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DESKTOP VEGETATION ASSESSMENT

PROPOSED SALDANHA BAY NETWORK STRENGTHENING PROJECT
WESTERN CAPE PROVINCE

Scoping Phase Report

January 2016

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Declaration

I, **Astika Bhugeloo,** declare that -

- I act as an independent specialist in this application;
- I do not have and will not have any vested interest (either business, financial, personal or other) in the undertaking of the proposed activity, other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2010 and 2014;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have not and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct.

Signature of the specialist:

Date: 21 January 2016

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Executive summary

Afzelia Environmental Consultants (Pty) Ltd was appointed by Savannah Environmental (Pty) Ltd to undertake a desktop vegetation assessment for the proposed Saldanha Bay Network Strengthening Project to form part of the scoping study for this project.

The main findings of this report have been summarised below:

- Four vegetation types occur within the study area. Saldanha Flats Strandveld is the dominant vegetation type. Saldanha Limestone Strandveld occupies the western edge of the study area. A small outcrop of Saldanha Granite Strandveld is located along the southern section of the site and Hopefield Sand Fynbos Vegetation traverses the northern boundary.
- All the vegetation units on the study site are classified as endangered.
- 47 species of conservation concern can potentially occur within the study area.
- The following generic potentially negative impacts have been identified: loss of any natural or partly natural vegetation and the associated risk of erosion; habitat fragmentation; disturbance of or loss of species of conservation concern; spread of invasive alien species in disturbed areas.
- Recommended options with regards to minimising the impact on the vegetation and any additional impacts to vegetation will be investigated further and confirmed during the EIA phase.

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1. INTRODUCTION

Afzelia Environmental Consultants (Pty) Ltd was appointed by Savannah Environmental (Pty) Ltd to undertake a desktop vegetation assessment for the proposed Saldanha Bay Network Strengthening Project to form part of the scoping study for this project.

The proposed activity involves:

- The construction of a new 400/132 kV Transmission Substation with a planned capacity of 3x500 MVA transformers
- The construction of a new 132/66 kV Distribution Substation near the current Blouwater Substation in the Saldanha Bay area
- The construction of two 400kV Power lines from the Aurora Station to the new proposed Dx and Tx substations
- Replacement of two of the four existing 250 MVA transformers with 2 x 500 MVA transformers as well as new 400/132 kV transformers
- Establishment of two 132 kV feeder bays at the Aurora Substation

1.1 Scope of work

The scope of work entailed the following:

- Provide a desktop assessment of the site noting the presence of ecologically sensitive areas;
- Identify 'No-Go' areas (if applicable);
- Identify potential impacts and types of impacts that are most likely to occur; and
- Recommend requirements for further study in the EIA Phase of the project.

2. METHODOLOGY

A comprehensive desktop study was carried out to document all known and predicted vegetation characteristics of the study area. The following methods and resources were used in the assessment of the study site:

i. An initial remote sensing mapping exercise identifying important habitats and vegetation types and contextualising the significance of the natural asset on the study site;
ii. An evaluation of the modelled conservation importance of the vegetation on the site in terms of SANBI;
iii. An inspection of SANBI GIS databases on Endemic and Red Data plant species;
iv. A literature search on Red Data Book species predicted to occur in the study area; and
v. Establishing the environmental baseline in terms of the benchmark condition (as per Mucina & Rutherford Veld Type) for comparative on-site investigations.

