THE ARCHAEOLOGY OF THE ANGLO PLATINUM LEASE AREA, RUSTENBURG

A Consolidated Report prepared for Anglo Platinum

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INTRODUCTION

In keeping with Environmental, Heritage and Mineral legislation, Anglo Platinum commissioned various archaeological assessments for previous projects inside their lease holding near Rustenburg. These projects included the UG2 Expansion (Huffman & Smith 2001), Western Limb Tailings Re-Treatment (Huffman & Schoeman 2002), Boschfontein East Options (Huffman & Murimbika 2002), and Kroondal/RJV (Roodt 2004). In addition, the Eskom power line for the Ikaros sub station crossed the leasehold (Huffman 2002a). Later, a few sites within the Western Limb Tailings area received Phase II mitigation (Huffman & Schoeman 2003).

Now, Anglo Platinum needs further assessments for their proposed new projects. These new projects include:

- **RPM/R Intermediate Shafts:**
  Turffontein No. 2 Shaft, Power Line Corridor, Frank No. 3 Shaft and *Paardekraal No. 2 Shaft*
- **Boschfontein Merensky Opencast developments**
- **Waterkloof 305JQ and Waterval 307JQ project**

What is more, Anglo Platinum requires an archaeological survey of the remaining portions of the RPM/R 'old order' mining rights area not yet impacted by specific developments. The results of these new assessments are presented here as part of a report that consolidates the archaeology on record through out the Lease Area.

A brief outline of the archaeological sequence for the North West and Gauteng Provinces places the previous findings in context, and provides a background to new results.

ARCHAEOLOGICAL BACKGROUND

South Africa has one of the longest archaeological sequences in the world because humanity evolved in an area stretching form here to Ethiopia. Most of this sequence covers the times when our ancestors used stone tools.

Earlier Stone Age (2.6 million to 250 000 years ago)

Hominids began to make stone tools about 2.6 million years ago. Known as the **Oldowan** industry, most of the earliest tools were rough cobble cores and simple flakes. The flakes were used for such activities as skinning and cutting meat from scavenged animals. These early artefacts are difficult to recognize and have so far only been found in rock shelters such as the Sterkfontein Caves (Kuman 1998).

At about 1.4 million years ago hominids started producing more recognizable stone artefacts such as handaxes, cleavers and core tools (Deacon & Deacon 1999). Among other things these **Acheulian** tools were probably used to butcher large animals, such as elephants, rhino and hippo that had died from natural causes. **Acheulian** artefacts are usually found near the raw material from where they were quarried, at butchering sites or as isolated finds.

Middle Stone Age (250 000 to 25 000 years ago)

By the beginning of the Middle Stone Age (MSA), tool kits included prepared cores, parallel-sided blades and triangular points hafted to make spears (Volman 1984). MSA people had become accomplished hunters by this time, especially of large grazers such as wildebeest, hartebeest and eland.

These hunters are classified as archaic humans, but by 100 000 years ago, they were anatomically fully modern. The oldest evidence for this change has been found in South Africa, and it is an important point in debates about the origins of modern humanity. In particular, the degree to which behaviour was fully modern is still a matter of debate. The repeated use of caves indicates that MSA people had developed the concept of a home base and that they could make fire. These were two important steps in cultural evolution (Deacon & Deacon 1999).

Various surveys recorded MSA scatters in the Lease Area, but none are *in situ* and they have little scientific value (Tables 1-3).

Later Stone Age (25 000 to 500 years ago)

By the beginning of the Later Stone Age (LSA), human behaviour was undoubtedly modern. Uniquely human traits, such as rock art and purposeful burials with ornaments, became a regular practice. These people were the ancestors of the San (or Bushmen). San rock art has a well-earned reputation for aesthetic appeal and symbolic complexity (Lewis-Williams 1981). Many engravings are on record in the Magaliesberg (Dawson 1992; Steel 1988)

In addition to art, LSA sites contain a diagnostic tool kit, including microlithic scrapers and segments made from very fine-grained rock (Mason 1988; Wadley 1987). Spear hunting probably continued, but LSA people also hunted small game with bows and poisoned arrows.

LSA sites have not been recorded within the Lease Area. The most common sites are more recent.

The Iron Age (AD 400 to 1840)

Bantu-speaking people moved into Eastern and Southern Africa about 2 000 years ago (Phillipson 1977). These people cultivated sorghum and millets, herded cattle and small stock and manufactured iron tools and copper ornaments. Because metalworking represents a new technology, archaeologists call this period the Iron Age.

As mixed farmers Iron Age people lived in semi-permanent settlements consisting of pole-and-daga (mud mixed with dung) houses and grain bins arranged around a central area for cattle. Usually, settlements with this so-called Central Cattle Pattern (Huffman 1986) were sited near water and good soils that could be cultivated with an iron hoe. Characteristic ceramic styles help archaeologists to separate the sites into different groups and time periods. The first 1 000 years is called the Early Iron Age (EIA). Broederstroom

(Huffman 1993; Mason 1986) in the Magaliesberg Valley is the best-known EIA site in the area.

When EIA people lived at Broederstroom, the climate was warmer and wetter than today (see Tyson & Lindesay 1992). Throughout the Iron Age, in fact, climatic fluctuations played a significant role in human geography. From about AD 700 to 1000, the climate was colder and drier, and EIA farmers appear to have retreated away from the Magaliesberg to more optimal areas. The climate improved once again between AD 1000 and 1300, but by about AD 1300, the Little Ice Age began, and its impact on farming societies was particularly severe.

For convenience, archaeologists call the present millennium the Late Iron Age (LIA). The ancestors of present-day Sotho-Tswana and Nguni moved into Southern Africa during this period. Sotho-Tswana first lived in Limpopo Province before they moved south into the project area. Recognized by distinctive pottery known as the *Olifantspoort facies* of **Moloko** (Mason's 1986 middle iron age), 16th to 18th century settlements have been found in the Lease Area (Tables 1-3). The Olifantspoort people were probably the immediate ancestors of Southwestern Sotho-Tswana such as BaRolong (Huffman 2002b).

By this time, the climate had improved once again, and other Sotho-Tswana people now lived in the Free State. In this treeless environment they turned to building in stone to mark internal and external boundaries. The earliest walling is called **Type N** (Maggs 1976) after the hill Ntsuanatsatsi, the legendary place of origin of BaFokeng. Type N walling consists of a few cattle kraals in the centre, linked by other walls, and a perimeter wall around the whole settlement that incorporates small stock enclosures. Alternatively, only one kraal may be in the centre, and then from the air the site resembles a `fried egg`. Little remains of the daga structures in the residential zone, but sometimes stone paving marks the former location of houses. Type N settlements typically followed a dispersed pattern: ordinary men and their extended families lived in separate homesteads while a cluster of Type N units formed a chief's capital.

