

# **Phase 1 Heritage Impact Assessment of Farm Rietputs 15 near Windsorton, Northern Cape Province.**



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## Executive Summary

A Phase 1 Heritage Impact Assessment was carried out on a section of the farm Rietputs 15 near Windsorton in the Northern Cape Province. The study area is largely degraded by previous and ongoing mining activities. One stone-walled settlement complex and three graveyards were recorded within the Core Gravel Deposits Area while one potential historical terrain and three rock gongs were recorded within the proposed prospecting area and east of the Core Gravel Deposits Area. These sites are all assigned a field rating of Local Significance Grade 3A and should be avoided and conserved. The intact sedimentary strata (Rietputs Formation) within the Core Gravel Deposits area are highly significant as it represents an ancient cultural landscape where hand axe - using hominids inhabited southern Africa outside the early hominid sites of the Gauteng Province as early as 1.6 Ma years ago. It is assigned a field rating of Local Significance Grade 3B and higher. Accordingly, it is advised that in the long-term at least part of the *in situ* Rietputs Formation located within the Core Gravel Deposits area should be identified, demarcated and conserved for the future. It is also advised that in the short-term the mining authority should engage with local heritage professionals before backfilling disused mining pits, to allow for inspection, recording and sampling of freshly exposed gravels and to allow for sampling of material during the sorting process.

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## **Introduction**

A Phase 1 Heritage Impact Assessment was carried out on a section of the farm Rietputs 15 near Windsorton in the Northern Cape Province (**Fig. 1**). The assessment pertains to the application for prospecting rights for diamond mining and the establishment of associated infrastructure in the area (**Fig. 2**). The heritage impact assessments is a pre-requisite for any development which will change the character of a site exceeding 5 000 m<sup>2</sup> in extent, as prescribed by the National Heritage Resources Act (Act 25 of 1999). This task involved identification and mapping of possible heritage resources within the proposed project area, an assessment of their significance, related impact by the proposed development and recommendations for mitigation where relevant. A site visit was conducted in May 2016.

## **Methodology**

The heritage significance of the affected area was evaluated through a desktop study and carried out on the basis of existing field data, database information and published literature. This was followed by a field assessment by means of a pedestrian survey. A Garmin Etrex Vista GPS hand model (set to the WGS 84 map datum) and a digital camera were used for recording purposes. Relevant information, aerial photographs and site records were consulted and integrated with data acquired during the on-site inspection.

## **Terms of Reference**

- Identify and map possible heritage sites and occurrences using available resources.
- Determine and assess the potential impacts of the proposed development on potential heritage resources;
- Recommend mitigation measures to minimize potential impacts associated with the proposed development.

## **Field Rating**

Site significance classification standards, as prescribed by SAHRA, were used for the purpose of this report (**Table 1**).

## Details of Area Surveyed

### Locality Data

1 : 50 000 scale topographic maps 2824 BC Windsorton and 2824 BD Windsorton Road

1:250 000 scale geological map: 2824 Kimberley

General Site Coordinates: 28°19'38.25"S 24°44'23.68"E

The study area is situated on the left bank of the Vaal River on the farm Rietputs 15, which is located next to the R374 provincial road between Windsorton and the N12 national road that connects Kimberley and Warrenton in the Northern Cape Province (**Fig. 3**). Previous mining operations at Rietputs 15 involved open pit excavations into diamondiferous gravels, with the pits ranging in size from 3000m<sup>2</sup> to 5000m<sup>2</sup>.

### Background

The Vaal River in the vicinity of Windsorton is flanked by a wide, Post-African pediplain that transects rocks of the Ventersdorp Supergroup, Dwyka tillites and shales as well as dolerite inselbergs (koppies) of the Karoo Supergroup (see 1:250 000 scale geological map 2824 Kimberley). Several levels of terrace development above the modern Vaal River and its tributaries have been recognised and grouped into 'older' and 'younger' gravels (Partridge & Brink 1967; de Wit *et al.* 2000). Helgren (1979) expanded on the 'older' vs 'younger' gravel phase debate and revised the traditional classification of the Vaal River deposits on the basis of new lithological and topographical observations. Gibbon (2009) subsequently applied cosmogenic nuclide dating to the alluvial deposits, allowing for a revision of the Vaal depositional system. At Windsorton and nearby surrounds the 'older' gravel deposits occur at elevations of 21 to 60 m above river level and are considered to be reworked clasts from pre-existing fluvial deposits, while the 'younger' gravels, which includes the Rietputs Formation, occur at elevations of 12 to 14 m above river level followed by the Riverton Formation at lower elevations (Helgren 1979; de Wit *et al.* 2000). According to Helgren (1979) and Gibbon (2009), the Rietputs Formation at Rietputs 15 (type site) is made up of a complex valley fill that includes a lower coarse gravel and sand unit (**Fig. 4**), covered by fine alluvium and sporadic palaeosols. The radiometric dates obtained by Gibbon *et al.* (2009) show an age range of 1.57+/-0.22Ma, to ca 1.26+/-0.10Ma for the accumulation of the upward fining

course gravel sequence. The gravels reaches a thickness of up to 7 metres thick, with the total deposit reaching depths of up to 19 metres to bedrock (Leader 2009). The younger Riverton Formation is primarily composed of fine-grained alluvium (sand and silts) that are represented by several terraces along the modern floodplain directly adjacent to the Vaal River. This formation spans the late Pleistocene and Holocene epochs (Helgren 1979).

The lower Vaal River basin is generally rich in archaeological heritage, especially in terms of Stone Age human occupation on the landscape. Stone Age archaeological finds are almost exclusively derived from the 'younger' gravels and include an abundance of Acheulean (Early Stone Age) handaxes, cleavers and core-axes, primarily made from quartzite. The Rietputs Formation gravels contain both Acheulean stone tools (Helgren 1978; Leader 2009) and vertebrate fossils, although the locations of most of the fossils are poorly documented (Cooke 1949; Helgren 1977, 1979) (**Fig. 5**). The incidence of Later Stone Age artefacts as open-site scatters is also common on the modern landscape along the lower Vaal River valley. There are plentiful rock art engraving sites in the region, including the area around Warrenton to the north of Rietputs 15 where rock engravings have been recorded at Four Streams, Nazareth and Schoolplaats. Late Iron Age and historical stone-walled settlement complexes in the region attest to the presence of BaTswana and Koranna communities occupying the landscape as far back as the 18<sup>th</sup> and early 19<sup>th</sup> century (Humphreys 1976; Van Aswegen 1993) (**Fig. 6**).

