Heritage impact assessment for the PROPOSED HERMES/DOMINION REEFS 132KV POWER LINE DEVELOPMENT, KLERKSDORP MAGISTERIAL DISTRICT, NORTH WEST PROVINCE



HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED HERMES/DOMINION REEFS 132KV POWER LINE DEVELOPMENT, KLERKSDORP MAGISTERIAL DISTRICT, NORTH WEST PROVINCE

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Declaration:

I, J.A. van Schalkwyk, declare that I do not have any financial or personal interest in the proposed development, nor its developers or any of their subsidiaries, apart from the provision of heritage assessment and management services.

J A van Schalkwyk (D Litt et Phil)

Heritage Consultant

March 2010

EXECUTIVE SUMMARY

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED HERMES/DOMINION REEFS 132KV POWER LINE DEVELOPMENT, KLERKSDORP MAGISTERIAL DISTRICT, NORTH WEST PROVINCE

Due to rapid urban expansion and population growth, as well as the possible expansion of mining activities, additional electricity supplies are urgently needed in the larger Klerksdorp region. In order to satisfy this demand, Eskom propose the construction of a 132kV power line, from Hermes substation in the east, past Klerksdorp, westwards towards Dominionville. For this purpose Eskom has identified a corridor in which to develop the power line. Two short alternatives have been added to the original corridor.

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by **Envirolution Consulting** to conduct a Heritage Impact Assessment (HIA) to determine if any sites, features or objects of cultural heritage significance occur within the boundaries of the area where it is planned to develop the project.

- Based on a review of available information and a visit to the site, it is our viewpoint that
 there are no sites, features or objects of cultural heritage significance that would prevent
 the development from continuing in the proposed corridor.
- However, as there is a possibility of heritage sites occurring in the proposed corridor, it is advisable that once the exact coordinates for each tower structure is available, a "walkdown" of the line is done to determine if there would be any impact on sites, features or objects of cultural significance.

Addendum:

Since the original report was done, as a result of public consultation and the appeal from one land owner, Eskom Distribution decided to consider a deviation of a section of the power line and the location of the substation. This site was surveyed in March 2013.

Based on a review of available information and a visit to the site, it is our viewpoint that
there are no sites, features or objects of cultural heritage significance that would prevent
the development from continuing in the proposed corridor and substation site.

J A van Schalkwyk Heritage Consultant March 2010

TECHNICAL SUMMARY

Property details						
Province	North West Province					
Magisterial district	Klerksdorp					
Topo-cadastral map	262	6CD, 2626DC,	2626DD			
Closest town	Klerksdorp					
Farm name	Various					
Portions/Holdings	Various					
Coordinates	Linear (coordinates only approximate)					
	No	Latitude	Longitude	No	Latitude	Longitude
	1	S 26.89590	E 26.78520	2	S 26.90230	E 26.40042

Development criteria in terms of Section 38(1) of the NHR Act	Yes/No
Construction of road, wall, power line, pipeline, canal or other linear	Yes
form of development or barrier exceeding 300m in length	
Construction of bridge or similar structure exceeding 50m in length	No
Development exceeding 5000 sq m	No
Development involving three or more existing erven or subdivisions	No
Development involving three or more erven or divisions that have been	No
consolidated within past five years	
Rezoning of site exceeding 10 000 sq m	No
Any other development category, public open space, squares, parks,	No
recreation grounds	

Development		
Description	Development of a 132kV power line	
Project name	Hermes – Dominion Reefs Power Line	

Land use	
Previous land use	Farming
Current land use	Farming

Heritage sites	assessment	
Site type	Site significance	Site grading (Section 7 of NHRA)
None		
Impact assess	ment	
Impact	Mitigation	Permits required
None		

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GLOSSARY OF TERMS AND ABBREVIATIONS

TERMS

Study area: Refers to the entire study area as indicated by the client in the accompanying Fig. 1 and 2.

Stone Age: The first and longest part of human history is the Stone Age, which began with the appearance of early humans between 3-2 million years ago. Stone Age people were hunters, gatherers and scavengers who did not live in permanently settled communities. Their stone tools preserve well and are found in most places in South Africa and elsewhere.

Early Stone Age 2 000 000 - 150 000 Before Present

Middle Stone Age 150 000 - 30 000 BP 30 000 - until c. AD 200 Late Stone Age

Iron Age: Period covering the last 1800 years, when new people brought a new way of life to southern Africa. They established settled villages, cultivated domestic crops such as sorghum, millet and beans, and they herded cattle as well as sheep and goats. These people, according to archaeological evidence, spoke early variations of the Bantu Language. Because they produced their own iron tools, archaeologists call this the Iron Age.