Most stonewalled settlements organized according to the Central Cattle Pattern are similar in that animal enclosures form a circle around a central open space. Adult cattle stayed in the large enclosures in the centre and calves in the small ones. The number of large enclosures reflects the number of cattle-owning families living in the homestead. If there was only one family, then only one kraal stood in the centre without a central space.

Type N walling dates from the 15th to 17th centuries in the Free State. Sometime towards the beginning, Type N settlements spread north across the Vaal into the hilly areas of Gauteng and North West Province (for example Dreyer 1995; Jones 1935), where it has been called Group I (Taylor 1979 and Mason's 1968 class 1). Site 28 in the Western Limb Tailings area (Table 2) may have been an example of this early type. Rock engravings in the nearby Site 23 appear superficially similar to the simple Type N pattern. The depth of the patina, however, suggests the engravings are more recent.

Type N (Group I) developed into **Klipriviersberg** (or Group III) as a result of interaction with South Western Sotho-Tswana who produced the *Olifantspoort* pottery: aggregated settlements are common, the outer wall sometimes includes scallops to mark back courtyards, there are more small stock kraals in the outer wall and straight walls separate households in the residential zone. Klipriviersberg dates to the 18th and 19th centuries. Type N is associated with *Ntsuanatsatsi* pottery while Klipriviersberg is associated with *Uitkomst* (formed by a merger of *Ntsuanatsatsi* and *Olifantspoort*), and BaFokeng built them both (Huffman 2002b). Both types occur in the general area.

Western Sotho-Tswana, such as BaHurusthe and BaKwena, built another type called **Molokwane** (Pistorius 1995) or Group II (Taylor 1979, or Bupye by Mason 1986). From the air the Molokwane type resembles a `sunflower`: multiple arcs in the outer wall mark the back courtyards of individual households surrounding the standard core. Small stock kraals stand between the central enclosures and front courtyards. Daga houses in the centre established a bilobial arrangement of households (see Maggs 1976). Houses included verandas and were entered through sliding doors (see Maggs 1993; Mason 1986). Molokwane settlements stretch across the hilly areas of Gauteng west to Zeerust (Boeyens 2000; Mason 1986; Pistorius 1992). Some of these settlements were huge

aggregations, housing up to 20 000 people. They were often sited on hilltops and aggregated for defensive purposes. They date from the 18th century to the beginning of the Historic Period.

Without mapping and excavation, it is difficult to separate Molokwane and Klipriviersberg types. Even then, identification is difficult because the two types share many features. A better understanding of the differences in walling and pottery leads us to believe that the two walled sites (47 & 51) mapped for the Western Limb Tailings project (Figure 1) probably belong to the Klipriviersberg type and the pottery to *Uitkomst*. BaFokeng thus occupied them, rather than a Western group as we first thought.

Figure 1. Plan of site 51, Western Limb Tailings Project.

Another type of walling also occurs in the North West Province. At Doornspruit (Jones 1935; Walton 1956) and other places long scallops, marking the back of the residential zone, closely surround a large core. In contrast to the other types, the open space probably housed cattle, while the stone rings of the core enclosed kitchens. Form the air these sites resemble a beaded necklace. This unusual **Doornspruit** type reflects an Nguni origin, and it was most likely associated with Mzilikazi (Pistorius 1997). One known Matebele complex stands on the farm Rietvlei 271 JQ just west of Tlhabane, and others are located on Impala Mine property (Huffman & Steel 1995).

Other than Type N, all stonewalled sites date to the *difaqane* (or *mfecane*), a time of unprecedented military tension. Formerly, historians began this period when the Hlubi came up from KwaZulu-Natal and attacked BaTlokwa on the plateau. In this conventional interpretation, Shaka of the Zulu was a prime cause of the upheaval. Recent work, however, shows that Shaka was a result and not the cause of several processes that led to the troubles (Hamilton 1995). Most stonewalled sites, what ever their type, date to this period. Previous surveys show that broken walls lie around the bases and in the saddles of many hills in the Lease Area (Tables 1-4).

Historic Period.

At about 1826, Mzilikazi entered the area. Mzilikazi was the leader of the Khumalo, who, according to tradition, defied Shaka and fled KwaZulu-Natal. It was Mzilikazi's practice to remove enemies and consolidate followers so that he was surrounded by uninhabited land. As a result the land appeared empty when Boers crossed the Vaal in 1836. After several engagements, they pushed Mzilikazi north into Zimbabwe.

Mzilikazi's removal made it possible for Boers to settle in the North West Province. From a base at Potchefstroom farms were granted in the Rustenberg area in 1838. Paul Kruger's house on the farm Boekenhoutfontein is now a heritage site.

Mzilikazi's removal also allowed Sotho-Tswana to return to the area, and this in turn allowed mission work to proceed. Sotho-Tswana welcomed missionaries as a means to guns and land. At this time Black people were not legally able to buy land in their own

name, and so they bought land through missionaries. The Reverend Pernzhorn assisted BaFokeng this way. This means to land continued until 1877 when Blacks were allowed to buy land in trust through the office of the Secretary for Native Affairs.

This sequence formed the background to the new surveys.

METHOD

In all cases the survey team intensively examined the areas chosen for high impact. The remaining areas were traversed on foot and by vehicle, paying special attention to likely spots. The goal was to establish a representative sequence, rather then a total record. Sites were recorded with a hand-held GPS instrument and located on a 1:25 000 map supplied by Anglo Platinum. Site locations were then transferred to the 1:50 000 maps 2527 CA Rustenburg (West) and 2527 CB Rustenburg (East).

For purposes of this project five main factors determine site significance: integrity (primary vs. secondary context), amount of deposit, variety of features (middens, walls, etc.), uniqueness and potential to answer present research questions. On this basis there are four categories: none, low, medium and high. Sites with no significance do not require mitigation; low to medium may require further attention, while sites with high significance should not be disturbed at all.

RESULTS FROM THE 2005 SURVEY (Table 5)

NEW PROJECTS

RPM/R Intermediate Shafts

An MSA occurrence (**Site 1**:25 38 25.9S 27 22 37.8E) lies inside the designated area for the Turffontein No. 2 Shaft. The variety of raw material and artefacts suggests that MSA people frequented this area. This scatter has low significance.

