

# **AN ASSESSMENT OF THE IMPACTS ON HERITAGE OF THE PROPOSED 66Kv OVERHEAD POWERLINE BETWEEN THE TOWNS OF CLANWILLIAM AND GROENWATER**

**Magisterial District: Clanwilliam**

Assessment conducted under-  
Section 38 (8) of the National Heritage Resources Act (No. 25 of 1999)  
as part of an Environmental Impact Assessment (EIA)

Prepared for

**SHE Cape Environmental CC**

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## **EXECUTIVE SUMMARY**

The Archaeology Contracts Office was requested by SHE Cape Environmental CC to conduct an assessment of the impacts on heritage of substations and a proposed 66Kv o/h powerline between the towns of Clanwilliam and Graafwater in the western Cape. The project is being undertaken to supply increased power demand in the area. Two alternative routes for the line are proposed in the vicinity of Graafwater.

Archaeological and historical heritage resources were identified during the inspection and broad consideration of potential visual impact has been included.

We have concluded that in terms of the archaeology and visual environment, we believe that route alternative 2 is the preferred option. Neither of the Clanwilliam sub-station options would impact on heritage and it is up to ESKOM to choose the preferred site.

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# 1. INTRODUCTION

The Archaeology Contracts Office was requested by SHE Cape Environmental CC to conduct an assessment of the impacts on heritage of substations and a proposed 66Kv o/h powerline between the towns of Clanwilliam and Graafwater in the western Cape (Figure 1). The project is being undertaken to supply increased power demand in the area.

The project as described in the terms of reference are as follows:<sup>1</sup>

Eskom Holdings Limited through its Eskom Distribution, Western Region (hereafter called Eskom) has identified the need to construct a new 66kv substation in Clanwilliam and construct an overhead power line (approximately 30km) from the proposed new Clanwilliam substation to the existing Graafwater substation.

The demand for electricity in the Clanwilliam area and surrounds has been growing steadily over the past few years. Clanwilliam Municipality has recently applied to Eskom for an increase in electricity supply to the area. Therefore Eskom proposes to construct a new 66/22kV 1x20 MVA step down substation in Clanwilliam to supply the Municipality as well as Graafwater.

The ToR specified:

- Undertake a Phase 1 Archaeological and Palaeontological<sup>2</sup> Impact Assessment of the proposed and alternative routes and the proposed substation sites, and
- Identify mitigatory measures to protect and maintain any valuable archaeological sites that may exist within the proposed and alternative routes and the proposed substation sites.
- Identify archaeological and palaeontological hotspots along the proposed and alternative powerline routes and substation sites that may require avoidance to obviate or at least lessen impacts of the construction of the proposed line. Co-ordinates of these hotspots must be provided.

The Consultant that will be contracted to undertake the Archaeological and Palaeontological Impact Assessment as set out above will be provided with a map of the proposed routes and location of proposed substation sites. A list of co-ordinates of the substation sites as well as the various bend points along the route will be provided.

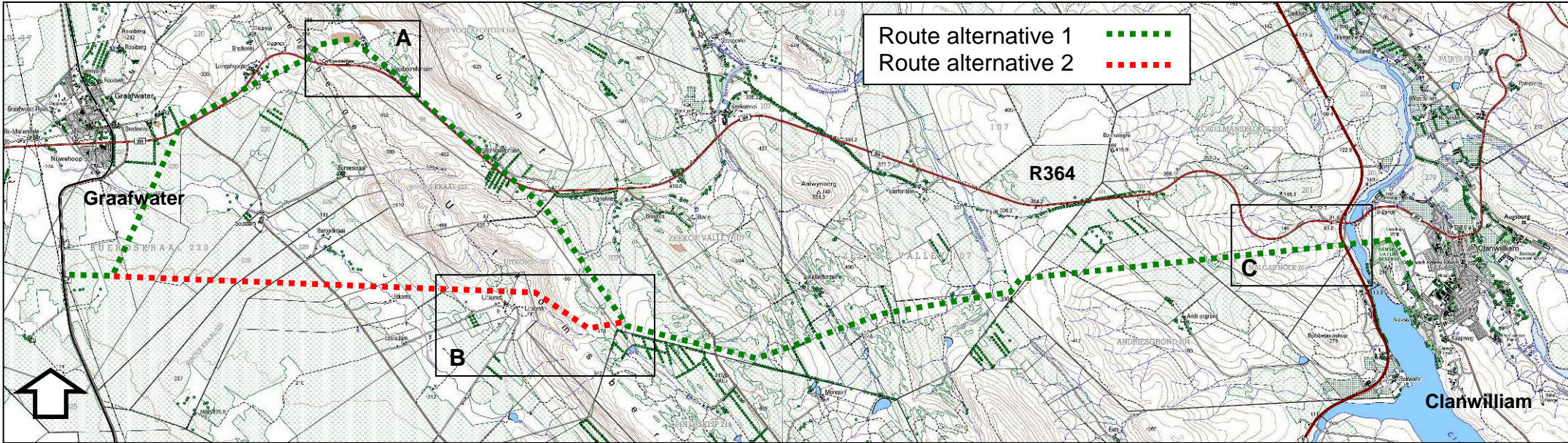
## 1.1 Routes

Two alternative routes have been presented for the section of the line where it passes through the mountains close to Graafwater (Carstensberg and Uitkomsberg). Alternative 1 follows the existing road (R364) while alternative 2 follows a route through a kloof. Overhead 22Kv powerlines are already present along both alternatives.

