

TABLE B2: EXISTING NOISE CLIMATES ADJACENT TO THE MAIN ROADS (YEAR 2011 TRAFFIC)

Road	Noise Climate Alongside the Main Roads at Given Offset from Centreline (SANS 10103 Indicator) (dBA)																																
	25m Offset			50m Offset			100m Offset			250m Offset			500m Offset			1000m Offset			1500m Offset			2000m Offset			2500m Offset			3000m Offset			4000m Offset		
	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>			
R579N	53.2	44.2	53.5	50.2	41.2	50.5	47.0	38.0	47.3	42.6	33.6	42.9	38.8	29.8	39.1	34.3	25.3	34.6	31.2	22.2	31.5	29.0	20.0	29.3	27.1	18.1	27.4	25.7	16.7	26.0	23.2	14.2	23.5
R579S	54.4	45.5	54.8	51.4	42.5	51.8	48.2	39.3	48.6	43.8	34.9	44.2	40.0	31.1	40.4	35.5	26.6	35.9	32.4	23.5	32.8	30.2	21.3	30.6	28.3	19.4	28.7	26.9	18.0	27.3	24.4	15.5	24.8
R33	58.3	49.3	58.7	55.3	46.3	55.7	52.1	43.1	52.5	47.7	38.7	48.1	43.9	34.9	44.3	39.4	30.4	39.8	36.3	27.3	36.7	34.1	25.1	34.5	32.2	23.2	32.6	30.8	21.8	31.2	28.3	19.3	28.7
R555S1	61.4	52.5	61.8	58.4	49.5	58.8	55.2	46.3	55.6	50.8	41.9	51.2	47.0	38.1	47.4	42.5	33.6	42.9	39.4	30.5	39.8	37.2	28.3	37.6	35.3	26.4	35.7	33.9	25.0	34.3	31.4	22.5	31.8
R555S2	62.2	53.2	62.5	59.2	50.2	59.5	56.0	47.0	56.3	51.6	42.6	51.9	47.8	38.8	48.1	43.3	34.3	43.6	40.2	31.2	40.5	38.0	29.0	38.3	36.1	27.1	36.4	34.7	25.7	35.0	32.2	23.2	32.5
R555E	61.0	52.1	61.4	58.0	49.1	58.4	54.8	45.9	55.2	50.4	41.5	50.8	46.6	37.7	47.0	42.1	33.2	42.5	39.0	30.1	39.4	36.8	27.9	37.2	34.9	26.0	35.3	33.5	24.6	33.9	31.0	22.1	31.4
D366	44.2	35.3	44.6	41.2	32.3	41.6	38.0	29.1	38.4	33.6	24.7	34.0	29.8	20.9	30.2	25.3	16.4	25.7	22.2	13.3	22.6	20.0	11.1	20.4	18.1	9.2	18.5	16.7	7.8	17.1	14.2	5.3	14.6
D353	40.4	31.5	40.8	37.4	28.5	37.8	34.2	25.3	34.6	29.8	20.9	30.2	26.0	17.1	26.4	21.5	12.6	21.9	18.4	9.5	18.8	16.2	7.3	16.6	14.3	5.4	14.7	12.9	4.0	13.3	10.4	1.5	10.8
D1888	36.5	27.6	36.9	33.5	24.6	33.9	30.3	21.4	30.7	25.9	17.0	26.3	22.1	13.2	22.5	17.6	8.7	18.0	14.5	5.6	14.9	12.3	3.4	12.7	10.4	1.5	10.8	9.0	0.1	9.4	6.5	-2.4	6.9

The noise descriptors used in Table B2 are those prescribed in SANS 10103, namely:

- i) L<sub>d</sub> - Daytime equivalent continuous rating (noise) level (L<sub>Req,d</sub>), namely for the period from 06h00 to 22h00).
- ii) L<sub>n</sub> - Night-time equivalent continuous rating (noise) level (L<sub>Req,n</sub>), namely for the period from 22h00 to 06h00).
- iii) (L<sub>dn</sub> - Day-night equivalent continuous rating (noise) level (L<sub>R,dn</sub>), namely for the 24 hour period from 06h00 to 06h00).

#### B5.4. Prevailing Noise Climate

In overview, the existing situation with respect to the *noise climate* in the study area was found to be as follows:

- i) The main sources of noise in the area are as follows:
  - a) Traffic on the main roads.
  - b) The Mapochs Iron Ore Mine, which lies approximately 11 000 metres to the north-east of the proposed Veremo Mine.
  - c) The railway line from the Mapochs Iron Ore Mine to Middelburg.
  - d) General farming activities (not major source of noise).
  - e) Traffic on the farm (gravel) roads. This is an intermittent source of noise.
- ii) The main noise sensitive sites in or just adjacent to the study area are:
  - a) Several farmhouses and farm labourer residences.
  - b) Sovolo Village.
  - c) Sehlakwane Village.
  - d) Town of Roosenekal.
  - e) Laersdrif Township (Stoffberg).
  - f) There is one school in Laersdrif Township, two on Farm Lagersdrif 177JS and one on Farm 935JS close to the mine, and some 16 schools further afield, mainly in the villages on top of the escarpment to the west.
- iii) The areas relatively far from the main roads and the other mentioned major noise sources are generally very quiet. Most of the area has an agricultural land use has a typical rural *noise climate*. Ideally the ambient noise levels for a rural area should not exceed 45dBA during the daytime period (06h00 to 22h00) and 35dBA during the night-time period (22h00 to 06h00). Refer to the SANS 10103 standards as given in Appendix A.
- iv) The noise climate close to the main roads is severely degraded and adjacent to the main roads the noise levels can, in places for the distances up to 900m, exceed acceptable night-time rural residential living conditions as specified in SANS 10103. Refer to Table B2.
- v) The minor farm roads that penetrate the study area carry small volumes of traffic and the impact of traffic noise from these facilities is minimal.
- vi) Noise generated from the Mapochs Iron Ore Mine operations does not adversely affect the core study area.
- vii) There are 8 train movements per day on the railway line to and from the Mapochs Iron Ore Mine to Witbank through the eastern sector of the study area. These have only a

minor influence on the general noise climate of the area, except at noise sensitive sites very close to the respective railway lines with the pass-by of a train.



VEREMO IRON ORE MINE NOISE IMPACT ASSESSMENT

**APPENDIX C:  
ROAD, TRAFFIC, TRANSPORTATION  
AND TRAFFIC NOISE DATA**

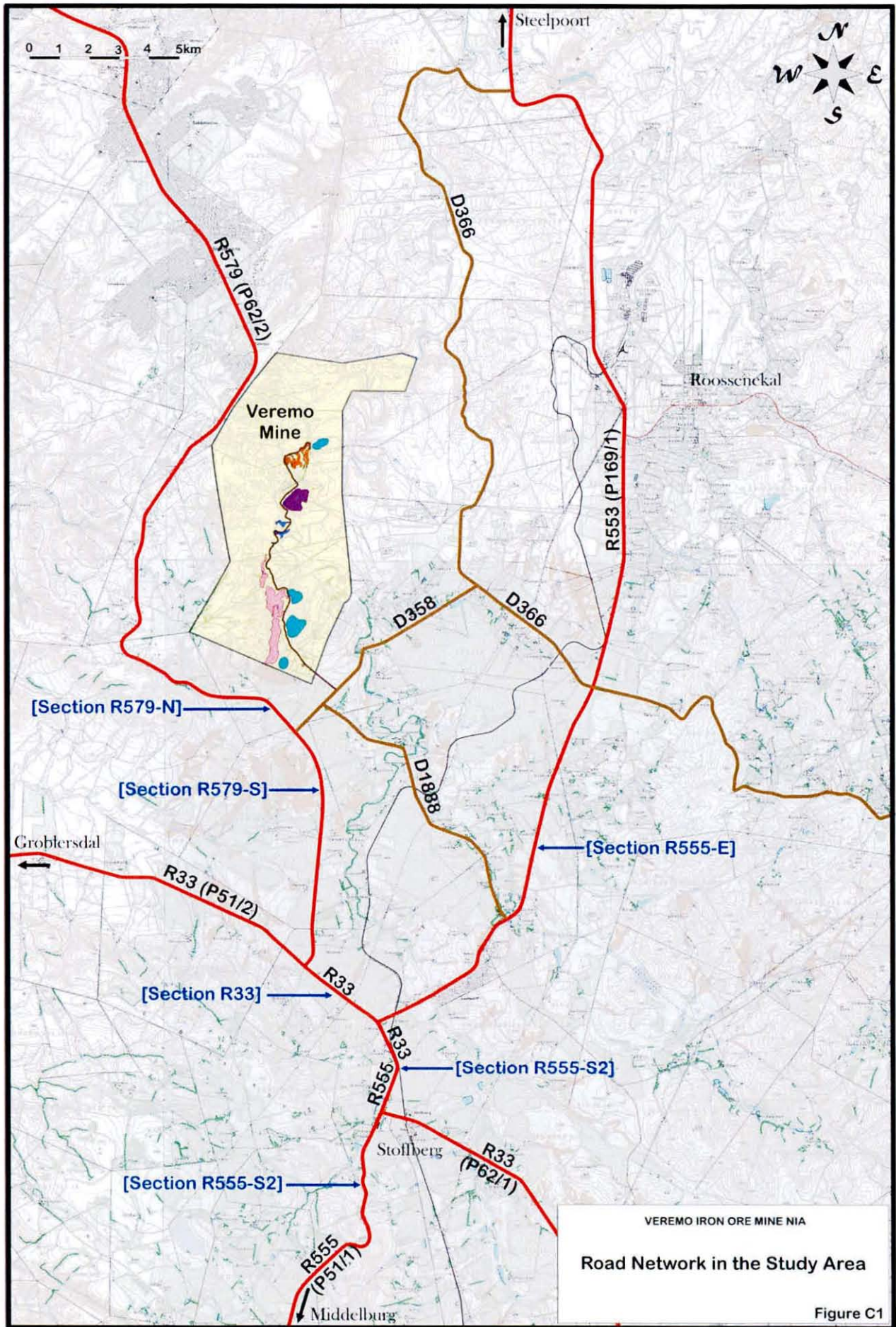


## APPENDIX C: ROAD, TRAFFIC AND TRANSPORTATION DATA

### C1. ROAD DATA

The main roads influencing the study area are (refer to Figure C1):

- i) Road P62/2 (Route R579): Road linking from Road P51/3 (Route R33) to Sehlakwane. It is aligned to the south-east and east of the Veremo Mine.
- ii) Road P51/3 (Route R33): Road from Stoffberg to Groblersdal.
- iii) Road P51/2 (Route R555 South): Road southwards from intersection with Road P62/1 (Route R33) to Middelburg.
- iv) Road P169/1 (Route R555 North-east): Links from Road P51/2 (Route R555 South) along the Steelpoort River Valley to Steelpoort.
- v) Road P62/1 (Route R33): Links from Road P51/2 (Route R555 South) to Stoffberg.
- vi) Road D366: Links from Road P169/1 (Route R555 North-east) 12 kilometres south of the Mapochs Mine to Road D353 just to the east of the Veremo Mine. It then curves northwards along the Steelpoort River Valley to connect again with Road P169/1 (Route R555 North-east) 7 kilometres north of the Mapochs Mine.
- vii) Road D353: Links from Road P62/2 (Route R579) to Road D366 just east of the Veremo Mine.
- viii) Road D1888: Links from Road P169/1 (Route R555 North-east) to Road D353 just south-east of the Veremo Mine.





## C2. TRAFFIC

### C2.1. Mine Generated Traffic

The following data were provided by the Veremo Mine Management.

#### C2.1.1. Internal Trips

Ore and product haul truck numbers are based on a 24 day month and a 16 hour day. The total number of ore haul truck trips per hour from the open cast pit to the plant is estimated at 28 trucks per hour (two-way trips). The total number of ore haul truck trips per hour from the open cast pit to the rock waste dumps is estimated at 12 trucks per hour (two-way trips).

#### C2.1.2. External Trips

It is estimated that the mine will generate approximately 1000 vehicle trips (two-way) per day, made up as follows:

- Truck product trips: 640 two-way trips per day.
- Work trips, business trips and delivery trips combined: 360 two-way trips per day.

There are two scenarios for external haul of product:

- Scenario 1: product will be hauled by truck from plant to a new local railway siding. (Export of product by rail). In the interim, until a siding has been constructed, the finished product could be exported to Mapochs Mine for loading there.
- Scenario 2: product will be hauled by truck from plant to remote smelter (export of product by road).

### C2.2. Background Traffic

The background traffic is the normal traffic carried by the respective roads. The baseline traffic data was obtained from the Mpumalanga Department of Transport Traffic Database and the Roads Agency Limpopo Province's Traffic Database.

Table C1 summarizes the current (2011) traffic conditions and the projected Year 2013 traffic without the Veremo Mine generated traffic.

**TABLE C1: ROAD TRAFFIC DATA WITHOUT MINE TRAFFIC**

Road Link (Refer Fig D1)	Speed	Year 2011		Year 2013 (without mine traffic)	
		ADT	%Heavy	ADT	%Heavy
R579-N	90	530	9.3	565	9.3
R579-S	100	630	9.5	670	9.5



R33	100	1309	16.6	1390	16.6
R555-S1	100	2520	19.2	2670	19.2
R555-S2	100	2843	21.3	3020	21.3
R555-E	100	2280	19.6	2420	19.6
D366	50	204	5.6	220	5.6
D353	50	90	5.0	95	5.0
D1888	50	50	1.0	55	1.0

### C2.3. Total Traffic Condition

There are two scenarios for external haul of product:

- Scenario 1: product will be hauled by truck from plant to a new local railway siding. (Export of product by rail). In the interim, until a siding has been constructed, the finished product could be exported to Mapochs Mine for loading there.
- Scenario 2: product will be hauled by truck from plant to a remote smelter (export of product by road).

The anticipated distribution of the ore haul traffic and the predicted total traffic on the respective roads in the year 2013 is summarized in Table C2.

**TABLE C2: ROAD TRAFFIC DATA WITH MINE TRAFFIC**

Road Link (Refer Fig D1)	Speed	Year 2013 (without mine traffic)		Year 2013 (with mine traffic)	
		ADT	%Heavy	ADT	%Heavy
R579-N	90	565	9.3	90	565
R579-S (Tr)	100	670	9.5	1610	44
R33 (Tr)	100	1390	16.6	2330	37
R555--S1 (Tr)	100	2670	19.2	3610	32
R555-S2 (Tr)	100	3020	21.3	4060	32
R555-E (Tr)	100	2420	19.6	3120	36
D366 (Tr)	50	220	5.6	920	71
D353 (Tr)	50	95	5.0	1050	61
D1888	50	55	1.0	50	55

Note: (Tr) indicates that the section of road is a likely link for the ore truck haul route.

### C3. TRANSPORTATION DATA

The following information was provided by Corli Havenga Transportation Engineers.