### **Field Assessment**

The study area landscape is largely degraded by previous and ongoing mining activities (**Fig. 7**) One stone-walled settlement complex and three graveyards were recorded within the Core Gravel Deposits Area (see **Fig. 2**) while one potential historical terrain and three rock gongs were recorded within the proposed prospecting area and east of the Core Gravel Deposits Area (**Fig. 8, Table 2**).

#### **Stone Age component**

Observations were limited since the mining pits exposing the Rietputs Formation gravels, that potentially holds Acheulean artefacts or vertebrate fossils as deep down as 6 to 15 m below the surface, are regularly backfilled (**Fig. 8, areas a – e**). However,

Acheuleun handaxes and associated lithic elements that were once preserved within these subsurface gravels are frequently found out of context around spoil heaps and backfilled areas (**Fig. 9**). Isolated Later Stone Age surface scatters (mostly small, fresh-looking flakes) occur sporadically around Baskop, and further east, but the scatters become less frequent towards the east between the extensively disturbed mining area and the river.

### **Stone-walled complex**

A large stone-walled settlement complex, covering an approximately 9ha area, is located on rocky outcrop near the north-western boundary of the study area (**Fig. 10**). According to local inhabitants, the site was occupied until the late 1960's. Similar structures were also recorded on the western slopes of Baskop, but the full extent of their distribution could not be established due to impenetrable vegetation (black thorn) that covered large parts of the lower slopes around the mountain.

### **Graveyards**

#### **Historical Graveyard**

A formal graveyard covering approximately 2200 m<sup>2</sup> is located about 235 m east of the Vaal River (**Fig. 11**). The graveyard dates from around the turn of the previous century and consists of a loose arrangement of some heavily overgrown graves, the majority with formal head markers. The site is not marked on the 1:50 000 topographic map of the area.

#### **Informal Graveyard 1**

An unmarked graveyard covering approximately 7200 m<sup>2</sup> is located about 600 m east of the historical graveyard (**Fig. 12**). The graves are clearly visible, but unmarked and considered to be that of local farm workers. It is noted that a section of the cemetery was destroyed by earlier mining activities, which apparently happened under previous management (**Fig. 13**). The site is not marked on the 1:50 000 topographic map of the area.

#### **Informal Graveyard 2**

An unmarked graveyard covering approximately 1800 m<sup>2</sup> is located about 90 m from the riverbank near the south-eastern boundary of the study area (**Fig. 14**). The graves

are clearly visible but unmarked and considered to be that of local farm workers. The site is not marked on the 1:50 000 topographic map of the area.

### **Historical Terrain**

Several rectangular stone foundations were recorded within an approximately 2.5 ha area beside the northern slope of Baskop (**Fig. 15**) A potential ash heap containing the remains of European ceramics, glassware and ungulate bones is located nearby.

### **Rock Art**

Three rock gongs were mapped along the northern rim of Baskop, but no engravings were recorded during the initial foot survey (**Fig. 16**).

## **Impact Statement**

The Rietputs Formation gravels along the lower Vaal River valley is highly significant as it represents an ancient cultural landscape where hand axe - using hominids inhabited southern Africa outside the early hominid sites of the Gauteng Province as early as 1.6 Ma years ago (Gibbon et al. 2009; Leader 2009). Although mining excavations into the Rietputs Formation gravels do provide access to and opportunities for important archaeological and palaeontological research, it is very likely that prospective open pit mining operations within the Core Gravel Deposits area will ultimately destroy this unique and finite heritage resource if appropriate mitigation procedures are not put in place.

## **Recommendations**

The following recommendations should be considered as part of an overall heritage management plan for the proposed development at Rietputs 15.

### **Rietputs Formation gravels**

The intact sedimentary strata within the Core Gravel Deposits area are assigned a field rating of Local Significance Grade 3B and higher and the remaining Rietpus Formation strata within the study area should preferably be conserved. Alternatively, given the understandably negative socio-economic ramifications of this recommendation, it is advised that



- In the long-term at least part of the *in situ* Rietputs Formation located within the Core Gravel Deposits area should be identified, demarcated and conserved for the future.
- In the short-term the mining authority should engage with local heritage professionals before backfilling disused mining pits, to allow for inspection, recording and sampling of freshly exposed gravels and to allow for sampling of material during the sorting process.

#### **Stone-walled complex**

The demarcated area is assigned a field rating of Local Significance, Grade 3A and should be protected. The site must be clearly demarcated as a no-go area for mining operations with at least a 10m - wide no-go buffer zone against vehicle traffic.

#### **Graveyards**

According to Section 34 (Burial grounds and graves) of the *National Heritage Resources Act* no. 25 of 1999

- (3) (a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—
- destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- 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
- 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 the detection or recovery of metals.
- (4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such

graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

The graveyards are assigned a field rating of Local Significance, Grade 3A. It is advised that a management plan is submitted for all three graveyard sites to ensure that they are properly maintained and protected from vandalism or damage. It is also advised that each cemetery is enclosed by a wire fence that also includes a 10m - wide no-go buffer zone against vehicle traffic.

#### **Historical Terrain**

The site has the potential for future historical archaeological investigation. The demarcated area is assigned a field rating of Local Significance, Grade 3A and should be avoided. The site must be clearly demarcated as a no-go area for mining operations with at least a 10m - wide no-go buffer zone against vehicle traffic.

#### **Rock Art**

The rock gong sites on Baskop will not be impacted by the proposed mining operations. The sites are each assigned a field rating of Local Significance, Grade 3A. It is considered likely that the Baskop area may yield more rock art sites. A follow-up survey of the mountain is advised as part of an overall heritage management plan for the study area.

### **References**

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Humphreys 1976. Note on the Southern Limits of Iron Age Settlement in the Northern Cape. *South African Archaeological Bulletin* 31(121/122): 54-57.

Van Aswegen, H.J. 1993. Grensverhoudinge in die noordwesterlike Transgariep: die lotgevalle van die Kora tot 1858. *Contree* 33: 19 – 26.