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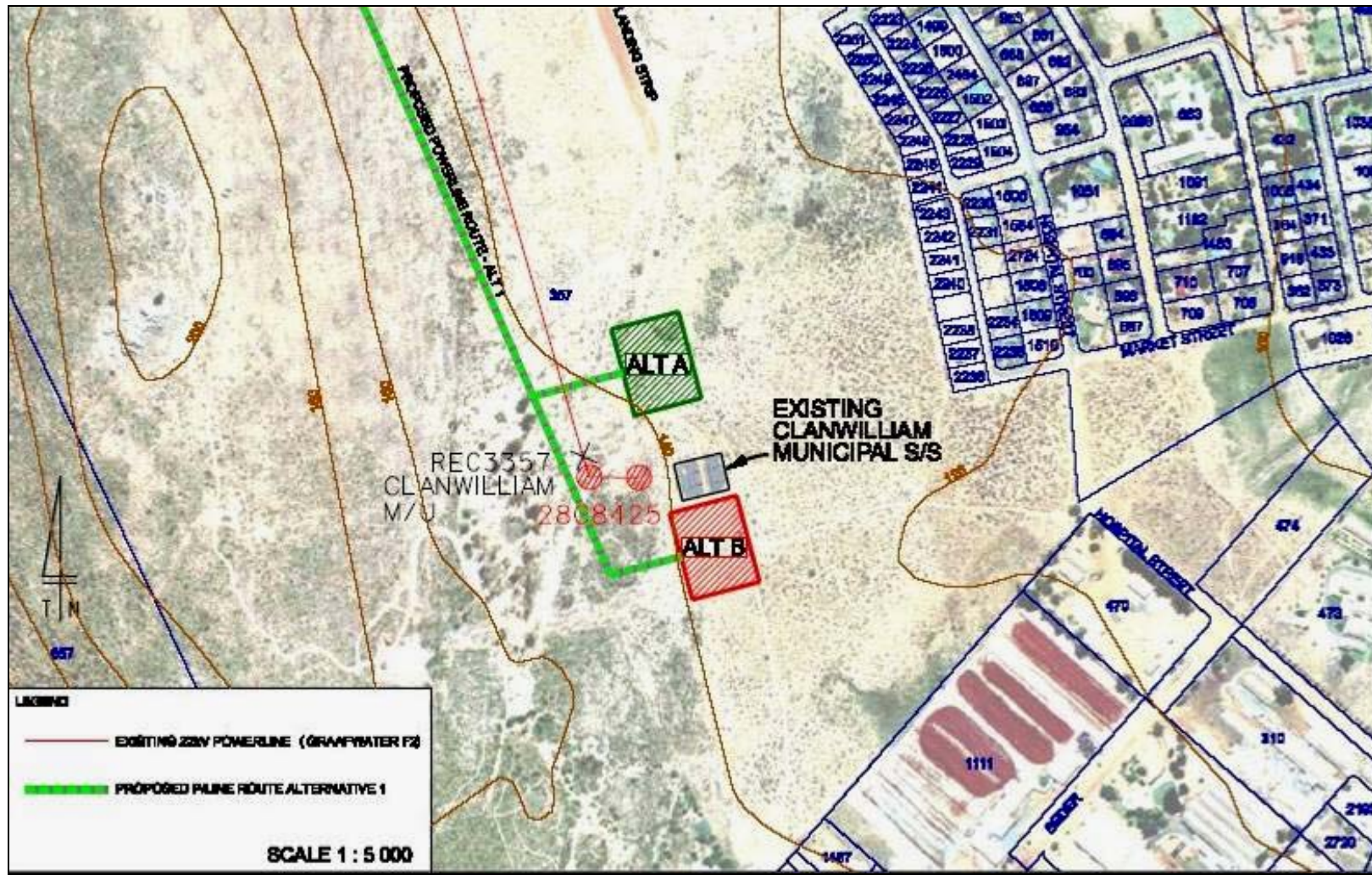
<sup>1</sup> ToR dated 01.04.2009 from SHE Cape Environmental CC

<sup>2</sup> We indicated to SHE Cape Environmental that if they required a palaeontological study, then a palaeontologist should be appointed to undertake a separate PIA. Having inspected the route however, I have suggested that perhaps a PIA is not necessary. This is ultimately the decision of HWC.



**Figure 1:** Map showing the location of the proposed power line. Rectangles A, B and C are enlarged in Figures 3-5 to show site locations.  
 (Extracted from 3218BA Graafwater and 3218BB Clanwilliam. Mapping information supplied by - Chief Directorate: Surveys and Mapping. Website: w3sli.wcape.gov.za)





**Figure 2:** Proposed sub-station positions superimposed over an aerial image (illustration supplied by SHE Cape Environmental CC)

## 2. DESCRIPTION OF THE RECEIVING ENVIRONMENT

Much of the area through which the powerlines will pass have been subjected to intensive agriculture and extensive ploughing of the generally sandy soils is evident. A number of crops such as wheat and rooibos tea are cultivated. Little of the area remains in a natural condition except where outcropping sandstone rock has prevented agriculture from occurring, or where slopes are too steep. A number of existing dams trap runoff while a number of streams cross the area of the investigation. A number of recent farm buildings dot the landscape, while a small number of older structures are also to be found. The tarred Clanwilliam to Lamberts Bay road (R364) is a prominent feature of the area. A number of existing o/h powerlines (22Kv) and o/h telephone lines lie adjacent to the road as well as along the proposed 66Kv route. The existing 22kv line follows approximately the route of the proposed line from Clanwilliam utilising the route alternative 2 through the mountains to the existing Graafwater sub-station.