## TRIP GENERATION

The proposed mine is not a land use for which trip generation figures are available in the "SA Trip Generation Rates"<sup>(1)</sup>. The trip generation will be based on employment figures and operational information provided to us for this project.

The employment figures are summarised in Table 1 below.

	Skilled	Semi skilled	Un skilled	Total
Veremo	56	54	32	142
Mining contractor	76	46	4	126
Other	4		4	8
<b>TOTAL</b>	<b>136</b>	<b>100</b>	<b>40</b>	<b>276</b>

**Table 1: Employment**

### Estimated labour complement

Day shift (07:00-15:00):	182
Afternoon shift (15:00 to 23:00):	47
Night shift (23:00to 07:00):	47

### Production

The expected annual ore production of the mine is 2,5 million ton over 30 years. Transported by 30 Ton trucks will result in 228 trucks/day. We will assume that more loads will leave the mine during the day than at night. A worse case scenario with 20 trucks leaving the mine during the peak hours will be evaluated.

The expected peak hour trip generation for the shift changes are as follows (we expect the 07:00 and 15:00 shift changes to reflect the worse case scenarios:

Transport	Directional split	Total trips	New trips in	New trips out
<b>a.m. peak hour</b>				
Trucks	50:50	40	20	20
Workers public transport	50:50	8	4	4
Workers private transport	80:20	136	109	27
<b>Total peak hour vehicle trips</b>	-	<b>184</b>	<b>133</b>	<b>51</b>
<b>p.m. peak hour</b>				
Trucks	50:50	20	20	20
Workers public transport	50:50	8	4	4
Workers private transport	50:50	136	27	109
<b>Total peak hour vehicle trips</b>	-	<b>184</b>	<b>51</b>	<b>133</b>

**Table 2: Expected trip generation**

This will all be new trips.

## TRIP ASSIGNMENT AND BACKGROUND TRAFFIC GROWTH



The main areas from where labour can be employed and where personnel can reside are Roosenekal, Stoffberg and Groblersdal.

#### **C4. TRAFFIC NOISE PREDICTION**

The noise levels generated from the Year 2013 traffic on the main roads were calculated using the South African National Standard SANS 10210 *Calculating and Predicting Road Traffic Noise*. Typical situations were used for the calculation sites. The baseline traffic data was obtained from the Mpumalanga Department of Transport Traffic Database and the Roads Agency Limpopo Province's Traffic Database. The noise levels at various offsets from the relevant road centrelines were established for the Year 2013 traffic with and without the mine ore haul trucks and other mine-generated traffic. These data are summarised in Tables C3 and C4 respectively.

The noise levels given are for generalised and the unmitigated conditions. There will be greater attenuation than shown with distance where there are houses, other buildings and terrain restraints in the intervening ground between the source and the receiver point.

The noise descriptors used in Tables C3 and C4 are those prescribed in SANS 10103, namely:

- i)  $L_d$  - Daytime equivalent continuous rating (noise) level ( $L_{Req,d}$ ), namely for the period from 06h00 to 22h00).
- ii)  $L_n$  - Night-time equivalent continuous rating (noise) level ( $L_{Req,n}$ ), namely for the period from 22h00 to 06h00).
- iii) ( $L_{dn}$  - Day-night equivalent continuous rating (noise) level ( $L_{R,dn}$ ), namely for the 24 hour period from 06h00 to 06h00).

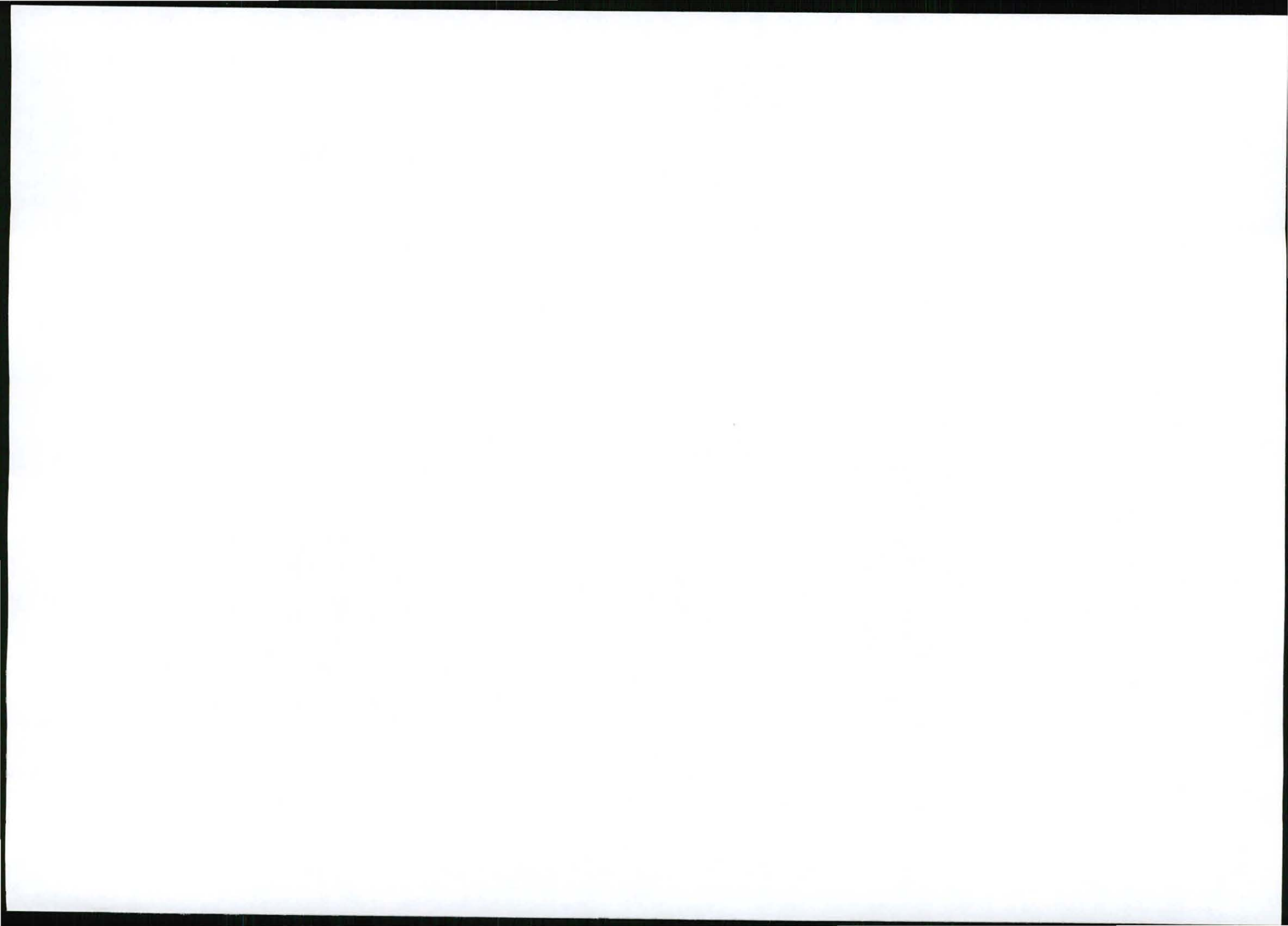


**TABLE C3: NOISE CLIMATE ALONG THE MAIN ROADS IN THE STUDY AREA - YEAR 2013 WITHOUT MINE-GENERATED TRAFFIC**

Road Link	Noise Climate Alongside the Main Roads at Given Offset from Centreline (SANS 10103 Indicator) (dBA)																																
	25m Offset			50m Offset			100m Offset			250m Offset			500m Offset			1000m Offset			1500m Offset			2000m Offset			2500m Offset			3000m Offset			4000m Offset		
	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>
R579N	53.3	44.5	53.8	50.3	41.5	50.8	47.1	38.3	47.6	42.7	33.9	43.2	38.9	30.1	39.4	34.4	25.6	34.9	31.3	22.5	31.8	29.1	20.3	29.6	27.2	18.4	27.7	25.8	17.0	26.3	23.3	14.5	23.8
R579S	54.7	45.8	55.1	51.7	42.8	52.1	48.5	39.6	48.9	44.1	35.2	44.5	40.3	31.4	40.7	35.8	26.9	36.2	32.7	23.8	33.1	30.5	21.6	30.9	28.6	19.7	29.0	27.2	18.3	27.6	24.7	15.8	25.1
R33	58.5	49.6	58.9	55.5	46.6	55.9	52.3	43.4	52.7	47.9	39.0	48.3	44.1	35.2	44.5	39.6	30.7	40.0	36.5	27.6	36.9	34.3	25.4	34.7	32.4	23.5	32.8	31.0	22.1	31.4	28.5	19.6	28.9
R555S1	61.7	52.7	62.0	58.7	49.7	59.0	55.5	46.5	55.8	51.1	42.1	51.4	47.3	38.3	47.6	42.8	33.8	43.1	39.7	30.7	40.0	37.5	28.5	37.8	35.6	26.6	35.9	34.2	25.2	34.5	31.7	22.7	32.0
R555S2	62.4	53.5	62.8	59.4	50.5	59.8	56.2	47.3	56.6	51.8	42.9	52.2	48.0	39.1	48.4	43.5	34.6	43.9	40.4	31.5	40.8	38.2	29.3	38.6	36.3	27.4	36.7	34.9	26.0	35.3	32.4	23.5	32.8
R555E	61.3	52.4	61.7	58.3	49.4	58.7	55.1	46.2	55.5	50.7	41.8	51.1	46.9	38.0	47.3	42.4	33.5	42.8	39.3	30.4	39.7	37.1	28.2	37.5	35.2	26.3	35.6	33.8	24.9	34.2	31.3	22.4	31.7
D366	44.5	35.6	44.9	41.5	32.6	41.9	38.3	29.4	38.7	33.9	25.0	34.3	30.1	21.2	30.5	25.6	16.7	26.0	22.5	13.6	22.9	20.3	11.4	20.7	18.4	9.5	18.8	17.0	8.1	17.4	14.5	5.6	14.9
D353	40.7	31.8	41.1	37.7	28.8	38.1	34.5	25.6	34.9	30.1	21.2	30.5	26.3	17.4	26.7	21.8	12.9	22.2	18.7	9.8	19.1	16.5	7.6	16.9	14.6	5.7	15.0	13.2	4.3	13.6	10.7	1.8	11.1
D1888	37.0	28.0	37.4	34.0	25.0	34.4	30.8	21.8	31.2	26.4	17.4	26.8	22.6	13.6	23.0	18.1	9.1	18.5	15.0	6.0	15.4	12.8	3.8	13.2	10.9	1.9	11.3	9.5	0.5	9.9	7.0	-2.0	7.4

TABLE C4: NOISE CLIMATE ALONG THE MAIN ROADS IN THE STUDY AREA - YEAR 2013 WITH MINE-GENERATED TRAFFIC

Road Link	Noise Climate Alongside the Main Roads at Given Offset from Centreline (SANS 10103 Indicator) (dBA)																																
	25m Offset			50m Offset			100m Offset			250m Offset			500m Offset			1000m Offset			1500m Offset			2000m Offset			2500m Offset			3000m Offset			4000m Offset		
	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>	L <sub>d</sub>	L <sub>n</sub>	L <sub>dn</sub>			
R579N	53.4	44.5	53.8	50.4	41.5	50.8	47.2	38.3	47.6	42.8	33.9	43.2	39.0	30.1	39.4	34.5	25.6	34.9	31.4	22.5	31.8	29.2	20.3	29.6	27.3	18.4	27.7	25.9	17.0	26.3	23.4	14.5	23.8
R579S	61.9	53.0	62.3	58.9	50.0	59.3	55.7	46.8	56.1	51.3	42.4	51.7	47.5	38.6	47.9	43.0	34.1	43.4	39.9	31.0	40.3	37.7	28.8	38.1	35.8	26.9	36.2	34.4	25.5	34.8	31.9	23.0	32.3
R33	62.7	53.8	63.1	59.7	50.8	60.1	56.5	47.6	56.9	52.1	43.2	52.5	48.3	39.4	48.7	43.8	34.9	44.2	40.7	31.8	41.1	38.5	29.6	38.9	36.6	27.7	37.0	35.2	26.3	35.6	32.7	23.8	33.1
R555S1	64.2	55.3	64.6	61.2	52.3	61.6	58.0	49.1	58.4	53.6	44.7	54.0	49.8	40.9	50.2	45.3	36.4	45.7	42.2	33.3	42.6	40.0	31.1	40.4	38.1	29.2	38.5	36.7	27.8	37.1	34.2	25.3	34.6
R555S2	64.7	55.8	65.1	61.7	52.8	62.1	58.5	49.6	58.9	54.1	45.2	54.5	50.3	41.4	50.7	45.8	36.9	46.2	42.7	33.8	43.1	40.5	31.6	40.9	38.6	29.7	39.0	37.2	28.3	37.6	34.7	25.8	35.1
R555E	63.9	55.0	64.3	60.9	52.0	61.3	57.7	48.8	58.1	53.3	44.4	53.7	49.5	40.6	49.9	45.0	36.1	45.4	41.9	33.0	42.3	39.7	30.8	40.1	37.8	28.9	38.2	36.4	27.5	36.8	33.9	25.0	34.3
D366	57.9	49.0	58.3	54.9	46.0	55.3	51.7	42.8	52.1	47.3	38.4	47.7	43.5	34.6	43.9	39.0	30.1	39.4	35.9	27.0	36.3	33.7	24.8	34.1	31.8	22.9	32.2	30.4	21.5	30.8	27.9	19.0	28.3
D353	57.9	49.0	58.3	54.9	46.0	55.3	51.7	42.8	52.1	47.3	38.4	47.7	43.5	34.6	43.9	39.0	30.1	39.4	35.9	27.0	36.3	33.7	24.8	34.1	31.8	22.9	32.2	30.4	21.5	30.8	27.9	19.0	28.3
D1888	37.0	28.0	37.4	34.0	25.0	34.4	30.8	21.8	31.2	26.4	17.4	26.8	22.6	13.6	23.0	18.1	9.1	18.5	15.0	6.0	15.4	12.8	3.8	13.2	10.9	1.9	11.3	9.5	0.5	9.9	7.0	-2.0	7.4





**PROPOSED VEREMO IRON ORE MINE  
NOISE IMPACT ASSESSMENT**

**APPENDIX D:  
ASPECTS AFFECTING PROPAGATION OF SOUND**

## **APPENDIX D: ASPECTS AFFECTING PROPAGATION OF SOUND**

### **D1. METEOROLOGICAL BASELINE DESCRIPTION OF THE AREA**

The meteorological data, represented in Section D1, was provided by SSI Consulting Engineers.

#### **D1.1. Meso-Scale Meteorology**

The nature of local climate will determine what will happen to pollution when it is released into the atmosphere (Tyson and Preston-Whyte, 2000). Pollution levels fluctuate daily and hourly, in response to changes in atmospheric stability and variations in mixing depth. Similarly, atmospheric circulation patterns will have an effect on the rate of transport and dispersion of pollution.