The most common finds date to the Iron Age, and the earliest samples belong to the *Olifantspoort facies* (AD1500 – 1700). There are three good sites with burnt daga features:

- **Site 2** (25 38 20.6S 27 22 36.2E) is in the open valley slightly north of the proposed Turffontein No. 2 Shaft.
- **Site 4** lies on a flat plateau (25 38 30-32S 27 22 15-55E) east of the proposed shaft. At least four daga heaps are visible. This site is stratified under stonewalling near beacon TRF 61.
- **Site 11** (25 37 41-42S 27 22 57-23 00E) is on the east side of the high valley traversed by the Eskom power line. This third site includes at least three daga patches, several pottery concentrations (Figure 2) and some metal slag.

All three sites have medium significance and are important to present research questions.

Figure 2. *Olifantspoort* pottery.

Other open sites with *Olifantspoort* pottery occur in the Power Line Corridor, Frank No. 3 Shaft area and Paardekraal No. 2 Shaft area.

- **Sites 13**, **16**, **18**, **20**, **23** and **25** include decorated pottery. These six sites have low significance.
- **Sites 8**, **12**, **15**, **17**, **19**, **21**, **22**, **26**, **28**, and **29** are pottery scatters that may also date to the Olifantspoort time. These ten sites have no significance.

Stonewalling also occurs in new project areas.

- **Site 9** (25 37 32.3S 27 22 32.3E) in the Power Line Corridor may be a rare example of Type N, made by early BaFokeng. It has medium significance, but is not in eminent danger.
- *Uitkomst* pottery suggests that BaFokeng also occupied two stonewalled sites in the Turffontein No. 2 Shaft area. These include a large complex at 25 38 29S 27 22 34E (**Site 1**) and another at 25 38 18S 27 22 29E (**Site 3**). In both cases the complex covers the saddle as well as the base of the hill. These sites have medium significance and will be negatively impacted.

Two other walled complexes stand at the base of hills east of the Turffontein Shaft area.

- **Site 5** (22 38 31.2S 25 22 57.8E) near TRF 61 overlaps with the Olifantspoort Site 4. Drilling activities have recently damaged the walls and a midden: nevertheless, the site still has medium significance.
- **Site 6** (22 38 24S 25 22 58E) is a small complex to the north with low significance.

The Ikaros report noted a large stonewalled complex along the power line route at the boundary of Turffontein and Klipgat.

- **Site 7** begins at 25 37 40.7S 27 22 13E. It was previously given medium significance, but to our knowledge, it was not mapped before the new power line and access road damaged it. The main power option for the Turffontein No. 2 Shaft places this complex in further danger.

Stonewalled settlements also stand around the bottom of the two hills on the northern edge of the proposed Frank No. 3 Shaft.

- **Site 24**, at the most northern hill (25 37 29.6S 27 20 30.7E), is a small complex that includes an ashy midden against a central kraal wall. Pots with everted red rims suggest Western Sotho-Tswana lived here. This small site has low significance.
- We did not examine the other site.

Artefacts from the open ground in the proposed area for the Frank No. 3 Shaft represent another kind of occupation.

- **Site 27**. The handle of a pot lid as well as characteristic pottery decoration, such as large punctates and rim notching (Figure 3), indicate that Western Sotho-Tswana, such as BaKwena, lived here in the 19th century, after the major troubled period was over. Different pot clusters at (a) 25 37 45.2S 27 20 26.5E, (b) 25 37 48.8S 27 20 26.6E and (c) 25 37 53S 27 20 29.6E probably mark separate households. The complex has low significance.

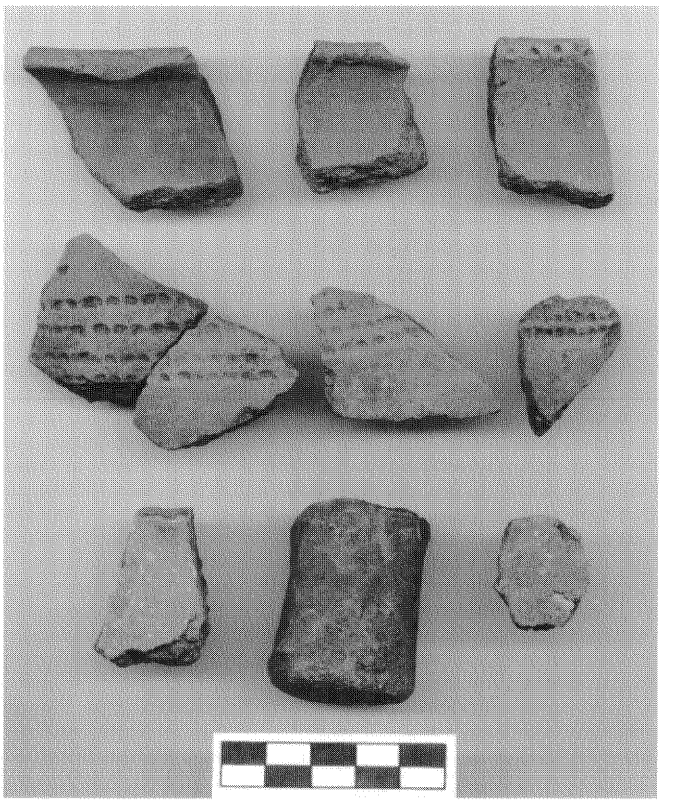

Figure 3. *Western Sotho-Tswana* pottery.

Boschfontein Merensky Opencast Developments

MSA artefacts are scattered over a large portion of the Lease Area. In most cases the material is highly weathered and probably not *in situ*.

- **Site 30** (25 35 30S 27 13 40E). Although also disturbed, a stoney area contains many weathered polyhedral cores made on quartzite, and this area had clearly been an MSA quarry. This locality has low significance
- **Site 31** (25 36 30S 27 13 22E). Undecorated pottery occurs in the ploughed field just outside the most southerly proposed new waste stockpile. The disturbed site has no significance.

Waterkloof & Waterval Project

- **Site 32** (25 41 37S 27 18 33E). Rough cores and large flakes lie scattered along the slopes of a dolerite dyke near a new vent shaft for the Waterval Mine. Evidently ESA people used the dyke as a quarry. This site has low significance.
- **Site 33** (25 41 37.5S 27 18 31E). More recent remains of farm labourers are located near the dolerite dyke. The quarters include rectangular house foundations (next to peg WV 183), coal cinder middens and a graveyard. A 10 x 10 m fence encloses the graves. The site in general has little value, but the graveyard has medium significance.

REMAINING PORTIONS

Turffontein West

The team examined the two hills south of the existing Frank No. 2 Shaft.

- **Site 36** (25 38 38S 27 20 28E). Iron Age pottery and the remains of recent habitation are evident at the southern base of the smaller hill. The site has no significance.

A complex of stonewalled settlements spread across both hills.

