



**ENVIRONMENTAL IMPACT ASSESSMENT FOR THE
PROPOSED MATIMBA-WITKOP NO. 2 400 kV
TRANSMISSION LINE, LIMPOPO PROVINCE**



**SPECIALIST STUDY – HERITAGE IMPACT
ASSESSMENT**

APPENDIX H

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1. INTRODUCTION

The Heritage Impact Assessment (HIA) was undertaken in accordance with Section 38 of the National Heritage Resources Act (NHRA), No 23 of 1999, and is intended for submission to the South African Heritage Resources Agency (SAHRA). The aim of scoping study was to identify the most appropriate corridor for the establishment of the proposed Matimba-Witkop No. 2 400 kV Transmission line. The option with the least impact on the heritage resources of the proposed corridor can be identified by documenting the sensitivity of each proposed line regarding cultural heritage.

The main objective of the study was to identify the least sensitive option, rather than to identify every site within the proposed corridors.

2. FIELD WORK

Initial field investigations were undertaken in November 2001 February. An in-depth field investigation was then undertaken, investigating all the proposed corridors. Due to time constraints, two principal investigators (PI's) and two fieldworkers were utilised in two teams to facilitate a faster survey. In much of the area, accessibility is difficult due to the topography and vegetation of the area. Some areas were also found to be inaccessible due to landowners prohibitory access.

Most areas were found to be accessible, to some extent, by vehicle and from these paths the general area was surveyed on foot. The area was surveyed using standard archaeological surveying methods. The aim of the survey was to identify the corridor that would have the least effect on the cultural heritage of the area. The ground survey was also supported by the information derived from the original desk study performed for the lead consultant. This information identified areas that were investigated in more detail due to their potential higher sensitivity as identified within the Scoping Phase of the study.

3. METHODOLOGY

The area was surveyed using standard archaeological surveying methods. The area was surveyed using directional parameters supplied by the Global Positioning System (GPS) and surveyed on foot because of the inaccessibility of the area due to the undulating terrain. This technique has proven to result in the maximum coverage of an area.

Standard archaeological documentation formats were employed in the description of sites. Using standard site documentation forms as comparable medium, it enabled the surveyors to evaluate the relative importance of sites found.

Furthermore, GPS readings of all finds and sites were taken. This information was then plotted using a Magellan 2000 XL GPS (*Cape datum*).

Indicators such as surface finds, plant growth anomalies, local information and topography were used in identifying sites of possible archaeological importance. Test probes were done at intervals to determine sub-surface occurrence of archaeological material. The importance of sites was assessed by comparisons with published information as well as comparative collections. All sites or possible sites found were classified using a hierarchical system wherein sites are assessed using a scale of zero to four according their importance. These categories are as follows;

| Degree of significance | Justification | Score |
|-------------------------------|--|--------------|
| Exceptional significance | Rare or outstanding, high degree of intactness. Can be interpreted easily. | 4 |
| High significance | High degree of original fabric. Demonstrates a key element of item's significance. Alterations do not detract from significance. | 3 |
| Moderate significance | Altered or modified elements. Element with little heritage value, but which contribute to the overall significance. | 2 |
| Little significance | Alterations detract from significance. One of many. Alterations detract from significance. | 1 |
| Intrusive | Damaging to the item's heritage significance. | 0 |

4. HERITAGE SITES IDENTIFIED WITHIN THE STUDY AREA

During the investigation of the alternative corridors for the establishment of the Transmission line, a number of sites with heritage potential were identified. These sites are briefly described below and indicated on Figure 1.

The area from the Matimba Powerstation to the Tambotie River consists mainly of alluvial sand deposits with no indications of occupation. Several pans were investigated for Stone Age deposits. No sites were found, and no core material (rock suitable for tool manufacture) was available in the immediate vicinity of these pans. Most of the homesteads identified within the alternative corridors were investigated, but none were found to be of any historic value. Sites are referred to by a code consisting of an abbreviation of the project name MaWit, and a numerical indicator (e.g. 001).