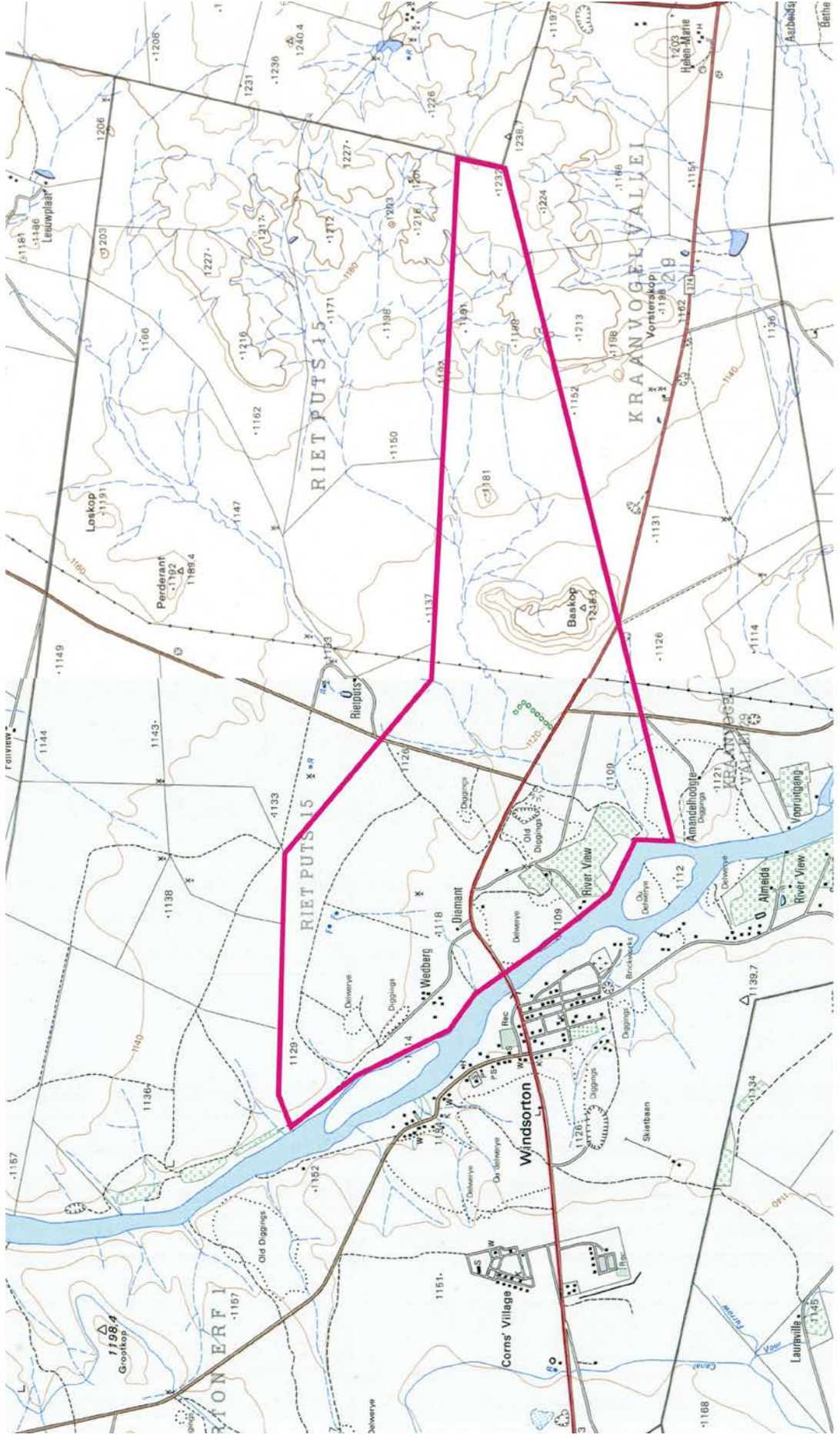
## Tables and Figures

**Table 1.** Field rating categories as prescribed by SAHRA.

<b>Field Rating</b>	<b>Grade</b>	<b>Significance</b>	<b>Mitigation</b>
National Significance (NS)	Grade 1	-	Conservation; national site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; provincial site nomination
Local Significance (LS)	Grade 3A	High significance	Conservation; mitigation not advised
Local Significance (LS)	Grade 3B	High significance	Mitigation (part of site should be retained)
Generally Protected A (GP.A)	-	High/medium significance	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium significance	Recording before destruction
Generally Protected C (GP.C)	-	Low significance	Destruction

**Table 2. Site coordinates of features recorded during the survey.**

#	Feature	Coordinates	
Fig. 8, no 1	Stone-walled settlement complex	28°18'47.44"S	24°42'30.29"E
		28°18'40.75"S	24°42'40.75"E
		28°18'42.53"S	24°42'45.68"E
		28°18'54.80"S	24°42'37.92"E
Fig. 8, no 3	Historical graveyard	28°19'28.17"S	24°43'11.61"E
		28°19'27.87"S	24°43'12.33"E
		28°19'29.61"S	24°43'13.24"E
		28°19'30.02"S	24°43'11.94"E
Fig. 8, no 4	Graveyard 1	28°19'24.16"S	24°43'34.94"E
		28°19'22.67"S	24°43'37.10"E
		28°19'24.30"S	24°43'39.45"E
		28°19'26.06"S	24°43'35.90"E
Fig. 8, no 5	Graveyard 2	28°20'30.17"S	24°44'1.75"E
		28°20'30.26"S	24°44'2.66"E
		28°20'32.43"S	24°44'2.72"E
		28°20'32.47"S	24°44'1.79"E
Fig. 8, no 6	historical terrain	28°19'35.02"S	24°45'17.03"E
		28°19'33.94"S	24°45'19.94"E
		28°19'36.73"S	24°45'22.47"E
		28°19'38.93"S	24°45'19.41"E
Fig. 8, no 7	rock gong	28°19'35.40"S	24°45'26.90"E
	rock gong	28°19'37.10"S	24°45'27.80"E
	rock gong	28°19'35.40"S	24°45'27.50"E



14 Figure 1. Map of the proposed study area at Rietputs 15 (portions of 1:50 000 topographic maps 2824 BC Windsorton and 2824 BD Windsorton Road).