- **Site 37** (25 38 35S 27 20 28E). The walls on top of the smaller hill are associated with *Uitkomst* pottery and a small circular rock engraving. Similar engravings were recorded in the Western Limb Tailings Project (Table 2: Site 23). Several rocks with candle-wax stains mark where present-day African congregations have worshipped on the hill. These people may have made the engraving.

- **Site 38** (25 38 37S 27 20 35E). More walling stands in between the two hills, and *Uitkomst* pottery is once again present (Figure 4). This cluster extends around the southwest corner of the larger hill.

Figure 4. *Uitkomst* pottery.

- **Site 39** (25 38 39S 27 20 41). Further walling stands in the saddle.

Although we recorded them separately, the entire complex probably formed a single BaFokeng community.

Turffontein North

The remains of 19th to 20th century homesteads are clustered in an upper valley among the hills in the northern section of Turffontein.

- **Site 34** (25 37 50-54S 27 21 37E). Large grinding surfaces mark communal activity areas, while grain bin foundations (Figure 5) and back courtyard walls (Figure 6) denote individual households. The area has low significance.

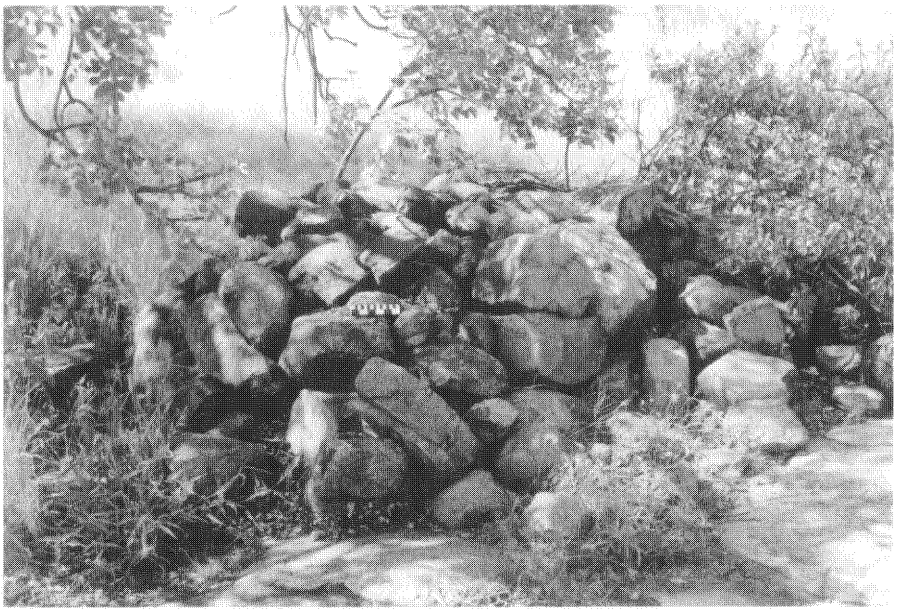

Figure 5. Grain bin foundations.

Figure 6. Back courtyard walls.

- **Site 35** (25 37 57.7S 27 21 37E). Terracing below the valley edge west of Site 33 mark another homestead.

Both sites have low significance.

RECOMMENDATIONS

Mitigation is complete for previous projects, but some sites in the new development areas require further attention.

RPM/R Intermediate Shafts

For the Turffontein No. 2 Shaft, archaeologists need to map the stonewalled **Sites 1** and **3** and collect a representative sample of artefacts. Once Anglo Platinum has determined the precise boundary of the impact area, archaeological mitigation can be limited to that zone. Furthermore, undisturbed walls should be fenced to prevent accidental damage.

In the case of the Olifantspoort Site 2 in the Shaft area, it would be better to exchange it for the multi-component complex (**Sites 4** and **5**) at TRF 61. This other complex contains more visible daga structures; it has more complex stratigraphy, as well as evidence for LSA and Iron Age interaction. It therefore has a higher potential to yield meaningful data. Such an exchange falls within the archaeological meaning of 'Best Practice'.

The large stonewalled **Site 7** in the path of the proposed power option at the boundary of Turffontein and Klipgat also requires mitigation. Parts need to be mapped. Depending on the location of pylons, some areas may also need excavation.

Boschfontein Opencast

No sites of significance occur in this area.

Waterkloof & Waterval

If **Site 32**, the ESA quarry, is under threat, archaeologists should collect a representative sample of artefacts from the surface.

If **Site 33**, the graveyard, is similarly threatened, the graves will need to be relocated. This process will involve consultation with living descendents.

No other sites of significance in the new project areas appear to be impacted by the proposed developments.

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Table 1. Sites located during the **UG2 Expansion** survey.

Number	Location South East	Period & Artefacts	Significance
Brakspruit Option 2			
1	25 41 51; 27 24 46.5	IA pottery MSA	low none
Brakspruit Option 1 & Powerline			
none			
Eastern Railway Line			
2	25 41 30.5; 27 24 29.6	IA pottery	low
3	25 41 28.2; 27 24 24.4	IA pottery	low
Waterval 2			
4	25 41 33.7; 27 20 31.5	IA pottery	none
Central Deep Railway Line			
5	25 40 42.6; 27 20 32.8	IA pottery	none
6	25 40 39.9; 27 20 21.5	*Olifantspoort* Farm labourers	low none
Paardekraal Tailings Dam			
7	25 38 23.7; 27 19 55.3	LIA walling	low
8	25 38 33.9; 27 19 55.2	IA pottery	none
9	25 38 50.6; 27 19 23	IA pottery	none
10	25 38 34.8; 27 18 20.7	IA pottery MSA	none none
11	25 38 46.8; 27 18 15.1	IA pottery MSA	none none
12	25 37 37.8; 27 18 20.5	MSA	none
13	25 38 02; 27 18 15.5	IA pottery	low
14	27 37 49.5; 27 18 08.6	IA pottery	low

15	25 37 43; 27 18 10.5	IA pottery	low
Boschfontein West			
none			
Boschfontein East			
none			