The release of atmospheric pollutants into a large volume of air results in the dilution of those pollutants. This is best achieved during conditions of free convection and when the mixing layer is deep (unstable atmospheric conditions). These conditions occur most frequently in summer during the daytime. This dilution effect can however be inhibited under stable atmospheric conditions in the boundary layer (shallow mixing layer). Most surface pollution is thus trapped under a surface inversion (Tyson and Preston-Whyte, 2000).

Inversion occurs under conditions of stability when a layer of warm air lies directly above a layer of cool air. This layer prevents a pollutant from diffusing freely upward, resulting in an increased pollutant concentration at or close to the earth's surface. Surface inversions develop under conditions of clear, calm and dry conditions and often occur at night and during winter (Tyson and Preston-Whyte, 2000). Radiative loss during the night results in the development of a cold layer of air close to the earth's surface. These surface inversions are however, usually destroyed as soon as the sun rises and warm the earth's surface. With the absence of surface inversions, the pollutants are able to diffuse freely upward; this upward motion may however be prevented by the presence of an elevated inversion (Tyson and Preston-Whyte, 2000).

Elevated inversions occur commonly in high pressure areas. Sinking air warms adiabatically to temperatures in excess of those in the mixed boundary layer. The interface between the upper, gently subsiding air is marked by an absolutely stable layer or an elevated subsidence inversion. This type of elevated inversions is most common over Southern Africa (Tyson and Preston-Whyte, 2000).

The climate and atmospheric dispersion potential of the interior of South Africa is determined by atmospheric conditions associated with the continental high pressure cell located over the interior. The continental high pressure present over the region in the winter months results in fine conditions with little rainfall and light winds with a northerly flow. Elevated inversions are common in such high pressure areas due to the subsidence of air. This reduces the mixing depth and suppresses the vertical dispersion of pollutants, causing increased pollutant concentrations (Tyson and Preston-Whyte, 2000).

Seasonal variations in the positions of the high pressure cells have an effect on atmospheric conditions over the region. For most of the year the tropical easterlies cause an air flow with a north-easterly to north-westerly component. In the winter months the high pressure cells move northward, displacing the tropical easterlies northward resulting in disruptions to the westerly circulation. The disruptions result in a succession of cold fronts over the area in winter with pronounced variations in wind direction, wind speeds, temperature, humidity, and surface pressure. Airflow ahead of a cold front passing over the area has a strong north-north-westerly to north-easterly component, with stable and generally cloud-free conditions. Once the front has passed, the airflow is reflected as having a dominant southerly component (Tyson and Preston-Whyte, 2000).

Easterly and westerly wave disturbances cause a southerly wind flow and tend to hinder the persistence of inversions by destroying them or increasing their altitude, thereby facilitating the dilution and dispersion of pollutants. Pre-frontal conditions tend to reduce the mixing depth. The potential for the accumulation of pollutants during pre-frontal conditions is therefore enhanced over the plateau (Tyson and Preston-Whyte, 2000).

#### **D1.2. Site-Specific Dispersion Potential**

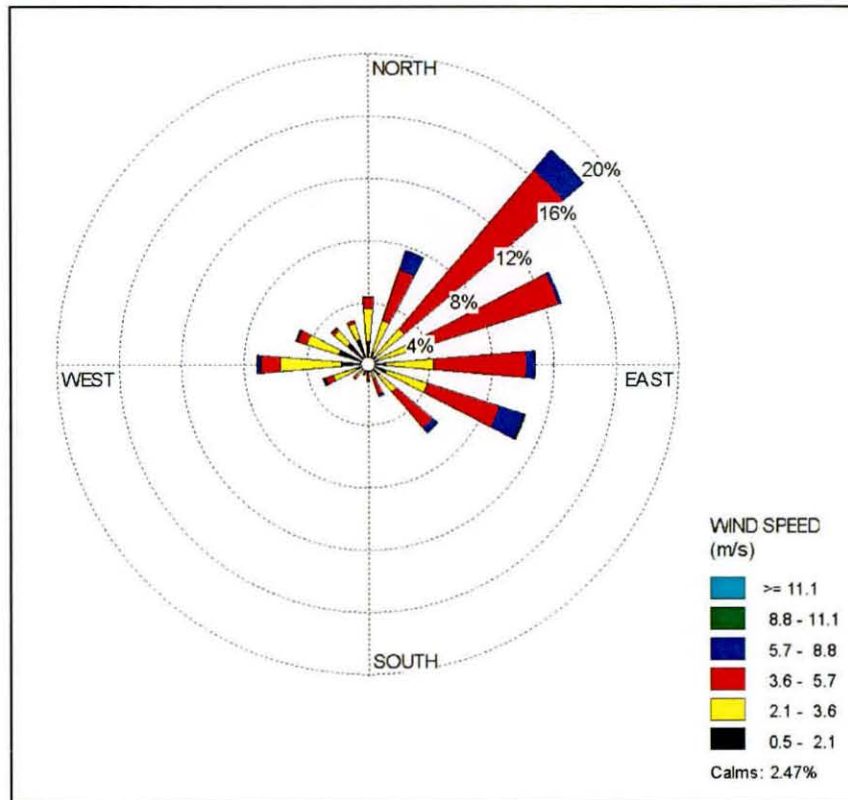
Given the remote location of the proposed mine, local meteorological data for the site is not available. Use was therefore made of site-specific modelled MM5 meteorological data from Lakes Environmental for the period Jan 2005 – Dec 2009.

Wind roses comprise of 16 spokes which represent the directions from which winds blew during the period. The colours reflect the different categories of wind speeds. The dotted circles provide information regarding the frequency of occurrence of wind speed and direction categories.

Based on an evaluation of the meteorological data provided, winds originate predominantly from the north-east (18% of the time) and east-north-east (13% of the time) (Figure D1).

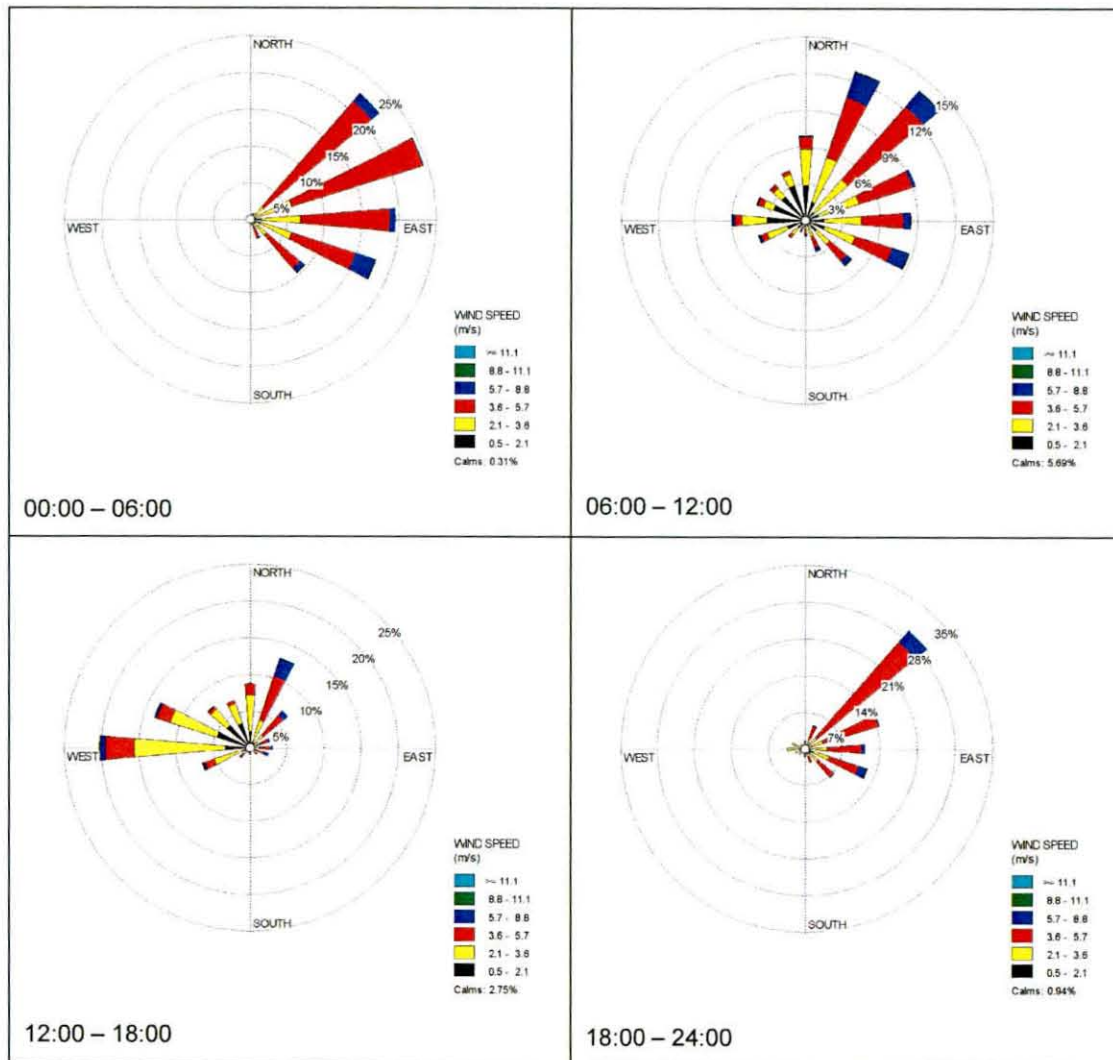


Moderate to fast winds are generally recorded over the monitoring period. Calm wind speeds, which are designated as wind speeds less than 0.5 m/s, occur infrequently (2.47% of the time).



**Figure D1: Period wind rose for Veremo Iron Ore Mine for the period Jan 2005 – Dec 2009**

A diurnal trend in the wind field is recorded at the proposed site (Figure D2). Between 00:00 – 06:00, winds originate predominantly from the easterly sector with a slight northerly shift recorded between 06:00 – 12:00. In the afternoon (12:00 – 18:00) and evening (18:00 – 24:00) periods, winds are recorded from the west and north-easterly directions, respectively. As would be expected, an increase in wind speeds is recorded during the day time.



**Figure D2: Diurnal wind roses for Veremo Iron Ore Mine for the period Jan 2005 – Dec 2009**

The seasonal variability in the wind field at the site is shown in Figure. During the summer months (Dec, Jan and Feb), winds originate predominantly from the north-east. During autumn (Mar, Apr and May), a slight shift is observed with winds originating from the east-north-east, east and east-south-east. An additional component from the west is also observed. A similar pattern is observed in the winter months (Jun, Jul and Aug). During spring (Sep, Oct and Nov), winds originate predominant from the north-east, similar to the pattern recorded during the summer months.

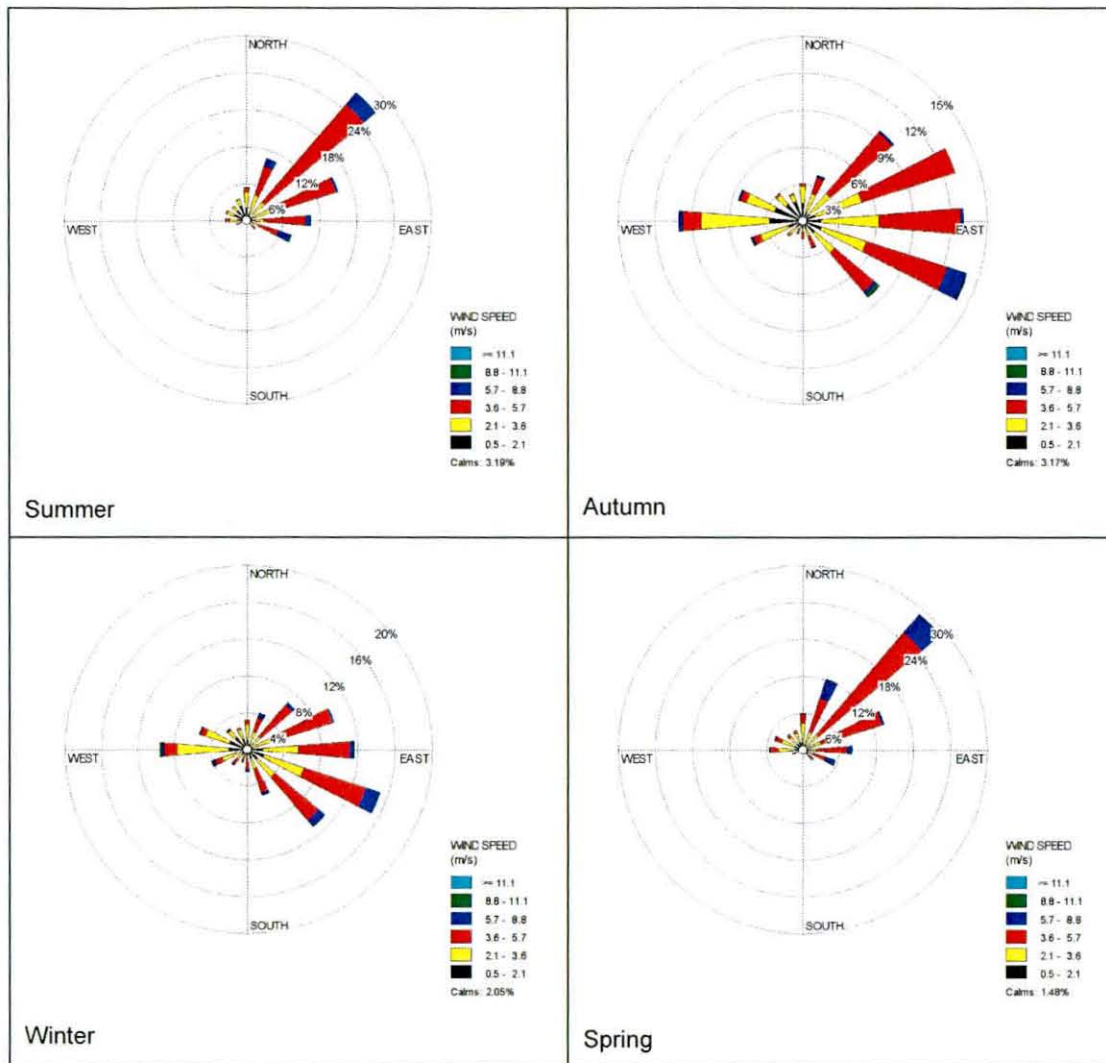


Figure D3: Seasonal wind roses for Veremo Iron Ore Mine for the period Jan 2005 – Dec 2009

Based on the prevailing meteorological conditions for the area, emissions released from the proposed mining activities will be transported predominantly in a south-westerly direction from the site. The prevalence of moderate to fast winds will transport emissions several kilometres from the site.

