

PHASE 1 HERITAGE RESOURCES SCOPING REPORT

MOGALAKWENA BULK WATER SUPPLY SCHEME - PHASE 1 OF ZONE 1 MOKOPANE : LIMPOPO

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June 2008

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EXECUTIVE SUMMARY

Mogalakwena Municipality intends to increase their abstraction of water from the Mahwelereng and Planknek well fields. SRK Consulting has been appointed to undertake the necessary environmental authorization work for the the project, covering a length of some 28 km. This report forms a specialist study within this wider process.

For the purpose of the heritage resources survey, the preferred route, Option 5 was thoroughly covered, while a scoping survey was performed on the other options. The baseline study undertaken for the exercise made it possible to demarcate the various cultural sequences in time and space on a general locality map.

The survey shows that most of the preferred route for the project had been modified by different human activities in the recent past with the result that the visibility of earlier archaeological remains had been obscured. The only significant cultural resources were graves detected along the route. These are not threatened. It was concluded that it is highly probable that undetected archaeological heritage material might be discovered accidentally during the construction phase of the pipeline. However, in conclusion, we do not consider heritage resources to be a fatal flaw anywhere along the pipeline project.

From a heritage resources management point of view, there is no objection with regard to the development on condition that the recommended management and mitigation measures are implemented. This will result in no further significant impacts on the heritage resources through all the stages of development.

1. INTRODUCTION AND TERMS OF REFERENCE

Mogalakwena Municipality is to benefit in the future from the greater Olifant's Water Resources Development Project (OWRDP), which include amongst others, increased capacity of the Flag Bosheilo Dam which is a project undertaken by the Department of Water Affairs and Forestry. The water which becomes available from the dam will be delivered to a point about 12 km south east of Mokopane on the farm Pruisen. Mogalakwena Municipality will receive the water from this point for further treatment and distribution, which is known as the Bulk Water Supply Scheme to Mogalakwena Municipality. The provision of water treatment works forms part of the bigger bulk water supply scheme infrastructure.

In the interim Mogalakwena Municipality intends to increase their abstraction of water from the Mahwelereng and Planknek well fields. The abstracted water will be conveyed through approximately 28km of pipeline to various reservoirs from where it will be distributed by gravity to a number of villages.

The proposed developments fall under the recent regulations promulgated in terms of the National Environmental Management Act (No 107 of 1998) and thus now require environmental authorisation. SRK Consulting (SRK) has been appointed by the Water and Sanitation Group, who is acting as lead/principle agent for the Mogalakwena Municipality, to undertake the environmental impact assessments (EIA's) for the abstraction of the water from the well fields and the conveyance pipeline.

The aim of the survey is to:

- gain an understanding of the baseline situation for the preferred and alternative pipeline routes and the well fields,
- determine any fatal flaws associated with the preferred and alternative sites,
- identify options for routes,
- determine the impacts (including cumulative impacts) to receptors and resources in the vicinity of the proposed activity and
- provide input into the Report for the Environmental Impact Assessment (EIA)/ Environmental Management Programme (EMP) and negotiations with stakeholders and authorities.

The report thus provides an overview of the heritage resources that may occur in the demarcated area where development is intended. The significance of the heritage resources was assessed in terms of criteria defined in the methodology section. The impact of the proposed development on these resources is indicated and the report recommends mitigation measures that should be implemented to minimize the adverse impact of the proposed development on these heritage resources.

2. RELEVANT LEGISLATION

Two sets of legislation are relevant for this study with regard to the protection of heritage resources and graves.

2.1 The National Heritage Resources Act (25 of 1999) (NHRA)

The development constitutes an activity, which potentially may be harmful to heritage resources that may occur in the demarcated area. The National Heritage Resources Act (NHRA - Act No. 25 of 1999) protects all structures and features older than 60 years (section 34), archaeological sites and material (section 35) and graves and burial sites (section 36). In order to comply with the legislation, the Applicant requires information on the heritage resources, and their significance that may occur in the demarcated area. This will enable the Applicant to take pro-active measures to limit the adverse effects that the development could have on such heritage resources.

In terms of the **National Heritage Resources Act (1999)** the following is of relevance:

Historical remains

Section 34(1) 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.