Figure 1 – arch map

i. MaWit 001 (23° 38' 37,6" S; 27° 52' 53,8" E)

A small scattering of Late Stone Age (LSA) tools was found at this site (Photograph 1). No cores or unmarked flakes were present. A small number of tools were recorded. Therefore, this site is not seen as representing a manufacturing site.

ii. MaWit 002 (23° 35' 18,5" S; 28° 31' 50,3" E)

A community graveyard with approximately 50 graves was recorded at the village of Kafferboom next to the dirt road (Photograph 2). The graveyard is still in use.

iii. MaWit 003 (23° 41' 32,5" S; 28° 08' 42,1" E)

A surface scatter of potsherds, daga fragments and a few stone tools were recorded at this site (Photographs 3, 4 and 5). The scatter was of low density and was found in the neck between two hills. The surrounding areas were very rocky, although this area was without rocks. A fragment of a grinding stone was also recorded. Evidence of hut clay or a daga fragment was recorded all over the site. Possible features, such as dilapidated stone walls, were also recorded. The site extends over an area at the foot of one hill and measured approximately 50 m x 120 m. The site is not very big or rich in feature and artefacts. The *Euphorbias* growing on the side of the hill were most probably brought in by occupants.

iv. MaWit 004 (23° 41' 20,7" S; 28° 08' 40,6" E)

A small concentration of slag and tuyère fragments was found in the road (photo 6). The road was slightly graded open to expose scatter. The concentration measured approximately 20 m x 30 m but was of a very low density.

v. MaWit 005 (23° 41' 33,6" S; 28° 11' 59,1" E)

A low density scatter of stone tools was recorded in a sandy area in-between a stretch of exposed rocks. The stone tools consist of cores, flakes, scrapers and blades (Photograph 7). The area measured approximately 100 m x 100 m. Only a surface scatter was recorded with reworked cores. This is not considered as a production site.

vi. MaWit 006 (23° 41' 32,9" S; 28° 12' 33,2" E)

A concentration of Late Stone Age tools and microliths were recorded at this site (Photograph 8). The area was slightly disturbed due to development of infrastructure (fencing, a road and a powerline).

vii. MaWit 007 (23° 41' 26,1" S; 28° 14' 51,3" E)

A low density scattering of Late Stone Age tools was recorded on this site (Photograph 9).

viii. MaWit 008 (23° 45' 15" S; 28° 43' 03" E)

Abandoned stretches of low stone walling were recorded at this site. The stone walling is of a recent nature and could be associated with the school approximately 50 m away from the site. The stone walling was abandoned after recent improvements (such as fencing) at the school (Malapile Primary School). A portion of the stone walling appears to be an entrance to the schoolyard.

ix. MaWit 009 (23° 45' 25" S; 28° 43' 31" E)

A cluster of eleven graves indicated by a paved stone outline dressing was recorded at this site (Photograph 10). These are located on a ploughed field approximately 80 m from the existing Matimba-Witkop NO 1 400 kV Transmission line.

x. MaWit 010 (23° 46' 27" S; 28° 45' 10" E)

A dilapidated hut foundation and some scattered potsherds indicate the remains of an informal settlement at this site (Photograph 11). The settlement moved during the early 1960s to a formal village in the Vlakfontein region. The site covers a maximum of 10 ha. The site was destroyed and damaged by the construction of the road and existing Transmission line.

xi. MaWit 011 (24° 02' 39,7" S; 29° 20' 35,8" E)

Large amounts of European type structures were recorded in a 3 – 4 ha area at this site (Photographs 12 and 13). Several porcelain and metal remains were recorded. Most of the inhabited area is defined by cacti and large tracts of pioneer plant growths (Photograph 14). The document studies to indicate that these were the ruins of the Dorsland settlement that was abandoned during the 1960s. Although no reference to a graveyard could be found, it is highly likely that graves will be located close to this settlement.