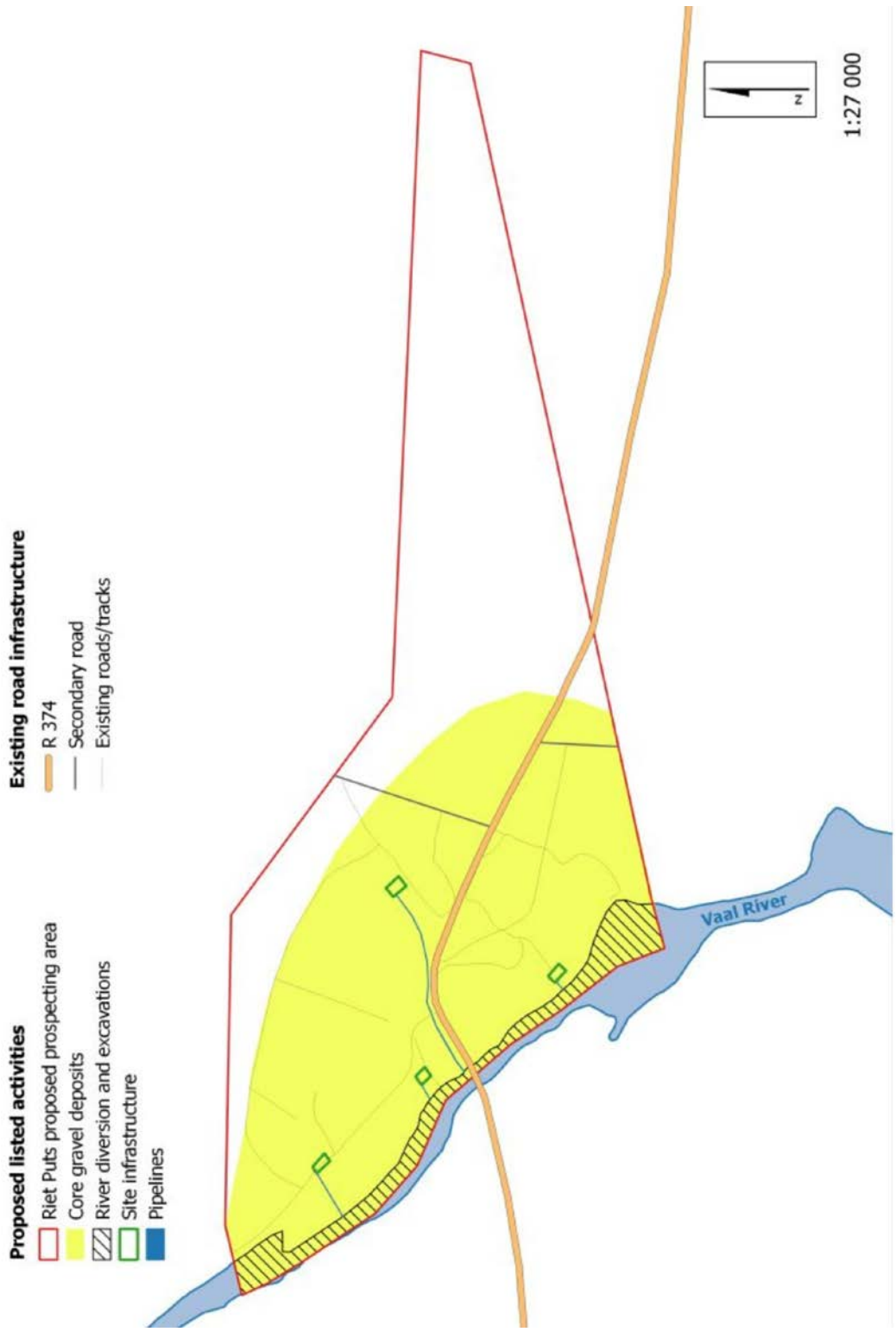


Figure 2. Map of the layout and proposed listed activities at Rietfontein 15

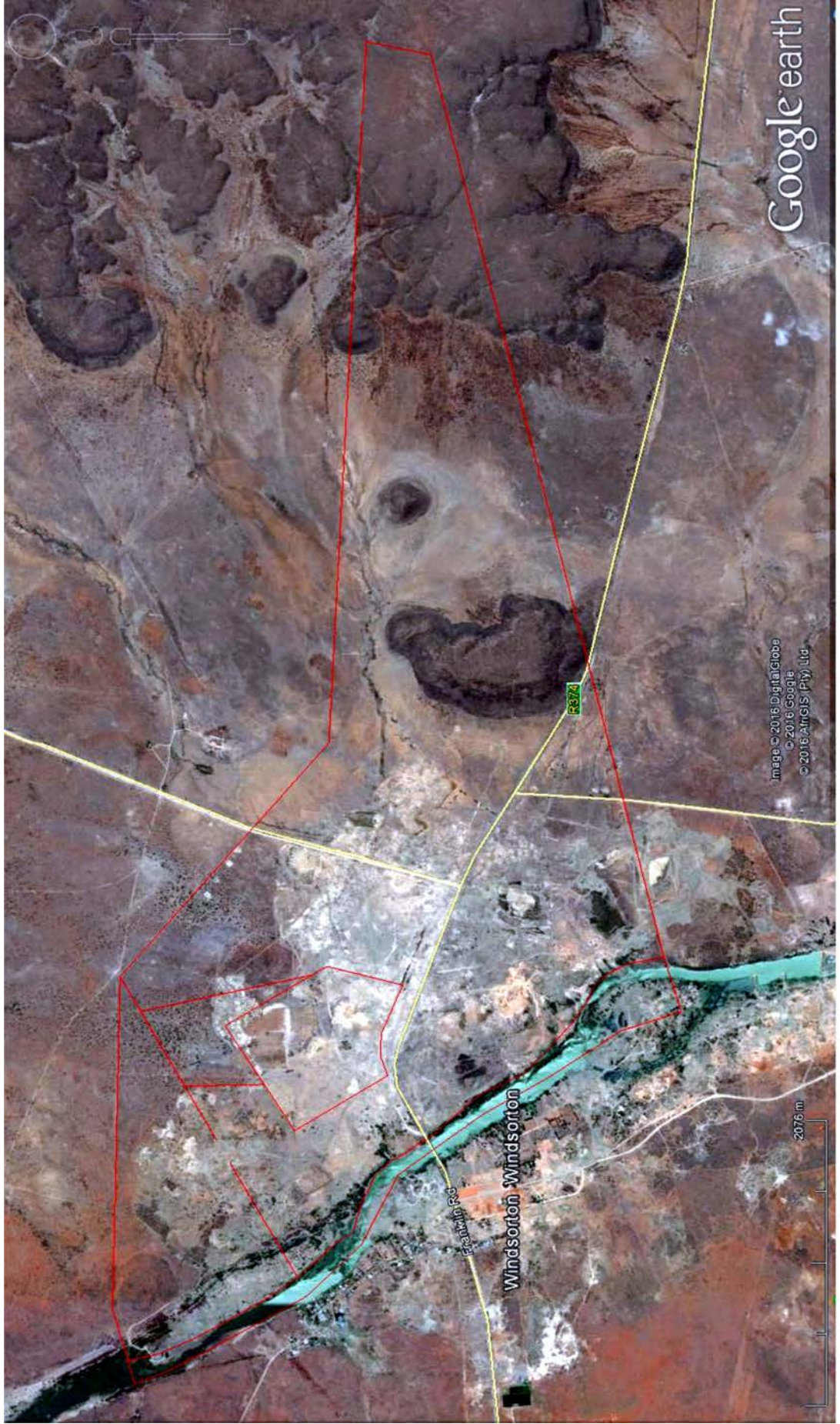