Archaeological remains

Section 35(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 or museum, which must immediately notify such heritage resources authority.

Section 35(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) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist with the detection or recovery of metals or archaeological material or objects, or use such equipment for the recovery of meteorites.

Burial grounds and graves

Section 36 (3)(a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority-

- (c) 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
- (b) 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 detection or recovery of metals.

Subsection 36(6) Subject to the provision of any law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority-

- (a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and
- (b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the content of such grave or, in the absence of such person or community, make any such arrangement as it deems fit.

Culture resource management

Section 38(1) Subject to the provisions of subsection (7), (8) and (9), any person who intends to undertake a development* ...

must at the very earliest stages of initiating such development notify the responsible heritage resources authority and furnish it with details regarding the location, nature, and extent of the proposed development.

*‘**development**’ means any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of the heritage authority in any way result in a change

to the nature, appearance or physical nature of a place, or influence its stability and future well-being, including-

- (a) construction, alteration, demolition, removal or change of use of a place or a structure at a place;
- (b) carry out any works on or over or under a place*;
- (e) any change to the natural or existing condition or topography of land, and
- (f) any removal or destruction of trees, or removal of vegetation or topsoil;

"place means a site, area or region, a building or other structure ..."

*"structure means any building, works, device or other facility made by people and which is fixed to the ground, ..."

2.2 The Human Tissues Act (65 of 1983)

This Act protects graves younger than 60 years. These fall under the jurisdiction of the National Department of Health and the Provincial Health Departments. Approval for the exhumation and re-burial must be obtained from the relevant Provincial MEC, as well as the relevant Local Authorities.

3. METHOD

3.1 Sources of information

The source of information was primarily the field reconnaissance and referenced literary sources.

A pedestrian survey of selected areas and a drive through by vehicle of the demarcated area was undertaken, during which standard methods of observation were applied. As most archaeological material occur in single or multiple stratified layers beneath the soil surface, special attention was given to disturbances, both man-made such as roads and clearings, as well as those made by natural agents such as burrowing animals and erosion. Locations of heritage remains were recorded by means of a GPS (Garmin 60). Heritage material and the general conditions on the terrain were photographed with a Canon Digital camera.

3.2 Limitations

The scoping survey was thorough, but limitations were experienced due to the fact that archaeological sites are subterranean and only visible when disturbed. Vegetation was relatively dense in some areas and archaeological visibility was limited. It is thus possible that sites have been missed.

3.3 Categories of significance

The significance of archaeological sites is ranked into the following categories.

● No significance: sites that do not require mitigation.
● Low significance: sites, which <i>may</i> require mitigation.
● Medium significance: sites, which require mitigation.
● High significance: sites, which must not be disturbed at all.

The significance of an archaeological site is based on the amount of deposit, the integrity of the context, the kind of deposit and the potential to help answer present research questions. Historical structures are defined by Section 34 of the National Heritage Resources Act, 1999, while other historical and cultural significant sites, places and features, are generally determined by community preferences.

A crucial aspect in determining the significance and protection status of a heritage resource is often whether or not the sustainable social and economic benefits of a proposed development outweigh the conservation issues at stake. Many aspects must be taken into consideration when

determining significance, such as rarity, national significance, scientific importance, cultural and religious significance, and not least, community preferences. When, for whatever reason the protection of a heritage site is not deemed necessary or practical, its research potential must be assessed and mitigated in order to gain data / information which would otherwise be lost. Such sites must be adequately recorded and sampled before being destroyed. These are generally sites graded as of low or medium significance.