xii. MaWit 012 (23° 56' 46,4" S; 29° 03' 46,8" E)

The remains of an old farmhouse and homestead were recorded at this site (Photograph 15). The site consists of approximately 4 – 5 buildings within a 50 m x 50 m area. The buildings were constructed from sundried bricks and cement.

xiii. MaWit 013 (26° 02' 39,7" S; 29° 20' 35,8" E)

An historic fenced-in graveyard with 3 graves was recorded close to tower 542-543 on the northern side of Witkop Substation (Photograph 16). The graveyard and the layout seems to indicate that the graveyard is of Western or European origin. No names were indicated on the headstones.

xiv. MaWit 014 (24° 02' 11" S; 29° 18' 01" E)

A large area on the northern side of the valley running from Witkop Substation towards the N1 shows indications of habitation. This was most likely a Late Stone Age site and there is a strong possibility of gravesites being located here (Photographs 17 and 18).

5. RECOMMENDATIONS REGARDING HERITAGE SITES

The following recommendations are provided for the identified sites. These recommendations are based on the qualitative parameters outlined under the section on Methodology. Recommendations are based on the impact that the towers will have on the surface. This effect has been determined to be minimal. The towers examined during the study showed that only approximately 4 m² of ground surface is disturbed by the foundations feet of the towers.

i. MaWit 001 (Score 2)

This site does not constitute a manufacturing site and, therefore, has little scientific or cultural value. The concentration of stone tools is common in this area and the impact of a single tower foundation is considered to be minimal.

ii. MaWit 002 (Score 3)

The community graveyard is an important aspect of the social fabric of the community and should preferably not be moved or altered.

iii. MaWit 003 (Score 3)

This site has significant scientific potential. The survey indicated that Iron Age sites in this area are uncommon, and little is known of such sites due to this situation. It is, therefore, recommended that the site be avoided as far as possible in order to limit damage to the site. If a tower has to be placed on this area, rescue work will have to be performed in order to preserve the information contained at this site.

iv. MaWit 004 (Score 3)

Indications of an iron production site abound here, and should be further investigated should the line pass here.

v. MaWit 005, MaWit 006 and MaWit 007 (Score 2)

These sites do not constitute manufacturing sites and, therefore, have little scientific or cultural value. The concentration of stone tools is common in this area and the impact of a single tower foundation on such sites is considered to be minimal.

vi. MaWit 008 (Score 2)

The recent nature of this site and its lack of cultural significance gives the site very little heritage potential.

vii. MaWit 009 (Score 3)

The community graveyard is an important aspect of the social fabric of the community and should preferably not be moved or altered.

viii. MaWit 010 (Score 2)

The inhabitants of this informal settlement moved to a formal settlement approximately 3 km to the north-east of the site during the 1970s. Interviews with local inhabitants indicated that no graves were located close to the site or within the site itself. The site has little or no scientific or cultural value.

ix. MaWit 011 (Score 3)

The main concern in this area will be the locality of graves. Should the line pass here, the locality of these will have to be determined.

x. MaWit 012 (Score 2)

The homestead itself has little or no cultural or scientific value. There were no indications of graves. No further work is recommended for this site.

xi. MaWit 013 (Score 3)

The graveyard probably forms part of the farm settlements around this area. The next of kin of these graves could possibly be located. Provided that the graves

are not disturbed and access to them are not inhibited, they should not pose any problems for the proposed line.

xii. MaWit 014 (Score 3)

Very little structural remains were recorded at this site. This lack of hut remains and stone walling would suggest that these might have been Ndebele settlements of the late 1800s. The affected area spans approximately 2 – 3 ha, and has previously been damaged. Although the site has some scientific value, it contains very little material remains and would, therefore, not be a significant research site. However, should the line pass through here, it would be important to identify any graves in the surrounding area.

