

**Heritage Survey report for
THE KOMATI POWER STATION ASH
DAM EXTENSION, MIDDELBURG MAGISTERIAL DISTRICT,
MPUMALANGA PROVINCE**

THE PROJECT:

Development of a new ash dam for the coal fired power station.

THIS REPORT:

Heritage Survey report for

THE KOMATI POWER STATION ASH DAM EXTENSION, MIDDELBURG
MAGISTERIAL DISTRICT, MPUMALANGA PROVINCE

Report No: 2007/JvS/057
Status: Final
Revision No: 0
Date: November 2007

Prepared for:
SYNERGISTICS
Representative: Mr M Henning
Tel: 011 807 8225
E-mail: matthew@synergistics.co.za
Postal Address: PO Box 1822, Rivonia, 2128

Prepared by:
J van Schalkwyk (D Litt et Phil), Heritage Consultant
Tel: 012 347 7270
E-mail: jvschalkwyk@mweb.co.za
Postal Address: 62 Coetzer Ave, Monument Park, 0181

ASAPA Registration No. 164
Principal Investigator: Iron Age, Colonial Period, Industrial Heritage

EXECUTIVE SUMMARY

HERITAGE SURVEY REPORT FOR THE KOMATI POWER STATION ASH DAM EXTENSION, MIDDELBURG MAGISTERIAL DISTRICT, MPUMALANGA PROVINCE

An independent heritage consultant was appointed by Synergistics to conduct a survey to locate, identify, evaluate and document sites, objects and structures of cultural importance found within the boundaries of an area in which it is proposed to extend an existing ash dam for the Komati Power Station. This development would also necessitate the rerouting of a power line.

Current activities in the study area consist of farming and power generation activities. Although some sites of cultural significance are located in the larger region, none were identified in the study area.

Based on what was found and its evaluation, it is recommended that any development can continue in the study area. However, as the area under discussion is currently heavily vegetated, it is on condition of acceptance of the following recommendations:

- If archaeological sites are exposed, it should immediately be reported to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be made.

TABLE OF CONTENTS

	Page
TABLE OF CONTENTS	iii
LIST OF FIGURES.....	iii
GLOSSARY OF TERMS AND ABBREVIATIONS	iv
1. INTRODUCTION.....	1
2. TERMS OF REFERENCE	1
3. DEFINITIONS AND ASSUMPTIONS	1
4. STUDY APPROACH AND METHODOLOGY	2
5. DESCRIPTION OF THE AFFECTED ENVIRONMENT	4
6. SITE SIGNIFICANCE AND ASSESSMENT	5
7. IDENTIFICATION OF RISK SOURCES	5
8. RECOMMENDATIONS.....	6
9. REFERENCES.....	7
APPENDIX 1: CONVENTIONS USED TO ASSESS THE IMPACT OF PROJECTS ON HERITAGE RESOURCES.....	8
APPENDIX 2. RELEVANT LEGISLATION	10
APPENDIX 3: SURVEY RESULTS	11

LIST OF FIGURES

	Page
<i>Fig. 1. The study area (green polygon) in regional context.</i>	3
<i>Fig. 2. Location of the study area: the ash dam extension is indicated in purple and the realignment of the powerline in orange. The location of an informal farm cemetery is also indicated. The latter would not be impacted on by the proposed development (Map 2629AB: Government Printer, Pretoria).</i>	11

GLOSSARY OF TERMS AND ABBREVIATIONS**STONE AGE**

Early Stone Age	2 000 000 - 150 000 Before Present
Middle Stone Age	150 000 - 30 000 BP
Late Stone Age	30 000 - until c. AD 200

IRON AGE

Early Iron Age	AD 200 - AD 1000
Late Iron Age	AD 1000 - AD 1830

HISTORIC PERIOD

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

core - a piece of stone from which flakes were removed to be used or made into tools

ADRC	Archaeological Data Recording Centre
EIA	Early Iron Age
ESA	Early Stone Age
LIA	Late Iron Age
LSA	Late Stone Age
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 SURVEY REPORT FOR THE KOMATI POWER STATION ASH DAM EXTENSION, MIDDELBURG MAGISTERIAL DISTRICT, MPUMALANGA PROVINCE

1. INTRODUCTION

An independent heritage consultant was appointed by Synergistics to conduct a survey to locate, identify, evaluate and document sites, objects and structures of cultural importance found within the boundaries of an area in which it is proposed to extend an existing ash dam for the Komati Power Station. This development would also necessitate the rerouting of a power line.

2. TERMS OF REFERENCE

The scope of work consisted of conducting a Phase 1 archaeological survey of the site in accordance with the requirements of Section 38(3) of the National Heritage Resources Act (Act 25 of 1999).