3.4 Terminology

Early Stone Age:	Predominantly the Acheulean hand axe industry complex dating to + 1Myr yrs – 250 000 yrs. before present.
Middle Stone Age:	Various lithic industries in SA dating from ± 250 000 yr. - 30 000 yrs. before present.
Late Stone Age:	The period from ± 30 000-yr. to contact period with either Iron Age farmers or European colonists.
Early Iron Age:	Most of the first millennium AD
Middle Iron Age:	10 th to 13 th centuries AD
Late Iron Age:	14 th century to colonial period. <i>The entire Iron Age represents the spread of Bantu speaking peoples.</i>
Historical:	Mainly cultural remains of western influence and settlement from AD1652 onwards – mostly structures older than 60 years in terms of Section 34 of the NHRA.
Phase 1 assessment:	Scoping surveys to establish the presence of and to evaluate heritage resources in a given area
Phase 2 assessments:	In depth culture resources management studies which could include major archaeological excavations, detailed site surveys and mapping / plans of sites, including historical / architectural structures and features. Alternatively, the sampling of sites by collecting material, small test pit excavations or auger sampling is required.
Sensitive:	Often refers to graves and burial sites although not necessarily a heritage place, as well as ideologically significant sites such as ritual / religious places. <i>Sensitive</i> may also refer to an entire landscape / area known for its significant heritage remains.

4. DESCRIPTION OF THE PROPOSED DEVELOPMENT AND TERRAIN

The pipeline route is indicated on the attached map, and the capacities vary in different sections. It is intended that the water will be conveyed under gravitation as far as possible and the pipeline will be buried underground as far as possible. The abstracted water will be conveyed through approximately 28km of pipeline to various reservoirs (see Map 1).

The proposed water supply pipeline runs through existing townships and along existing tarred and gravel roads. Other than these two areas, the pipeline is proposed to run through previously ploughed areas that were used for agricultural purposes. The fields, existing roads, and township development have caused disturbance that may have affected any previous archaeological settlement. The proposed pipeline also runs near or over hillocks, which are archaeologically sensitive areas.

5. RESULTS OF THE SCOPING SURVEY

5.1 HISTORICAL PERIOD

No remains from the Historical period were noted.

5.2 GRAVES (see Map 1)

1. At GPS point 1 a marked grave with a headstone was noted on the side of the road, possibly within the road reserve.
2. At GPS point 2 a historical graveyard was noted. The graveyard was at the foot of a hillock adjacent to an existing township. The graveyard has been extended to the adjacent side of the hillock - GPS point 3. These graves have been fenced in and cognisance of the fact that some do not display headstones, but are marked by stones must be taken.
3. Graves were noted within a fenced area, some marked by headstones others are unmarked. Some graves were noted to be outside of the fenced area at GPS point 4.
4. Graves were noted close to the site for a potential reservoir at GPS point 5.

Point 1	S24° 04' 07.6" E28° 55' 06.1"
Point 2	S24° 01' 10.0" E28° 52' 36.6"
Point 3	S24° 00' 58.7" E28° 52' 28.5"
Point 4	S23° 57' 11.9" E28° 48' 59.4"
Point 5	S24° 05' 54.8" E28° 59' 28.2"

5.3 IRON AGE REMAINS

No Iron Age finds were noted during survey. This however does not mean that none exist as they may be subterranean and the potential for unmarked graves is potentially high, estimated at 70%.

5.4 STONE AGE REMAINS

In the area surrounding the drainage line and on the floodplain, a low concentration of Middle Stone Age stone tools was noted. Middle Stone Age stone tools are generally located in the area in and around GPS point S23° 57' 29.5" E28° 49' 35.5"

Significance Low.

6. ARCHAEOLOGICAL BACKGROUND INFORMATION

The Mokopane Region has a rich archaeological tradition; starting from the Stone Age period, right up to the Historical period. The following Iron Age material may occur in the region:

According to the most recent archaeological cultural distribution sequences by Huffman (2007), this area falls within the distribution area of various cultural groupings originating out of both the Urewe Tradition (eastern stream of migration) and the Kalundu Tradition (western stream of migration). The facies that may be present are:

Urewe Tradition: Kwale branch- *Mzonjani facies* AD 450 – 750 (Early Iron Age)
Moloko branch- *Icon facies* AD 1300 - 1500 (Late Iron Age)

Kalundu Tradition: Happy Rest sub-branch - *Doornkop facies* AD 750 - 1000 (Early Iron Age)
Eiland facies AD 1000 – 1300 (Middle Iron Age)
Klingbeil facies AD 1000 - 1200 (Middle Iron Age)
Letaba facies AD 1600 - 1840 (Late Iron Age)

None of the above-mentioned archaeological remains or other heritage remains of importance were noted on the terrain.