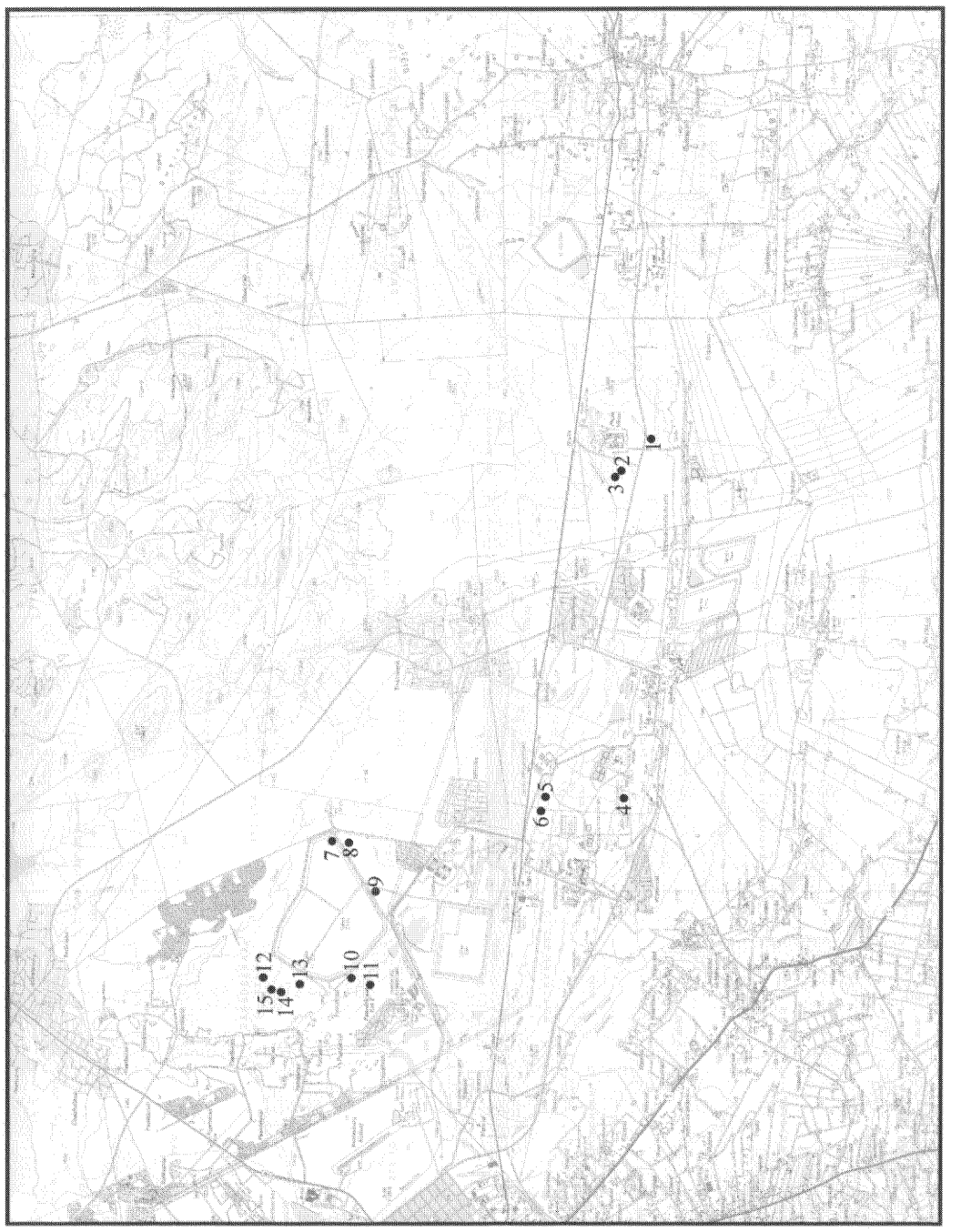

Figure 7. Sites listed in Table 1 (2527 CB).

Table 2. Sites located during the **Western Limb Tailings** survey.

Number	Location South East	Period & Artefacts	Significance
Tailings Dam			
1	25 40 48.9; 27 23 37	IA pottery	low
2	25 40 33; 27 23 27.9	IA pottery	low
3	25 40 30.9; 27 23 17.4	IA pottery MSA	low none
4	25 40 38.7; 27 23 13.5	LIA walling	medium
5	25 40 11.6; 27 23 24.4	IA pottery	low
6	25 39 37.2; 27 23 23	IA pottery	low
7	25 39 46.6; 27 24 01.9	IA pottery	low
8	25 39 37; 27 24 04.9	IA pottery	low
9	25 39 35.7; 27 24 29.7	IA pottery	low
10	25 39 33.7; 27 24 13	IA pottery	low
11	25 39 21.3; 27 24 59.7	LIA walling	medium
12	25 39 18-20; 27 24 47-49	LIA walling	low
13	25 39 26.7; 27 25 03.5	LIA walling	low
14	25 39 42.2; 27 24 43.8	IA pottery MSA	Low none
15	25 39 53.1; 27 24 33	IA pottery	low
16	25 40 49.5; 27 23 56.1	IA pottery	low
17	25 40 48.8; 27 24 10.6	IA pottery	low
18	25 40 39.8; 27 24 05.6	IA pottery	low
19	25 40 41.4; 27 23 52.4	IA pottery	low
20	25 40 36.6; 27 23 52.9	IA pottery	low
21	25 40 39; 27 23 55	IA pottery	low
22	25 40 39; 27 23 57	IA pottery	low
23 *	25 40 33.5; 27 24 22.6	IA pottery engravings	low medium

24	25 40 41; 27 24 24.1	IA pottery	low
25	25 40 27; 27 24 08.1	IA pottery	low
26	25 40 30.8; 27 24 20	IA pottery	low
27	25 40 33.4; 27 24 41.2	IA pottery MSA	low none
28 *	25 40 29.6; 27 24 46.8	LIA walling early?	medium
29	25 40 27.3; 27 25 01.2	Recent	low
30	25 39 42.9; 27 25 13.2	IA pottery	low
31	25 39 37.1; 27 25 13.8	Recent	low
32	25 39 38.8; 27 25 18.1	LIA walling	low
33	25 39 28.5; 27 25 17.3	LIA walling	low
34	25 39 30.2; 27 25 36	LIA walling	low
35	25 39 32.5; 27 26 01.5	Recent	low
36	25 39 37.7; 27 26 13.6	IA pottery	low
37	25 40 14.5; 27 25 14.2	LIA walling	medium
38	25 40 39-42; 27 25 14-16	Recent	low
Concentrator			
39	25 40 55; 27 23 40	IA pottery	low
40	25 41 07; 27 23 38	IA pottery	low
41	25 41 13; 27 23 40	IA pottery	low
42	25 41 20; 27 23 49	IA pottery	low
43	25 41 17; 27 23 53	IA pottery	low
44	25 41 05; 27 23 50	IA pottery	low
45	25 40 58; 27 23 48	IA pottery	low
Powerline			
46	25 40 49; 27 23 12	LIA walling MSA	low none
47 *	25 40 43; 27 23 04	LIA walling	medium
48	25 40 23-30; 27 23 06-10	LIA walling	medium
51 *	25 40 47.3; 27 23 22	LIA walling	medium

Pipeline			
49	25 39 19; 27 20 20	IA pottery	low
50	25 39 23; 27 20 34	IA pottery MSA	low none