## 3. METHODS

The route was inspected on 8<sup>th</sup> and 9<sup>th</sup> June, and 8<sup>th</sup> July 2009 by Mr D Halkett , Mr J Orton and Ms N Child. The sites and routes of the proposed activities were inspected via a combination of driving and walking. A number of photographs of the prevailing landscape were taken to document the context of the proposed activities and illustrate the receiving environment. It was immediately evident once we were in the field that the sandy ploughed areas of the area were unlikely to contain archaeological sites that would retain any integrity and we therefore concentrated most of our effort on the rocky outcrops and valleys where we new we would be likely to find more significant and intact Late Stone Age<sup>3</sup> sites. We consulted the database of archaeological sites originally compiled by the Spatial Archaeology Research Unit (SARU) at UCT (and now in digital database format thanks to Mr N. Wiltshire), to determine if there were any known and/or recorded sites along the proposed routes.

Since there are no precise positions for the poles (as these will be decided on during the installation as required), we have considered a relatively broad corridor along the given route in order to deal with marginal variations during installation and the inherent error of GPS co-ordinates. Poles will avoid any no go areas identified in this and other studies.

## 4. OBSERVATIONS

### 4.1 Archaeology

The landscape that is traversed by the routes and alternatives can be broadly categorised as agricultural with undisturbed areas in places. The undisturbed areas are generally the result of steep topography or the prevalence of rock at, or close to the surface. Experience over years of fieldwork in the Cederberg, has tended to show that archaeology concentrates in rocky areas in and around rockshelters and caves, with fewer sites being found out in the open away from such natural features.

We located a number of new sites (some very ephemeral) and relocated some of the SARU database sites that were indicated to be in close proximity to the proposed route. We found

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<sup>3</sup> The Late Stone Age is a term used to describe sites from the last ~20 000 years. In the Olifants River valley and adjacent areas, most sites date within the last 5000 years.

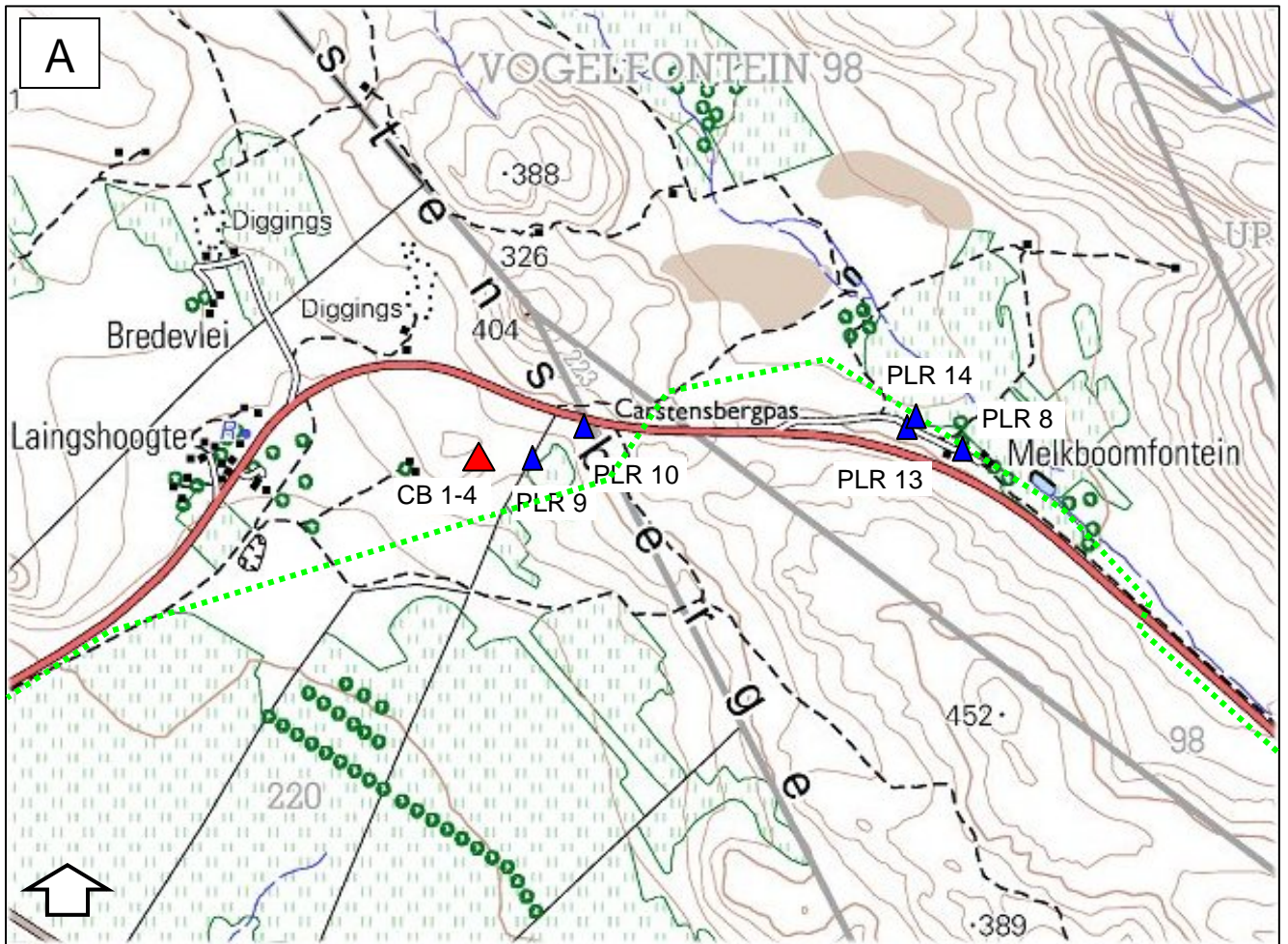
that in all cases, the database site positions were incorrect, some more so than others. This is due to the method of recording positions in the past on 1:50 000 map sheets in a time pre-dating GPS. We inspected all the positions triggered by the database search and in some cases were able to locate the sites by a broader but limited field search. Four sites, namely CB 1-4, were not located and are believed to be in a rocky outcrop outside of the powerline corridor.