7. DISCUSSION

The impact that the proposed development will have on the archaeological landscape of the area is minimal and can be deemed to be of *Low significance*. It is our contention that the only impact that the development poses would be when access is gained to physically construct the pipeline and purification plants. The recorded graves are all well marked and easily visible, but care must be taken to avoid accidental damage to such graves.

8. OTHER DEVELOPMENT THAT MAY AFFECT THE WATER SUPPLY SCHEME

8.1 The Makapan Valley World Heritage Site

The Makapan Valley World Heritage Site will not be affected by this phase of the development. However, the borehole wells field on the farm Planknek is located inside the buffer zone – description included as Fig 11, which would affect future phases of the development (see also attached buffer zone; Map 2).

8.2 The re-alignment of the N11

The re-alignment of the N11 from the R101 northeast of Mokopane seems to follow the same route as the proposed pipeline route does from the Planknek wells field. It is therefore suggested that this information is confirmed with SA Roads Agency before final planning of the pipeline route is undertaken (see attached Map 3).

9. RECOMMENDATIONS FOR MITIGATION AND MANAGEMENT MEASURES

From past experiences in the area, it is known that Iron Age remains, including human skeletal remains may be exposed along the pipeline route. It is therefore recommended that

1. The Environmental Control Officer and the Community Liaison Officer be made aware of this fact and that the archaeologist be contacted in such an event.
2. In addition, the archaeologist should be allowed to conduct routine inspections during the development phase to ensure that any other archaeological material that comes to light is dealt with appropriately.
3. Graves that occur within 20m from the right of way or servitude area must be cordoned off to prevent accidental damage by construction equipment.

10. BIBLIOGRAPHY

Huffman, T.N. 2007. *Handbook to the Iron Age. The Archaeology of Pre-colonial Farming Societies in Southern Africa*. University of KwaZulu-Natal Press.



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Fig 1. Route along tar road near Ga-Ledwaba / Ga-Kgubudi.



Fig 2. Grave 1 near Ga-Mmalepeteke on the farm Rietfontein 240 KR.



Fig 3. Graveyard 2 near Ga-Mapela on the farm Sandsloot 236 KR.



Fig 4. Graveyard 3 near Ga-Mapela on the farm Sandsloot 236 KR.



Fig 5. Graveyard 4 between Ramorulama and Ga-Mabuela on the farm Mozambique 807 LR.



Fig 6. View of reservoir position at Ga-Mapela on Sandsloot 236 KR.



Fig 7. Graveyard 5 near Tshamahasi on the farm Rietfontein 2 KS.



