

**ARCHAEOLOGICAL IMPACT ASSESSMENT
THE PROPOSED VERLORE/VREDELUS ESKOM
OVERHEAD TRANSMISSION LINE AND SUBSTATION
REDELINGHUYS**

Prepared for

ERM Southern Africa (Pty) Ltd

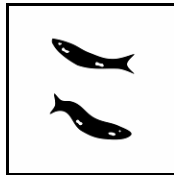
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EXECUTIVE SUMMARY

Environmental Resources Management (ERM) Southern Africa requested that the Agency for Cultural Resource Management conduct an Archaeological Impact Assessment for the proposed Verlore/Vredelus Eskom overhead powerline line and substation near Redelinghuys, in the Western Cape.

Eskom Holdings Ltd proposes the installation of a 132kV overhead transmission line, from the existing Verlore Switching Station, to the proposed 132/22kV substation at Vredelus in the Redelinghuys area. The proposed route is about 13 kms long and the proposed substation will occupy an area of about 1.2 ha in extent. A, 31m wide servitude is envisaged and the span between powerline footings will be about 400 m.

Three possible routes are being considered. These include:

- Alternative 1
- Alternative 2
- Alternative 3

Proposed Alternative 1 (which was the original preferred route) crosses land that is dominated by pristine Fynbos. A section of the route crosses fields of Rooibos tea, while degraded dunes occur closer to the proposed substation site alongside the Redelinghuys-Aurora Road.

Proposed Alternative 2 crosses mainly (more than 90%) rural farmlands (grazing and central pivots), some natural veld and wetlands. According to the avifauna report, the proposed alternative route is not acceptable as it is located close to important raptor breeding sites and a sensitive wetland area.

Alternative 3 is a compromise between the two original alternatives, and is now the recommended route. This section of the route crosses a combination of both natural veld and ploughed lands, alongside a farm boundary and avoids the need to traverse the undisturbed, high conservation-value Fynbos in the original preferred route (i.e. Alternative 1).

The aim of the study is to locate and map archaeological heritage sites/remains that may be negatively impacted by the planning, construction and implementation of the proposed project, to assess the significance of the potential impacts and to propose measures to mitigate against the impacts.

A Notice of Intent to Develop (NID) checklist has also been completed by the archaeologist and submitted to Heritage Western Cape (Belcom) for comment.

A Palaeontological Impact Assessment (PIA) desk top study of the proposed project has been undertaken by Dr John Pether.

The entire length of the 13 km (original) preferred route (i.e. Alternative 1) was walked on foot and searched for archaeological remains. This included the proposed Vredelus substation and the Verlore switching station. Apart from the fields of Rooibos tea and degraded dunes nearer to the proposed Verlore substation, much of the route corridor is densely vegetated resulting in very low archaeological visibility. There are no wind

deflated basins or rocky outcrops in Alternative 1 that might suggest the presence of archaeological sites.

The proposed Alternative 2 route was only briefly assessed (or scoped), on foot and by vehicle.

The short section of the now recommended Alternative 3 (i.e. the preferred new route) was not assessed by the archaeologist as this proposed route was only determined **after** the AIA was completed.

The following findings were made:

Alternative 1: No archaeological remains were documented during the assessment of the proposed route. One quartz pebble was found on the proposed Vredelus substation site, alongside the gravel road between Redelinghuys and Aurora.

Alternative 2: No archaeological remains were found during archaeological scoping of the proposed route.

While the short (± 1.5 km) compromise route in Alternative 3 has not been subjected to an archaeological assessment (AIA or scoping), it is the opinion of the archaeologist that such a study is not required at this time, as (based on the results of the AIA), the receiving environment is not considered to be archaeologically sensitive.

The AIA therefore concludes that the proposed Verlore – Vredelus Powerline is suitable for development and that neither of the proposed routes is more preferred than the other is.

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1. INTRODUCTION

Environmental Resources Management (ERM) Southern Africa on behalf of Eskom Holdings Ltd requested that the Agency for Cultural Resource Management conduct an Archaeological Impact Assessment (AIA) for the proposed Verlore/Vredelus overhead transmission line and substation near Redelinghuys, in the Western Cape.