Our observations are summarised in Figures 3 - 5 (site locations) and Table 1.

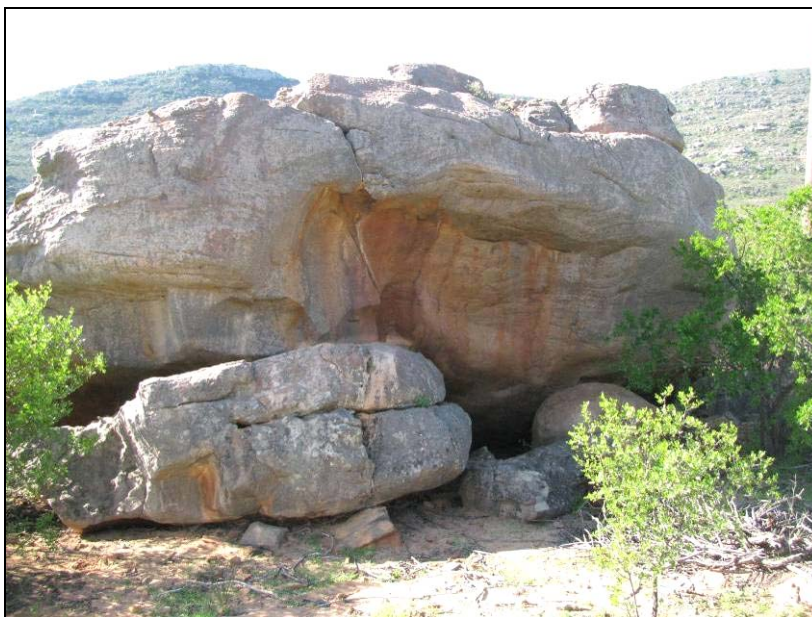
**Table 1:** Summary of field observations

Site	Lat/Lon°	Type	Description	Signif
PLR 1	S32.18675 E18.69458	structure	Ruin and threshing floor	medium
PLR 1a	S32.18645 E18.69563	old borehole	Cement and stone - probably had a wind pump above	low
PLR 2	S32.18608 E18.69479	graveyard	37+ graves ranging in age from 1880s to 1980s	high
PLR 3	S32.18878 E18.70195	isolated artefact	Isolated fragment of old, dark green bottle glass in kloof	low
PLR 4	S32.19181 E18.70758	artefact scatter	Two quartz flakes	low
PLR 5	S32.19236 E18.71142	natural feature	"Waterbakke" in bedrock	low
PLR 6	S32.19236 E18.71211	artefact scatter	Five quartz flakes and chips	low
PLR 7	S32.19371 E18.71466	rock paintings and artefact scatter	Small painted shelter with indeterminate images. Further to the left a large (~30cm) distinct red figure with tasselled bag on front. A few quartz artefacts observed	high
PLR 8	S32.14483 E18.66613	structure	Collapsed mud brick house. Fridge and old stove, 20 <sup>th</sup> C glass and ceramics. Guava trees, prickly pears, remnant garden	medium
PLR 9	S32.14619 E18.65040	artefact scatter	Ephemeral artefact scatter on rock shelf. Quartz and silcrete	low
PLR 10	S32.14450 E18.65486	structure	Old road with dry stone embankments	low
PLR 11	S32.18632 E18.68391	rock paintings and artefact scatter	Small boulder with shallow shelter with residues of paint possible eland torso), artefact scatter to south, silcrete and quartz, adzes	medium
PLR 12	S32.18647 E18.68344	artefact scatter	Small boulder with shallow shelter, artefact scatter to south, silcrete and quartz, adzes, oes	medium
PLR 13	S32.14466 E18.66463	rock paintings and artefact scatter	Wide north facing rock wall with patchy and mostly faded paintings, and artefact scatter on north west side. Figure with stick, handprints, other lines of humans. Most distinct figure is a small left facing male figure in red with attenuated arms and ray-like lines extending from back of head like a headdress. Bone, pottery, marine shell, Stone includes quartz, silcrete, hornfels?	high
PLR 14	S32.14433 E18.66472	rock paintings and artefact scatter	North-facing alcove in a boulder contains 2 right-facing female figures and 2-3? other human figures. Quartz and silcrete artefacts also observed. Also scrappy paintings on south face of boulder.	medium
UK1	S32.18829 E18.70008	rock paintings	Previously recorded site (SARU). Under a boulder, most distinct paintings are a polychrome right-facing male figure with white detail, and two red hook-headed figures with white infilled heads. Position in database incorrect. This co-ordinate is correct.	v high
UK2	S32.18801 E18.70084	rock painting	Presumed to be the previously recorded site (SARU). We saw what looked like the top portion of a single human figure? under a boulder. No site was found at the position given in the database.	low
MG1	S32.17697 E18.86717 S32.17697 E18.86726	graveyard	Small graveyard with 9 informal stone covered graves - graves are on an artificially created soil mound? 2 rows of graves probably post-1900.	high
MG2	S32.17852 E18.84125	rock paintings	Presumed to be the previously recorded site (SARU). No detailed description on database record. Site includes some distinct red figures with quivers and tasselled bags, three kaross absent figures in a black stained area all FR, finger dots and finger painted shapes. Position in database incorrect. This co-ordinate is correct.	medium