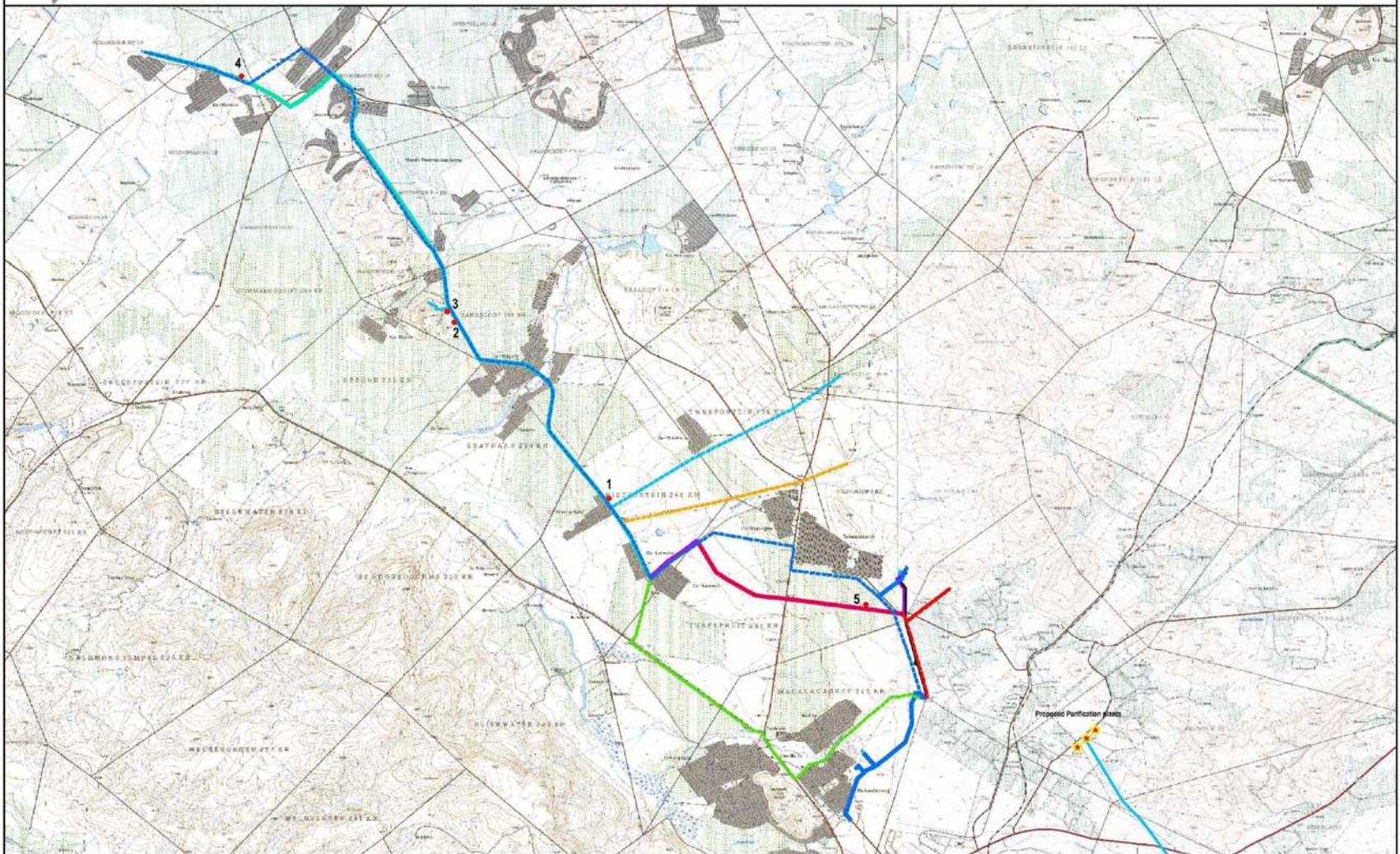
Fig 8. View from reservoir overlooking Mahwelereng towards the south.



Fig 9. View of ploughed fields near Tshamahasi.



Fig 10. View of reservoir site on Macalacaskop 243 KR towards the northwest.



PROJECT NO. 388643	COORDINATE SYTEM Geographic	J:\388643_Mogalakwena EIA \\GIS\GIS\DOCS\Locality.mxd
	SPHEROID WGS	CENTRAL MERIDIAN

— Pumpline	— Stage 02	— Option A	— Option C
— Stage 01	— Stage 03	— Option B	— Option D
— Pipes less than 360mm		— Option 5	