* = mitigated in 2003

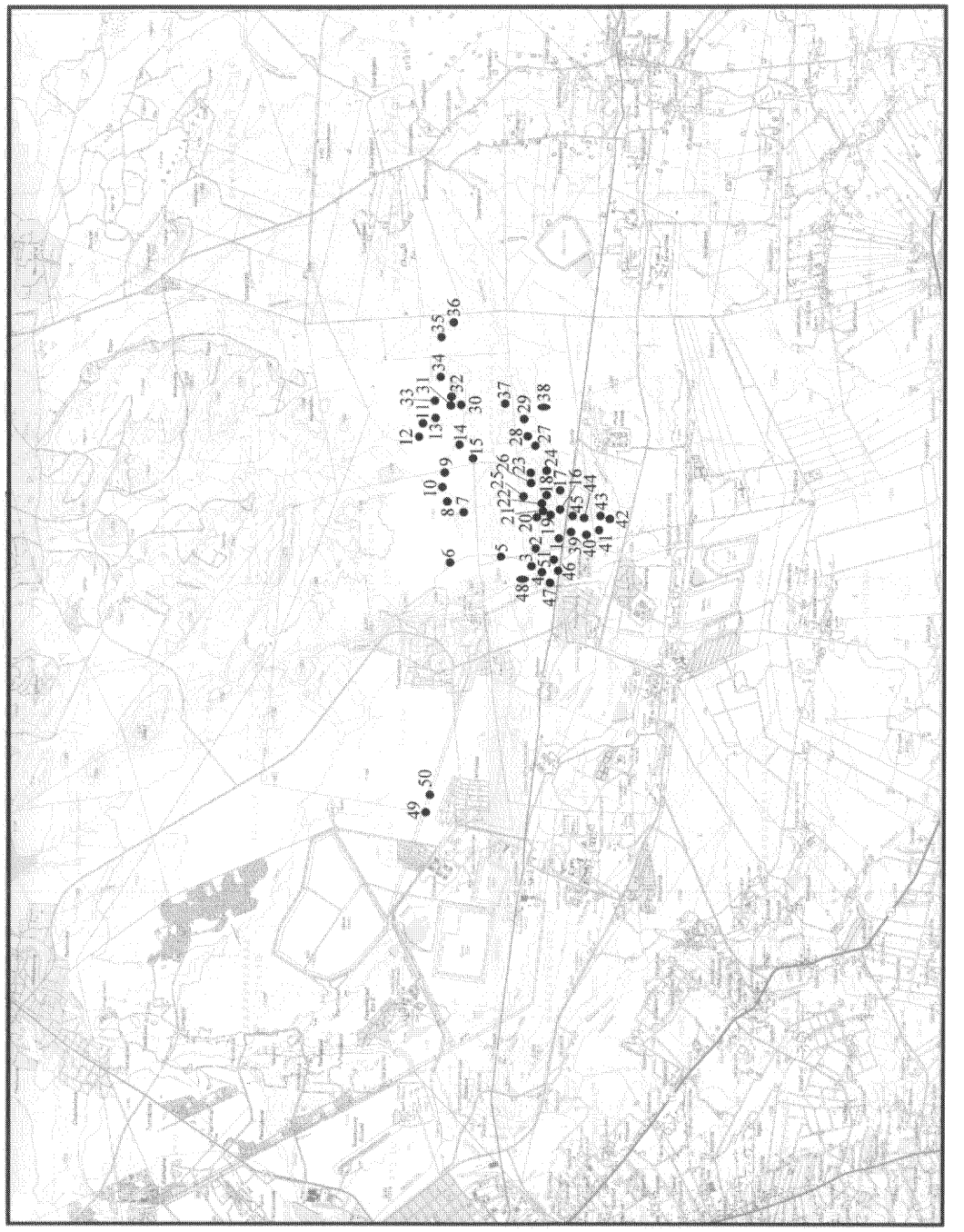

Figure 8. Sites listed in Table 2 (2527 CB).

Table 3. Sites located during the **Boschfontein East Option** survey.

Number	Location		Period & Artefacts	Significance
	South	East		
Option 1				
1	25 37 35.7;	27 14 49.3	IA pottery	none
2	25 37 38;	27 14 53	IA pottery	none
3	25 37 51.5;	27 15 07	IA pottery	none
4	25 37 51.8;	27 14 35	IA pottery	none
Option 3				
none				
Pipeline				
none				

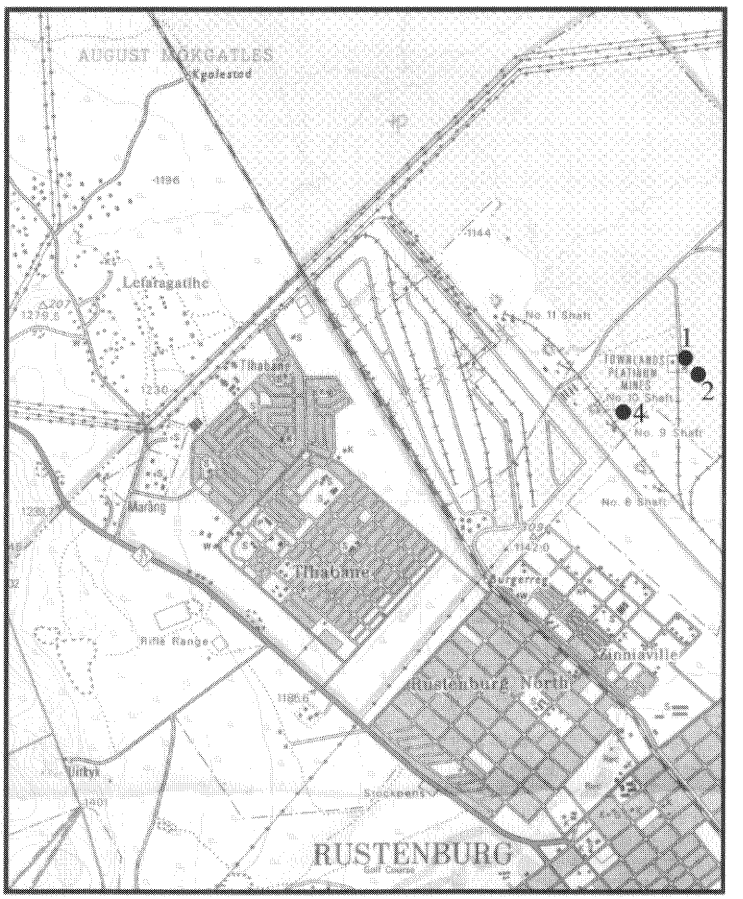

Figure 9a. Sites listed in Table 3 (2527CA).