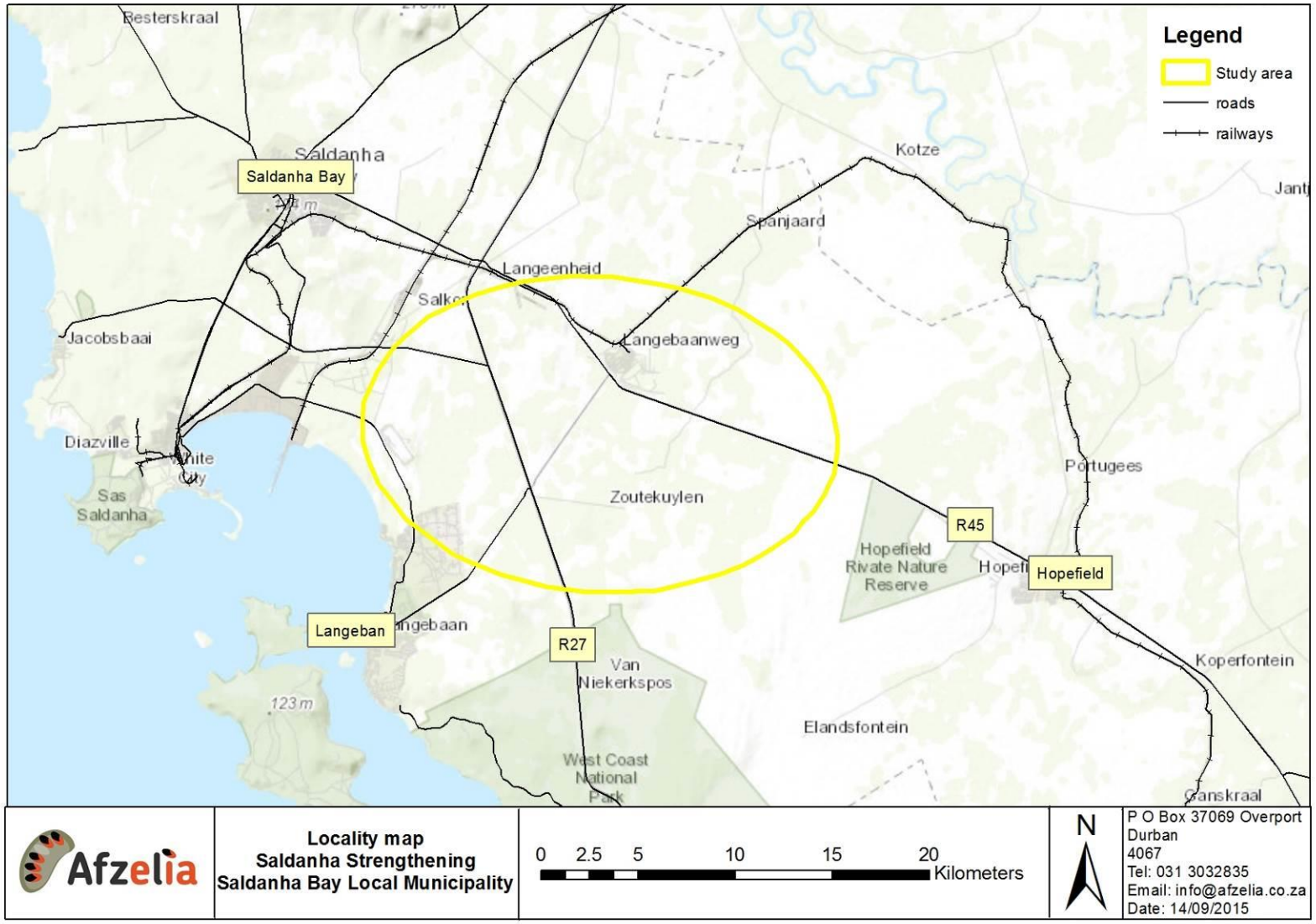

Figure 1: Locality map of Saldanha Strengthening study area

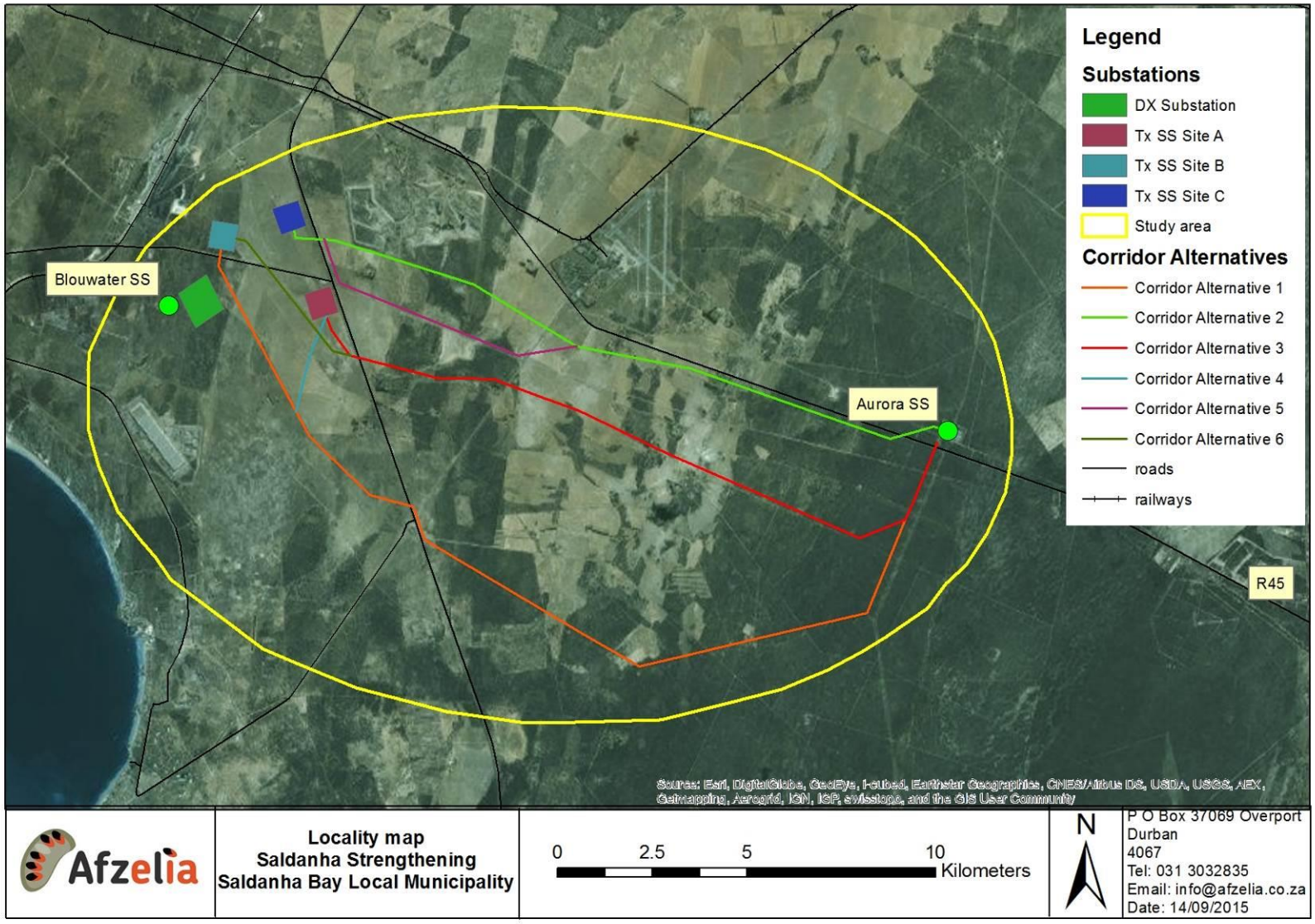

Figure 2: Site Description Map showing identified substation site alternatives and power line corridor alternatives