Eskom Holdings Ltd proposes the installation of a 132kV overhead transmission line from the proposed Verlore Switching Station to the proposed 132/22kV substation at Vredelus. The purpose of the project is to alleviate the current load on the existing power supply network that includes the Veldriff F1, Paleisheuwel F1 and Graafwater F1 substations. The project thus increase capacity and improve electricity supply in the Redelinghuys and surrounding area.

The proposed substation will occupy an area of about 1.2 ha in extent with the transmission line approximately 13 km in length. A 31 m wide servitude (or corridor) is envisaged and the span between powerline footings will be about 400 m.

Three possible routes are being considered. These include:

- Alternative 1
- Alternative 2
- Alternative 3²

Alternative 3 is a compromise between the two original alternatives, and is now the preferred or recommended route.

The possibility of alternative designs will also be investigated as part of the Environmental Impact Assessment (EIA) process, in terms of the EIA regulations.

The proposed overhead transmission line route will cross the following properties:

- Goergap/Wittewater (Portion 7 of Farm 40),
- Palmietvlei (Portion 2 of Farm 14),
- Koopmanskraal (Portion 5 of Farm 14 and Remainder of Farm 14),
- Sandfontein (Portion 4 of Farm 14),
- Betjiesfontein/Afgunst (Portion 4 of Farm 13),
- Driefontein (Farm 298),
- Bo-Matrosfontein (Portion 10 of Farm 13),
- Arbeidsgenot (Portion 12 of Farm 12) and
- Vredelust/Langfontein (Portion 10 and Portion 1 of Farm 12).

A Notice of Intent to Develop (NID) checklist has been completed by the archaeologist and submitted to Heritage Western Cape (Belcom) for comment.

A Palaeontological Impact Assessment (PIA) desk top study of the proposed project has been undertaken by Dr John Pether.

² Alternative 3 has not been assessed by the archaeologist as this route was only recommended after completion of the AIA.

2. TERMS OF REFERENCE

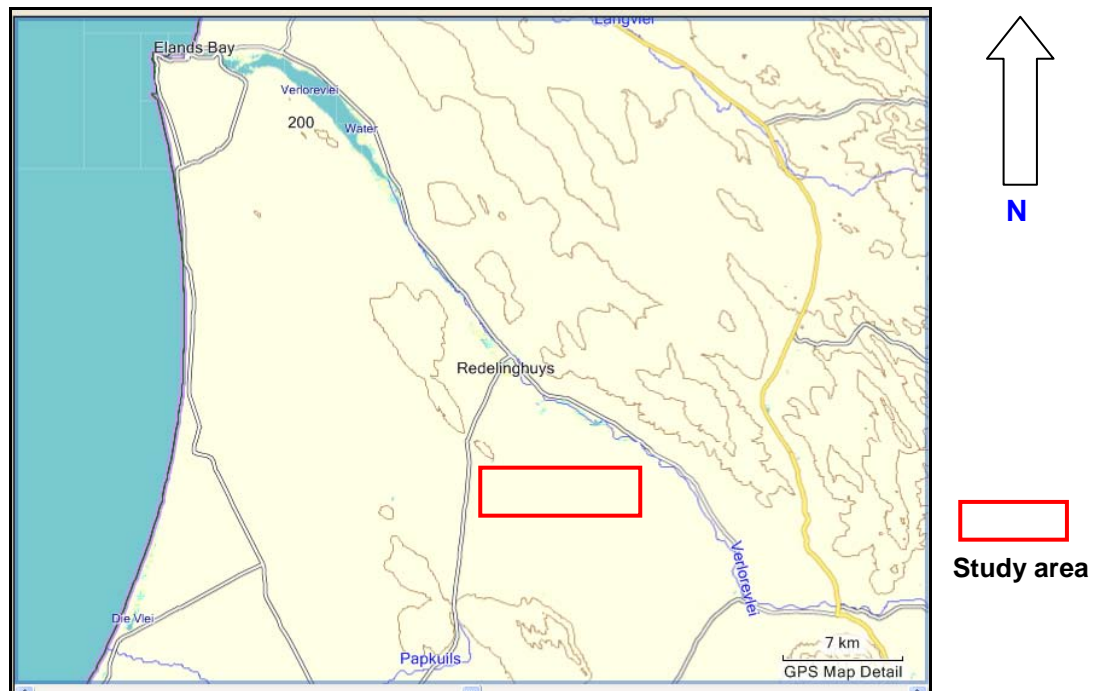
The terms of reference for the archaeological study were:

- to determine whether there are likely to be any archaeological sites of significance within the proposed powerline routes and associated infrastructure;
- to identify and map any sites of archaeological significance within the proposed powerline routes and associated infrastructure;
- to assess the sensitivity and conservation significance of archaeological sites within the proposed powerline routes and associated infrastructure;
- to assess the status and significance of any impacts resulting from the proposed project, and
- to identify measures to protect and maintain any valuable archaeological sites that may exist within the proposed powerline route and associated infrastructure

3. THE STUDY SITE

A locality map is illustrated in Figure 1³.

An aerial photograph of the proposed route alternatives and associated infrastructure is illustrated in Figure 2.



³ Refer also to locality map in Appendix

Alternative 1 (starting at the Verlore Switching Station) crosses an undulating landscape that is dominated by pristine Fynbos vegetation, much of it waist and head high and virtually impenetrable. Dune mole rat and burrowing is extensive across the landscape. A section of the route also crosses fairly extensive fields of Rooibos tea and ploughed farmlands, and fairly degraded sand dunes closer to the Redelinghuys-Aurora Road (Figures 4-19). The entire area is overlain by wind blown sands. There are no significant landscape features and no rocky kopjes or wind deflated basins along, or even close to, the proposed route corridor.

Alternative 2 crosses mainly (more than 90%) rural farmlands (grazing and central pivots), some natural veld, and wetlands to the south of the Vredelust gravel road.

As indicated, Alternative 3 route is a compromise between the two original alternatives, and is now the preferred route. The proposed route avoids the need to traverse the undisturbed, high conservation-value Fynbos in the original preferred route (i.e. Alternative 1). The recommended route (at Bend 3) crosses a combination of both natural veld and ploughed lands, alongside a farm boundary (refer to Figure 2).