Figure 3. Aerial view of the proposed study area at Rietputs15.



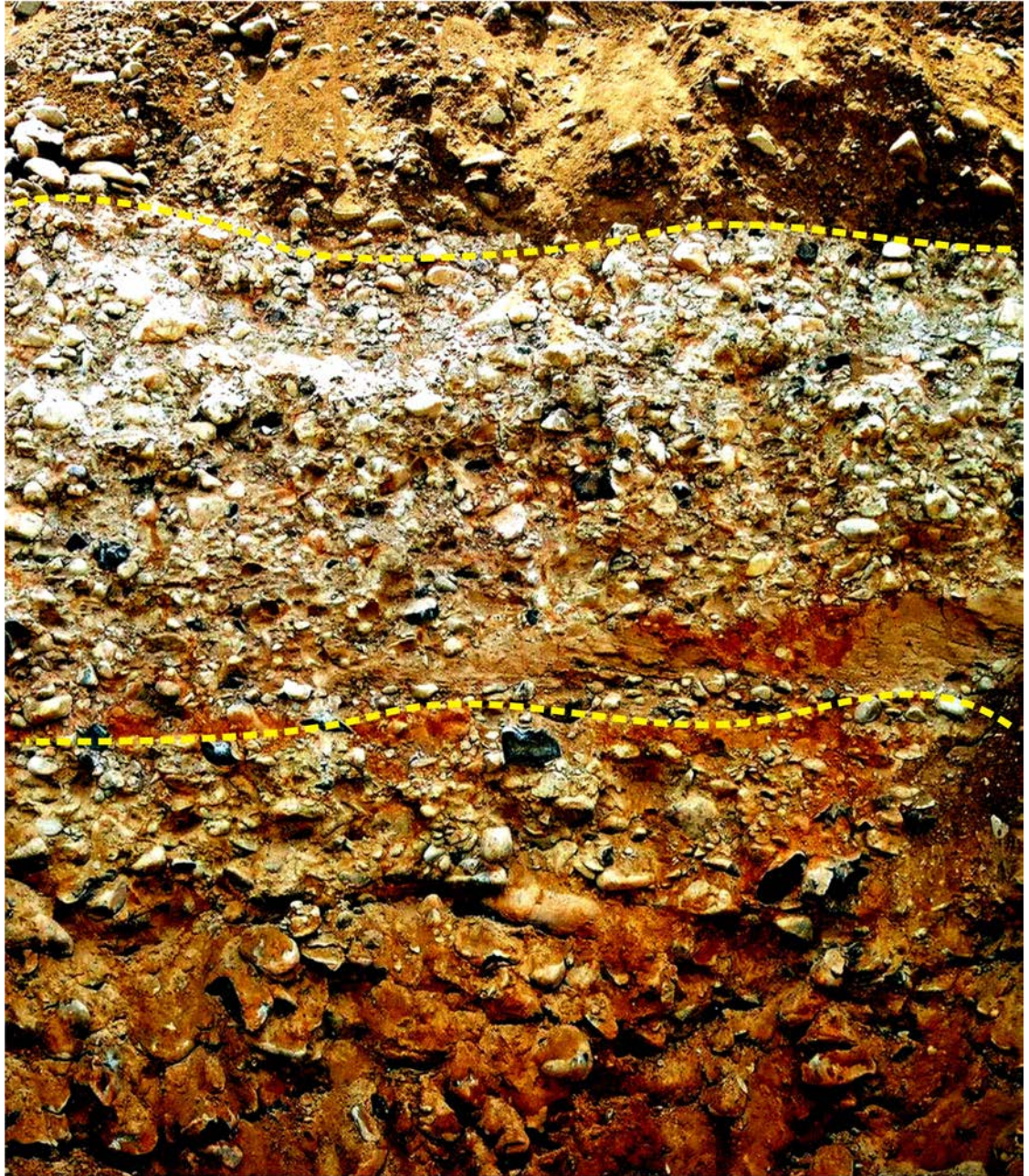


Figure 4. An upward fining sequence of coarse gravel within the Rietputs Formation.