3. RELEVANT LEGISLATIVE REQUIREMENTS

This study has been conducted in accordance with the following legislation:

i. National

- National Environmental Management Act / NEMA (Act No 107 of 1998), and all amendments and supplementary listings and/or regulations;
- Environment Conservation Act (ECA) (No 73 of 1989) and amendments;
- National Environmental Management Act: Biodiversity Act (NEMA:BA) (Act No. 10 of 2004) and amendments and regulations;
- National Veld and Forest Fire Act (Act No. 101 of 1998); and
- Conservation of Agricultural Resources Act (CARA) (Act No. 43 of 1983) and amendments.

ii. Provincial

- Nature and Environmental Conservation Ordinance No. 19 of 1974; and
- Western Cape Nature Conservation Board Act (Act No 15 of 1998) and amendments

4. STUDY AREA

4.1 Climate

The study area is located in a winter rainfall region. Mean maximum and minimum temperatures are 36.5°C and 2.2°C, for January/February and July/August respectively. Sea fog and dew contribute to the moisture balance in summer and autumn months. Summer months are characterised by strong south easterly winds, during winter months northerly winds are more frequent. (Source: Mucina & Rutherford, 2006).

4.2 Geology and soils

The study area is situated on calcareous sand over a limestone hardpan layer along an old marine terrace. The Sandveld Group overlies the Cape Granites as well as the Malmesbury Group metasediments into which the granites intruded (Mucina & Rutherford, 2006).

5. DESKTOP VEGETATION ASSESSMENT

5.1 Vegetation Overview

At a broad scale the study area falls within the extensive Fynbos Biome (Mucina & Rutherford, 2006). At a local scale, the study area falls within the following vegetation types:

According to the national vegetation map (Mucina & Rutherford 2006) four vegetation types occur within the study area (Figure 3). Saldanha Flats Strandveld is the dominant vegetation type located within the study area while the Saldanha Limestone Strandveld occupies the western edge of the study area. A small outcrop of Saldanha Granite

Strandveld is located along the southern section of the site and Hopefield Sand Fynbos Vegetation traverses the northern boundary. (Mucina and Rutherford, 2006).

5.2 Saldanha Flats Strandveld

Sclerophyllous[1] shrublands built of a sparse emergent and moderately tall shrub layer, with an open succulent shrub layer forming the undergrowth. Conspicuous displays of geophytes and annual herbaceous flora are present in spring. (Mucina & Rutherford, 2006).

This vegetation unit is classified as Endangered. Only 11% is statutorily conserved in the West Coast National Park and Yzerfontein Nature Reserve. A small portion is also conserved in private conservation areas such as Jakkalsfontein and West Point. More than half of this vegetation unit has already been transformed for cultivation, road building or urban development. Alien infestation is caused by trees such as *Acacia cyclops* and *Acacia Saligna*. Alien invasive herbs include *Bromus diandrus* and *Medicago hispida*. (Mucina & Rutherford, 2006).

5.3 Saldanha Limestone Strandveld

This vegetation unit consists of undulating ridges and steeper coastal slopes supporting low shrublands of succulent-stemmed and deciduous, fleshy leaved shrubs in deeper soils. Areas of succulent-leaved dwarf shrubs and annual or geophytic herbs inhabit cracks and shallow depressions in the exposed limestone. (Mucina & Rutherford, 2006).

Saldanha Limestone Strandveld is classified as Endangered. A small portion is protected in the Swartriet Private Nature Reserve. Approximately 40% of this vegetation unit has been transformed for cultivation or development of coastal settlements. Some portions experience heavy grazing pressure. Alien vegetation including *Acacia cyclops* and *Acacia saligna* are problematic in certain areas.

5.4 Saldanha Granite Strandveld

The landscape of Saldanha Granite Strandveld is dominated by both rounded and smooth forms of granite sheets. Grassy and herb-rich areas consisting of a rich geophyte flora alternates with low to medium shrubland comprising of some succulent plant species.

This vegetation unit is classified as Endangered with approximately 10% statutorily conserved in the West Coast National Park, SAS Saldanha and Columbine Nature Reserves. A small portion is also conserved in private reserves such as West Point, Groot Paternoster and Swartriet. Approximately 70% of this vegetation unit has been transformed by cultivation and urban development. It is also regularly utilised for grazing. Alien species infestations consisting of *Acacia saligna, Acacia cyclops* and *Acacia Baileyana* occur in many places throughout this vegetation unit. Coastal development is also considered a further threat to this vegetation unit.

[1] Sclerophyll is a vegetation type that has hard leaves and short internodes (the distance between leaves along the stem).

5.5 Hopefield Sand Fynbos

This vegetation unit consists of flat to undulating coastal sand plains and localised inland dune fields. The vegetation is a moderately tall, ericoid[2]-leaved shrubland with a dense herbaceous stratum of aphyllous[3] hemicryptophytes[4]. This comprises of predominantly asteraceous and restioid fynbos. Proteoid[5] fynbos is extensive throughout the vegetation unit while ericaceous fynbos occurs in seeps and along watercourses. Hopefield Sand Fynbos has all three typical fynbos elements. However, there is a lack of Ericaceae in terms of species richness and density. This unit is most diverse in the Hopefield area, where extensive stands of *Leucadendron foedum, Leucospermum rodelentum* and *Serruria fucifolia* are dominant.

This vegetation unit is classified as endangered with a small portion statutorily conserved in the West Coast National Park. Two percent is also protected in the Hopefield and Jakkalsfontein Nature Reserve. Approximately 40% has been transformed for cultivation and grazing land. Alien species present in this unit include *Acacia saligna*, *Acacia Cyclops* and *Pinus* and *Eucalyptus* species.

[2] Small and tough leaves.

[3] Naturally leafless.

[4] Plants whose renewal buds remain at ground level during the time of year unfavorable to vegetation.

[5] Plant roots that form clusters of closely spaced short lateral rootlets.