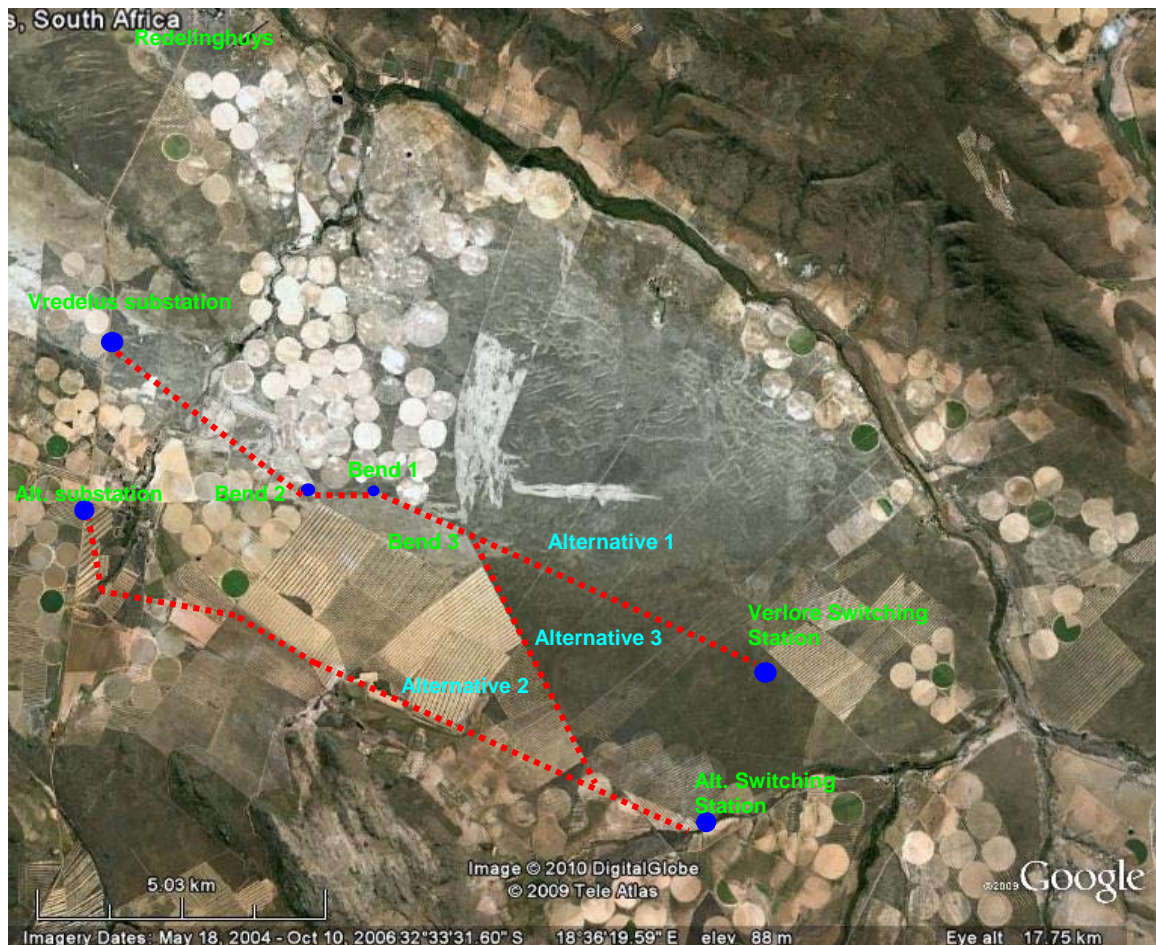


Figure 2. Proposed Verlore/Vredelust transmission line routes



Fig 4. Verlore Switching Station facing north



Fig. 8. Bend 1 facing north west



Fig 5. Alt. 1 Route facing west



Fig. 9. Alt. 1 Route facing north west



Fig. 6. Alt. 1 Route facing east



Fig. 10. Alt. 1 Route facing south east



Fig. 7. Alt. 1 Route facing east



Fig. 11. Alt. 1 Route facing north west



Fig. 12. Alt. 1 Route facing west



Fig. 16 Bend 2 facing west



Fig. 13. Alt. 1 Route facing east



Fig. 17. Alt. 1 Route facing west



Fig. 14. Alt. 1 Route facing south east



Fig. 18. Alt. 1 Route facing west



Fig. 15. Alt.1 Route facing north west



Fig. 19. Proposed Vredelus substation

4. STUDY APPROACH

4.1 Method

The entire length of the 13 km, original preferred route (i.e. Alternative 1), was traversed on foot, from the existing Verlore Switching Station (S 32° 35' 14.4" E 18° 38' 14.6"), to the proposed Vredelus substation (S 32° 32' 11.3" E 18° 31' 05.1") alongside the Redelinghuys-Aurora gravel road.

Alternative 2 was only briefly assessed (scoped), on foot and by vehicle.

Alternative 3, at Bend 3, was not searched for archaeological remains, as this new section of the proposed route was only recommended after completion of the AIA. Most of Alternative 3 up till Bend 3 has, however, already been surveyed.

A GPS track path of the archaeological survey was created. This track path has been saved to a CD and submitted with a digital copy of the report.

The site visit and assessment took place on the 6th and 7th October, 2009.

4.2 Constraints and limitations

A large section of the transmission line route in Alternative1, from km 13 (at the Verlore Switching Station), to ± km 5, is densely vegetated and impenetrable, resulting in very low archaeological visibility. There are sections along the route however that comprises extensive fields of Rooibos tea and ploughed lands, and degraded sand dunes closer to the Redelinhuis-Aurora Road, where visibility is relatively high.

4.3 Identification of potential risks

Based on the results of the study (both AIA and scoping), there appear to be no pre-colonial archaeological risks associated with the proposed project.

It is unlikely, but unmarked human burials may be uncovered during excavation for the powerline footings and the substation site.

5. LEGAL FRAMEWORK: The National Heritage Resources Act

The National Heritage Resources Act (No 25 of 1999) makes provision for a compulsory Heritage Impact Assessment (HIA) when an area exceeding 5000 m² is being developed. This is to determine if the area contains heritage sites and to take the necessary steps to ensure that they are not damaged or destroyed during development.