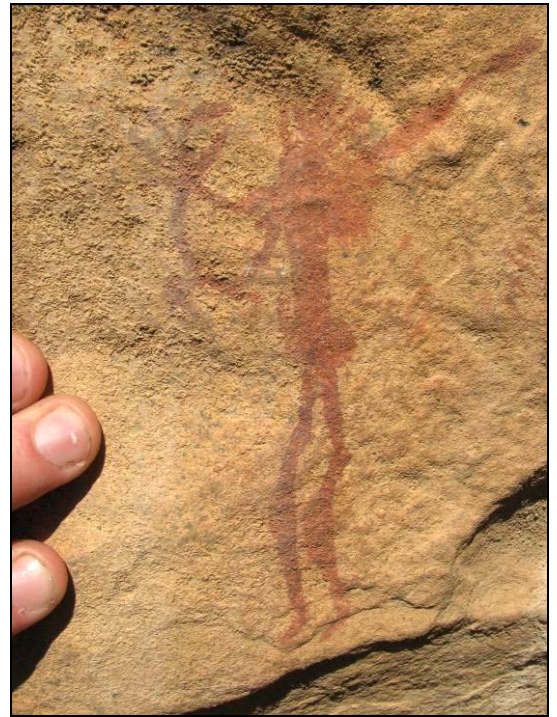


**Figure 3:** Map extract A showing sites that were located in relation to the powerline (green dotted line is route alternative 1). Blue triangles represent new sites while the red triangle represents the presumed positions of database sites.



**TL:** Looking nw into PLR 14 **TR:** One of the more visible painted human figures at the site





**TL:** PLR 13 showing the extensive rock wall and level talus **TR, BL, BR:** Some of the distinctive human figures at the site.



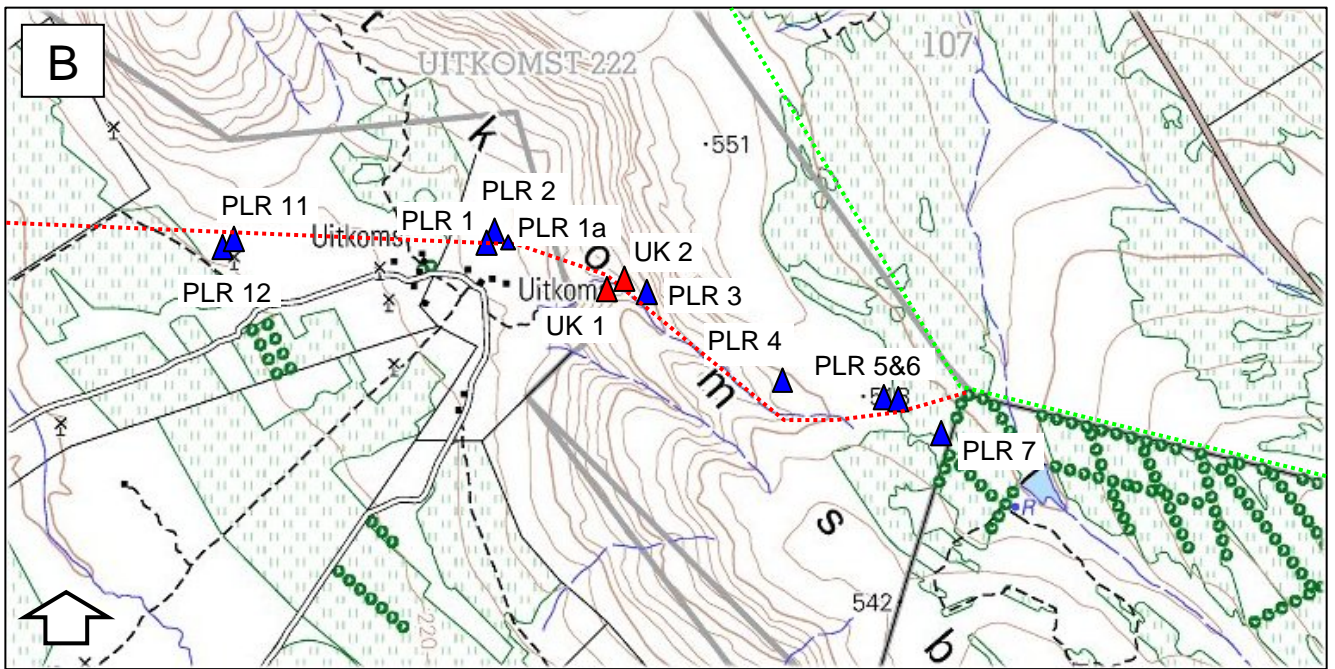


**T:** PLR 8 showing the ruined dwelling which is one of several structural elements on the old *werf*



**B:** PLR 10, the old road (dotted line) can be seen in places and dry stone embankments are quite distinct. No impacts are likely to occur to this feature. The powerline will be in the valley to the left of the road.