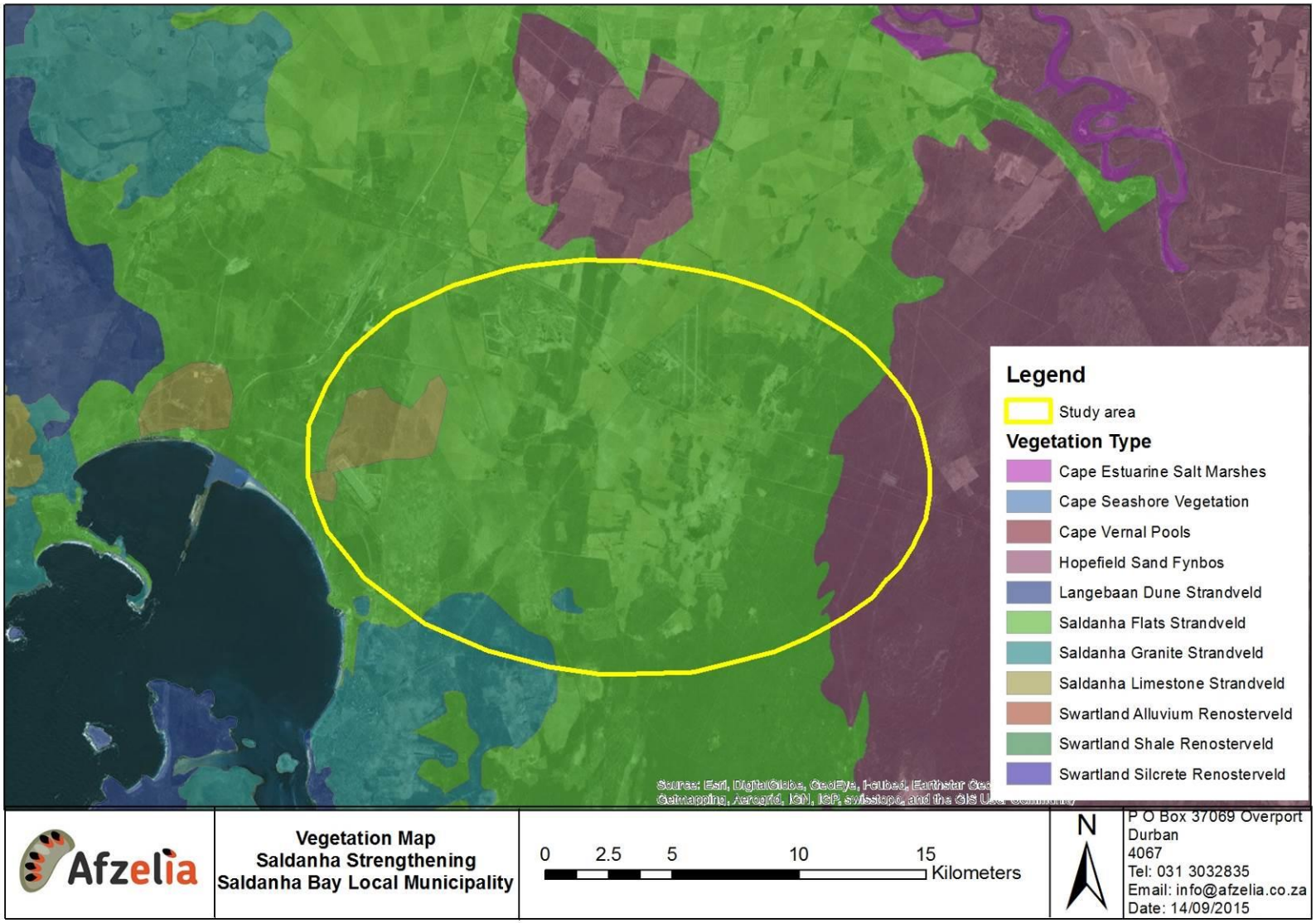

Figure 3: The vegetation types on the study area

6. SPECIES OF CONSERVATION CONCERN

The SANBI POSA data base for the 3218CA & 3317BB Quarter Degree Square Grid Squares (QDGS) contains 250 species. It is important to note that the summarised plant list of SANBI contains only the species of which there are herbarium specimens housed in the National Herbarium. This is therefore not regarded as a fully comprehensive and complete list.

Threatened species

A list of threatened species and species of conservation concern for the QDGS's were obtained from the Plants of southern Africa (POSA) database on the SANBI website. Threatened species are those species that are facing high risk of extinction. This includes species in the categories Critically Endangered (CR), Endangered (EN) and Vulnerable (VU). Species of Conservation Concern include Threatened (T), Near Threatened (NT), Data Deficient (DDD), Critically Rare, Rare and Declining species.

Table 1: Threatened Species and Species of Conservation Concern (SANBI, Quarter degree square Grid 3218CA & 3317BB)

Family	Species	Threat status
APIACEAE	*Capnophyllum leiocarpon*	Declining
ASTERACEAE	*Oncosiphon africanum*	VU
IRIDACEAE	*Babiana tubulosa*	VU
IRIDACEAE	*Ferraria foliosa*	NT
ASTERACEAE	*Cotula duckittiae*	VU
ASTERACEAE	*Cotula pusilla*	NT
ASTERACEAE	*Steirodiscus tagetes*	VU
FABACEAE	*Argyrolobium velutinum*	EN
IRIDACEAE	*Ixia calendulacea*	NT
MALVACEAE	*Hermannia procumbens subsp. myrrhifolia*	EN
SCROPHULARIACEAE	*Phyllopodium capillare*	NT
AMARYLLIDACEAE	*Gethyllis ciliaris subsp. ciliaris*	NT
ASTERACEAE	*Felicia elongata*	VU
HYACINTHACEAE	*Daubenya zeyheri*	VU
HYACINTHACEAE	*Lachenalia pustulata*	NT
HYPOXIDACEAE	*Empodium veratrifolium*	EN
IRIDACEAE	*Babiana nana subsp. nana*	EN
IRIDACEAE	*Babiana tubiflora*	Declining
IRIDACEAE	*Gladiolus caeruleus*	NT
IRIDACEAE	*Ixia purpureorosea*	VU
IRIDACEAE	*Moraea calcicola*	EN
IRIDACEAE	*Romulea saldanhensis*	EN
IRIDACEAE	*Watsonia hysterantha*	NT