6. RECOMMENDATIONS REGARDING ROUTE SELECTION

The main objective of this study was to determine the route with the least impact on the heritage resources of the area. Although the majority of the sites identified were located on the first option (main line), it is important to note that it spans over a much longer and larger area than the rest of the sites. This option would therefore necessarily contain the majority of sites.

In selection of an option, three factors should be taken into consideration:

- The impact of the proposed development.
- The type of sites identified.
- The scope of the work performed.

6.1. The Impact of the Proposed Development

When the impact of a development on our cultural heritage is evaluated, it is important to look at the type of development and the unique characteristics that the type of development will have. This will determine the extent and effect of the alterations that the development would have on the heritage resources. The development of a 400 kV Transmission line will have three impacts on the surface components:

- (a) Clearing of the servitude (Photograph 19).
- (b) The placement of the tower feet (Photograph 20).
- (c) Visual impact on sites (Photograph 21).

The clearing of the servitude usually involves only the removal of vegetation for fire control beneath the line. This has minimal impact on surface structures and could even assist in preserving sub-surface features by minimising root damage.

Should similar structures be used as in the existing line, the surface effect of these will be minimal and the information lost through these excavations is negligible.

The only further negative effect of the pylons on heritage sites could be the visual impact that a tower would have on such sites. Only sites that have a score of 4 and above would, however, justify the movement of a tower due to the visual impact that it would have on such a site. No such sites were identified on any of the routes.

6.2. Type of Sites

Only sites with a score value of 3 and less were identified on any of the routes. No sites with high cultural or scientific value were identified. Sites with high scientific value can be identified on the ground by qualified investigators. Sites with high cultural value are, however, often more difficult to identify. To facilitate the identification of these sites, extensive interviews were conducted by the investigators in the local villages and towns to determine if any ritual places, places of power or initiation sites were located on the line. The informants indicated none.

6.3. Scope of Work Performed

Taking into consideration the above-mentioned effects and the extent of these effects on cultural resources, it would not have been economically justifiable to perform a full-scale survey of the proposed lines. This usually involves surveyors moving no less than 20 m from each other in transects and performing test excavations every 30 m to document all possible sites. The logistics of such a survey would outweigh the effects that it could have on possible sites. For this reason, it was decided to focus on sites with a score of 4 and more. No such sites were identified during this survey and none are located on any of the routes. Some of the smaller sites (especially gravesites with higher cultural significance) were documented.

Taken into account the above mentioned components it is the finding of the Principal Investigator that none of the options listed can be seen as more or less sensitive than the others for sites with a score of 4 or more. It does, however, seem that the main line option would affect more smaller sites than the northern by-pass option.

It is the recommendation of the Principal Investigator that the line should try to avoid any of the listed sites in the report. If this is not possible, note should be taken of their location during the construction to avoid them being damaged. Or the first phase of the project it is suggested that the northern by-pass option be

utilised as the alluvial sand deposits found in this area does contain as many sites as the more rocky areas of the existing line option.

It is still possible that some sites with cultural significance (i.e. graves, places of power etc.) can be located during the construction phase of the project. No survey can be completely exhaustive and encompassing. For this reason the consultant, if requested, will supply the construction team with information pieces on the characteristics of such sites, to enable them to better identify them during construction.

