciliaris</i>
POACEAE	<i>Enneapogon cenchroides</i>
POACEAE	<i>Enneapogon desvauxii</i>
POACEAE	<i>Eragrostis echinochloidea</i>
POACEAE	<i>Eragrostis lehmanniana</i> var. <i>lehmanniana</i>
POACEAE	<i>Schmidtia kalahariensis</i>
POACEAE	<i>Stipagrostis ciliata</i> var. <i>capensis</i>

POACEAE	<i>Stipagrostis obtusa</i>
POACEAE	<i>Stipagrostis uniplumis</i>
POLYGALACEAE	<i>Polygala leptophylla</i> var. <i>leptophylla</i>
SANTALACEAE	<i>Thesium hystrix</i>
SCROPHULARIACEAE	<i>Aptosimum albomarginatum</i>
SCROPHULARIACEAE	<i>Aptosimum marlothii</i>
SCROPHULARIACEAE	<i>Jamesbrittenia tysonii</i>
SCROPHULARIACEAE	<i>Manulea gariepina</i>
SCROPHULARIACEAE	<i>Peliostomum leucorrhizum</i>
SCROPHULARIACEAE	<i>Zaluzianskya</i> sp.
SOLANACEAE	<i>Lycium bosciifolium</i>
SOLANACEAE	<i>Lycium cinereum</i>
SOLANACEAE	<i>Lycium oxycarpum</i>
RHAMNACEAE	<i>Ziziphus mucronata</i>