Early Iron Age AD 200 - AD 900 Middle Iron Age AD 900 - AD 1300 Late Iron Age AD 1300 - AD 1830

Historical Period: Since the arrival of the white settlers - c. AD 1840 - in this part of the country

ABBREVIATIONS

ADRC Archaeological Data Recording Centre

ASAPA Association of Southern African Professional Archaeologists

ΒP Before Present

CS-G Chief Surveyor-General

EIA Early Iron Age **ESA** Early Stone Age LIA Late Iron Age LSA Later Stone Age

HIA Heritage Impact Assessment

MSA Middle Stone Age

NASA National Archives of South Africa **NHRA** National Heritage Resources Act

PHRA Provincial Heritage Resources Agency SAHRA

South African Heritage Resources Agency

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED HERMES/DOMINION REEFS 132KV POWER LINE DEVELOPMENT, KLERKSDORP MAGISTERIAL DISTRICT, NORTH WEST PROVINCE

1. INTRODUCTION

Due to rapid urban expansion and population growth, as well as the possible expansion of mining activities, additional electricity supplies are urgently needed in the larger Klerksdorp region. In order to satisfy this demand, Eskom propose the construction of a 132kV power line, from Hermes substation in the east, past Klerksdorp, westwards towards Dominionville. For this purpose Eskom has identified a corridor in which to develop the power line. Two short alternatives have been added to the original corridor.

South Africa's heritage resources, also described as the 'national estate', comprise a wide range of sites, features, objects and beliefs. However, according to Section 27(18) of the National Heritage Resources Act (NHRA), Act 25 of 1999, no person may destroy, damage, deface, excavate, alter, remove from its original position, subdivide or change the planning status of any heritage site without a permit issued by the heritage resources authority responsible for the protection of such site.

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by **Envirolution Consulting** to conduct a Heritage Impact Assessment (HIA) to determine if any sites, features or objects of cultural heritage significance occur within the boundaries of the area where it is planned to develop the project.

2. TERMS OF REFERENCE

The scope of work for this study consisted of:

- Conducting of a desk-top investigation of the area, in which all available literature, reports, databases and maps were studied;
- A visit to the proposed development area.

The objectives were to

- Identify possible archaeological, cultural and historic sites within the proposed development area;
- Evaluate the potential impacts of construction, operation and maintenance of the proposed development on archaeological, cultural and historical resources;
- Recommend mitigation measures to ameliorate any negative impacts on areas of archaeological, cultural or historical importance.

3. HERITAGE RESOURCES

3.1 The National Estate

The NHRA (No. 25 of 1999) defines the heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations that must be considered part of the national estate to include:

- places, buildings, structures and equipment of cultural significance;
- places to which oral traditions are attached or which are associated with living heritage;
- historical settlements and townscapes;
- landscapes and natural features of cultural significance;
- geological sites of scientific or cultural importance;
- archaeological and palaeontological sites;
- · graves and burial grounds, including
 - o ancestral graves;
 - o royal graves and graves of traditional leaders;
 - o graves of victims of conflict;
 - o graves of individuals designated by the Minister by notice in the Gazette;
 - o historical graves and cemeteries; and
 - other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
- sites of significance relating to the history of slavery in South Africa;
- · movable objects, including-
 - objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
 - objects to which oral traditions are attached or which are associated with living heritage;
 - o ethnographic art and objects;
 - military objects;
 - objects of decorative or fine art;
 - o objects of scientific or technological interest; and
 - books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).

3.2 Cultural significance

In the NHRA, Section 2 (vi), it is stated that "cultural significance" means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. This is determined in relation to a site or feature's uniqueness, condition of preservation and research potential.

According to Section 3(3) of the NHRA, a place or object is to be considered part of the national estate if it has cultural significance or other special value because of

- its importance in the community, or pattern of South Africa's history;
- its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
- sites of significance relating to the history of slavery in South Africa.

4. STUDY APPROACH AND METHODOLOGY

4.1 Extent of the Study

This survey and impact assessment covers the area as presented in Section 5 and as illustrated in Figures 1 and 2.

4.2 Methodology

4.2.1 Preliminary investigation

4.2.1.1 Survey of the literature

A survey of the relevant literature was conducted with the aim of reviewing the previous research done and determining the potential of the area. In this regard, various anthropological, archaeological and historical sources were consulted.

 A few publications deals with aspects in the larger region, e.g. rock art (Dowson 1992), the Anglo Boer War (Cloete 2000) and the history of Klerksdorp (Praagh 1906). Some information was obtained from previous heritage impact assessment studies done in the region (Van Schalkwyk & Meyer 2006).