Family	Species	Threat status
MESEMBRYANTHEMACEAE	*Antimima limbata*	EN
MESEMBRYANTHEMACEAE	*Cephalophyllum rostellum*	EN
MESEMBRYANTHEMACEAE	*Cheiridopsis rostrata*	VU
MESEMBRYANTHEMACEAE	*Drosanthemum hispifolium*	VU
PLUMBAGINACEAE	*Limonium acuminatum*	VU
PLUMBAGINACEAE	*Limonium capense*	NT
POLYGALACEAE	*Muraltia macropetala*	VU
RHAMNACEAE	*Phylica greyii*	EN
RUBIACEAE	*Nenax hirta subsp. calciphila*	NT
RUTACEAE	*Diosma guthriei*	NT

7. BIODIVERSITY AREAS

Biodiversity areas represent terrestrial and aquatic sites identified as Critical Biodiversity Areas (CBAs), Ecological Support Areas (ESA), Other Natural Areas and No Natural Remaining Areas through the systematic assessment conducted by the C.A.P.E. Fine Scale Biodiversity Planning (FSP) project.

Critical Biodiversity Areas

Critical Biodiversity Areas are those areas required to meet biodiversity thresholds. CBA's are areas of terrestrial or aquatic features (or riparian buffer vegetation alongside CBA aquatic features) which must be protected in their natural state to maintain biodiversity and ecosystem functioning (Maree and Vromans, 2010). According to Maree and Vromans (2010), these CBAs include

i) areas that need to be protected in order to meet national biodiversity pattern thresholds (target area);

ii) areas required to ensure the continued existence and functioning of species and ecosystems (including the delivery of ecosystem services); and/or

iii) important locations for biodiversity features or rare species.

Ecological Support Areas

Ecological Support Areas (ESA) are supporting zones required to prevent the degradation of Critical Biodiversity Areas and Protected Areas. An ESA may include an aquatic or terrestrial feature. ESAs can be further subdivided into Critical Ecological Support Areas (CESA) and Other Ecological Support Areas (OESA). Critical Ecological Support Areas are aquatic features, with their terrestrial buffers, which fall within priority sub-catchments, whose protection is required in order to support the aquatic and terrestrial CBAs. An example might be a river reach which feeds directly into a CBA. Other Ecological Support Areas are all remaining aquatic ecosystems (not classed as CESA or CBA), with their

terrestrial buffers, which have a less direct impact on the CBA, e.g. a wetland that is geographically isolated from a CBA, but contributes to ecological processes such as groundwater recharge, thereby indirectly impacting on a CBA downstream. (Maree *et al*, 2010).

Other Natural Areas

Other Natural Areas are areas of lesser biodiversity importance whose protection is not required in order to meet national biodiversity thresholds. Other Natural Areas may withstand some loss in terms of biodiversity through the conversion of their natural state for development. However, if all Critical Biodiversity Areas are not protected, certain Other Natural Areas will need to be reclassified as Critical Biodiversity Areas in order to meet thresholds. (Maree *et al*, 2010).

No Natural Remaining Areas

No Natural Remaining Areas are those areas that have been irreversibly transformed through urban development, plantation and agriculture and poor land management. As a result, these areas no longer contribute to the biodiversity of the region. However, in some cases transformed land may be classified as an ESA or CBA if they still support biodiversity (Maree *et al*, 2010).