7. CONCLUSIONS

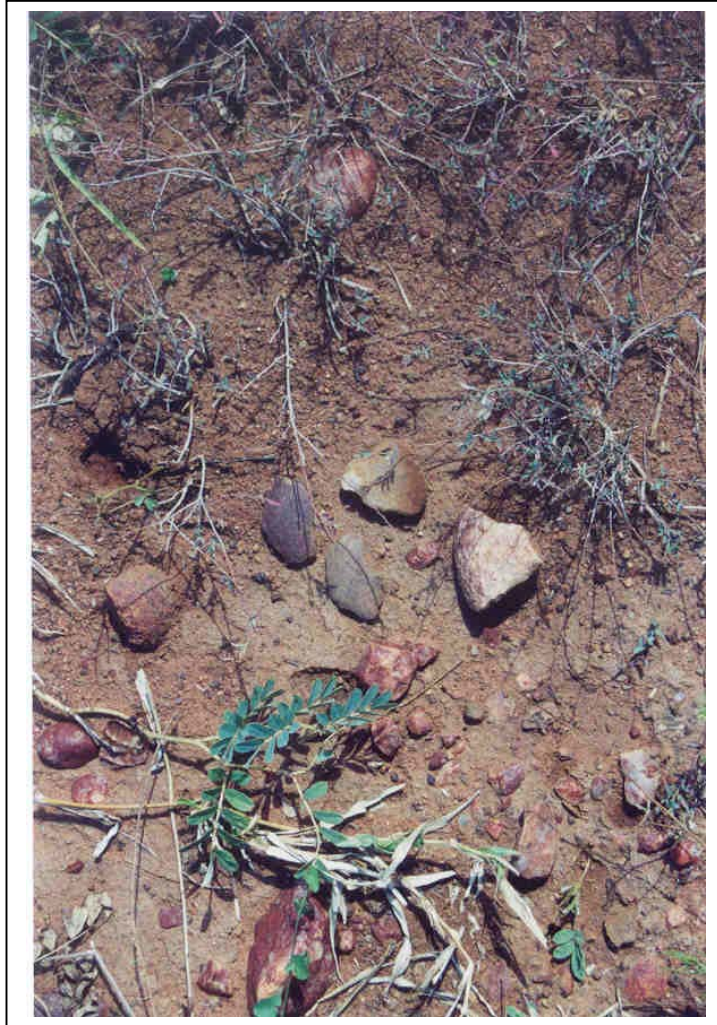
After the final placement of the line, the route should be re-evaluated by the consultant team to determine what the impact on listed sites will be.

Provided the recommendations are followed as outlined in this report, the proposed development should have minimal detrimental effects on the cultural heritage resources of the area.

8. REFERENCES

- HAMMOND-TOOKE, W.D. (1981) *Boundaries and Belief: The structure of a Sotho* Johannesburg: Witwatersrand University press.
- HUFFMAN, T.N. and STEEL, R.H. (1996) *Salvage excavations at Planknek, Potgietersrus, Northern Province*. Southern African Field Archaeology, 5: 45-58.
- LOUBSER, J.H.N. (1994) *Ndebele archaeology of the Pietersburg area*. Navorsing van die Nasionale Museum Bloemfontein. 10(2): 61-147.