4.2.1.2 Data bases

The Heritage Atlas Database, the Environmental Potential Atlas, the Chief Surveyor General (CS-G) and the National Archives of South Africa (NASA) were consulted.

 Database surveys produced a number of sites located in the larger region of the proposed development.

4.2.1.3 Other sources

Aerial photographs and topocadastral and other maps were also studied - see the list of references below.

• Information of a very general nature were obtained from these sources

4.2.2 Field survey

The area that had to be investigated, was identified by **Envirolution Consulting** by means of maps. The site was surveyed by travelling the extent of the route.

4.3 Limitations

The following factors influenced the results of the study:

- In some sections the vegetation was very high and dense, seriously limiting archaeological visibility.
- As the exact coordinates for the route is not yet available, the survey covered the area in general and there would therefore be a chance of missing some of the less obvious sites, features or objects of cultural significance.

5. DESCRIPTION OF THE AFFECTED ENVIRONMENT

5.1 Site location and description

The power line will start at the existing Hermes substation located to the south of the town of Stilfontein. From there it will run westwards, passing Klerksdorp located some distance to the north. At some point is crosses the N12 and keep on westwards to the old mining village of Dominionville (Fig. 1). For more information, please see the Technical Summary presented above.

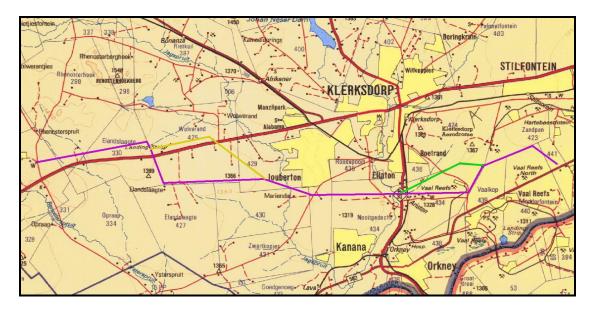


Fig. 1. Location of the study area in regional context. (Map 2626: Chief Surveyor-General)

The geology of the larger region is quite complex, but in the study area it changes from dolomite in the east to andesite over the largest section in the west. The same pattern can be seen in the in the original vegetation. In the dolomite areas it is classified as Rocky Highveld Grassland, whereas in the east it is classified as Dry Sandy Highveld Grassland.

5.2 Regional overview

No stratified sites dating to the Stone Age are known from the region. However, surface scatters of tools dating to the Early Stone Age are known to occur in the region of the Vaal River. Apart from that, rock engravings dating to the Late Stone Age are known from various sites in the larger region. One such site is Bosworth located some distance to the north of Klerksdorp. Here, there are nearly 600 engravings of animals as well as geometrical patterns.

The earliest Iron Age settlers who moved into the North-West Province region were Sothospeaking groups such as the Hurutshe, Kwena, Fokeng, Kgatla and Rolong. Sections of the Rolong settled on a flat-topped mountain (Platberg) to the north of Klerksdorp. Here, they built

stone walled settlements that were mainly concentrated along the northern plateau of the mountain. These Late Iron Age farmers herded cattle and small stock and planted crops.

White settlers moved into the area during the early part of the 19th century and Klerksdorp is considered to be the oldest town, established in 1837, and was named after J de Clerq. The town of Stillfontein was established in 1952 and takes it name from the Stillfontein Gold Mine that was established shortly before that. Dominionville was established approximately the same time, but gold production ceased by the 1980s. It thereafter became known for its uranium deposits, but this is currently not mined.

5.2 Identified sites

5.2.1 Stone Age

No sites, features or objects of cultural significance dating to the Stone Age were identified in the study area.

5.2.2 Iron Age

No sites, features or objects of cultural significance dating to the Iron Age were identified in the study area.

5.2.3 Historic period

- It is possible that some small, informal cemeteries could be located inside or close to the proposed corridor.
- Some old mining structures are located in Dominionville, close to the proposed corridor.

6. SITE SIGNIFICANCE AND ASSESSMENT

6.1 Heritage assessment criteria and grading

The NHRA stipulates the assessment criteria and grading of archaeological sites. The following categories are distinguished in Section 7 of the Act:

- **Grade I**: Heritage resources with qualities so exceptional that they are of special national significance;
- Grade II: Heritage resources which, although forming part of the national estate, can be
 considered to have special qualities which make them significant within the context of a
 province or a region; and
- Grade III: Other heritage resources worthy of conservation, on a local authority level.

The occurrence of sites with a Grade I significance will demand that the development activities be drastically altered in order to retain these sites in their original state. For Grade II and Grade III sites, the applicable of mitigation measures would allow the development activities to continue.