### D1.3. Atmospheric Stability

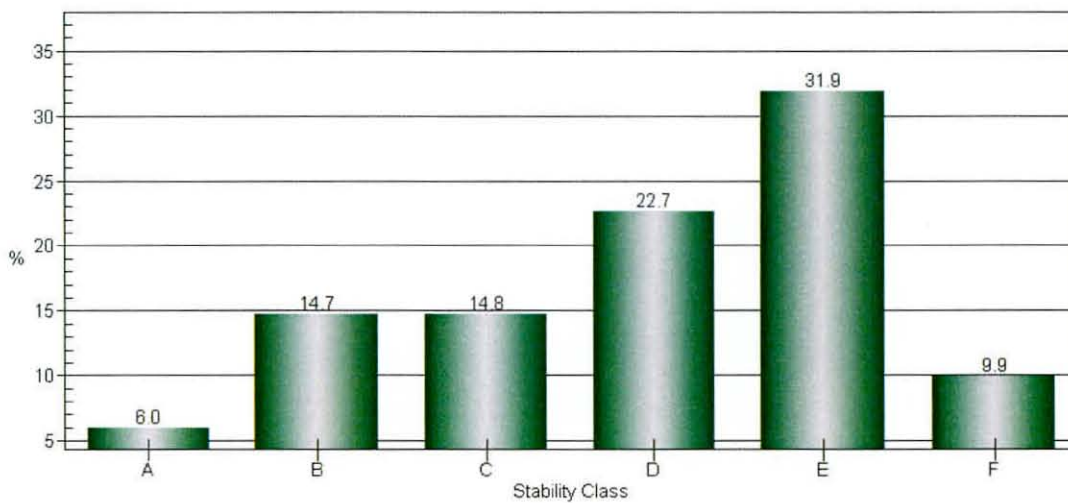
Atmospheric stability is commonly categorised into six stability classes (Table 2-1). The atmospheric boundary layer is usually unstable during the day due to turbulence caused by the sun's heating effect on the earth's surface. The depth of this mixing layer depends mainly on the amount of solar radiation, increasing in size gradually from sunrise to reach a maximum at about 5 - 6 hours after sunrise. The degree of thermal turbulence is increased on clear warm days with light winds. During the night-time a stable layer, with limited vertical mixing, exists. During windy and/or cloudy conditions, the atmosphere is normally neutral.



**Table D1: Atmospheric stability classes.**

A	Very unstable	calm wind, clear skies, hot daytime conditions
B	Moderately unstable	clear skies, daytime conditions
C	Unstable	moderate wind, slightly overcast daytime conditions
D	Neutral	high winds or cloudy days and nights
E	Stable	moderate wind, slightly overcast night-time conditions
F	Very stable	low winds, clear skies, cold night-time conditions

In general, the site experiences neutral (Class D) to stable (Class E) atmospheric conditions (Figure 2-4). This is expected given the predominance of a high-pressure anticyclone over South Africa which produces stable, clear conditions.



**Figure D4: Stability class frequency distribution for Veremo Iron Ore Mine for the period Jan 2005 – Dec 2009.**

#### **D1.4. Temperature and Humidity**

Temperature affects the formation, action, and interactions of pollutants in various ways (Kupchella and Hyland, 1993). Chemical reaction rates tend to increase with temperature and the warmer the air, the more water it can hold and hence the higher the humidity. When relative humidity exceeds 70%, light scattering by suspended particles begins to increase, as a function of increased water uptake by the particles (CEPA/FPAC Working Group, 1999). This results in decreased visibility due to the resultant haze. Many pollutants may also dissolve in water to form acids. Temperature also provides an indication of the rate of development and dissipation of the mixing layer.

Average monthly temperature and humidity at the site for the period 2005 – 2009 is given in Figure 2-5. Daily average summer temperatures range between ~20 °C and ~21 °C while winter temperatures range between ~12 °C and ~14 °C. Relative humidity is generally high at the site although a slight drop is recorded during the winter months.



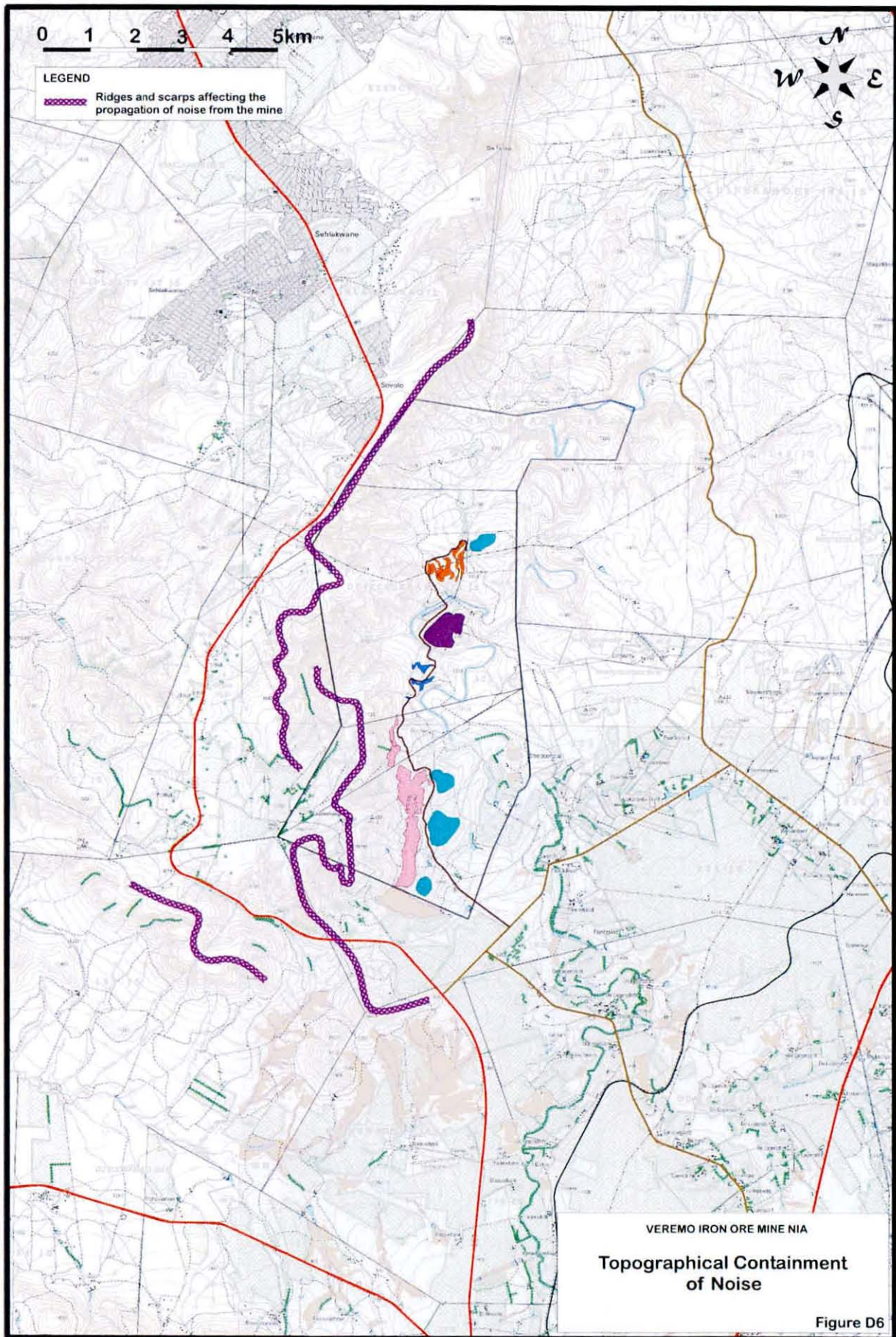
**Figure D5: Average monthly temperature and humidity for Veremo Iron Ore Mine for the period 2005 – 2009**

## D2. TOPOGRAPHY

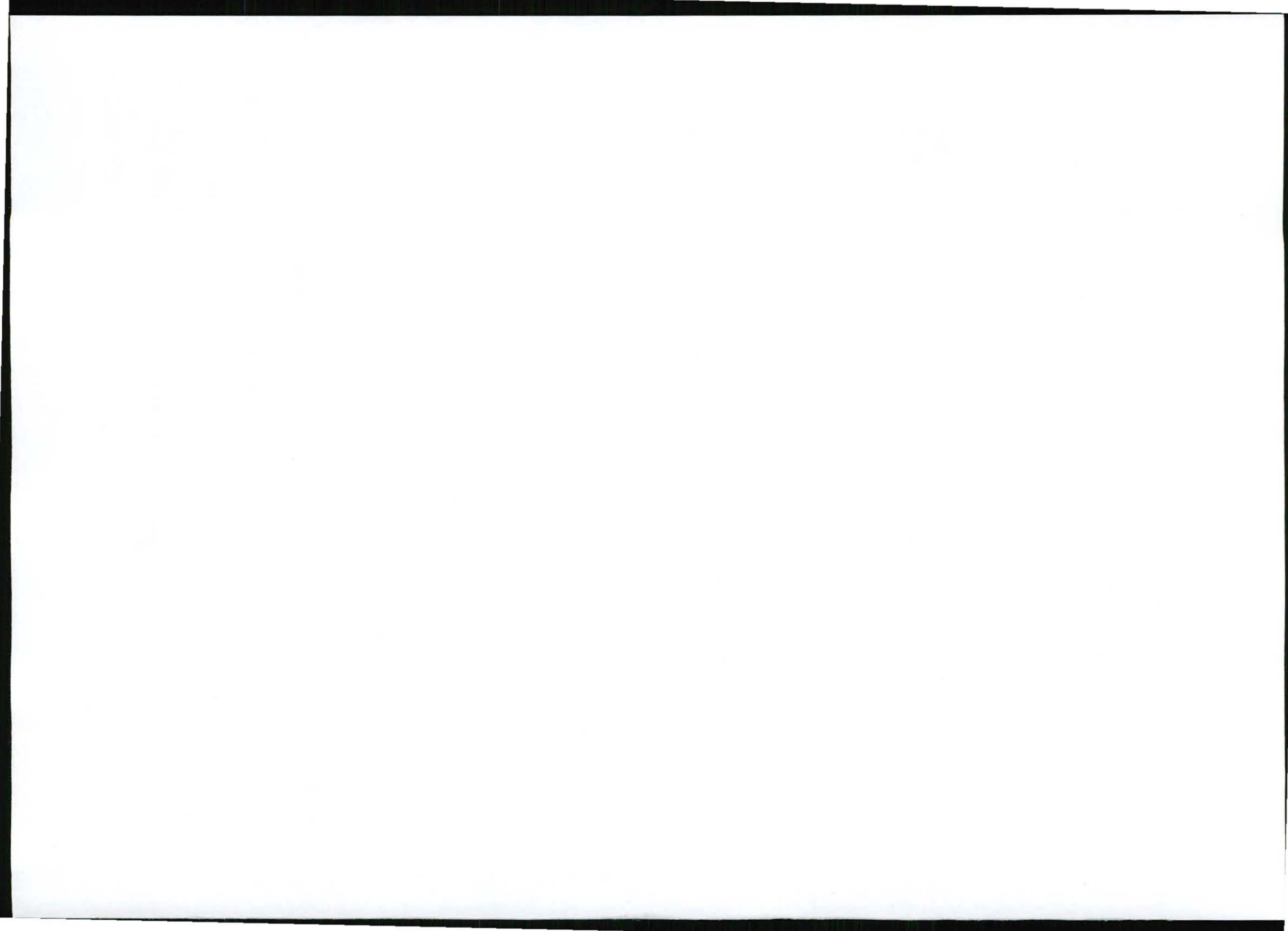
The terrain across the study area is hilly. This type of terrain will result in the noise being carried along the valleys, but at the same time the hills will act as noise barriers that significantly attenuate the noise in certain directions from the source.

The barrier effect of the scarps and ridges to the west of the mine along the Steelport River Valley are shown in Figure D6. Although a large percentage of the noise from the Veremo Iron Ore Mine operations will generally be contained by these ridges to the west of the mine, the attenuating effect of these controlling terrain features could occasionally be compromised, for example such as when thermal inversions occur.











**APPENDIX 7:  
HERITAGE SPECIALIST REPORT**





**Cultural Heritage Impact Assessment of the Proposed Veremo Holdings  
Iron Ore Mine, Middleburg Magisterial District, Limpopo Province**



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## Executive Summary

This report focuses on the results from a cultural heritage investigation on the farms Duikerskrans 173JS (portions 1, 2, 3, 4 & 5), Paardekloof 176JS (portion 2) and The Wedge 175JS (remaining extent). Veremo Holdings (Pty) Ltd proposes to develop an open cast iron ore mine along a north-south axis that falls within these farms. The survey yielded Late Iron Age settlements, historic structures and several graves and cemeteries.

### *Iron Age settlements*

Several studies in the Steelpoort catchment area have demonstrated beyond doubt that the region was densely populated during that past few hundred years. As a result numerous stone-walled Late Iron Age settlements have been recorded. Research has shown that most of these settlements are probably associated with the royal lineage (and therefore associated capitals) of both the Sotho (BaPedi) and Ndebele speaking communities.

At least 7 Late Iron Age settlements were recorded in the study area. Mitigation on these sites will involve a Phase 2 investigation which will include rescue excavations before a destruction permit can be issued.

### *Historical settlements*

A total of 20 historic structures and complexes were identified. Mitigation on these sites will involve surveying and mapping of the structures. Most of these structures, which are square in layout, are situated on the high-lying eastern slope of Tantes Heights (*Tanteshoogte*) and are probably associated with the prominent late 19<sup>th</sup> century Ndzundza-Ndebele occupation of the area and to a lesser degree the subsequent conflict known as The Mapoch War.

### *Land claims issue*

Land claims have been registered on all three farms concerned. It seems that only the claim of one farm, Duikerskrans 173JS, has been published in the Government Gazette. It is strongly recommended to firstly, enlist the services of an attorney with competency in this field and secondly to contract an anthropologist to investigate the legitimacy of the claims on the three farms in question.

### *Graves*

At least 23 individual graves and collated cemetery locations have been identified during the survey.

Four categories of graves can be identified. These are:

- Graves younger than 60 years;
- Graves older than 60 years, but younger than 100 years;



- Graves older than 100 years; and
- Graves of victims of conflict or of individuals of royal descent.

Although burial dates could be established for some of the graves (some older than 60 years), most are located outside of a formal cemetery managed by a local authority. In terms of Section 36(3) of the National Heritage Resources Act (Act no. 25 of 1999) it is assumed that these undated burials are older than 60 years and therefore protected by the act.

Other legislative measures which may be pertinent include the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), the Human Tissues Act (Act no. 65 of 1983, as amended), the Ordinance on Excavations (Ordinance no. 12 of 1980) as well as any local and regional provisions, laws and by-laws that may be in place.