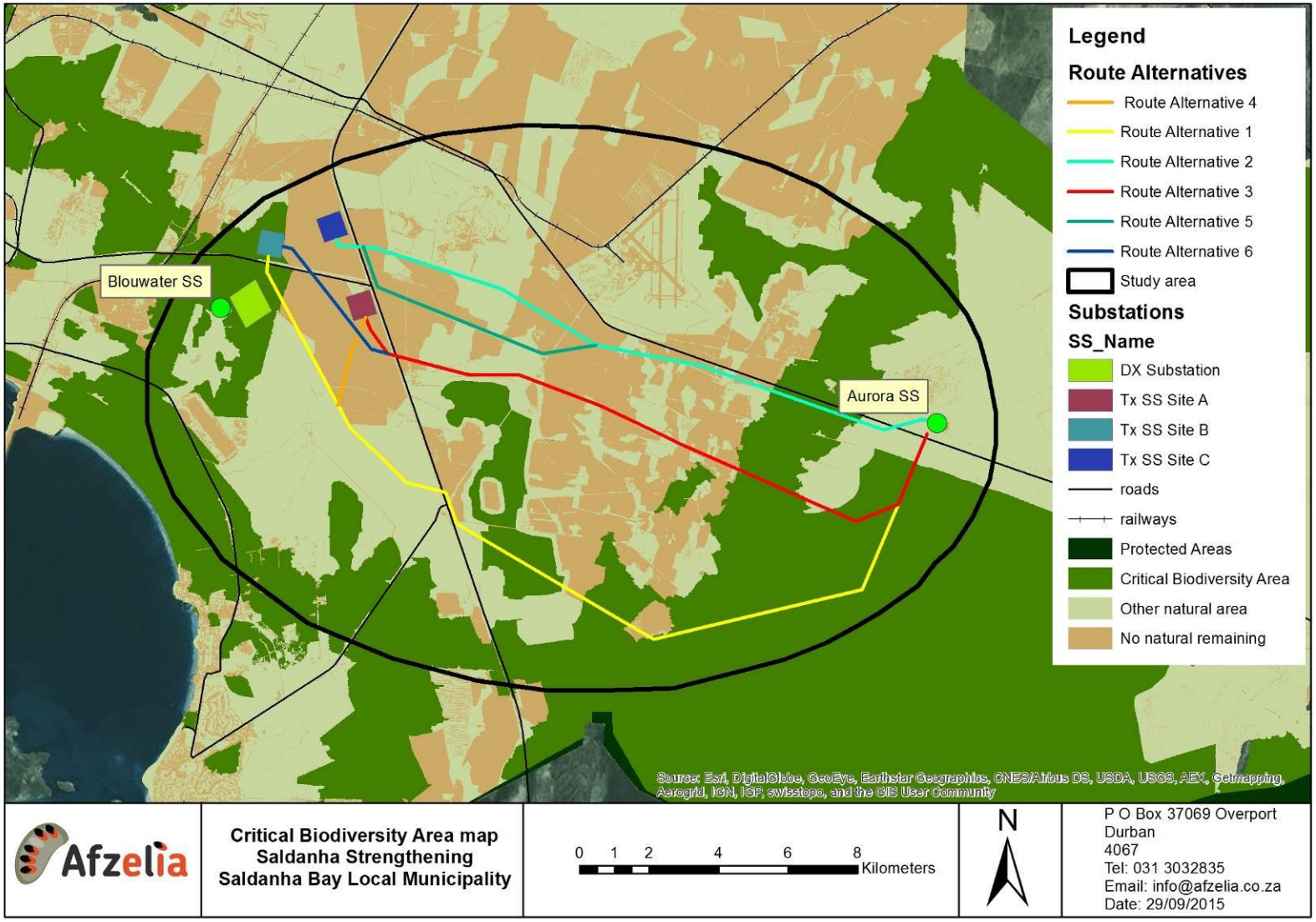

Figure 4: Critical Biodiversity Areas on the study area

8. PRELIMINARY SENSITIVITY ASSESSMENT

The preliminary sensitivity assessment identifies those parts of the study area that have high conservation value or that may be sensitive to disturbance (Figure 5). The information provided in the preceding sections was used to compile a map of remaining natural habitats and areas important for maintaining ecological processes in the study area. Broad scale mapping was used to provide information on the location of sensitive features. There are a number of features that need to be taken into account in order to evaluate sensitivity in the study area. These include the following:

1. vegetation of conservation importance: this is based primarily on the situation of the site within the Gariep Centre of Endemism and the Succulent Karoo Region;
2. perennial and non-perennial rivers and drainage lines;
3. potential occurrence of populations of Red List species (flora and fauna) that have been evaluated as having a high chance of occurrence within the study area; and
4. areas classified as mountains, ridges or steep slopes. Steeper areas are more sensitive to erosion; such disturbances can cause negative downslope impacts on fauna and flora. Furthermore, steeper areas may represent links to important biogeographical areas such as mountainous regions.

These factors have all been taken into account in evaluating sensitivity within the study area. It must be emphasized that this is a preliminary sensitivity map (Figure 8), based on broad information via a desktop assessment. It is therefore vitally important to establish, during the EIA phase, which areas constitute natural vegetation considered sensitive on the basis of various factors as mentioned above.