DATE 06/03/2008	SCALE 1:104,685
COMPILED BY STOM	FIG NO. 001

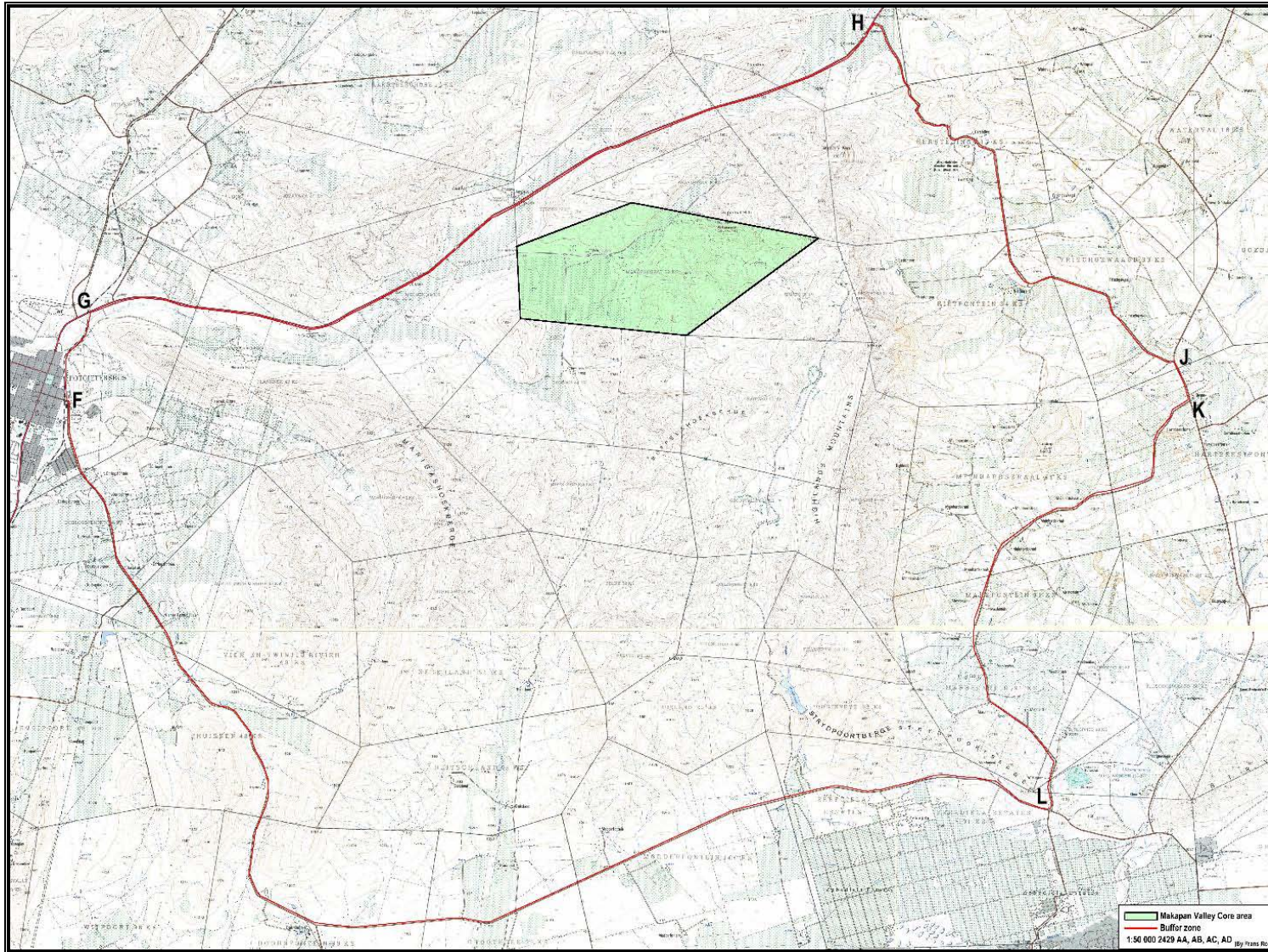
The Buffer:

Buffer Zone: 48 065,3045ha approx. (Makapans Highlands Conservancy)