#### *Conservation Management Plan*

Please note that in terms of Section 44 of the NHRA (Act 25 of 1999) cultural heritage sites that are situated in an area must be managed by the landowner. This is to prevent any secondary (cumulative) impacts on the heritage resources. As a result a Conservation Management Plan (CMP) must be compiled for those sites that will not be directly affected (peripheral sites)

#### *General Recommendations*

Sites recorded during the survey are classified under two headings (in terms of the proposed impact). Each of these impacts will require a specific set of mitigation measures, which are as follows:

Destruction	<ul style="list-style-type: none"> <li>• Social consultation</li> <li>• Phase 2 heritage survey</li> <li>• Surveying and mapping</li> <li>• Relocation of graves</li> </ul>
Peripheral	<ul style="list-style-type: none"> <li>• Site should be fenced off with an access gate</li> <li>• Conservation management plan</li> <li>• Social consulting (relocation of people)</li> </ul>

Also note the following:

- It should be kept in mind that archaeological deposits usually occur below ground level. Should archaeological artefacts or skeletal material be revealed in the area during construction activities, such activities should be halted, and a university or museum notified in order for an investigation and evaluation of the find(s) to take place (*cf.* NHRA (Act No. 25 of 1999), Section 36 (6)).

#### **Definitions and abbreviations**

Midden: Refuse that accumulates in a concentrated heap.

Stone Age: An archaeological term used to define a period of stone tool use and manufacture

Iron Age: An archaeological term used to define a period associated with domesticated livestock and grains, metal working and ceramic manufacture

NHRA: National Heritage Resources Act (Act no 25 of 1999)

SAHRA: South African Heritage Resources Agency

HIA: Heritage Impact Assessment

## **1. Introduction**

The Archaeology Contracts Unit (UNISA) conducted an investigation, focussing on the archaeological and historic remains in the specified area proposed for iron ore mining by the client, Veremo Minerals (Pty) Ltd. This report forms part of the EIA process and was requested by MSA Group Services, on behalf of the client, Veremo Holdings.

More specifically, the aim of this investigation is to establish benchmark (baseline) cultural heritage data with some preliminary results on some of the visible archaeological and historical artefacts, structures (including graves) and settlements of cultural significance within the boundaries of the proposed mining area

## **2. Terms of Reference**

The terms of reference of this survey are as follows:

- Provide a detailed description of all archaeological artefacts, structures (including graves) and settlements;
- Estimate the level of significance/importance of the archaeological remains within the area;
- Provide contextual information on the archaeological and historical sites in the area;
- Assess any possible impact on the archaeological and historical remains within the area emanating from the proposed mining activities;
- Propose possible mitigation measures provided that such action is necessitated by the development; and
- Establish whether land claims have been lodged on the relevant farms

## **3. Nature of the Proposed Activity or Development**

The intension is to establish an open cast iron ore mine along a series of ridges situated to the west of the upper reaches of the Steelpoort River. Three adjacent areas on a north-south axis have been identified. The total footprint of the mine will be approximately 700 hectares. Three open pit mining areas have been identified and will be mined during the following 30 years (see Map 1):

- North Mining Area
- Big Bend Mining Area
- South Mining Area

Note that blasting will take place during the mining operations, which will be taken into account when making recommendations and proposing mitigation measures.





#### 4. Legal Framework

- Archaeological remains can be defined as human-made objects, which reflect past ways of life, deposited on or in the ground.
- Heritage resources have lasting value in their own right and provide evidence of the origins of South African society and they are valuable, finite, non-renewable and irreplaceable.
- All archaeological remains, features, structures and artefacts older than 100 years and historic structures older than 60 years are protected by the relevant legislation, in this case the **National Heritage Resources Act (NHRA) (Act No. 25 of 1999, Section 34 & 35)**. The Act makes an archaeological impact assessment as part of an EIA and EMPR mandatory (see **Section 38**). No archaeological artefact, assemblage or settlement (site) may be moved or destroyed without the necessary approval from the **South African Heritage Resources Agency (SAHRA)**. Full cognisance is taken of this Act in making recommendations in this report.
- Cognisance will also be taken of the **Mineral and Petroleum Resources Development Act (Act No 28 of 2002)** and the **National Environmental Management Act (Act No 107 of 1998)** when making any recommendations.
- Human remains older than 60 are protected by the **NHRA**, with reference to **Section 36**. Human remains that are less than 60 years old are protected by the **Human Tissue Act (Act 65 of 1983 as amended)**.
- **Mitigation guidelines (The significance of the site):**
  - Rating the **significance of the impact** on a historical or archaeological site is linked to the significance of the site itself. If the significance of the site is rated high, the significance of the impact will also result in a high rating. The same rule applies if the significance rating of the site is low (also see Table 1).

Significance Rating	Action
Not protected	1. None
Low	2a. Recording and documentation (Phase 1) of site adequate; no further action required
	2b. Controlled sampling (shovel test pits, auguring), mapping and documentation (Phase 2 investigation); permit required for sampling and destruction
Medium	3. Excavation of representative sample, C <sup>14</sup> dating, mapping and documentation (Phase 2 investigation); permit required for sampling and destruction [including 2a & 2b]
High	4a. Nomination for listing on Heritage Register (National, Provincial or Local) (Phase 2 & 3 investigation); site management plan; permit required if utilised for education or



	tourism 4b. Graves: Locate demonstrable descendants through social consulting; obtain permits from applicable legislation, ordinances and regional by-laws; exhumation and reinterment [including 2a, 2b & 3]
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**Table 1: Rating the significance of sites.**

- With reference to the evaluation of sites, the certainty of prediction is definite, unless stated otherwise.
- The guidelines as provided by the **NHRA (Act No. 25 of 1999)** in Section 3, with special reference to subsection 3, and the Australian ICOMOS (International Council on Monuments and Sites) Charter (also known as the Burra Charter) are used when determining the cultural significance or other special value of archaeological or historical sites.
- It should be kept in mind that archaeological deposits usually occur below ground level. Should archaeological artefacts or skeletal material be revealed in the area during prospecting and mining activities, such activities should be halted, and a university or museum notified in order for an investigation and evaluation of the find(s) to take place (*cf. NHRA (Act No. 25 of 1999)*, Section 36 (6)).
- **Architectural significance:**
  - Does the site contain any important examples of a building type?
  - Are any of the buildings important examples of a style or period?
  - Do any of the buildings contain fine details and or reflect fine workmanship?
  - Are any of the buildings the work of a major architect or builder?
  - Are the buildings important examples of an industrial, technological or engineering development?
  - What is the integrity of the buildings?
  - Are the buildings still utilised?
  - Has the buildings been altered and are these alterations sympathetic to the original intent of the design?
- **Spatial significance of architecture:**
  - Is the site or any of the buildings a landmark in the city or town?
  - Does the plant contribute to the character of the neighbourhood/region?
  - Do the buildings contribute to the character of the street or square?
  - Is the place or building part of an important group of buildings?
- **Architecture: Levels of significance are:**
  - Protect
  - Highly significant
  - Possible significance
  - Least significance
  - No significance



- **Architecture: Levels of protection are:**

Retain and protect	Considered to be of high significance. The building or structure can be used as part of the development but must be suitably protected. Should not include major structural alterations. If the building is older than 60 years a modification permit is required from SAHRA.
Retain and re-use	Considered to be of moderate significance. The building or structure can be altered to be accommodated within the development plans. Structural alterations can be included. If the building is older than 60 years a modification permit is required from SAHRA.
Alter and re-use	Considered to be of low significance. The building or structure can be structurally altered or destruction can be considered following further documentation. If the building is older than 60 years a modification/destruction permit is required from SAHRA.
Can be demolished	Considered to be of negligible significance and can be demolished. If the building is older than 60 years a destruction permit is required from SAHRA.

**Table 2: Level of protection of buildings/structures.**

- A copy of this report will be lodged with the **SAHRA** as stipulated by the National Heritage Resources Act (NHRA) (Act No. 25 of 1999), Section 38 (especially subsection 4).
- Note that the final decision for the approval of permits, or the removal or destruction of sites, structures and artefacts identified in this report, rests with the SAHRA (or relevant PHRA).

## 5. Methodology

### 5.1 Maps and Other Sources

The proposed areas for mining have been demarcated on high a resolution aerial photograph, a geological map and two 1:50 000 topographic maps, namely sheet numbers 2529BB (Roosenekal) and 2529BD (Stoffberg). This report makes reference to various archaeological investigations and ethnographic studies which have been conducted in the Steelpoort River Valley and surrounds. Google Earth images were also used to locate and record selected sites.

### 5.2 Fieldwork

Following a project orientation meeting on 6 September 2006, a preliminary site visit was conducted on 7 September 2006. The main track, which provides access to the various areas proposed for mining, was followed. Selected areas were investigated on foot.

A more intensive site investigation was conducted between 5 and 7 April 2011. The finalised mine layout plan was available and a more detailed assessment of certain areas was therefore possible.

### 5.3 Visibility and Constraints

Several new access roads have been constructed throughout the proposed mining area, making access easier. Some areas are densely overgrown while others are grazed by cattle making it more open. Due to the subterranean nature of cultural remains this report should not be construed as a record of all archaeological and historic sites in the area.

## 6. Description of Study Area

The area of investigation consists of three farms, namely:

- Duikerskrans 173JS (portions 1, 2, 3, 4 & 5);
- Paardekloof 176JS (portion 2); and
- The Wedge 175JS (remaining extent).

The farms are generally located in the Bankenveld. It seems that sour grassveld dominates in the Steelpoort valley with sweet grassveld located more towards the Steenkampsberg Mountains. The western reaches of the farm are characterised by spurs leading off Tauteshoogte (*Tauteshoogte*).

Most of the lower lying areas on the adjacent three farms are located along the western banks of the Steelpoort River and have been extensively ploughed for cultivation. Infrastructure is limited to several dirt roads, a farm house and associated buildings, fences and power lines.

Please note that these farms were first surveyed by the Surveyor General as follows (see Appendix 1):

Duikerskrans 173JS	November 1887
The Wedge	October 1887
Paardekloof 176JS	1892

Table 3





Figure 1: A general view of the survey area.

## 7. Land Claims

According to the Commission on Restitution of Land Claims of Mpumalanga land claims have been lodged, in terms of the Restitution of Land Rights Act (Act No. 22 of 1994, as amended), against all three farms. In this regard please note the following:

Farm Name	File Number	Claim Status
Duikerskrans 173JS	1130	Published
Paardekloof 178JS	12156, 991, 6448, 5409	Investigation (uncertain)
The Wedge 175JS	239	Investigation (uncertain)

Table 4

Please note that one of these claims has been published in the Government Gazette:

Farm Name	Gazette No	Claimant
Duikerskrans 173JS	29636 (23 Feb 2007, p. 12)	Mr Klaas Moloko
Paardekloof 178JS	None	-
The Wedge 175JS	None	-

Table 5

The identity of the community or communities that lodged the claims is only known for the farm Duikerskrans 173JS.

### *Comments and Recommendations*

At present these claims are being investigated and, as far as could be determined, have not yet been published in the Government Gazette. Once the claims have been published please note the following section in terms of the Act:



- (7) Once a notice has been published in respect of any land and a temporary note has been made in the records as contemplated in subsection (6) (b)-
- (a) no person may in an improper manner obstruct the passage of the claim;
  - (b) no claimant who was resident on the land in question at the date of commencement of this Act may be evicted from the said land without the written authority of the Chief Land Claims Commissioner;
  - (c) no person shall in any manner whatsoever remove or cause to be removed, destroy or cause to be destroyed or damage or cause to be damaged, any improvements upon the land without the written authority of the Chief Land Claims Commissioner;
  - (d) no claimant or other person may enter upon and occupy the land without the permission of the owner or lawful occupier.
- (8) The regional land claims commissioner may, at any time after the publication of a notice contemplated in subsection(1), if he or she has reason to believe that any improvement on the land is likely to be removed, damaged or destroyed or that any person resident on such land may be adversely affected as a result of the publication of such notice, authorise any person contemplated in section 8 or 9 to enter upon such land for the purpose of drawing up an inventory of any assets on the land, a list of persons employed or resident on the land, or a report on the agricultural condition of the land and of any excavations, mining or prospecting thereon.

The Commissioner, Mr. Peter Mhlangwani, also makes the following recommendations:

‘It is not within the powers of the Commission on Restitution of Land Rights to grant or withhold permission for the development or alienation in respect of land being claimed until such claim has been gazetted, unless such development would constitute an obstruction to the achievement of the aims and objectives of the Restitution of Land Rights Act 22 of 1994. In such instances application can be made in the Land Claims Court in terms of Section 6(3) of the Restitution Act; this can be done at any stage after the claim has been lodged – even before the publishing of such a claim in terms of Section 11 of the Restitution of Land Rights Act 22 of 1994’.

## 8. Archaeological Sequence

PERIOD	APPROXIMATE DATE
Early Stone Age	more than c. 2 million years ago - c. 250 000 years ago
Middle Stone Age	c. 250 000 years ago – c. 25 000 years ago
Later Stone Age (Includes San & Khoekhoe Rock Art)	c. 25 000 years ago - c. AD 200 (up to historic times in certain areas)
Early Iron Age	c. AD 400 - c. AD 1025
Late Iron Age (Stonewalled sites)	c. AD 1025 - c. AD 1830 (c. AD 1640 - c. AD 1830)

Table 6

## 9. Archaeological Context

### 9.1 Stone Age

Large concentrations of Early Stone Age (ESA) sites are usually located on the flood plains of perennial rivers and may date to over 2 million years ago. These ESA open sites may contain, firstly, scatters of stone tools and second, large concentrated deposits which range from pebble tool choppers to core tools such as handaxes and cleavers. The early hominids who made these stone tools, did not actively hunt.

Middle Stone Age (MSA) sites also occur on flood plains but are in many cases associated with rock shelters (overhangs). Sites usually consist of large concentrations of knapped stone flakes such as scrapers, points and blades. They may have been hafted but organic materials do not always preserve. Limited drive hunting activities are associated with this period.

Sites dating to the Late Stone Age (LSA) occur primarily in rock shelters (though open sites have been recorded in the northern Cape). Well protected deposits in shelters allow for stable conditions that result in the preservation of organic materials such as wood, bone, hearths, ostrich egg shell beads and even bedding material. By using San (Bushman) ethnographic data a better understanding of this period is sometimes possible. South African rock art is also associated with this period.

### 9.2 Iron Age Sequence

In the northern regions of South Africa at least three settlement phases, which pertain to prehistoric agropastorists, have been distinguished for the **Early Iron Age** (EIA). The first phase of the Early Iron Age is known as **Happy Rest**, representative of the Western Stream of migrations, and dates to AD 400 - AD 600. The second phase known as **Diamant** is dated to AD 600 - AD 900. The third phase, characterised by herringbone-decorated pottery of the **Eiland** tradition, is regarded as the final expression of the Early Iron Age (EIA) and occurs over large parts of the North West Province, Limpopo Province, Gauteng and Mpumalanga. This phase has been dated to about AD 900 - AD 1200. These sites are usually located on low-lying spurs close to water.

The **Late Iron Age** (LIA) settlements are characterised by stone-walled enclosures situated on defensive hilltops (especially c. AD 1640 - AD 1830s). This occupation phase has been linked to the arrival of the Northern Sotho, Tswana and Southern Ndebele (Nguni-speakers) in the region dated from the sixteenth to seventeenth centuries AD. The terminal LIA is represented by late 18th/early 19th century settlements with multichrome Moloko pottery commonly attributed to the Sotho-Tswana. This correlates with oral traditions about various people who sought refuge in the mountains during the processes of disruption in the northern interior of South Africa, caused during the so-called *difaqane* (or *Mfecane*).