**Figure 4:** Map extract B showing sites that were located in relation to the powerline (green dotted line is route alternative 1 and the red dotted line is route alternative 2). Blue triangles represent new sites while the red triangle represents the positions of database sites.

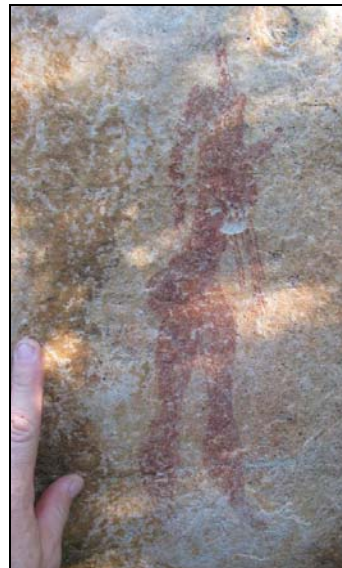


**TL:** Ruin and threshing floor at PLR 1 **TR:** Cemetery at PLR 2



**BL:** UK 1 is below a boulder at the edge of a cliff **BR:** The main r/a panel faces the entrance





**TL:** Detail of polychrome hookheads at UK 1

**TR(3):** An exceptional polychrome figure with white and black detail at UK 1

**BL:** The isolated outcrop at PLR 7

**BR:** A distinct human figure with tasselled frontal bag, a recurring theme in this study





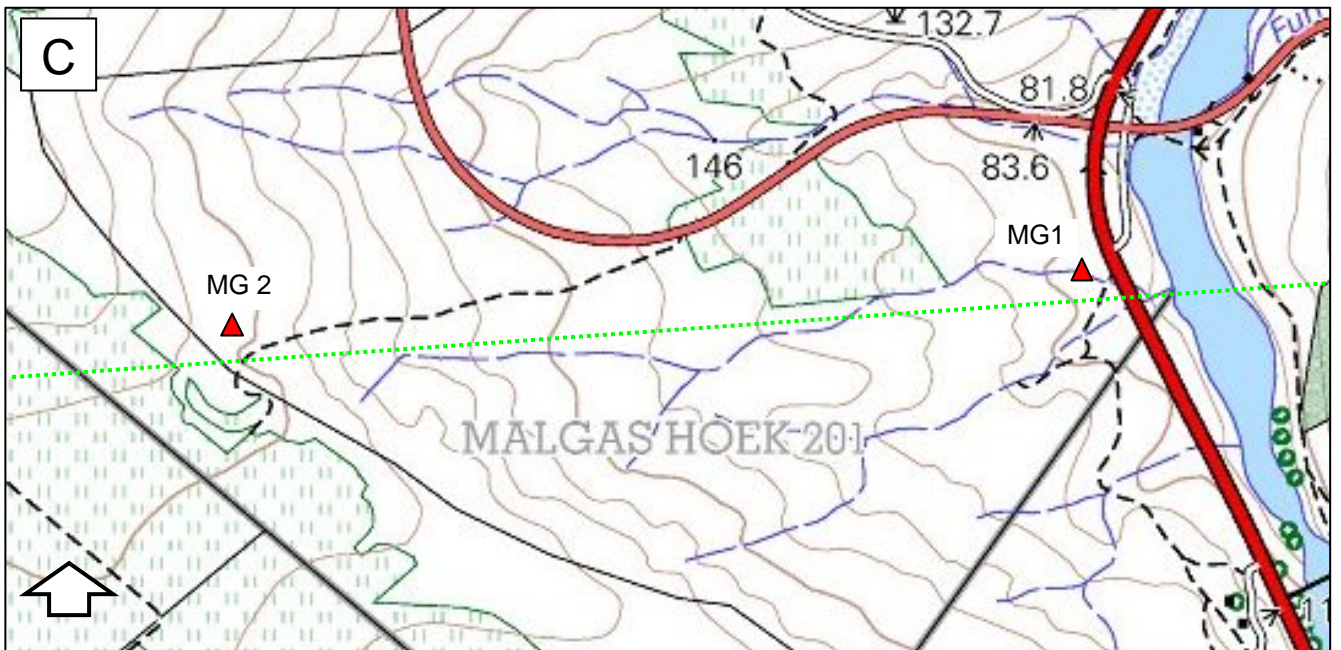
**TL:** PLR 11 and 12 are found in isolated boulders and are accompanied by artefact scatters

**M:** PLR 11 faces east

**BL:** Rock paintings are badly preserved and are all on a single panel

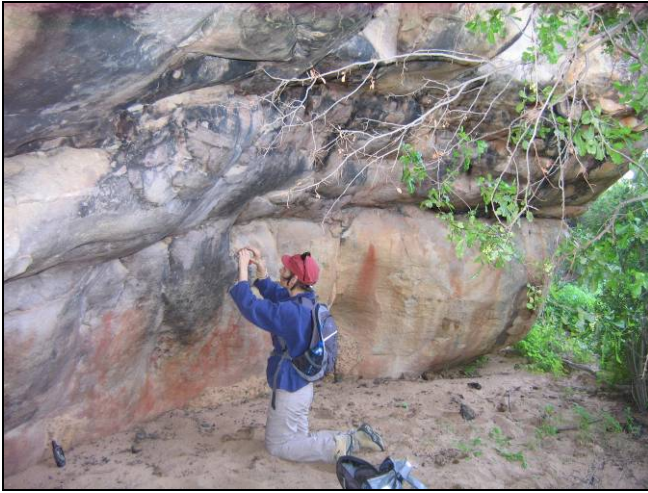
**BR:** Some examples of silcrete adzes found at PLR 11.