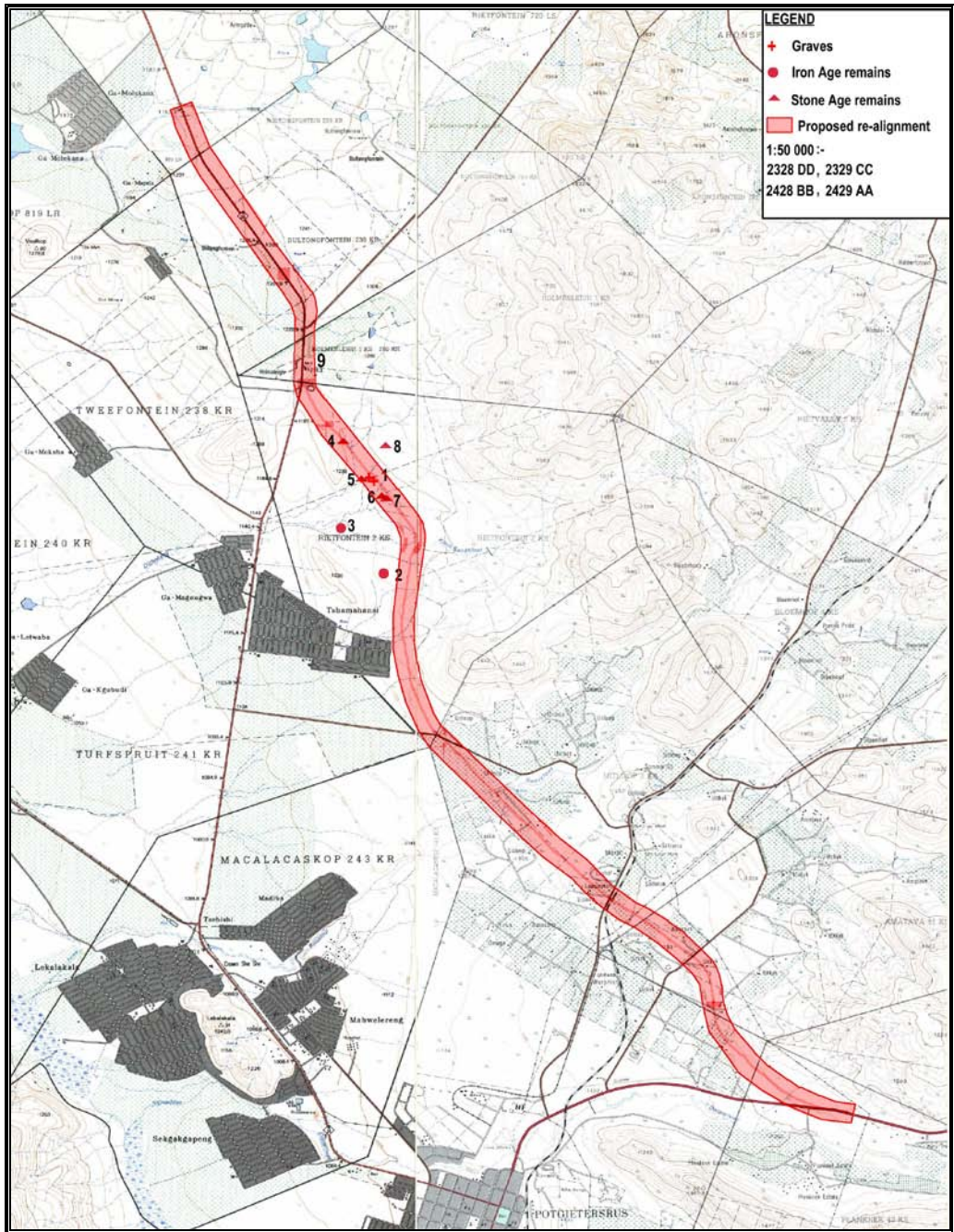
Moving in a clockwise direction:

- Starting at point F(intersection of road R518 with railway line), and follow the railway line in a northern direction up to point G (intersection of road R101 with railway line).
- Starting at point G (intersection of road R101 with railway line), and follow road R101 in an eastern and then north eastern direction up to point H (turn-off to EERSTELING MONUMENTS).
- Starting at point H (turn-off to EERSTELING MONUMENTS) and follow the EERSTELING MONUMENTS road in a south easterly direction up to point J (eastern cadastral boundary of the farm RIETFONTEIN 34 KS).
- Starting at point J (eastern cadastral boundary of the farm RIETFONTEIN 34 KS), and follow the eastern cadastral boundaries of the farms RIETFONTEIN 34 KS and MEINHARDSKRAAL 61 KS in a south easterly direction up to point K at the intersection with the Zebediela/Pietersburg road.
- Starting at point K (intersection of the eastern cadastral boundary of the farm MEINHARDSKRAAL. 61 KS and the Zebediela/Pietersburg road), and follow the Zebediela/Pietersburg road in a southerly direction up to point L (the intersection of the Zebediela/Pietersburg road with the road R518, the ZEBEDIELA/MOKOPANE Road).
- Starting at point L (intersection of road R518 and Zebediela/Pietersburg road), and follow road R518 in a western and then north western direction up to point F (the starting point).

Fig 11. Description of the Makapan Valley World Heritage Site Buffer zone.



Map 2. Makapan Valley Buffer Zone.



Map 3. Re-alignment of the N11.