This include:

- Conducting a desk-top investigation of the area
- A visit to the proposed development site

The objectives were to

- Identify possible archaeological, cultural and historic sites within the proposed development areas;
- 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. DEFINITIONS AND ASSUMPTIONS

The following aspects have a direct bearing on the survey and the resulting report:

- *Cultural resources* are all non-physical and physical human-made occurrences, as well as natural occurrences that are associated with human activity. These include all sites, structures and artefacts of importance, either individually or in groups, in the history, architecture and archaeology of human (cultural) development.
- The *significance* of the sites and artefacts are determined by means of their historical, social, aesthetic, technological and scientific value in relation to their 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.

- Sites regarded as having low significance have already been recorded in full and require no further mitigation. Sites with medium to high significance require further mitigation.
- The latitude and longitude of archaeological sites are to be treated as sensitive information by the developer and should not be disclosed to members of the public.

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 Figure 1.

4.2 Methodology

4.1 Preliminary investigation

4.1.1 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 - see the list of references below.

4.1.2 Data bases

The *Heritage Sites Database* and the *Environmental Potential Atlas* was consulted. The relevant records at NASA were also consulted.

4.1.3 Other sources

Topocadastral and other maps were also studied - see the list of references below.

4.2 Field survey

The field survey was done according to generally accepted archaeological practices, and was aimed at locating all possible sites, objects and structures. The area that had to be investigated was identified by Synergistics by means of maps. The area was investigated by walking across it in a number of transects to view sites that needed closer inspection.

4.3 Documentation

All sites, objects and structures that are identified are documented according to the general minimum standards accepted by the archaeological profession. Coordinates of individual localities are determined by means of the *Global Positioning System (GPS)*¹ and plotted on a map. This information is added to the description in order to facilitate the identification of each locality.

Map datum used: Hartebeeshoek 94 (WGS84).

¹ According to the manufacturer a certain deviation may be expected for each reading. Care was, however, taken to obtain as accurate a reading as possible, and then to correlate it with reference to the physical environment before plotting it on the map.