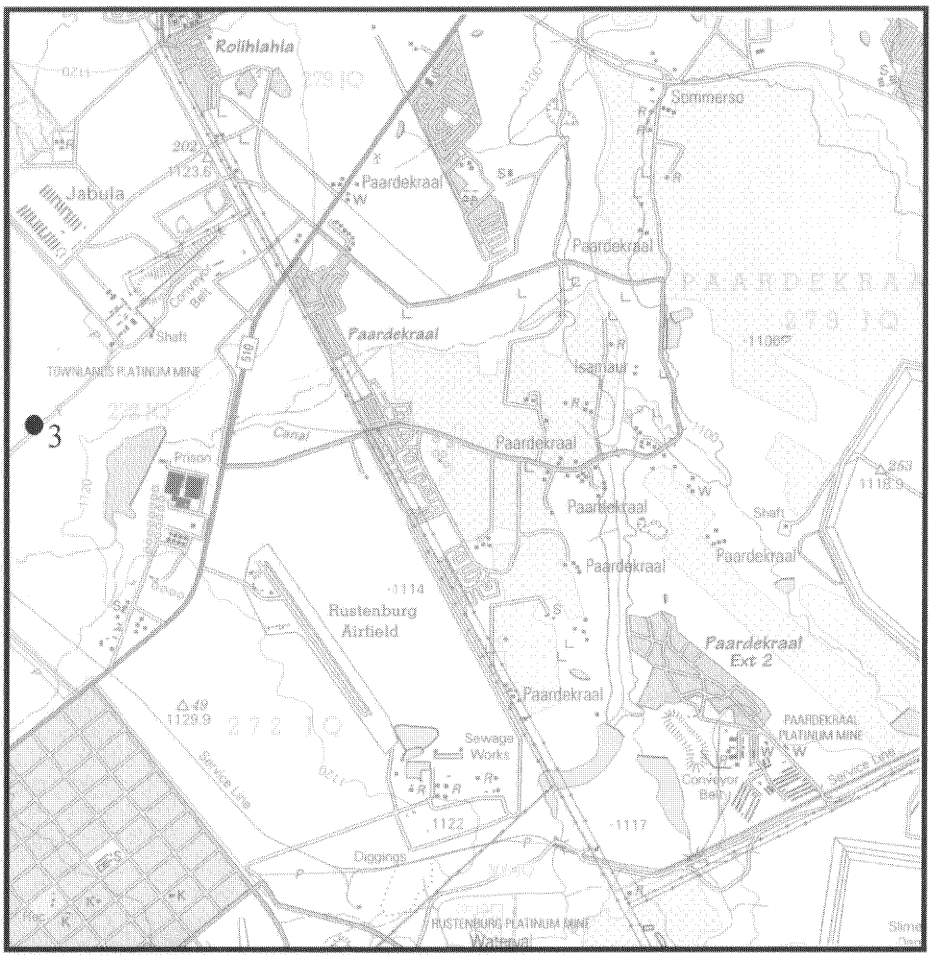

Figure 9b. Sites listed in Table 3 (2527CB).

Table 4. Sites located during the **Kroondal** survey. After Roodt 2004.

Number	Location South East	Period & Artefacts	Significance
1	25 42 20.5; 27 23 37.8	Historic walling?	medium
2	25 42 34-54; 27 23 41-45	LIA walling	medium
3	25 43 01; 27 23 42.2	LIA walling	medium

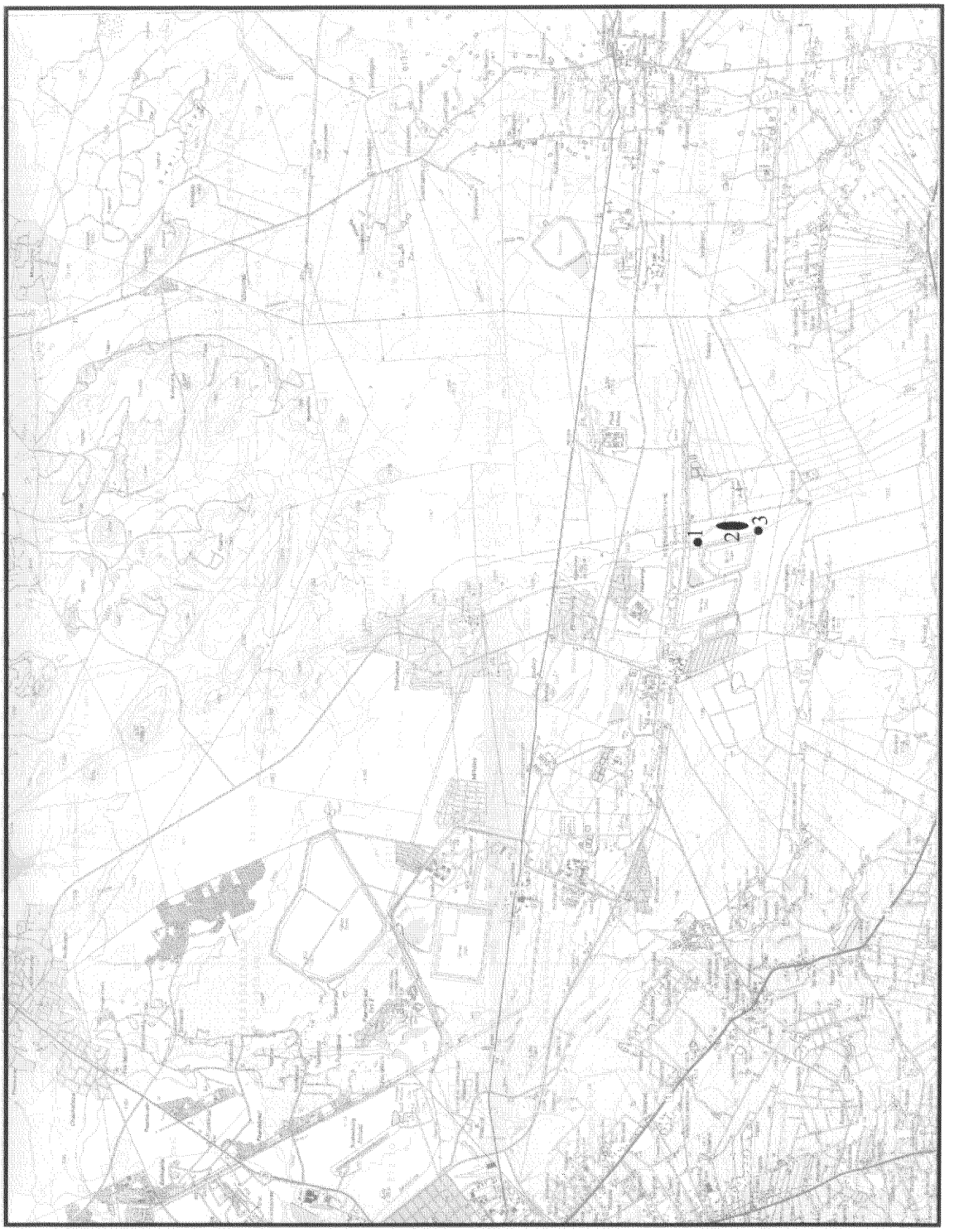

Figure10. Sites listed in Table 4 (2527CB).