6.2 Statement of significance

In terms of Section 7 of the NHRA, all the sites currently known or which are expected to occur in the study area are evaluated to have Grade III significance.

6.3 Impact assessment

Impact analysis of cultural heritage resources under threat of the proposed development is based on the present understanding of the development.

- Based on a review of available information and a visit to the site, it is our viewpoint that
 there are no sites, features or objects of cultural heritage significance that would prevent
 the development from continuing in the proposed corridor.
- However, as there is a possibility of heritage sites occurring in the proposed corridor, it is advisable that once the exact coordinates for each tower structure is available, a "walkdown" of the line is done to determine if there would be any impact on sites, features or objects of cultural significance.

7. CONCLUSIONS

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural significance found within a corridor in which it is proposed to develop a new power line.

Based on a review of available information and a visit to the site, it is our viewpoint that there are no sites, features or objects of cultural heritage significance that would prevent the development from continuing in the proposed corridor. However, as there is a possibility of heritage sites occurring in the proposed corridor, it is advisable that once the exact coordinates for each tower structure is available, a "walk-down" of the line is done to determine if there would be any impact on sites, features or objects of cultural significance.

8. REFERENCES

8.1 Data bases

Chief Surveyor General

Environmental Potential Atlas, Department of Environmental Affairs and Tourism.

Heritage Atlas Database, Pretoria.

National Archives of South Africa

8.2 Literature

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Praagh, L.V. (ed.) 1906. The Transvaal and its mines. London: Praagh & Lloyd.

Raper, P.E. 2004. New dictionary of South African place names. Johannesburg & Cape Town: Jonathan Ball Publishers.

Van den Bergh, G. 1996. 24 Battles and Battle Fields of the North West Province. Potchefstroom: The North West Tourism Association.

Van Schalkwyk, J.A. & Meyer, C. 2006. Heritage scoping report for the Vaal Reefs mining area, Orkney, North West Province. Unpublished report 2006KH155. Pretoria: National Cultural History Museum

8.3 Maps and aerial photographs

1: 50 000 Topocadastral maps: 2626CD, 2626DC, 2626DD

Google Earth

APPENDIX 1: CONVENTIONS USED TO ASSESS THE IMPACT OF PROJECTS ON HERITAGE RESOURCES

Significance

According to the NHRA, Section 2(vi) the **significance** of heritage sites and artefacts is determined by it aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technical value in relation to the uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.

Matrix used for assessing the significance of each identified site/feature

1. Historic value			
I lo it important in the community, or nottorn of history.			
Is it important in the community, or pattern of history			
Does it have strong or special association with the life or work of a person,			
group or organisation of importance in history			
Does it have significance relating to the history of slavery			
2. Aesthetic value			
It is important in exhibiting particular aesthetic characteristics valued by a			
community or cultural group			
3. Scientific value			
Does it have potential to yield information that will contribute to an			
understanding of natural or cultural heritage			
Is it important in demonstrating a high degree of creative or technical			
achievement at a particular period			
4. Social value			
Does it have strong or special association with a particular community or			
cultural group for social, cultural or spiritual reasons			
5. Rarity			
Does it possess uncommon, rare or endangered aspects of natural or cultural			
heritage			
6. Representivity			
Is it important in demonstrating the principal characteristics of a particular			
class of natural or cultural places or objects			
Importance in demonstrating the principal characteristics of a range of			
landscapes or environments, the attributes of which identify it as being			
characteristic of its class			
Importance in demonstrating the principal characteristics of human activities			
(including way of life, philosophy, custom, process, land-use, function, design			
or technique) in the environment of the nation, province, region or locality.			
7. Sphere of Significance High Medium Low			
International			
National			
Provincial			
Regional			
Local			
Specific community			
8. Significance rating of feature			
1. Low			
2. Medium			
3. High			

Significance of impact:

- low where the impact will not have an influence on or require to be significantly

accommodated in the project design

- medium where the impact could have an influence which will require modification of

the project design or alternative mitigation

- high where it would have a "no-go" implication on the project regardless of any

mitigation

Certainty of prediction:

 Definite: More than 90% sure of a particular fact. Substantial supportive data to verify assessment

- Probable: More than 70% sure of a particular fact, or of the likelihood of that impact occurring
- Possible: Only more than 40% sure of a particular fact, or of the likelihood of an impact occurring
- Unsure: Less than 40% sure of a particular fact, or the likelihood of an impact occurring

Recommended management action:

For each impact, the recommended practically attainable mitigation actions which would result in a measurable reduction of the impact, must be identified. This is expressed according to the following:

- 1 = no further investigation/action necessary
- 2 = controlled sampling and/or mapping of the site necessary
- 3 = preserve site if possible, otherwise extensive salvage excavation and/or mapping necessary
- 4 = preserve site at all costs
- 5 = retain graves

Legal requirements:

Identify and list the specific legislation and permit requirements which potentially could be infringed upon by the proposed project, if mitigation is necessary.