Section 38 of the Act also indicates that any person **constructing a powerline or road or similar linear developments exceeding 300m in length** (my emphasis) is required to notify the responsible heritage resources authority, who will in turn advise whether an impact assessment report is needed before development can take place.

With regard to burial grounds and graves, Section 36 (3) of the Act stipulates that no person may, without a permit issued by the relevant heritage authority or SAHRA, (a)

destroy, damage or exhume the grave of the victim of conflict; (b) destroy, damage or exhume any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority.

Subject to the provision of any other law, any person who in the course of development discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the relevant heritage authority which must, in co-operation with the South African Police Service and in accordance with the regulations of the responsible heritage authority, carry out an investigation to determine whether the grave is protected in terms of the Act or is of significance to any community

With regard to buildings and structures, Section 34 of the Act stipulates that no person may alter or demolish any structure or part of a structure, which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

Living heritage (defined in the Act as including cultural tradition, oral history, performance, ritual, popular memory, skills and techniques, indigenous knowledge systems and the holistic approach to nature, society and social relationships) is also given protection under the Act. Section 24 (of the Act) makes provision for provincial heritage resources authorities to maintain a register of heritage resources and to set up management plans for their preservation.

6. RESULTS OF THE SURVEY

6.1 Alternative 1

No archaeological remains were documented during the AIA of the proposed Alternative 1 transmission route. One unworked quartz pebble (RDH1) was found on the proposed Vredelus substation site, alongside the gravel road between Redelinghuys and Aurora.

6.2 Alternative 2

No archaeological remains were documented during archaeological scoping of the proposed Alternative 2 route, including the proposed Alternative substation and proposed Alternative switching station (refer to Appendix). It should be noted that a previous archaeological study undertaken within the proposed Alternative 2 route (nearer to the Aurora – Redelinghuys road), did not locate any archaeological finds (Kaplan 2008).

According to the avifauna report, the proposed Alternative 2 route is not acceptable as it is located close to important raptor breeding sites and a sensitive wetland area.

6.3 Alternative 3

While much of Alternative 3 has already been searched, up until Bend 3, the short (± 1.5 km) compromise route was not assessed by the archaeologist, as this route was only recommended **after** completion of the October, 2009 study.

7. IMPACT STATEMENT

The AIA (of Alternative 1 and much of Alternative 3), and archaeological scoping (of Alternative 2) has shown that the impact of the proposed Verlore-Vredelus powerline project on potentially important archaeological heritage remains is likely to be low. Further, the probability of locating important pre-colonial archaeological remains during implementation of the project is also likely to be low. Much of the transmission line routes comprise ploughed farmlands and/or dense Fynbos and there are no significant landscape features such as rocky kopjes or deflated sand basins that might reveal the presence of archaeological remains.

It is unlikely, but unmarked pre-colonial burials may be uncovered during excavations for the powerline footings and the proposed substation and switching station site.

8. CONCLUSION

The Archaeological Impact Assessment and archaeological scoping of the proposed Verlore/Vredelus Eskom overhead powerline line and substation near Redelinghuys, has identified no significant impacts to pre-colonial archaeological material that will need to be mitigated prior to proposed development activities.

While the short (± 1.5 km) compromise route in Alternative 3 has not been subjected to an archaeological assessment (AIA or scoping), it is the opinion of the archaeologist that such a study is not required at this time, as (based on the results of the AIA), the receiving environment is not considered to be archaeologically sensitive.

The AIA therefore concludes that the proposed Verlore – Vredelus powerline and substation is suitable for development and that neither of the proposed routes is more preferred than the other is.

Alternative 1 and 3 is, however, better from a visual perspective.

Should any human remains be disturbed, exposed or uncovered during excavations and earthworks for the proposed project, these should immediately be reported Heritage Western Cape (Mr Nic Wiltshire 021 483 9692). Burial remains should not be disturbed or removed until inspected by the archaeologist.

9. REFERENCES

Kaplan, J. 2008. Archaeological scoping Remainder of Portion 3 (Vredelust) and Portion 10 (Portion of Portion 3) of the Farm Langefontein No. 12, Piketberg. Report prepared for Cederberg Environmental Assessment Practice.