## 10. Ethno-historical Context

### 10.1 General Ethnological Background

The geographic region defined by the upper catchment-areas of the Steelpoort River and further accentuated by high-lying areas such as the Steenkampsberg mountains (to the east) and Tautes heights (*Tauteshoogte*) and Bothasberg mountains (to the west) acted as an area of cultural contact for various cultural groups. Ethnographic evidence suggests that the Sotho-speaking Pedi people (of the Pedi Empire) are of Tswana (Kgatla) descent and moved into the Steelpoort River valley under their chief Thobebe (Lellelateng) in the 1650s (Mönnig 1967:14).

The Ndzundza Ndebele (Southern Ndebele of Nguni origin) also settled in Steelpoort River and oral history suggests an early (*circa* late AD 1500) settlement in the interior, to the immediate north of Pretoria, under their founder-ruler called Musi. The Ndzundza chieftaincy is believed to have eventually extended its boundaries along the upper reaches of the Steelpoort River catchment area in the 1630s and settled here for the next 250 years (Van Vuuren 1995, Van Warmelo 1935). Several of these settlements (KwaSimkhulu, KwaMaza and Esikhunjini) are known through oral history and have been investigated archaeologically (see Schoeman 1997). We know of their chief Mabhogo who ruled from the 1840s, until his death in 1865 (Schoeman 1997:10). It is also known that both groups extended their political and economic influence to a large geographic area (see Maps 2 and 3). Other groups who lived in the general geographic area of this survey include the Kopa, the Koni, the Phuting, the Swazi (Ndwandwe), and the Shangaan-Tsonga (we acted as intermediate traders with the east coast). Access to and control over this area might also have changed through time. In the 1820s the area was affected by the disruptive influence of the Zulu warrior Mzilikazi and later, during the middle and late 19<sup>th</sup> century the area underwent a process of settlement by white farmers which resulted in the establishment of fenced farms and formal towns.

Ndebele towns that have been investigated archaeologically include KwaSimkhulu (occupied circa AD 1600 – AD 1680s), KwaMaza (occupied circa AD 1675 – AD 1820; situated at the eastern foot of Bothasberg), Esikhunjini (occupied circa AD 1820 – AD 1835; on the north-eastern slopes of Bothasberg) and KoNomtjarhelo (capital Erloweni (Mapochstad) and an outlying site: UmKlaarmaak (near Spitskop) (occupied circa AD 1835 – AD 1883). We also know of several Pedi capitals that were also situated in the Steelpoort River valley.

After a period of conflict the Boer Republic (ZAR) signed a peace-treaty with the Pedi under their chief Sekwati on 17 November 1857. A Lutheran missionary of the Berlin Missionary Society, Alexander Merensky visited Sekwati in 1860 and later built a mission station in Gerlachshoop near Bopedi (Mönnig 1967:24-25). In the late 1850s negotiations between the Boers and the Pedi resulted in the purchase by the Boers of a large area below the southern escarpment of the Drakensberg.

Several trading routes associated with the gold trade are known. These routes connected the interior with the east coast to facilitate the export of alluvial gold and import of various commodities. Amongst others, one such route ran from Sabie, over the Drakensberg towards Lydenburg. From Lydenburg the route turned north-western towards Sekhukhune Land over the Grootdwaars River and through the Steelpoortsdrif, up Magneethoogte, past



Ramakokskraal, then along the Gompies River towards Platberg (De V. Pienaar 1990:55)

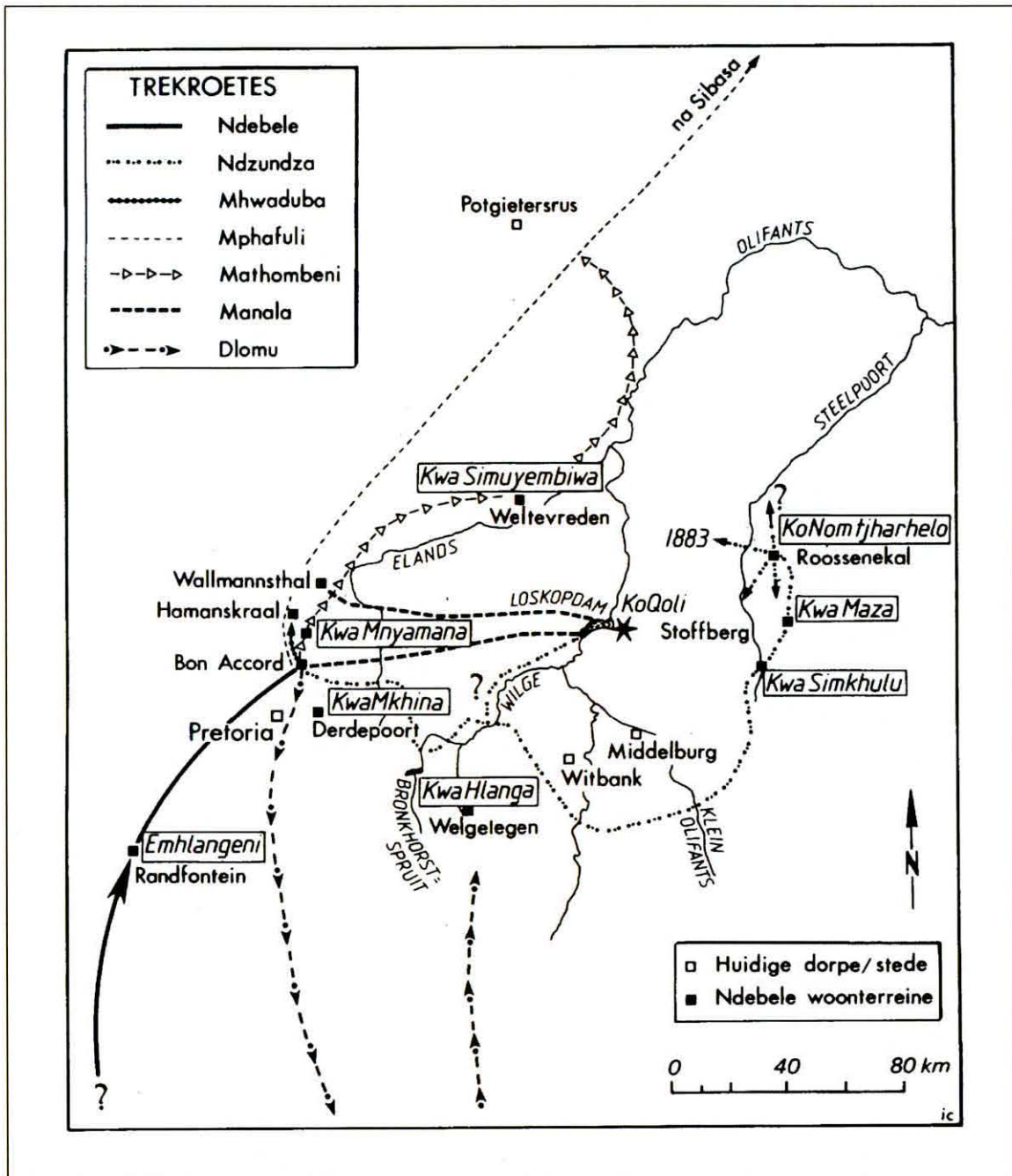
## 10.2 Mapoch Caves and War of 1883

Mapoch Caves (also known as KoNomtjharhelo) are central to the history of the Ndzundza-Ndebele and the conflict that took place in 1883. The Caves are situated on the farm Mapochsgronde 500JS (which has been subdivided into several portions) located between the towns of Roosenekal and Stoffberg. Some of these portions border the eastern periphery of the investigated area.

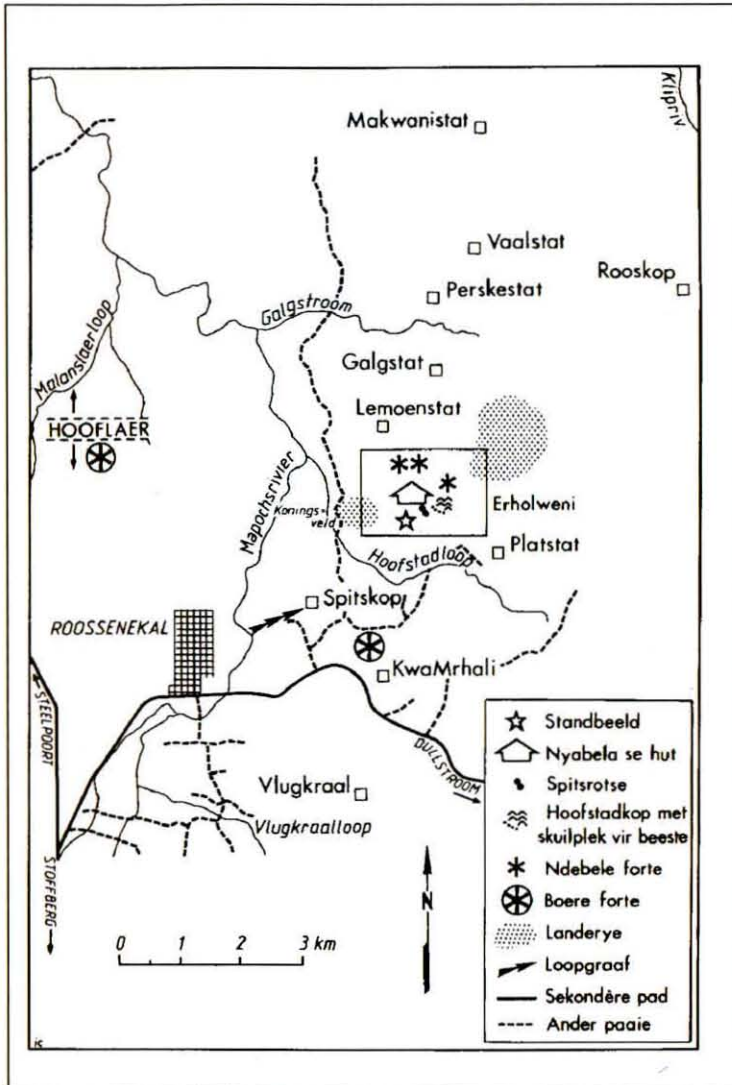
After the *difaqane* Mabhogo became a prominent leader of the Ndzundza-Ndebele who started his reign in 1839 and settled at Mapochs Caves (KoNomtjharhelo). Here they lived for 36 years under several leaders during which they clashed with the ZAR on two occasions (1849 and 1863) and the Swazi in 1864. They remained undefeated.

However, during the reign of the regent Nyabela the ZAR Government was involved in reinstating the BaPedi king (*Kgosi*) Sekhukhune (after he was captured by the British). He was however later murdered by Mampuru (also a royal claimant to the throne) who fled to the Ndzundza for protection. The ZAR Government wanted Nyabela to expedite Mampuru to them for crimes committed. He refused and according to State Proclamation dated 12 October 1882 Commandant Piet Joubert was ordered to arrest Mampuru. After initial skirmishes the Mapoch War started on 7 November 1882. Subsequently, the Ndzundza fortress was besieged and after several conflicts (which also involved several other settlements in the area (also see Map 2 & 3)) and a lengthy campaign (suffering both hunger and thirst) they eventually surrendered on 8 July 1883 (Van Vuuren 1983, 1985). Please note that some of the earliest farms were surveyed by the Surveyor General soon after 1883 (see Appendix A).

Mapoch Caves were proposed as a National Monument on 2 October 1967 and finally declared as such in 1968 (Van Vuuren 1985:46).



Map 2: Movement and settlement of the Ndzundza-Ndebele.



Map 3: Mapoch Caves War

### 11. Site Classification

Stone-walled ruins situated in the escarpment area of Mpumalanga have been classified as: track ways, terraces and settlement units. Settlement units have been subdivided by Collett (1982:34) as:

- (i) Simplex ruins which consist of an isolated circular enclosure; and
- (ii) Complex ruins which consist of two or more contiguous circular or semi-circular enclosures. Both settlement types are spatially closely related to terrace-walling.

Mason conducted an aerial survey of archaeological sites on the northern plateau and eastern escarpment of South Africa (represented by the drainage basins of the Steelpoort, Sabie, Crocodile and Komati Rivers) in 1968. With the focus on site layout he identified 8 distinct ruin classes (Mason 1968:169). These are as follows:



Class 1:	Isolated circle or a few adjacent but isolated circles (Simplex ruin);
Class 2a:	Circular open space defined by several attached semi-circular enclosures (Complex ruin);
Class 2b:	Two or more large circles composed of interlocking small circles (Complex ruin);
Class 3:	Circular enclosures enclosed by periphery-walling (may be scalloped) (Complex ruin);
Class 4a:	Scattered circular enclosures forming a closely related whole; no enclosing periphery walling (Complex ruin);
Class 4b:	Closely related circular enclosures covering a large area; no enclosing periphery walling (Complex ruin);
Class 4c:	A dispersed set of isolated circles seeming to form a related whole (Complex ruin); and
Class 5:	Scattered irregular walling with no definite plan identified (Complex ruin).

It should, however, be noted that unlike Mason, Evers did take terracing into account when classifying settlements in the Lydenburg and Machadodorp area (which represents the Sabie, Elands and parts of the Crocodile River drainage system). According to his classification system (Collet also followed this system) 'Stone walling was used to define homestead areas (enclosure units), agricultural land (terracing) and communication networks within settlements (cattle tracks). The combination of these three attributes forms a settlement' (Marker & Evers 1976:160). Note that terracing is: 'generally simple, consisting of lines of stones running roughly parallel to the contour' (Marker & Evers 1976:160). The enclosure units fall into three basic types namely:

- i) The simplest units which consist of two concentric circles. The inner circle was probably the cattle kraal and space between the circles the area where huts were built.
- ii) A complex of enclosures generally consisting of large central structure with a number of smaller circles around part of, or the whole of, the parameter. This inner complex is surrounded by an outer ring wall.
- iii) An agglomeration of small circles which does not conform to the basic pattern of the first two.

Sites identified during this survey were classified according to these parameters.

Also note that the remains and foundations of later historical (square layout) buildings that have been recorded on the eastern slopes of Tautes Heights (*Tauteshoogte*) are probably associated with the prominent late 19<sup>th</sup> century occupation of the area and to a lesser degree the subsequent conflict known as The Mapoch War (see 10.2 above).

## 12. Description of Sites

Sites that were identified during the survey are either historic structures (homesteads and associated graves attributed to recent farming activities), or archaeological sites dated to the late (dry stone-walled) phase of the Late Iron Age (c. AD 1640 - AD 1830s). By nature of the

topography the archaeological sites are situated on the eastern slopes of Tautes Heights (*Tauteshoogte*), overlooking the Steelpoort River valley. As result, most sites are located on even areas or spurs with varying gradients.