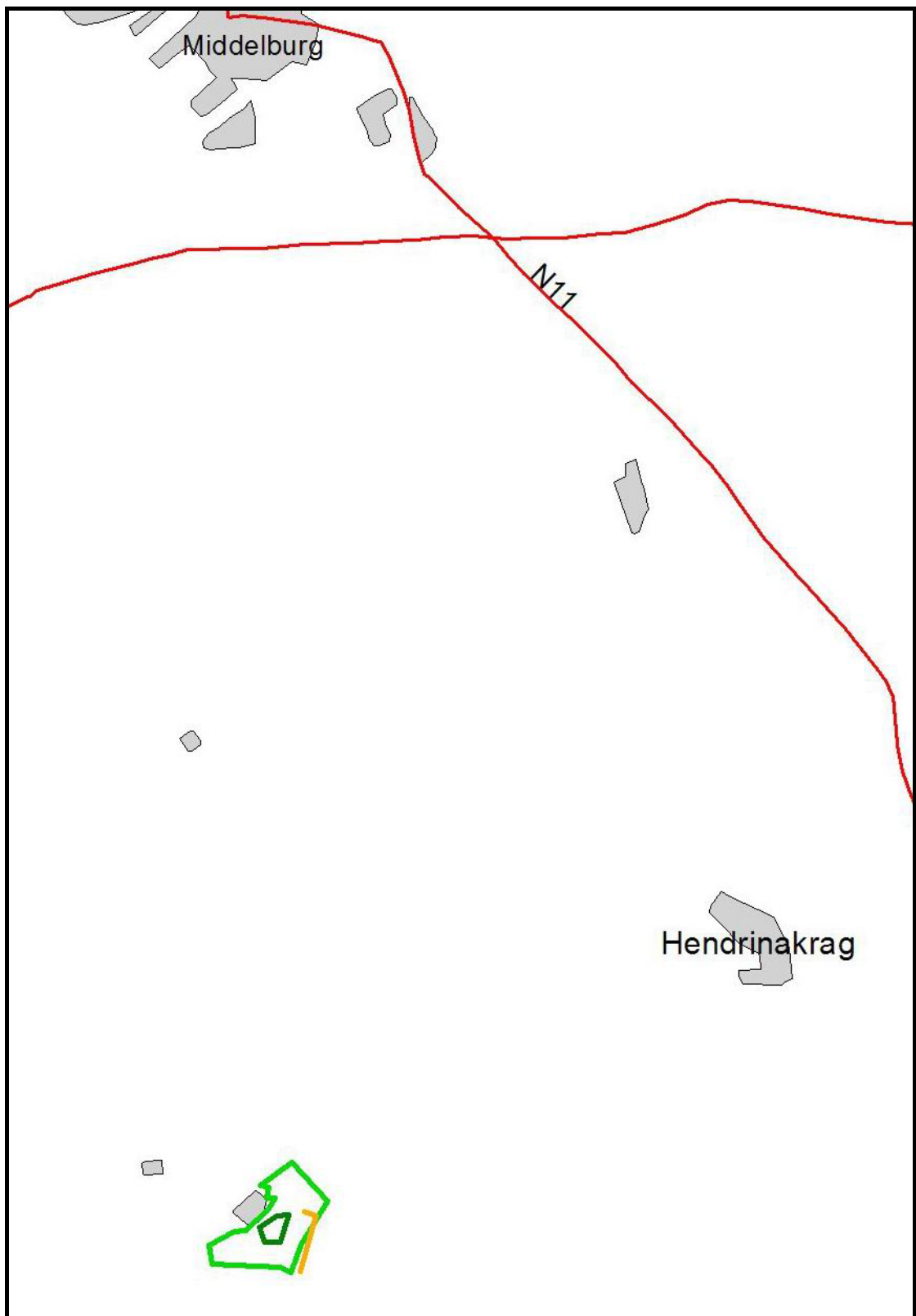


Fig. 1. The study area (green polygon) in regional context.

4.4 Limitations

Due to the rains preceding the survey, the natural vegetation was very dense. This had a negative impact on the visibility of archaeological remains.

5. DESCRIPTION OF THE AFFECTED ENVIRONMENT

5.1 Site location

The study area is located on the farm Komati Power Station 58IS, which is a subdivision of the original farm Koornfontein 27IS, in the Middelburg magisterial district of Mpumalanga. The study area is located south of the town of Middelburg (Fig. 1) and it centres around the following coordinates: S 26.10353; E 29.46743.

5.2 Site description

The geology is made up of arenite. The original vegetation is classified as Moist Sandy Highveld Grassland. No outcrops, hills, caves or streams that usually drew people to settle in its vicinity occur in the study area.

Most of the area has been subjected to agricultural and mining activities as well as the development of the power station.

One historic event took place in the region. During the Anglo-Boer War, the British forces under Brigadier-General Beatson were attacked by the ZAR forces, led by Gen. Muller. More than 50 British soldiers were killed. Afterwards, Brigadier-Gen. Beatson accused the Australian forces of cowardice. They mutinied against him, some were arrested, court-martialled and sentenced to death. Fortunately, these sentences were later commuted to imprisonment (Cloete 2000:243). This battle took place on the farm Wilmansrust 47IS, just to the south of the power station. A monument to commemorate this event was erected on this farm, but during the early 1970s it was relocated to the town of Bethal.

Some informal farm cemeteries are located in the region, but none would be impacted on by the proposed development.

The site investigation for the power station was started in 1957, and the first unit was commissioned in 1961 and the last in 1966. In 1990 the station was completely mothballed (www.eskom.co.za)

5.3 Identified sites in the study area

5.3.1 Stone Age

No sites, features or objects dating to the Stone Age were identified.

5.3.2 Iron Age

Similarly, no sites, objects or features dating to the Iron Age were identified.

5.3.3 Historic period

No sites, objects or features dating to the historic period were identified.

6. SITE SIGNIFICANCE AND ASSESSMENT

Impact analysis of cultural resources under threat of the proposed development, are based on the present understanding of the development.

The **significance** of a heritage site and artefacts is determined by its historical, social, aesthetic, technological and scientific 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.

Sites regarded as having low significance are viewed as being recorded in full after identification and would require no further mitigation. Impact from the development would therefore be judged to be low. Sites with a medium to high significance would therefore require mitigation. Mitigation, in most cases the excavation of a site, is in essence destructive and therefore the impact can be viewed as high and as permanent.

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

7. IDENTIFICATION OF RISK SOURCES

A Heritage Impact Assessment is focused on two phases of a proposed development: **the construction and operation phases**. However, from a cultural heritage perspective, this distinction does not apply. Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the development can be excavated/recorded and a management plan can be developed for future action. Those sites that are not impacted, can be written into the management plan, whence they can be avoided or cared for in the future.

The following project actions may impact negatively on archaeological sites and other features of cultural importance. The actions are most likely to occur during the construction phase of a project.

Construction phase:

Possible Risks	Source of the risk
Actually identified risks	
- damage to sites	Construction work
Anticipated risks	
- looting of sites	Curious workers

Operation phase:

Possible Risks	Source of the risk
Actually identified risks	
- damage to sites	Not keeping to management plans
Anticipated risks	
- damage to sites	Unscheduled construction/developments

- looting of sites	Visitors removing objects as keepsakes
--------------------	--

8. RECOMMENDATIONS

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural importance found within the boundaries of an area in which it is proposed to extend an existing ash dam for the Komati Power Station. This development would also necessitate the rerouting of a power line.