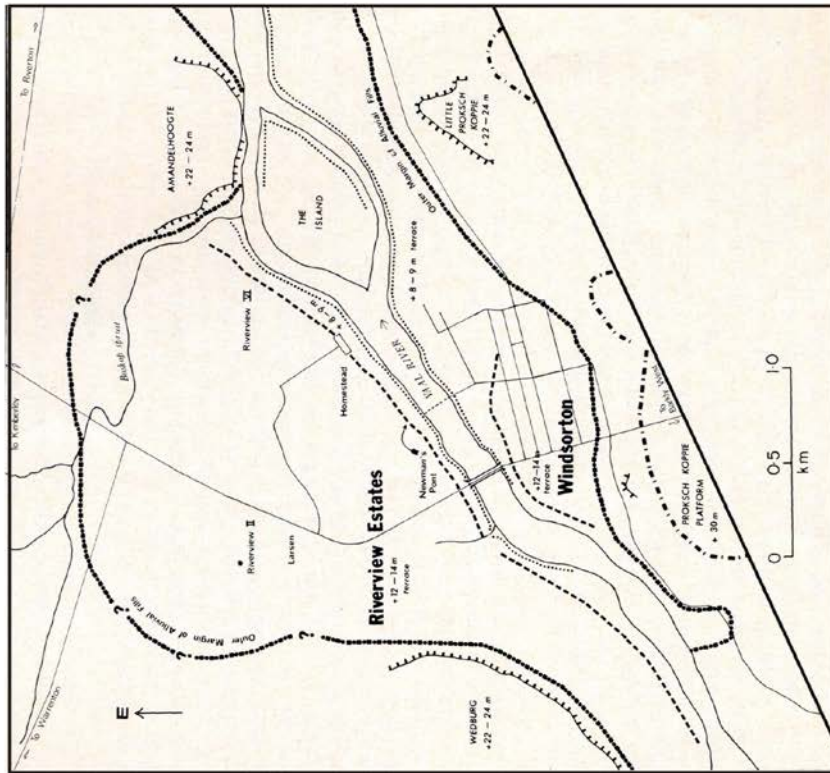
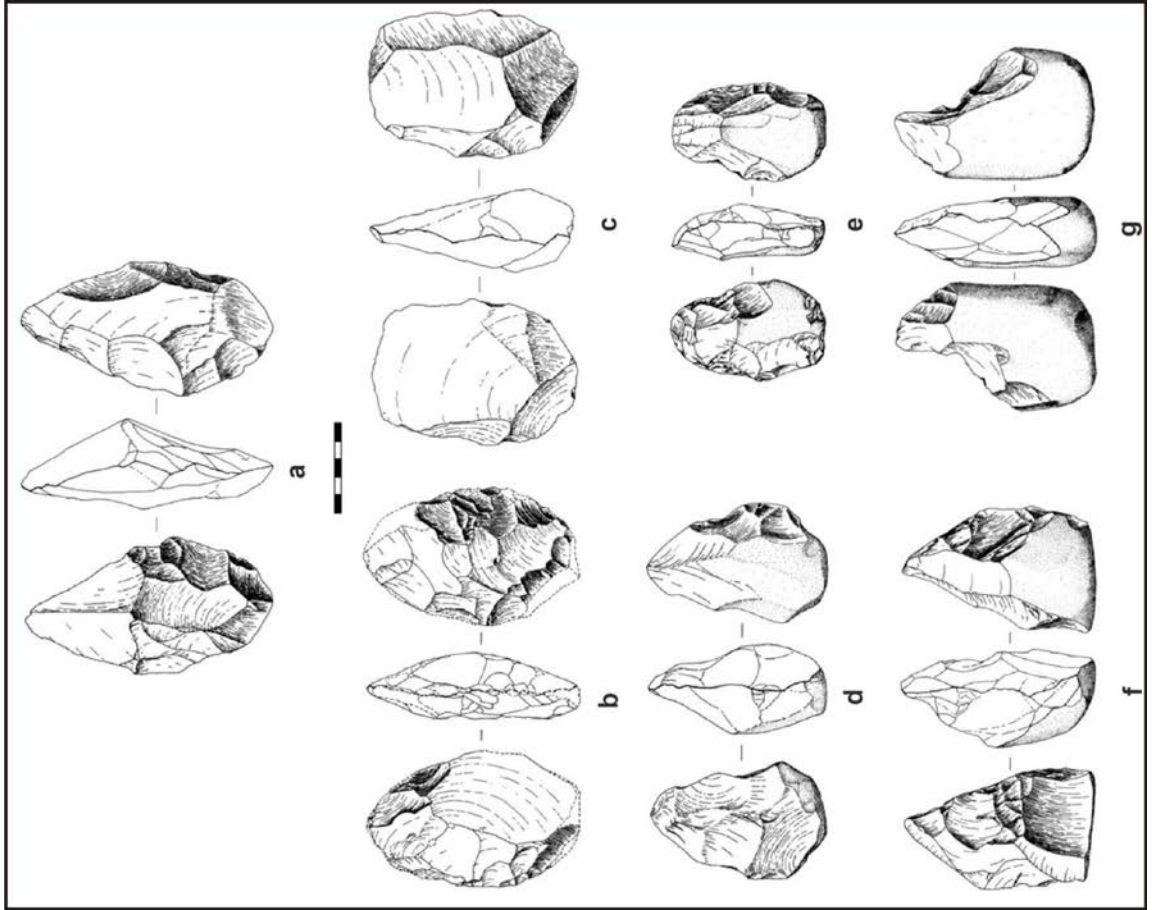


Figure 5. Map of Acheulean localities after Helgren (1978) (top). Early Acheulean tools from the lower coarse alluvium, Rietputs Formation include handaxes (a,b) and a cleaver (c) on flakes; handaxes (d,e) and picks (f,g) on cobbles (Gibbon *et al.* 2009) (right).