APPENDIX 2. RELEVANT LEGISLATION

All archaeological and palaeontological sites, and meteorites are protected by the National Heritage Resources Act (Act no 25 of 1999) as stated in Section 35:

- (1) Subject to the provisions of section 8, the protection of archaeological and palaeontological sites and material and meteorites is the responsibility of a provincial heritage resources authority: Provided that the protection of any wreck in the territorial waters and the maritime cultural zone shall be the responsibility of SAHRA.
- (2) Subject to the provisions of subsection (8)(a), all archaeological objects, palaeontological material and meteorites are the property of the State. The responsible heritage authority must, on behalf of the State, at its discretion ensure that such objects are lodged with a museum or other public institution that has a collection policy acceptable to the heritage resources authority and may in so doing establish such terms and conditions as it sees fit for the conservation of such objects.
- (3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority.
- (4) No person may, without a permit issued by the responsible heritage resources authority-
 - (a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
 - (b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
 - (c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
 - (d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

In terms of cemeteries and graves the following (Section 36):

- (1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.
- (2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1), and must maintain such memorials.
- (3) No person may, without a permit issued by SAHRA or a provincial heritage resources authority-
 - (a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
 - (b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
 - (c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.
- (4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and reinterment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

APPENDIX 3: SURVEY RESULTS

See Appendix 1 for an explanation of the conventions used in assessing the significance of the cultural remains.

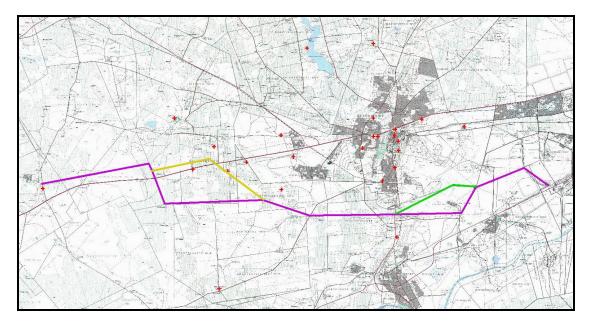


Fig. 2. Known heritage sites (red crosses) in relation to the proposed development. (Map 2626CD, 2626DD; Chief Surveyor-General)

Sites identified in the study area:

- It is possible that some small, informal cemeteries would be located inside or close to the proposed corridor.
- Some old mining structures are located in Dominionville.

APPENDIX 4: ILLUSTRATIONS



Fig. 3. The Hermes substation.



Fig. 4. View of the typical landscape in the eastern section of the study area



Fig. 5. View of the typical landscape in the western section of the study area.



Fig. 6. Some of the old mining structures in Dominionville.

ADDENDUM

Since the original report was done, as a result of public consultation and the appeal from one land owner, Eskom Distribution decided to consider a deviation of a section of the power line and the location of the substation. The original route is depicted as the green line on the map (Fig. 1) below, whereas the new alignment and location of the substation is depicted as the blue line.

The substation site was surveyed on 15 March 2013 by walking four transects across it. The area can be described as "green fields" and no disturbance of a kind was detected on the site.

- No sites, features or objects of cultural significance dating to the Stone Age were identified in the study area.
- No sites, features or objects of cultural significance dating to the Iron Age were identified in the study area.
- No sites, features or objects of cultural significance dating to the historic period were identified in the study area.

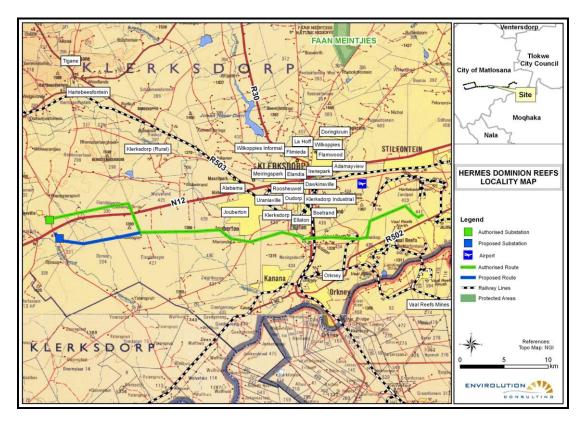


Fig. 1. Location of the study area.



Fig. 2. Aerial view of the study area.



Fig. 3. Views over the study area.