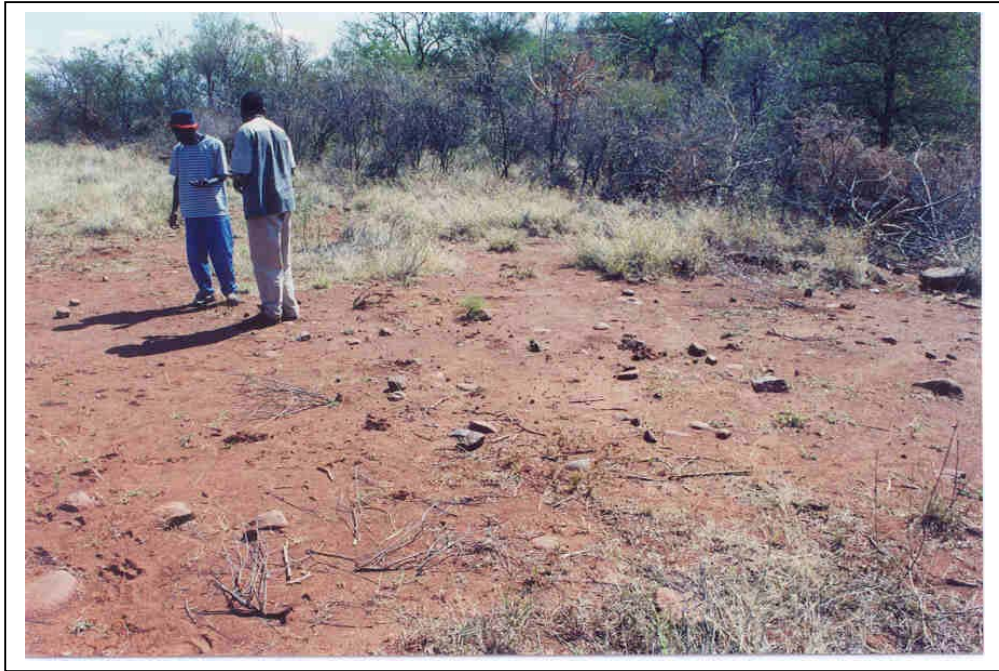
**ANNEXURE A:
PHOTOGRAPHS**



Photograph 1: Site MaWit 001. Small scatterings of Late Stone Age tools



Photograph 2: Site MaWit 002. Community graveyard



Photograph 3: Site MaWit 003. Potsherds, daga fragments and some stone tools



Photograph 4: Site MaWit 003. Potsherds, daga fragments and some stone tools



Photograph 5: Site MaWit 003. Rocky surroundings



Photograph 6: Site MaWit 004. Small concentration of slag and tuyère fragments



Photograph 7: Site MaWit 005. A variety of stone tools



Photograph 8: Site MaWit 006. Late Stone Age tools and microliths



Photograph 9: Site MaWit 007. Scattering of Late Stone Age tools



Photograph 10: Site MaWit 009. Cluster of graves



Photograph 11: Site MaWit 010. Remains of an informal settlement



Photograph 12: Site MaWit 011. European type structures and remains



Photograph 13: Site MaWit 011. European type structures and remains



Photograph 14: Site MaWit 011. Cacti and pioneer plant growth



Photograph 15: Site MaWit 012. Remains of an old farmhouse



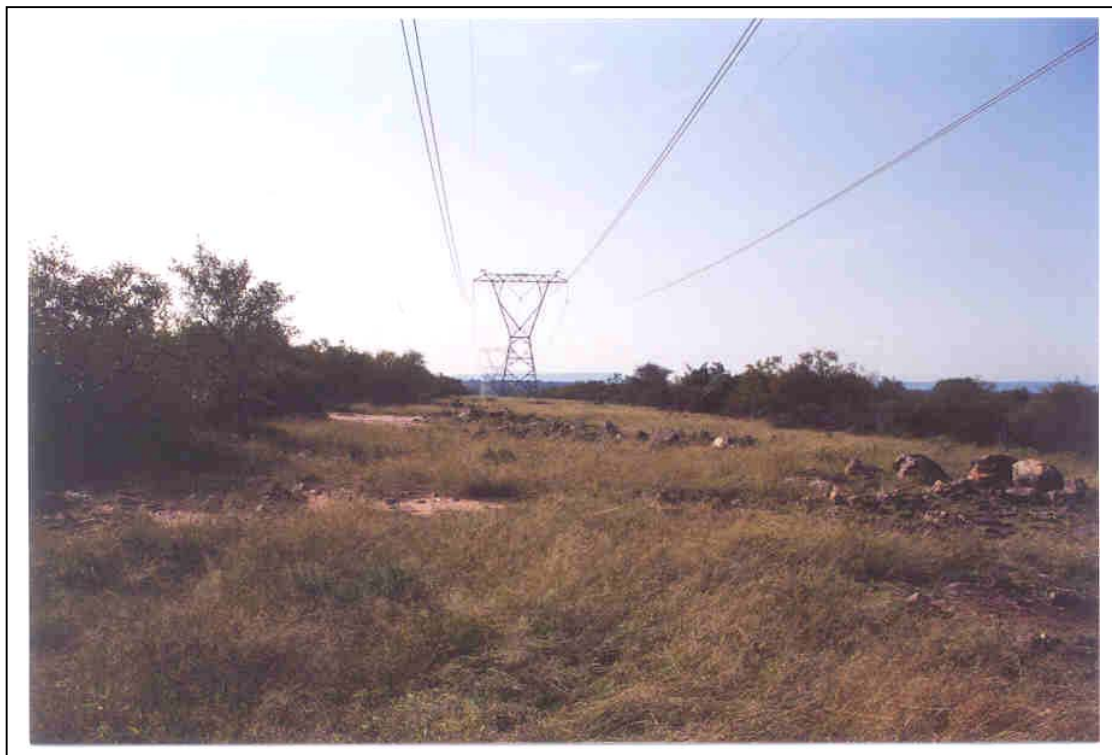
Photograph 16: Site MaWit 013. Historic graveyard