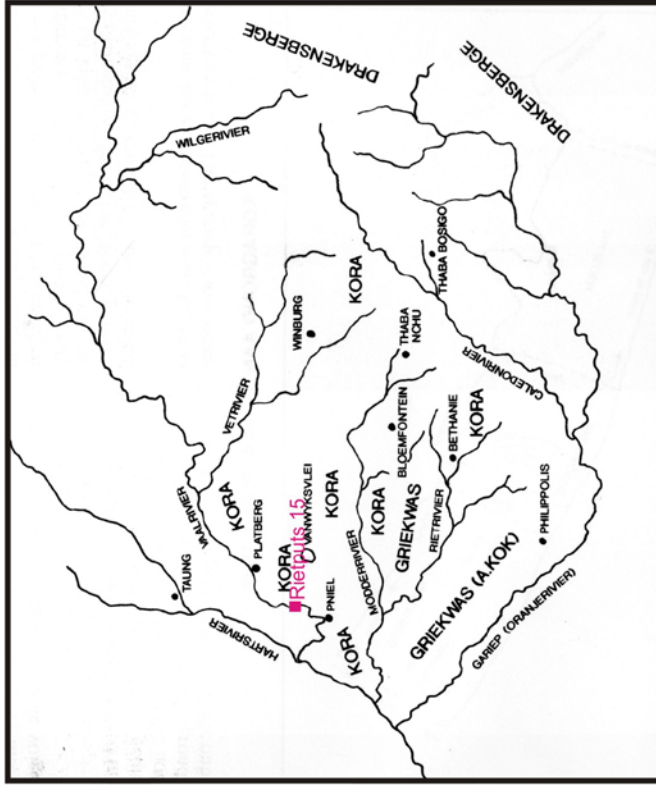
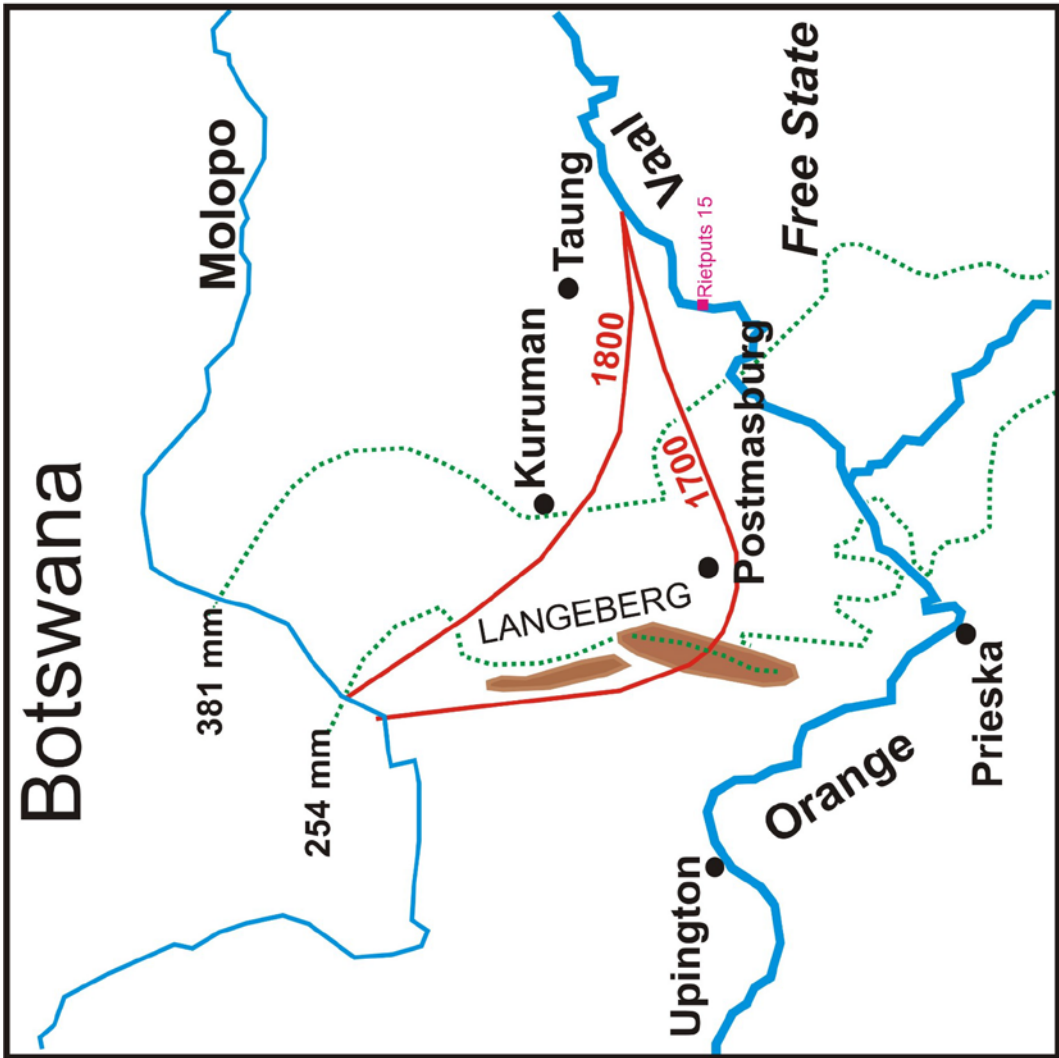


Figure 6. Southern limits of Iron Age settlement in the northern Cape at approximately 1700 and 1800 according to Humphreys (1976) (left) and map of Koranna settlement in the Transgariep ca. 1840 (Van Aswegen 1993) (above).