**Figure 5:** Map extract C showing sites that were located in relation to the powerline (green dotted line is route alternative 1). The red triangle represents the positions of a database site.





**TL:** The inside of the shelter at MG 2. The sandy floor comes almost to the level of the lowest paintings suggesting that the shelter may have filled with soil since the painting was done.

**TR:** Three kaross-clad figures visible amongst black staining.

**L:** Large human figures predominate the central panel of r/a



**BL:** The graves at MG1 in relation to the N7 and Clanwilliam dam **BR:** The artificial soil mound into which the graves are dug is clearly visible at the centre of the photograph a light area due to dry grass cover.



## 4.2 Visual aspects of the route

While this is by no means a comprehensive and focussed visual study some comment is made with respect to the visual aspects of the line to assist with decision making in this regard.

A 22Kv o/h powerline is already in existence along Alternative 1 continuing along alternative 2, and numerous other o/h services are present along the R364. The 22Kv line will be retained and augmented by the proposed 66Kv line that will run adjacent to it. The distance between the two lines is not constant, in some instances quite far removed while in the confined spaces of kloofs and passes, the gap is considerably reduced to only a few meters. While the 66Kv will differ in some respects to the existing line, the differences are not expected to be extreme. Poles are positioned according to ground conditions and requirements and as a result spacing is not constant. The following images indicate the landscape that will be traversed by the line.

### 4.2.1 Clanwilliam sub-station to Uitkomsberg

Moderate increase of visual impact from Clanwilliam moderated by the fact that electric lines tend to be “lost against the background of Ramskop. Impact is mostly limited to the point where it crosses the skyline.



**TL:** Existing Clanwilliam sub-station. **TR:** Existing powerline on the north side of Ramskop at Clanwilliam

Similarly, the line tends to be lost against the rugged background to both left and right of the Olifants River. The lines do cross the N7 but these too tend to be lost against the sky, and if driving one is tending to focus either on the Clanwilliam Dam, or on the Clanwilliam/Lamberts Bay intersection.

The point at which the line crosses the ridge at Malgashoek is some distance from the N7 and since at right angles to the Olifants River valley, will tend to have a limited visual signature. The line is some distance from the R364 where it crosses Malgashoek and lies below eye level, or is shielded by road cutting embankments. Beyond Malgashoek towards Uitkomsberg, the line remains quite distant from the R364 and is lost against the agricultural background.



**BL:** Looking south from Top of Ramskop showing approximate route of powerline (dotted) over Malgashoek farm, N7 in bottom of valley. **BR:** Looking from Malgashoek back towards Clanwilliam.



**TL and TR:** The characteristic rolling agricultural landscape between the N7 and Uitkomsberg.

#### 4.2.2 Uitkomsberg to Graafwater via Carstenbergs Pass (Alternative 1)



**TL:** Looking se along the R364 direction Clanwilliam at Carstenbergs Pass. **TR:** Looking nw down the R364 direction Graafwater at Carstenbergs Pass (proposed route shown approximately by white dotted line)



Route alternative 2 diverges from Alternative 1 on the northern side of the Uitkomsberg. The route following Cartstenbergs Pass runs parallel to the mountains and then cutting diagonally until it comes close to the R364. Although lying close to the road, it tends to be lost against the background. A moderate signature will be created where it crosses from one side of the R364 to the other at Melkboomfontein. From that point the line runs in the valley alongside the pass. No lines exist here at present. Some visual signature will be created where the lines cross back over the R364 but this is at a point between two high road cuttings. From there it cuts diagonally across veld to a point adjacent to the R364, where it runs for a short distance before cutting diagonally inland across agricultural land to link up with the Graafwater sub-station.



**BL:** The valley to the west of Carstenbergs Pass, visible at rhs. **BR:** The powerline crosses back over the R364 and cuts across veld to rejoin the road for a short distance towards Graafwater after which it heads back to the sw to link with route alternative 2 just short of the sub-station.

#### 4.2.3 Uitkomsberg to Graffwater sub-station (via Alternative 2)

This section is far removed from any major public roads and is confined to a kloof. Residents of Uitkoms farm will experience a moderately increased visual signature in addition to the existing line. On leaving the mountains, the line runs across agricultural land alongside the existing installation until linking with the existing sub-station.



**TL:** Looking nw towards Uitkomsberg showing the kloof. **TR:** Looking towards the nw from the Uitkomsberg kloof



**BL:** Looking nw up the kloof showing existing powerline. **BR:** The existing Graafwater sub-station on the road linking the R365 and R364.

#### 4.2.4 Comments

In our opinion, visual impacts of the proposed line are to some degree mitigated by the fact that powerlines are already present along the routes. This is not to say that the addition of another will not result in a moderately increased visual signature.

We believe that the route that uses Alternative 2 through the Uitkomsberg probably has the lower visual signature of the two proposals.

#### 4.3 Palaeontology

While acknowledging that this is not our field of specialisation, having inspected the route in some detail, it seems unlikely that any impacts to palaeontological resources will result from the proposed activity.