Table 5. Sites located during the 2005 survey.

Number	Location South East	Period & Artefacts	Significance
Intermediate Shafts *Turffontein No. 2*			
1 *	25 38 29; 27 22 34	LIA walling MSA	medium none
2	25 38 20.6; 27 22 36.2	*Olifantspoort*	medium
3 *	25 38 18; 27 22 29	LIA walling	medium
4 *	25 38 30.8; 27 22 55.3	*Olifantspoort*-TRF 61	medium
5 *	22 38 31.2; 25 22 57.8	LIA walling-TRF 61 MSA	Medium none
6	22 38 24; 25 22 58	LIA walling	low
Power Line Corridor			
7 *	25 37 40.7; 27 22 13	LIA walling	medium
8	25 37 30.6; 27 22 25.9	IA pottery	none
9	25 37 32.3; 27 22 32.3	**Type N** walling ?	medium
10	25 37 36; 27 22 42.4	IA pottery	none
11	25 37 42; 27 23 00.5	*Olifantspoort*	medium
12	25 37 16.5; 27 21 43.3	IA pottery	none
13	25 37 19-22; 27 20 58-00	*Olifantspoort* ? & grinding surfaces	low
14	25 37 22.2; 27 21 11.4	Historic grain bins	low
15	25 37 39.2; 27 21 40.2	IA pottery	none
16	25 37 42.5; 27 21 46.9	*Olifantspoort*	low
Frank No.3			
17	25 37 47-49; 27 20 50-53	IA pottery	low
18	25 37 42-45; 27 20 43-47	*Olifantspoort* MSA	low none

19	25 37 48; 27 20 40	IA pottery	none
20	25 37 49.4; 27 20 35.6	*Olifantspoort*	low
21	25 37 43.7; 27 20 32.6	IA pottery	none
22	25 37 38.2; 27 20 31.2	IA pottery	none
23	25 37 32.6; 27 20 29.7	*Olifantspoort*	low
24	25 37 29.6; 27 20 30.7	LIA walling	medium
25	25 37 27.7; 27 20 26.4	*Olifantspoort*	low
26	25 37 38.2; 27 20 22	IA pottery	none
27	25 37 45-53; 27 20 26-29	Historic Tswana	low
Paardekraal No.2			
28	25 37 06.4; 27 18 13.5	IA pottery	none
29	25 37 19.6; 27 18 14.7	IA pottery	none
Merensky Opencast			
30 31	25 35 30; 27 13 40 25 36 30; 27 13 22	MSA IA pottery	low none
Waterkloof/Waterval			
32	25 41 37; 27 18 33	ESA	low
33	25 41 37.5; 27 18 31	Farm labourers Graveyard	low medium
Remaining Portions *Turffontein North*			
34	25 37 50-54; 27 21 37	Historic cluster	low
35	25 37 57.7; 27 21 37	Historic terracing	low
Turffontein West			
36	25 38 38; 27 20 28	IA pottery Recent	none none
37	25 38 35; 27 20 28	LIA walling & *Uitkomst &* IA engraving	medium
38	25 38 37; 27 20 35	IA walling & *Uitkomst*	medium

39	25 38 39; 27 20 41	LIA walling	medium

* = mitigation necessary

Figure 11a. Sites listed in Table 5 (2527 CB).

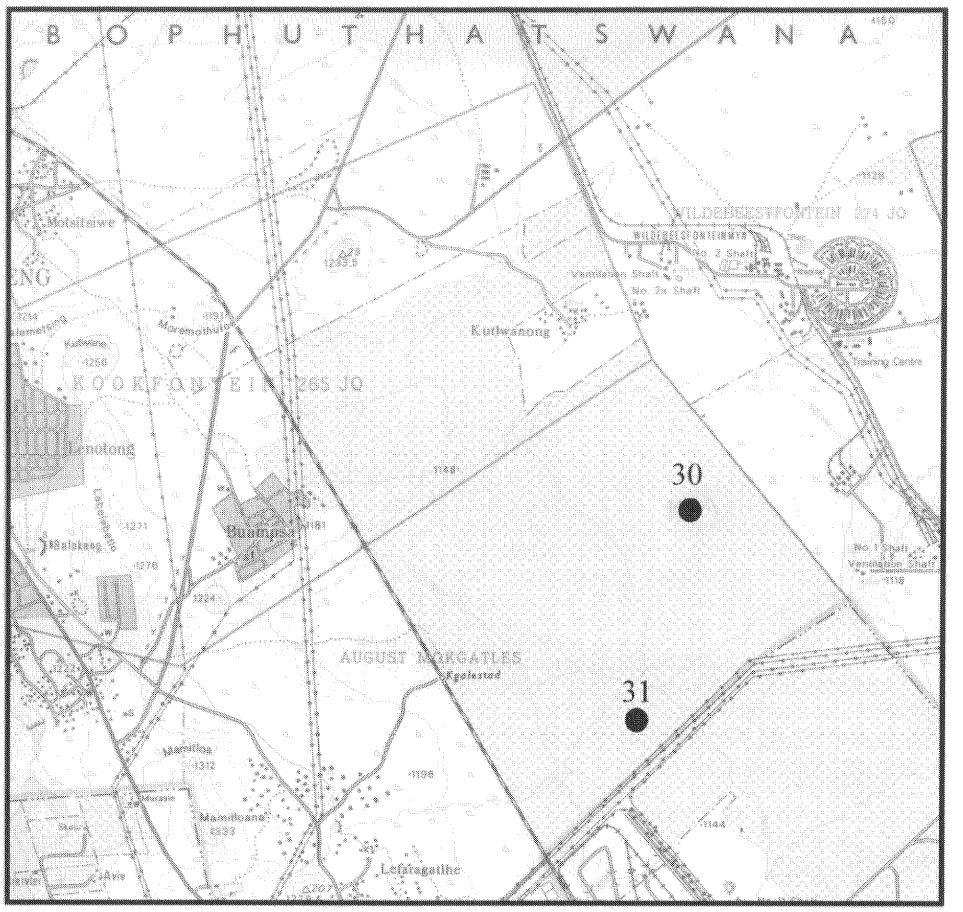

Figure 11b. Sites listed in Table 5 (2527CA).