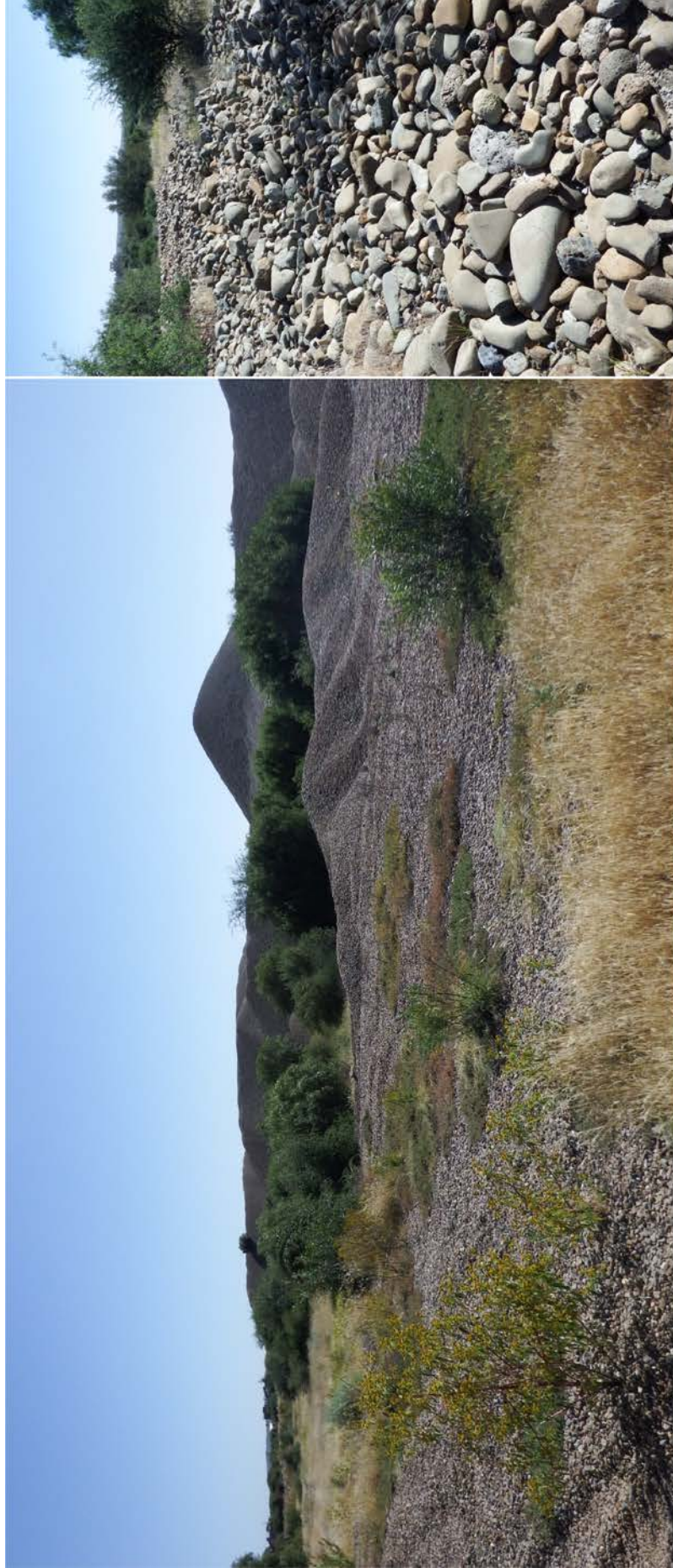


Figure 7. General view of backfilled mining pits at Rietputs 15.

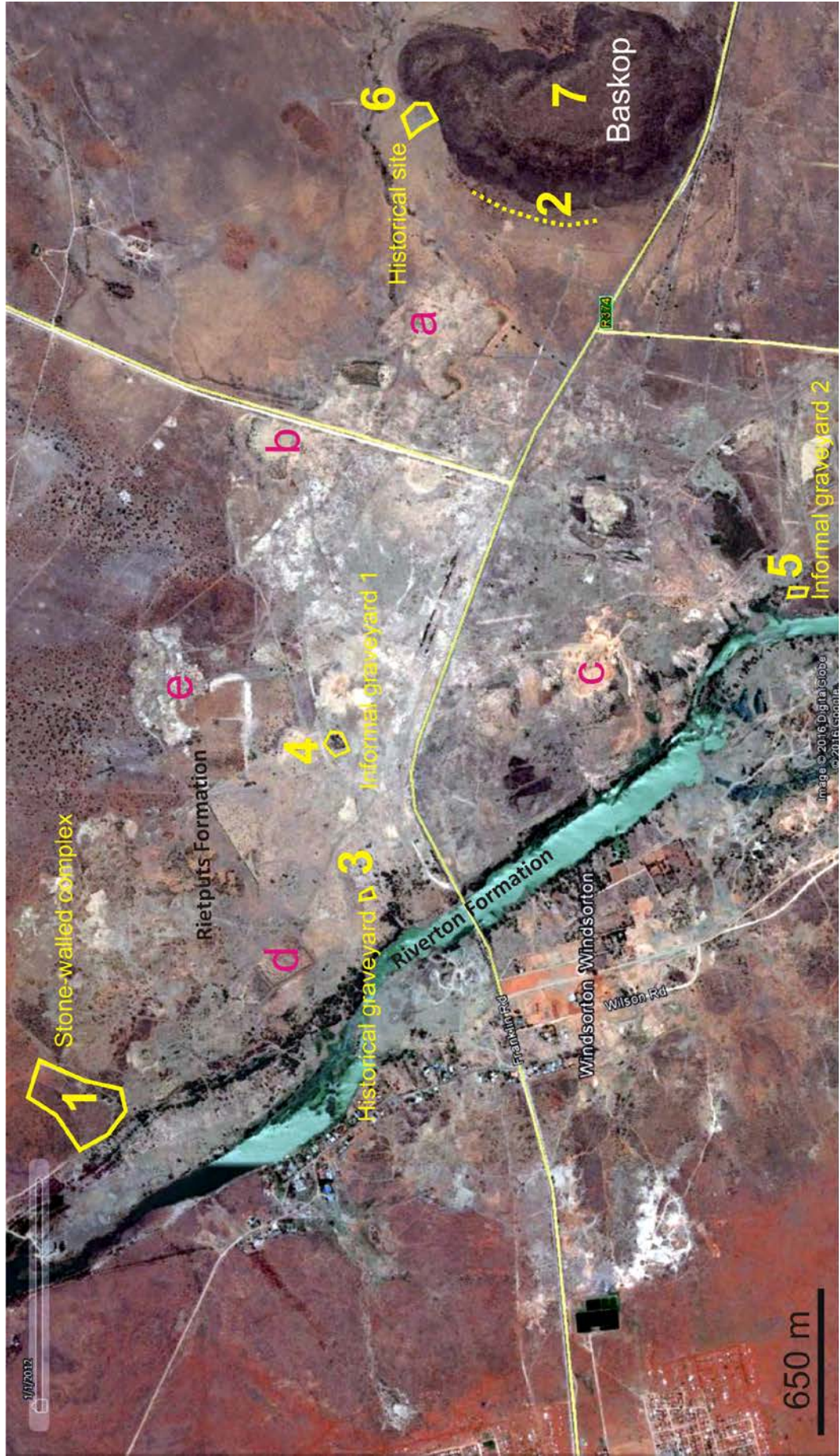


Figure 8. Map of features recorded during the field assessment. Numbers 1 - 7 denote historical/archaeological sites and letters a - e indicate backfilled mining pits that produced ESA lithics and/or vertebrate fossil remains.



Figure 9. Examples of Acheulean stone tools recorded out of context near spoil heaps and backfilled areas.



Figure 10. Large stone-walled settlement complex with multiple enclosures located near the north-western boundary of the study area (Fig. 8, no 1).



Figure 11. Historical graveyard (Fig. 8, no. 3)





Figure 12. Informal Graveyard 1 (Fig. 8, no 4)



Figure 13. Looking south-southeast along a section of the cemetery at Informal Graveyard 2 that was destroyed by earlier mining activities.



Figure 14. Informal Graveyard 2 (Fig. 8, no 5).



Figure 15. Historical terrain with remains of a possible ash heap (top & center) and cobble foundations (bottom).



Figure 16. Rock gong localities on Baskop, looking south towards the koppie (top left) and northwest and down the northwestern rim of the koppie (below left).