Photograph 17: Site MaWit 014. Late Stone Age site



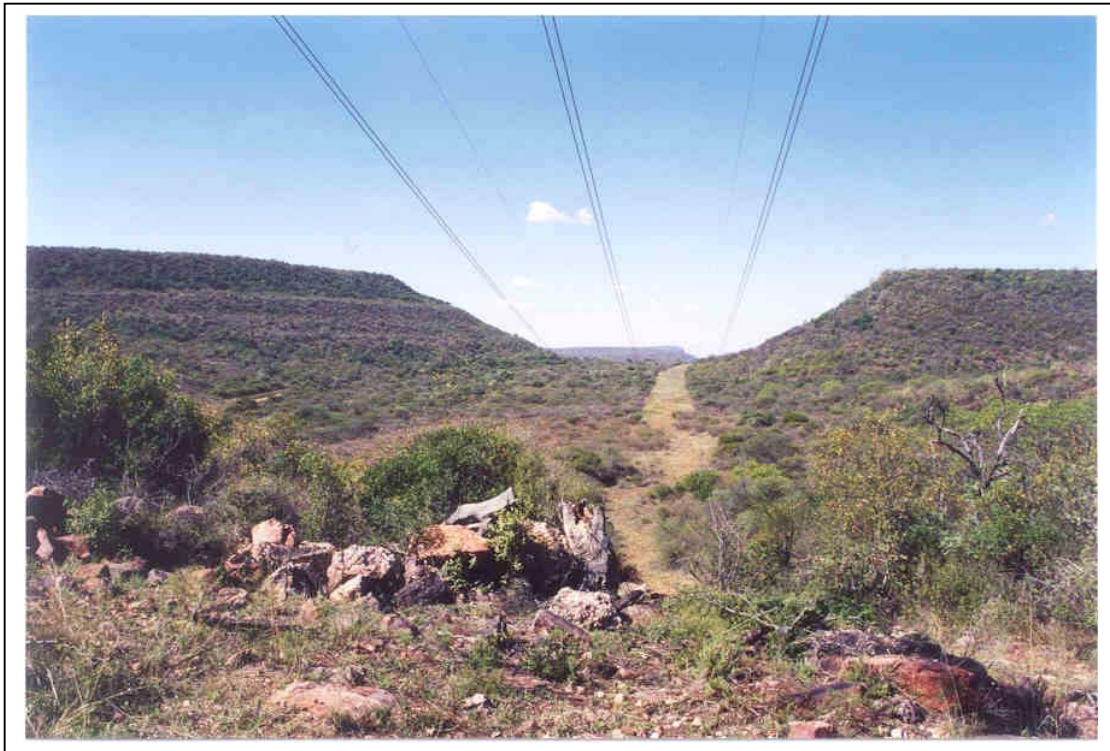
Photograph 18: Site MaWit 014. Late Stone Age site



Photograph 19: Impact: clearing underneath line



Photograph 20: Impact: placement of tower foundations



Photograph 21: Visual impact on sites