## 5. DISCUSSION

Our task has been to identify “hotspots” along the proposed route/s that would be avoided during the construction of the line.

### 5.1 Carstensberg Pass (Route Alternative 1)

On this section of the route, three sites lie on/close to the proposed route (PLR 8, 13 and 14). PLR 13 and 14 are sites with rock paintings and artefact scatters, while PLR 8 is an old farm werf. A farm road runs through the midst of these sites and as a result some impact may occur during the construction phase. Other sites are of very low significance and as long as no poles are placed directly on them, no further mitigation is required. None of the previously recorded database sites (CB 1-4) were found to be on the proposed route and therefore do not require mitigation. The old road PLR 10 is also of low significance and does not require any mitigation. At present, both o/h telephone and power lines run alongside the R364.

#### 5.1.1 Suggested mitigation

Poles should be located to the nw of these sites and construction crews should avoid using the existing upper track. No poles should be placed within a polygon defined by the following lat/lon positions.

32° 8'39.89"S 18°39'39.85"E

32° 8'36.50"S 18°39'45.17"E

32° 8'39.21"S 18°39'58.65"E

32° 8'44.33"S 18°40'05.72"E

32° 8'47.35"S 18°40'04.42"E

In addition, as it is not realistic to place the area off limits to construction crew, the foreman must instruct his team as to the protocol to be observed in respect to these sites. In terms of the rock paintings, look but don't touch, and do not throw any liquids onto the paintings, no graffiti, no fires, no collecting of any items.

### 5.2 The Uitkomsberg Kloof (Route Alternative 2)

Similar to the Cartensberg Pass option, this section of the proposed route is characterised by stone age sites in the form of artefacts and rock paintings, and more recent historical occurrences in the form of an old farm werf PLR 1 and features 1a, and associated cemetery PLR 2. Sites PLR 3-6 and UK 2, while close to the proposed route, are of low significance and no particular mitigation is required. PLR 7 is an isolated boulder with distinct rock paintings but is relatively far from the line and is unlikely to be in any danger. The most significant site in the kloof is UK 1. While it does not lie on the immediate route and will not be directly impacted, it could suffer indirect impacts from human intervention. The type of painting that is found at UK 1 is best described as polychrome human figures. It should be noted that there is an existing 22Kv o/h line in the kloof and no impacts resulted from that installation.

### **5.2.1 Suggested mitigation**

The cemetery PLR 2 should obviously be avoided and as the route now stands, the line would run between the old werf and the cemetery. No items should be collected from either. In the unlikely event of encountering human remains outside of the cemetery, such an occurrence must be reported and the pole position shifted. As with the Carstenberg Pass rock art sites, the foreman must instruct workers as to the protocol to observe in respect of any rock paintings. UK 1 is away from the route and unless people specifically search for it, it will probably remain undetected. The same applies to PLR 7, PLR 11 and 12 are also not directly impacted by the line. Access by vehicles must avoid the immediate area to prevent any impact.

### **5.3 Malgashoek Farm**

Two sites were found close to the line. The site MG 2 was previously recorded on the SARU database. It will not experience direct impact from the line itself but as it is within 20 meters of the farm track that will be used for access, it may be subject to indirect impact by human intervention. There are several human figures some with tasselled bags and most distinctly, three small figures with karosses. No artefacts were observed. An existing 22Kv o/h line is present close to the site and no damage resulted during that project. A small graveyard consisting of 9 informal graves, MG1, is located close to/on the route.

#### **5.3.1 Suggested mitigation**

The foreman must instruct workers as to the protocol to observe in respect of any rock paintings.

The graveyard MG2 should be avoided in the sense that no poles should be erected in or immediately adjacent to it. The artificial soil mound is very evident and the graves are obvious. In the unlikely event of encountering human remains outside of the cemetery, such an occurrence must be reported, the hole refilled and the pole position shifted. No vehicles are to enter the area and care must be taken not to impact the graves with the o/h lines during installation.

### **5.4 Sub-Station sites**

The proposed Clanwilliam sites are in a degraded area adjacent to an existing installation and will not impact any heritage sites. An existing sub-station is present at Graafwater and will be upgraded.

### **5.5 Ramskop Nature Reserve**

It is not absolutely clear as to what constitutes the boundary of the reserve. ESKOM should determine this and avoid the installation of poles within the area. The botanical report will no doubt elaborate on this.

## **6. CONCLUSIONS**

In overall terms, there would appear to be no significant direct impacts on archaeological heritage resulting from the proposed activities. Heritage sites are for the most part found in

and around rocky areas which are for the most part avoided in favour of the easier topography covered by agricultural land. We recorded no sites in those areas. Construction and future servicing of most of the line will be via the existing farm road network. We still await information on the way in which poles would be installed in the Uitkomsberg kloof.

### **6.1 Clanwilliam sub-station**

Neither of the 2 options will impact heritage and ESKOM may select the preferred site.

### **6.2 Preferred route**

In considering the routes in terms of both impacts on archaeological sites and visual environment, we believe that the route following Alternative 2 would be the better option. Although the painted site UK 1 lies on the route, we believe that it is far enough removed not to be an issue.

## **7. ACKNOWLEDGEMENTS**

Thanks to Nick Wiltshire at HWC for supplying information from the digital site database and to the various landowners for allowing access to their land. Information pertaining to MG2 was provided by the land surveyors.