McDonald, D. 2009. Botanical Assessment Verlore-Vredelus Powerline Route. Report prepared for ERM South Africa (Pty) Ltd. Berg Wind Botanical Surveys & Tours.

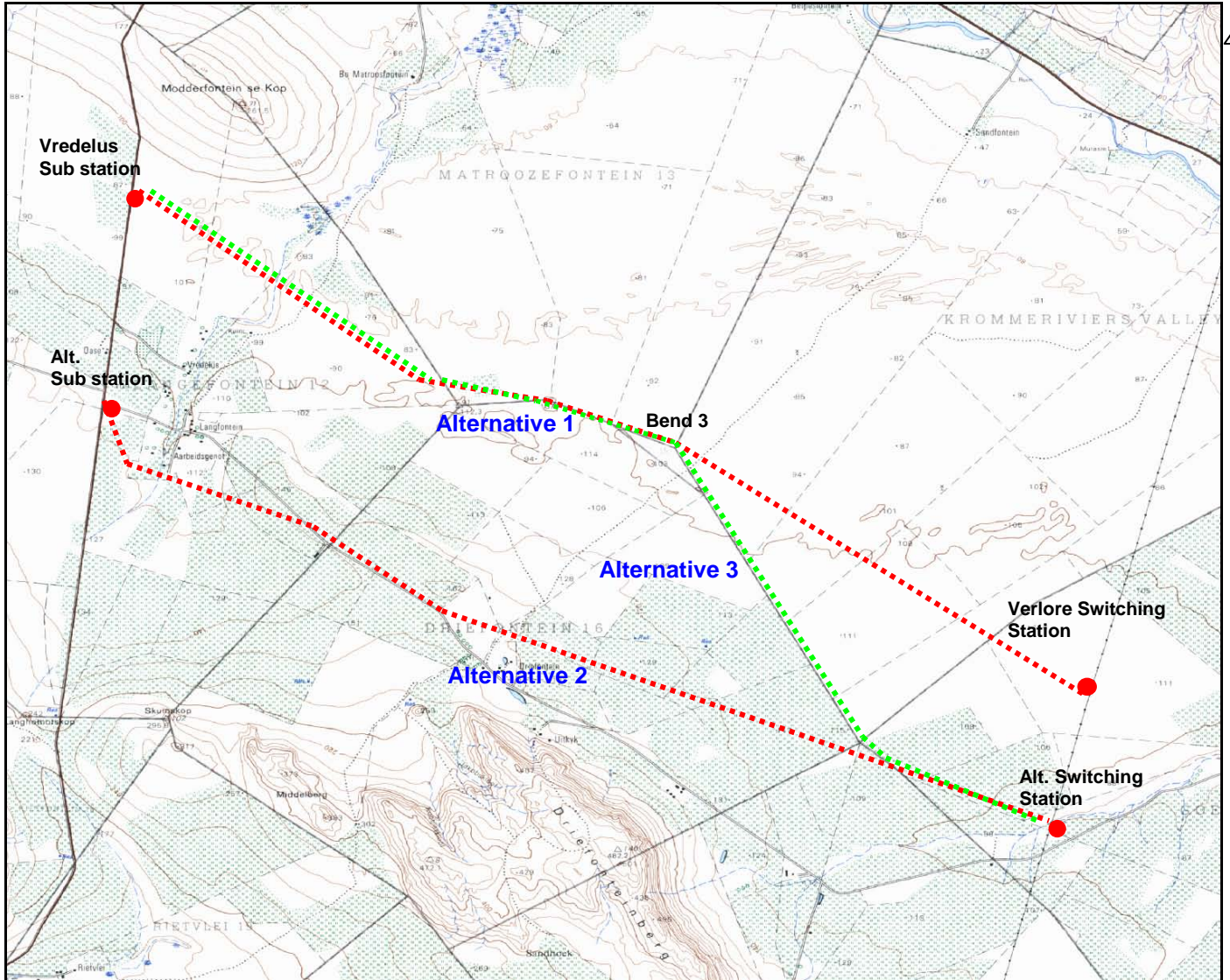


Figure 1. Locality map (3218 DA Goergap)