Current activities in the study area consist of farming and power generation activities. Although some sites of cultural significance are located in the larger region, none were identified in the study area.

Based on what was found and its evaluation, it is recommended that any development can continue in the study area. However, as the area under discussion is currently heavily vegetated, it is on condition of acceptance of the following recommendations:

- If archaeological sites are exposed, it should immediately be reported to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be made.

9. REFERENCES

9.1 Data bases

Heritage Sites Database, Pretoria.

Environmental Potential Atlas, Department of Environmental Affairs and Tourism.

National Archives of South Africa: SAB (1 document: C37/3/369/14), TAB (2 documents: Ref: UG 59-1948; 1366/1956)

9.2 Literature

Acocks, J.P.H. 1975. *Veld Types of South Africa*. Memoirs of the Botanical Survey of South Africa, No. 40. Pretoria: Botanical Research Institute.

Cloete, P.G. 2000. *The Anglo-Boer War: a Chronology*. Pretoria: JP van der Walt

Holm, S.E. 1966. *Bibliography of South African Pre- and Protohistoric archaeology*. Pretoria: J.L. van Schaik.

9.3 Websites

www.eskom.co.za

9.4 Maps

1: 50 000 Topocadastral maps – 2629AB

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

Significance

The *significance* of the sites and artefacts are determined by means of their historical, social, aesthetic, technological and scientific value in relation to their 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					
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

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.

The National Heritage Resources Act (Act no 25 of 1999) 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, and which prescribes heritage resources assessment criteria, consistent with the criteria set out in section 3(3), which must be used by a heritage resources authority or a local authority to assess the intrinsic, comparative and contextual significance of a heritage resource and the relative benefits and costs of its protection, so that the appropriate level of grading of the resource and the consequent responsibility for its management may be allocated in terms of section 8.

APPENDIX 3: SURVEY RESULTS

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

Map datum used: Hartebeeshoek 94 (WGS84).

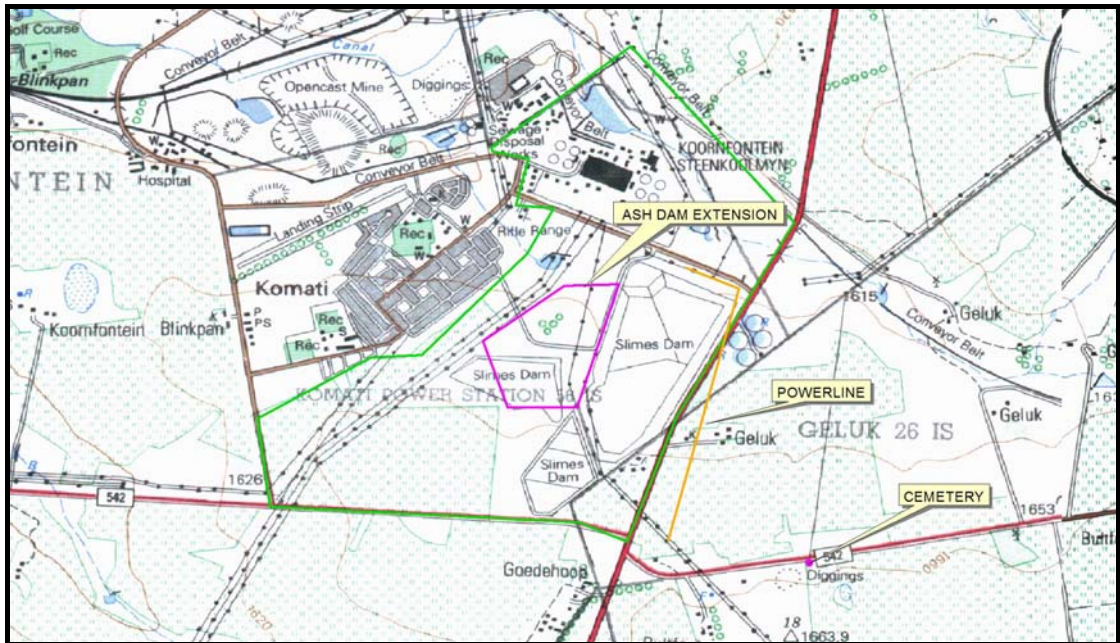


Fig. 2. Location of the study area: the ash dam extension is indicated in purple and the realignment of the powerline in orange. The location of an informal farm cemetery is also indicated. The latter would not be impacted on by the proposed development (Map 2629AB: Government Printer, Pretoria).

Sites identified in the study area:

Nil