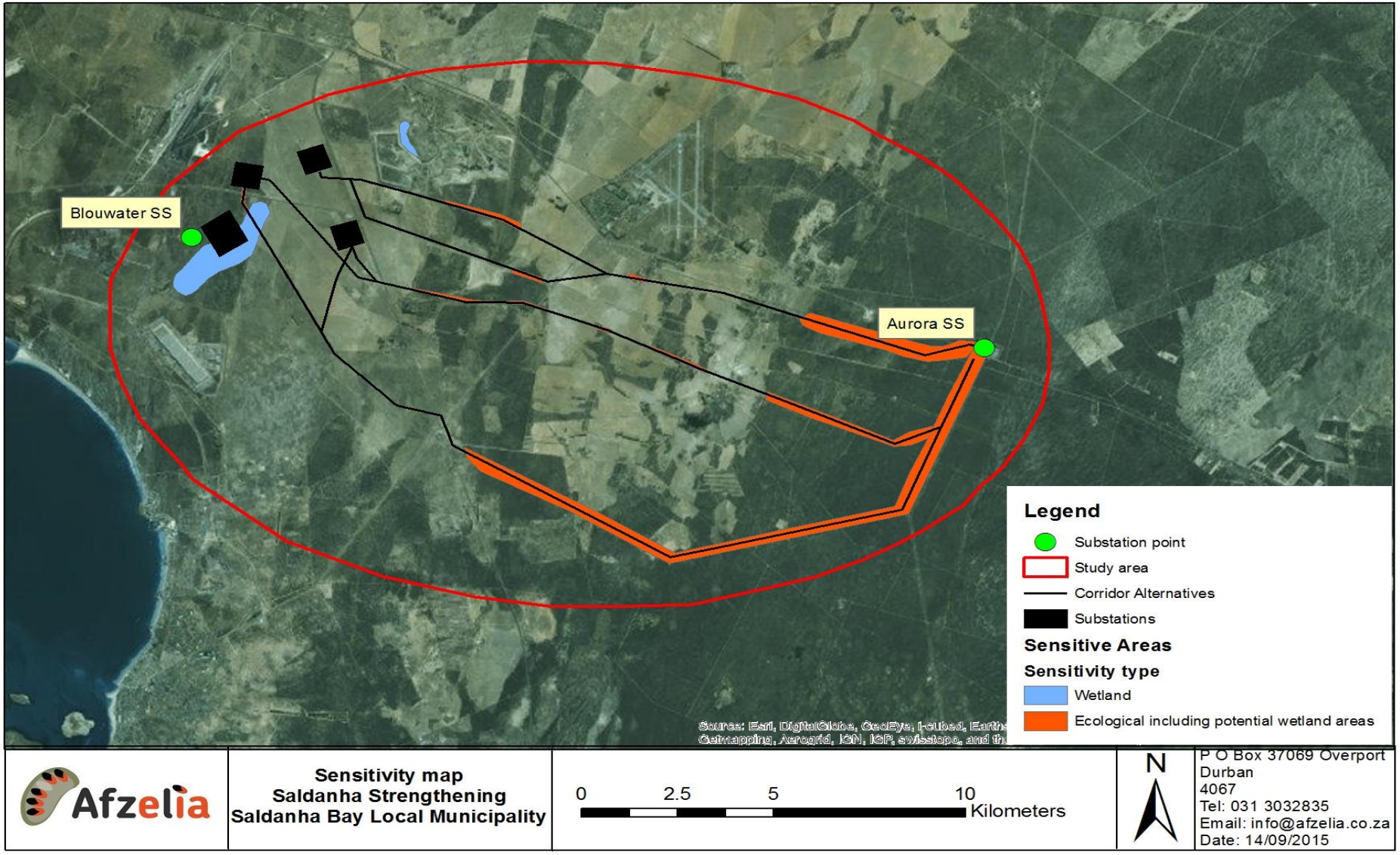

Figure 5: Sensitivity map of the study area

9. IMPACTS ON VEGETATION

In terms of the construction of the proposed infrastructure on this site the following generic potentially negative impacts have been identified:

- The permanent loss of any natural or partly natural vegetation within all development footprints and the associated risk of erosion;
- Habitat fragmentation;
- Disturbance and loss of species of conservation concern; and
- Proliferation of invasive alien species in disturbed areas.

9.1. Significance of identified impacts

Significance scoring assesses and predicts the significance of environmental impacts through evaluation of the following factors; probability of the impact; duration of the impact; extent of the impact; and magnitude of the impact. The significance of environmental impacts is then assessed taking into account any proposed mitigations. The significance of the impact "without mitigation" is the prime determinant of the nature and degree of mitigation required[6]. Each of the above impact factors have been used to assess each potential impact using ranking scales (**Table 15**).

Unknown parameters are given the highest score (5) as significance scoring follows the Precautionary Principle. The Precautionary Principle is based on the following statement: *When the information available to an evaluator is uncertain as to whether or not the impact of a proposed development on the environment will be adverse, the evaluator must accept as a matter of precaution, that the impact will be detrimental. It is a test to determine the acceptability of a proposed development. It enables the evaluator to determine whether enough information is available to ensure that a reliable decision can be made.*

The findings of this report and identification of potential impacts are based on preliminary desktop work. The specification of the duration, probability and reversibility of the impacts will be subject to change prior to a detailed site inspection. The significance of impacts stated below were calculated using prior knowledge of similar developments coupled with the desktop work detailed in this report. Furthermore, the precautionary principle will be applied with respect to impacts where there is uncertainty.

[6] Impact scores given "with mitigation" are based on the assumption that the mitigation measures recommended in this assessment are implemented correctly and rehabilitation of the site is undertaken. Failure to implement mitigation measures during and after construction will keep the impact at an unacceptably high level.

Table 2: Significance scoring used for each potential impact

Probability	***Duration***
1 - very improbable	1 - very short duration (0-1years)
2 - improbable	2- short duration (2-5 years)
3 - probable	3 - medium term (5-15 years)
4 - highly probable	4 - long term (>15 years)
5 - definite	5 - permanent/unknown
Extent	***Magnitude***
1 - limited to the site	2 – minor
2 - limited to the local area	4 – low
3 - limited to the region	6 – moderate
4 - national	8 – high
5 - international	10 – very high

Significance Points = (Magnitude + Duration + Extent) x Probability. The maximum value is 100 Significance Points.

Potential Environmental Impacts are rated as high, moderate or low significance as per the following:

<30 significance points = Low environmental significance

31-59 significance points = Moderate environmental significance

>60 significance points = High environmental significance

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Construction and Operational Phase			
Loss of natural or partly natural vegetation and soil erosion	The primary direct botanical impact would be permanent loss of natural and partly natural vegetation found on the development site. Cleared areas will be exposed to environmental factors such as rain and wind which lead to the removal of topsoil resulting in soil erosion. This impact will be most prominent during the construction of the substation and access roads as well as the pylons associated with power lines.	Local	None identified at this stage

Impacts associated with loss of vegetation and soil erosion

Impact	Probability		Duration		Extent		Magnitude		Significance scoring without mitigation	Significance scoring with mitigation
	Without	With	Without	With	Without	With	Without	With		
Construction Phase										
Loss of vegetation and soil erosion	5	5	2	2	2	1	8	6	60 (high)	45 (moderate)
Operational Phase										
Loss of vegetation and soil erosion	5	5	4	4	1	1	8	6	65 (high)	55 (moderately high)

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Construction and Operational Phase			
Habitat fragmentation	The proposed development is likely to have a negative impact in terms of loss of ecological connectivity through the clearing of vegetation for the substation, access roads, and power line tower footprints. This will result in a minor degree of habitat fragmentation. A considered aspect of ecological connectivity relates to pollination success. As insects and wind are the primary plant pollinators this type of infrastructure should have a negligible impact in terms of pollination success.	Local	None identified at this stage