All the archaeological sites are situated in close proximity to water (various fountains and streamlets flow down the slope towards the Steelpoort River. The average annual rainfall of the region varies between 600 - 750 mm, with a moderate climate during both summer and winter months. Recent climatic research indicates that between AD 900 - AD 1295 southern Africa experienced a 'Warm Epoch' with generally hotter and wetter conditions than today. Between AD 1295 - AD 1780 the region experienced a so-called 'Little Ice Age' with generally colder and drier conditions. Although the period AD 1425 and AD 1675 was generally warm and wet (*cf.* Tyson 1992). As a result, past climatic conditions were at times probably even more favourable for grain cultivation (e.g. sorghum, millet and various types of beans) than today. The floodplains on both sides of the Steelpoort River were probably utilised as agricultural land and grazing. No evidence has been found of an irrigation system associated with the terrace walling. This is substantiated by ethnographic research among the Pedi people, who '...do not practice any form of irrigation' (Mönnig 1967:158).

Please note that all graves associated with Sites 21 to 27 and 39 were located with the help of Kleintjie Molohlane Msweni, who still resides on the farm Duikerskrans 173JS. Subsequent graves (Sites 28 to 38) were located with the help of Johannes Masotho, also a resident of the farm Duikerskrans 173JS. Due to the isolated nature of the graves (they are sometimes associated with other structures) more graves, unknown to oral history, might be present in the area, especially further to the east of the Steelpoort River and beyond.

Please note the following:

- If the site is found to be not older than 60 years and therefore do not fall under the protection of the NHRA (Act no 25 of 1999) a 'Field Register Rating' and 'Statement of Significance' will not be included.







12.1 Site 1

<b>A. GENERAL SITE DESCRIPTION</b>			
The site consists of a stone-walled Late Iron Age settlement which has been severely damaged by earth-moving equipment. Unfortunately the damage is specific to the central areas of the site, making it almost impossible to determine the detailed layout and complexity of the homestead (Figure 2). The access road also cuts through the site on the eastern extent. The settlement is approximately 100 metres in length with the stone walling about 0.5 metres high. No substantial midden was noted. Note that a bored stone (Figure 3) was recorded on the surface inside the sanctum of the settlement.			
<b>Re-assessment:</b> Probably a cattle outpost			
<b>B. SITE EVALUATION</b>			
<b>B1. HERITAGE VALUE</b>			<b>Yes</b> <b>No</b>
<b>Historic Value</b>			
It has importance to the community or pattern of South Africa's history or precolonial history.			√
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.			√
It has significance relating to the history of slavery in South Africa.			√
<b>Aesthetic Value</b>			
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.			√
<b>Scientific Value</b>			
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.			√
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.			√
It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.			√
<b>Social Value</b>			
It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).			√
<b>Tourism Value</b>			
It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.			√
<b>Rarity Value</b>			
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.			√
<b>Representative Value</b>			
It is importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.			√
<b>B2. REGIONAL CONTEXT</b>			
Other similar sites in the regional landscape.			√
<b>B3. CONDITION OF SITE</b>			
Integrity of deposits/structures.		Damaged	
<b>C. SPHERE OF SIGNIFICANCE</b>	<b>High</b>	<b>Medium</b>	<b>Low</b>
International			√
National			√
Provincial			√
Local		√	
Specific community		√	
<b>D. FIELD REGISTER RATING</b>			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			


Generally Protected A [High/Medium significance, mitigation]	
Generally protected B [Medium significance, to be recorded]	√
Generally Protected C [Low significance, no further action]	
<b>E. GENERAL STATEMENT OF SITE SIGNIFICANCE</b>	
Low	
Medium	√
High	
<b>F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT</b>	
None	
Peripheral	
Destruction	√
Uncertain	
<b>G. RECOMMENDED MITIGATION</b>	
<ul style="list-style-type: none"> <li>• Phase 2 investigation</li> <li>• Surveying &amp; recording</li> </ul>	
<b>H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS</b>	
<ul style="list-style-type: none"> <li>• National Heritage Resources Act (Act no. 25 of 1999)</li> <li>• Permit from SAHRA</li> </ul>	
<b>I. PHOTOGRAPHS</b>	
	
<p>Figure 2: Stonewall at the site.</p>	





Figure 3: Bored stone found on the surface of the site.

12.2 Site 2

<b>A. GENERAL SITE DESCRIPTION</b>		
The site consists of two small attached stone-walled enclosures near the access road, which are approximately 0.5 metres and 2 metres in diameter, respectively. These probably served as holding pens for livestock (Figure 4). No midden deposits or other structures were found in association.		
<b>B. SITE EVALUATION</b>		
<b>BI. HERITAGE VALUE</b>	<b>Yes</b>	<b>No</b>
<b>Historic Value</b>		
It has importance to the community or pattern of South Africa’s history or precolonial history.	√	
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.		√
It has significance relating to the history of slavery in South Africa.		√
<b>Aesthetic Value</b>		
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.		√
<b>Scientific Value</b>		
It has potential to yield information that will contribute to an understanding of South Africa’s natural and cultural heritage.	√	
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.		√
It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.	√	
<b>Social Value</b>		
It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).		√
<b>Tourism Value</b>		
It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.		√
<b>Rarity Value</b>		
It possesses unique, uncommon, rare or endangered aspects of South Africa’s natural or cultural heritage.		√

<b>Representative Value</b>			
It is importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.		√	
<b>B2. REGIONAL CONTEXT</b>			
Other similar sites in the regional landscape.		√	
<b>B3. CONDITION OF SITE</b>			
Integrity of deposits/structures.		Intact (next to road)	
<b>C. SPHERE OF SIGNIFICANCE</b>	<b>High</b>	<b>Medium</b>	<b>Low</b>
International			√
National			√
Provincial			√
Local		√	
Specific community		√	
<b>D. FIELD REGISTER RATING</b>			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			
Generally Protected A [High/Medium significance, mitigation]			
Generally protected B [Medium significance, to be recorded]			√
Generally Protected C [Low significance, no further action]			
<b>E. GENERAL STATEMENT OF SITE SIGNIFICANCE</b>			
Low			
Medium			√
High			
<b>F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT</b>			
None			
Peripheral			
Destruction			√
Uncertain			
<b>G. RECOMMENDED MITIGATION</b>			
<ul style="list-style-type: none"> <li>• Phase 2 investigation</li> <li>• Surveying &amp; recording</li> </ul>			
<b>H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS</b>			
<ul style="list-style-type: none"> <li>• National Heritage Resources Act (Act no. 25 of 1999)</li> <li>• Permit from SAHRA</li> </ul>			
<b>I. PHOTOGRAPHS</b>			





Figure 4: Two stone-walled enclosures

12.3 Site 3

<b>A. GENERAL SITE DESCRIPTION</b>		
<p>The site consists of several loosely arranged enclosures situated on a flat, open area. Some of the outer walling seems to be scalloped. A constraining element is that it seems that the site has been damaged and some stone-robbing has occurred (Figure 5). The settlement is approximately 50 metres in diameter and the walls are 0.5 metres in height. No midden deposits were recorded.</p>		
<b>B. SITE EVALUATION</b>		
<b>B1. HERITAGE VALUE</b>	<b>Yes</b>	<b>No</b>
<b>Historic Value</b>		
It has importance to the community or pattern of South Africa's history or precolonial history.	√	
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.		√
It has significance relating to the history of slavery in South Africa.		√
<b>Aesthetic Value</b>		
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.		√
<b>Scientific Value</b>		
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.	√	
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.		√
It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.	√	
<b>Social Value</b>		
It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).		√
<b>Tourism Value</b>		
It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.		√
<b>Rarity Value</b>		

It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.			√
<b>Representative Value</b>			
It is important in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.		√	
<b>B2. REGIONAL CONTEXT</b>			
Other similar sites in the regional landscape.		√	
<b>B3. CONDITION OF SITE</b>			
Integrity of deposits/structures.		Damaged	
<b>C. SPHERE OF SIGNIFICANCE</b>	<b>High</b>	<b>Medium</b>	<b>Low</b>
International			√
National			√
Provincial			√
Local		√	
Specific community		√	
<b>D. FIELD REGISTER RATING</b>			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			
Generally Protected A [High/Medium significance, mitigation]			
Generally protected B [Medium significance, to be recorded]			√
Generally Protected C [Low significance, no further action]			
<b>E. GENERAL STATEMENT OF SITE SIGNIFICANCE</b>			
Low			
Medium			√
High			
<b>F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT</b>			
None			
Peripheral			√
Destruction			
Unknown			
<b>G. RECOMMENDED MITIGATION</b>			
<ul style="list-style-type: none"> <li>Site must be fenced off with an access gate to the site.</li> </ul>			
<b>H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS</b>			
<ul style="list-style-type: none"> <li>National Heritage Resources Act (Act no. 25 of 1999)</li> <li>Conservation Management Plan</li> </ul>			
<b>I. PHOTOGRAPHS</b>			



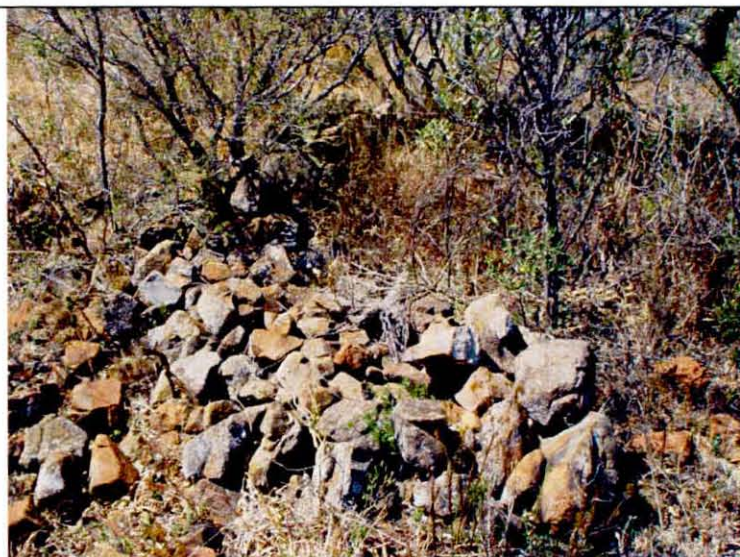


Figure 5: Stone-walled enclosure at the site.

#### 12.4 Site 4

##### A. GENERAL SITE DESCRIPTION

Several sections of terraced walling were recorded at this site which is situated along the eastern slopes of Tauteshoogte. Although Site 3 is situated to the south of this site no other associated structures were recorded. One of the dirt roads providing access to the area passes through the terracing, which caused some damage (Figure 6).

##### B. SITE EVALUATION

##### B1. HERITAGE VALUE

	Yes	No
<b>Historic Value</b>		
It has importance to the community or pattern of South Africa's history or precolonial history.	√	
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.		√
It has significance relating to the history of slavery in South Africa.		√
<b>Aesthetic Value</b>		
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.		√
<b>Scientific Value</b>		
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.	√	
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.	√	
It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.	√	
<b>Social Value</b>		
It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).		√
<b>Tourism Value</b>		
It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.		√
<b>Rarity Value</b>		
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural	√	

heritage.			
<b>Representative Value</b>			
It is importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.			√
<b>B2. REGIONAL CONTEXT</b>			
Other similar sites in the regional landscape.			√
<b>B3. CONDITION OF SITE</b>			
Integrity of deposits/structures.		Damaged by road	
<b>C. SPHERE OF SIGNIFICANCE</b>	<b>High</b>	<b>Medium</b>	<b>Low</b>
International			√
National			√
Provincial			√
Local		√	
Specific community		√	
<b>D. FIELD REGISTER RATING</b>			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			
Generally Protected A [High/Medium significance, mitigation]			
Generally protected B [Medium significance, to be recorded]			√
Generally Protected C [Low significance, no further action]			
<b>E. GENERAL STATEMENT OF SITE SIGNIFICANCE</b>			
Low			
Medium			√
High			
<b>F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT</b>			
None			
Peripheral			√
Destruction			
Uncertain			
<b>G. RECOMMENDED MITIGATION</b>			
<ul style="list-style-type: none"> <li>Area should be fenced off with access gate.</li> </ul>			
<b>H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS</b>			
<ul style="list-style-type: none"> <li>National Heritage Resources Act (Act no. 25 of 1999)</li> <li>Conservation management plan</li> </ul>			
<b>I. PHOTOGRAPHS</b>			





Figure 6: Remains of several terraces on the southern slope.

## 12.5 Site 5

### A. GENERAL SITE DESCRIPTION

This site consists of a square historic wet-walled (with the use of dagha or clay) structure with dimensions of approximately 30 X 15 metres and 0.5 metres high (Figure 7). It might have been used as holding pen for livestock. No midden deposits were recorded. This structure is probably associated with farm worker activities and dated to the more recent occupation period.

### B. SITE EVALUATION

<b>B1. HERITAGE VALUE</b>	<b>Yes</b>	<b>No</b>
<b>Historic Value</b>		
It has importance to the community or pattern of South Africa's history or precolonial history.	√	
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.		√
It has significance relating to the history of slavery in South Africa.		√
<b>Aesthetic Value</b>		
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.		√
<b>Scientific Value</b>		
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.		√
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.		√
It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.		√
<b>Social Value</b>		
It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).	√	
<b>Tourism Value</b>		
It has significance through its contribution towards the promotion of a local sociocultural identity		√

and can be developed as tourist destination.			
<b>Rarity Value</b>			
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.			√
<b>Representative Value</b>			
It is importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.			√
<b>B2. REGIONAL CONTEXT</b>			
Other similar sites in the regional landscape.			√
<b>B3. CONDITION OF SITE</b>			
Integrity of deposits/structures.		Dilapidated	
<b>C. SPHERE OF SIGNIFICANCE</b>	<b>High</b>	<b>Medium</b>	<b>Low</b>
International			√
National			√
Provincial			√
Local		√	
Specific community		√	
<b>D. FIELD REGISTER RATING</b>			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			
Generally Protected A [High/Medium significance, mitigation]			
Generally protected B [Medium significance, to be recorded]			√
Generally Protected C [Low significance, no further action]			
<b>E. GENERAL STATEMENT OF SITE SIGNIFICANCE</b>			
Low			
Medium			√
High			
<b>F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT</b>			
None			
Peripheral			
Destruction			√
Uncertain			
<b>G. RECOMMENDED MITIGATION</b>			
<ul style="list-style-type: none"> <li>• Phase 2 investigation</li> <li>• Surveying &amp; recording</li> </ul>			
<b>H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS</b>			
<ul style="list-style-type: none"> <li>• National Heritage Resources Act (Act no. 25 of 1999)</li> <li>• Permit from SAHRA</li> </ul>			
<b>I. PHOTOGRAPHS</b>			





Figure 7: Foundation of structure.