Impacts associated with habitat fragmentation

Impact	Probability		Duration		Extent		Magnitude		Significance scoring without mitigation	Significance scoring with mitigation
	Without	With	Without	With	Without	With	Without	With		
Construction Phase										
Habitat fragmentation	5	5	2	2	2	1	8	6	60 (high)	45 (moderate)
Operational Phase										
Habitat fragmentation	5	5	4	4	2	1	6	4	70 (very high)	55 (moderately high)

Disturbance of species of conservation concern	During initial vegetation clearing and earth works, species of conservation concern, such as Red Data and protected species may be damaged or destroyed. Habitat loss, fragmentation and degradation may also result in sensitive species populations becoming unsustainable. A number of species of conservation importance may potentially occur in the study area.	Local	None identified at this stage

Impacts associated with the disturbance of species of conservation concern

<table>
<tr><th colspan="2">Issue</th><th colspan="8">Nature of Impact</th><th>Extent of Impact</th><th>No-Go Areas</th></tr>
<tr><td colspan="12">Construction and Operational Phase</td></tr>
<tr><td rowspan="2">Impact</td><td colspan="2">Probability</td><td colspan="2">Duration</td><td colspan="2">Extent</td><td colspan="2">Magnitude</td><td rowspan="2">Significance scoring without mitigation</td><td rowspan="2">Significance scoring with mitigation</td></tr>
<tr><td>Without</td><td>With</td><td>Without</td><td>With</td><td>Without</td><td>With</td><td>Without</td><td>With</td></tr>
<tr><td colspan="12">Construction Phase</td></tr>
<tr><td>Disturbance of species of conservation concern</td><td>5</td><td>4</td><td>2</td><td>2</td><td>2</td><td>1</td><td>8</td><td>6</td><td>60 (high)</td><td>36 (moderate)</td></tr>
<tr><td colspan="12">Operational Phase</td></tr>
<tr><td>Disturbance of species of conservation concern</td><td>5</td><td>4</td><td>4</td><td>4</td><td>1</td><td>1</td><td>8</td><td>6</td><td>65 (high)</td><td>55 (moderately high)</td></tr>
<tr><td colspan="2">Proliferation of invasive alien species</td><td colspan="8">Alien invasive species will quickly encroach into disturbed areas. Alien species generally out-compete indigenous species for water, light, space and nutrients as they are adaptable to changing conditions and easily invade a wide range of ecological niches (Bromilow, 2010). Alien invader plant species pose an ecological threat as they alter habitat structure, lower biodiversity (both number and "quality" of species), change nutrient cycling and productivity, and modify food webs (Zedler, 2004). This negatively affects the disturbed area to maintain floral biodiversity.</td><td>Local</td><td>None identified at this stage</td></tr>
</table>

Impacts associated with the proliferation of alien invasive species										
Impact	Probability		Duration		Extent		Magnitude		Significance scoring without mitigation	Significance scoring with mitigation
	Without	With	Without	With	Without	With	Without	With		
Construction Phase										
Proliferation of alien invasive species	5	4	2	2	2	1	8	6	60 (high)	36 (moderate)
Operational Phase										
Proliferation of alien invasive species	5	4	4	4	2	1	8	6	70 (very high)	44 (moderately high)

All potential impacts will be further assessed in the EIA phase of this assessment.

10. PLAN OF STUDY FOR EIA PHASE (methodology)

The following methodology will be employed during the EIA phase:

- An ecological field survey documenting the vegetation patterns within the study area and identifying important habitats;
- An assessment of the ecological habitats and description of any species of conservation and/or ecological importance (Red Data Species) within the study area;
- Consider invasive alien plant status and rehabilitation potential of natural areas;
- The use of previous vegetation surveys conducted within the vicinity of the proposed development and literature investigations to supplement field data where necessary;
- An overall assessment of the condition of the vegetation found on the site including an assessment of cover and vegetation structure;
- Identify potential negative ecological impacts of the proposed development and assess the significance of these impacts; and
- Provide recommended mitigation measures for the identified impacts in order to avert or lower the significance of the negative impacts.

11. CONCLUSION AND DISCUSSIONS

All the vegetation units identified in the study area are classified as endangered and the possibility of encountering red data species is high. A large part of Route Alternative 1, DX Substation and Substation Site B are situated in the Critical Biodiversity Areas. Impacts of the proposed Saldanha Bay Network Strengthening Project are related to the loss of natural or partly natural vegetation and soil erosion, habitat fragmentation, disturbance of species of conservation concern and habitat fragmentation leading to the proliferation of alien invasive plant species.

Recommended options with regards to minimising the impact on the vegetation and any additional impacts to vegetation will be investigated further and confirmed during the EIA phase.

12.REFERENCES AND RESOURCES

BROMILOW, C. (2010). *Problem plants and alien weeds of South Africa*. Briza Publications. Pretoria.

MAREE, K.S., and VROMANS, D.C. (2010). *The Biodiversity Sector Plan for the Saldanha Bay, Bergrivier, Cederberg and Matzikama Municipalities: Supporting land-use planning and decision-making in Critical Biodiversity Areas and Ecological Support Areas*. CapeNature, Kirstenbosch, South Africa.

MANNING, J. (2007). *Field guide to Fynbos*. Struik Nature. Cape Town, South Africa.

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

PENCE, G.Q.K. (2008). *C.A.P.E. Fine-Scale Systematic Conservation Planning Assessment: Technical Report.* Produced for CapeNature as part of the GEF-funded C.A.P.E. Fine-Scale Biodiversity Planning Project. Cape Town, South Africa.

SANBI. (2012) *National Biodiversity Assessment 2011: An assessment of South Africa's biodiversity and ecosystems. Synthesis Report*. South African National Biodiversity Institute and Department of Environmental Affairs, Pretoria, South Africa.

ZEDLER, J.B. (2004). *Causes and consequences of invasive plants in wetlands: Opportunities, opportunists and outcomes*. Critical Reviews in Plant Science 23, 431—452.