12.6 Site 6

<b>A. GENERAL SITE DESCRIPTION</b>		
<p>The site consists of foundations (dressed magnetite) of a square structure, which probably was a multi-room house (Figure 8). Various pieces of cultural material (i.e. glass and iron) were recorded in association with the structure. As such, this structure is probably associated with erstwhile farming activities along the Steelpoort River.</p>		
<b>B. SITE EVALUATION</b>		
<b>BI. HERITAGE VALUE</b>	<b>Yes</b>	<b>No</b>
<b>Historic Value</b>		
It has importance to the community or pattern of South Africa's history or precolonial history.	√	
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.		√
It has significance relating to the history of slavery in South Africa.		√
<b>Aesthetic Value</b>		
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.		√
<b>Scientific Value</b>		
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.	√	
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.		√
It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.	√	
<b>Social Value</b>		
It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).	√	

<b>Tourism Value</b>			
It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.			√
<b>Rarity Value</b>			
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.			√
<b>Representative Value</b>			
It is importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.	√		
<b>B2. REGIONAL CONTEXT</b>			
Other similar sites in the regional landscape.		√	
<b>B3. CONDITION OF SITE</b>			
Integrity of deposits/structures.	Dilapidated (foundations only)		
<b>C. SPHERE OF SIGNIFICANCE</b>	<b>High</b>	<b>Medium</b>	<b>Low</b>
International			√
National			√
Provincial			√
Local			√
Specific community		√	
<b>D. FIELD REGISTER RATING</b>			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			
Generally Protected A [High/Medium significance, mitigation]			
Generally protected B [Medium significance, to be recorded]			√
Generally Protected C [Low significance, no further action]			
<b>E. GENERAL STATEMENT OF SITE SIGNIFICANCE</b>			
Low			
Medium			√
High			
<b>F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT</b>			
None			
Peripheral			
Destruction			√
Uncertain			
<b>G. RECOMMENDED MITIGATION</b>			
<ul style="list-style-type: none"> <li>• Phase 2 investigation</li> <li>• Surveying &amp; recording</li> </ul>			
<b>H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS</b>			
<ul style="list-style-type: none"> <li>• National Heritage Resources Act (Act no. 25 of 1999)</li> <li>• Permit from SAHRA</li> </ul>			
<b>I. PHOTOGRAPHS</b>			



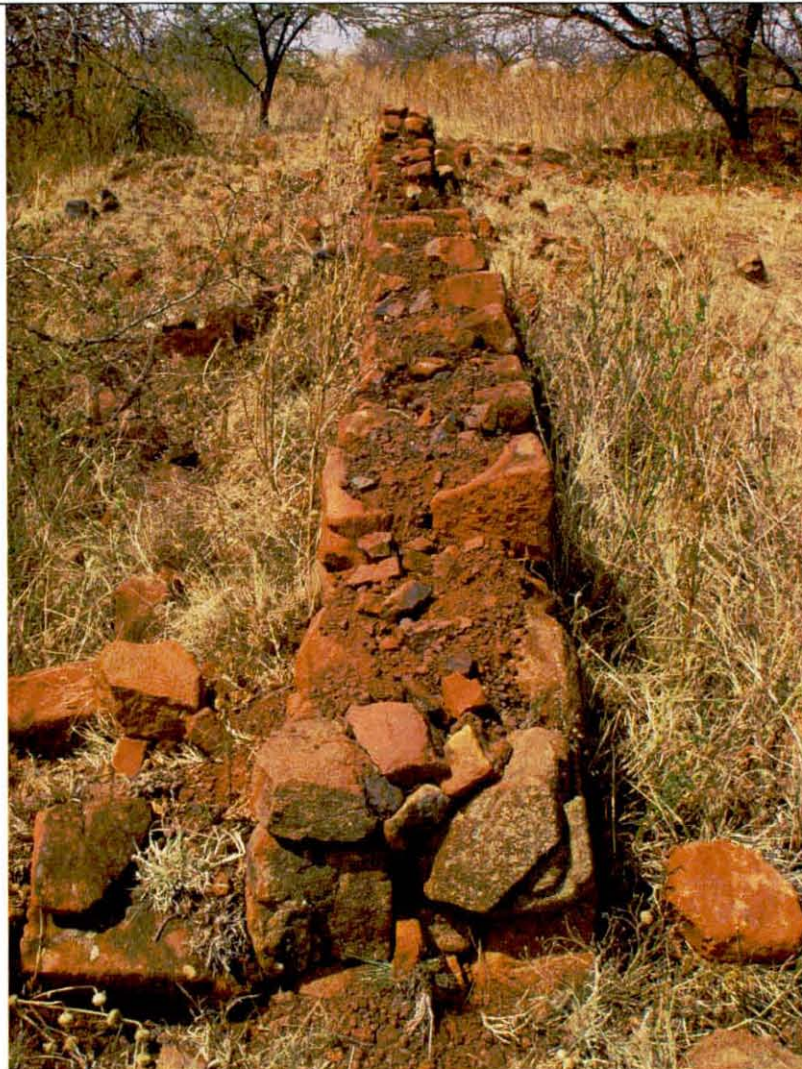


Figure 8: Foundation of a house

12.7 Site 7

**A. GENERAL SITE DESCRIPTION**

The site consists of the foundations (dressed magnetite and in some places bricks) of an extensive square structure, which probably was a multi-room house (Figure 9). These consist of a veranda, several bedrooms and what seem to be later additional rooms and out buildings. Various pieces of cultural material (i.e. glass and iron) were recorded in association with the structure. As such, this structure is probably associated with erstwhile farming activities along the Steelpoort River.

Associated with the house foundations is a prominent grave (Figure 9). The grave is demarcated by clearly packed magnetite rocks and is orientated east-west. The headstone is situated on the western side but no inscription was noted.

**B. SITE EVALUATION**

**B1. HERITAGE VALUE**

Historic Value

Yes	No



It has importance to the community or pattern of South Africa's history or precolonial history.	√	
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.		√
It has significance relating to the history of slavery in South Africa.		√
<b>Aesthetic Value</b>		
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.		√
<b>Scientific Value</b>		
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.	√	
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.		√
It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.	√	
<b>Social Value</b>		
It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).	√	
<b>Tourism Value</b>		
It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.		√
<b>Rarity Value</b>		
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.		√
<b>Representative Value</b>		
It is importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.	√	
<b>B2. REGIONAL CONTEXT</b>		
Other similar sites in the regional landscape.	√	
<b>B3. CONDITION OF SITE</b>		
Integrity of deposits/structures.	House: Dilapidated (foundations only) Grave: Stable and complete	
<b>C. SPHERE OF SIGNIFICANCE</b>		
	<b>High</b>	<b>Medium</b>
International		√
National		√
Provincial		√
Local	√	
Specific community	√	
<b>D. FIELD REGISTER RATING</b>		
National/Grade 1 [should be registered, retained]		
Provincial/Grade 2 [should be registered, retained]		
Local/Grade 3A [should be registered, mitigation not advised]		
Local/Grade 3B [High significance; mitigation, partly retained]		
Generally Protected A [High/Medium significance, mitigation]		√
Generally protected B [Medium significance, to be recorded]		
Generally Protected C [Low significance, no further action]		
<b>E. GENERAL STATEMENT OF SITE SIGNIFICANCE</b>		
Low		
Medium		
High		√
<b>F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT</b>		
None		
Peripheral		
Destruction		√
Uncertain		
<b>G. RECOMMENDED MITIGATION</b>		



- Phase 2 investigation
- Social consultation
- Surveying & mapping

#### **H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS**

- National Heritage Resources Act (Act no. 25 of 1999)
- Human Tissue Act (Act 65 of 1983 as amended).
- Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925)
- Ordinance on Excavations (Ordinance no. 12 of 1980)
- Local and regional provisions, laws and by-laws
- Permit from SAHRA

#### **I. PHOTOGRAPHS**



**Figure 9: Stone walls demarcating the multi-room house.**





Figure10: Grave adjacent to house.

### 12.8 Site 8

#### A. GENERAL SITE DESCRIPTION

This site consists of the foundations of several houses (between 5 and 8) and a fenced cemetery. All the foundations indicate two room structures with north-east facing verandas. As such, these can probably be identified as erstwhile farm worker accommodation.

The fenced cemetery is situated adjacent to the foundation structures and is probably associated with the former inhabitants. The cemetery consists of 11 graves (demarcated by packed boulders and rocks) of which one is a juvenile. All the graves have an east-west orientation with the headstone on the western side.

Four graves have headstone with inscriptions, namely:

- Mmakgomo Mtshweni;
- Mmdikeng Mtshweni;
- Nkokwane Mtshweni; and
- Kokotlang? Mtshweni (juvenile).

Recent grave offerings and visits by descendants provide evidence for a strong social connectedness with the graves.

#### B. SITE EVALUATION

B1. HERITAGE VALUE	Yes	No
<b>Historic Value</b>		
It has importance to the community or pattern of South Africa's history or precolonial history.	√	
It has strong or special association with the life or work of a person, group or organisation of		√



importance in the history of South Africa.			
It has significance relating to the history of slavery in South Africa.			√
<b>Aesthetic Value</b>			
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.		√	
<b>Scientific Value</b>			
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.		√	
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.			√
It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.		√	
<b>Social Value</b>			
It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).			√
<b>Tourism Value</b>			
It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.			√
<b>Rarity Value</b>			
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.			√
<b>Representative Value</b>			
It is importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.		√	
<b>B2. REGIONAL CONTEXT</b>			
Other similar sites in the regional landscape.		√	
<b>B3. CONDITION OF SITE</b>			
Integrity of deposits/structures.		Houses: Dilapidated (foundations only) Grave: Stable and complete	
<b>C. SPHERE OF SIGNIFICANCE</b>		<b>High</b>	<b>Medium</b> <b>Low</b>
International			√
National			√
Provincial			√
Local		√	
Specific community		√	
<b>D. FIELD REGISTER RATING</b>			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			
Generally Protected A [High/Medium significance, mitigation]			√
Generally protected B [Medium significance, to be recorded]			
Generally Protected C [Low significance, no further action]			
<b>E. GENERAL STATEMENT OF SITE SIGNIFICANCE</b>			
Low			
Medium			
High			√
<b>F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT</b>			
None			
Peripheral			√
Destruction			
Uncertain			
<b>G. RECOMMENDED MITIGATION</b>			
<ul style="list-style-type: none"> <li>• Social consultation</li> <li>• Site should be fenced off with access gate installed</li> </ul>			

- Conservation management plan

**H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS**

- National Heritage Resources Act (Act no. 25 of 1999)
- Human Tissue Act (Act 65 of 1983 as amended)
- Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925)
- Ordinance on Excavations (Ordinance no. 12 of 1980)
- Local and regional provisions, laws and by-laws
- Permit from SAHRA

**I. PHOTOGRAPHS**



Figure 11: Stone walls demarcating the layout of a house.





Figure 12: The fenced cemetery.

### 12.9 Site 9

<b>A. GENERAL SITE DESCRIPTION</b>		
<p>The site consists of an extended settlement complex comprising five square homesteads with north facing verandas as well as a stock enclosure (10 metres in diameter). The height of the walls of the homesteads is approximately 1.5 metres and that of the enclosure 0.7 metres. Roofs and all the fittings (doors &amp; windows) have been removed. No midden deposits were recorded in the area.</p> <p>Generally, the site is located very high up the eastern slope of <i>Tautes Heights</i> mountain range. This aspect together with the western (square) influence evident in the remains might indicate a late 19<sup>th</sup> century occupation possibly associated with period of conflict known as the War of Mapoch (1882-1883).</p> <p><b>Assessment update:</b> New roads have been constructed very close to (even between) the homesteads.</p>		
<b>B. SITE EVALUATION</b>		
<b>B1. HERITAGE VALUE</b>	<b>Yes</b>	<b>No</b>
<b>Historic Value</b>		
It has importance to the community or pattern of South Africa's history or precolonial history.	√	
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.		√
It has significance relating to the history of slavery in South Africa.		√
<b>Aesthetic Value</b>		
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.		√
<b>Scientific Value</b>		
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.	√	
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.		√
It has importance to the wider understanding of the temporal change of cultural landscapes,	√	

settlement patterns and human occupation.					
<b>Social Value</b>					
It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).				√	
<b>Tourism Value</b>					
It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.					√
<b>Rarity Value</b>					
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.					√
<b>Representative Value</b>					
It is importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.				√	
<b>B2. REGIONAL CONTEXT</b>					
Other similar sites in the regional landscape.				√	
<b>B3. CONDITION OF SITE</b>					
Integrity of deposits/structures.			Houses: Dilapidated		
<b>C. SPHERE OF SIGNIFICANCE</b>		<b>High</b>	<b>Medium</b>	<b>Low</b>	
International				√	
National				√	
Provincial				√	
Local			√		
Specific community			√		
<b>D. FIELD REGISTER RATING</b>					
National/Grade 1 [should be registered, retained]					
Provincial/Grade 2 [should be registered, retained]					
Local/Grade 3A [should be registered, mitigation not advised]					
Local/Grade 3B [High significance; mitigation, partly retained]					
Generally Protected A [High/Medium significance, mitigation]					
Generally protected B [Medium significance, to be recorded]					√
Generally Protected C [Low significance, no further action]					
<b>E. GENERAL STATEMENT OF SITE SIGNIFICANCE</b>					
Low					
Medium					√
High					
<b>F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT</b>					
None					
Peripheral					
Destruction					√
Uncertain					
<b>G. RECOMMENDED MITIGATION</b>					
<ul style="list-style-type: none"> <li>• Phase 2 investigation</li> <li>• Surveying &amp; recoding</li> </ul>					
<b>H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS</b>					
<ul style="list-style-type: none"> <li>• National Heritage Resources Act (Act no. 25 of 1999)</li> <li>• Permit from SAHRA</li> </ul>					
<b>I. PHOTOGRAPH</b>					





Figure 23: A wall of one of the houses.

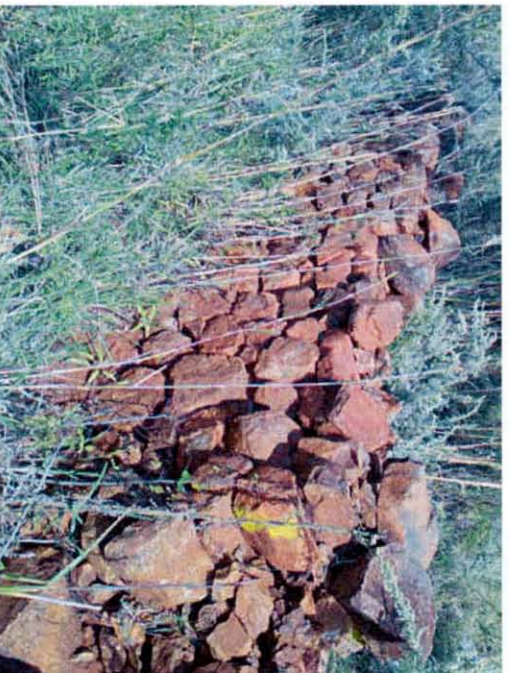




Figure 34: A wall of one of the houses

## 12.10 Site 10

<b>A. GENERAL SITE DESCRIPTION</b>			
The site consists of an isolated stone walled stock enclosure situated to the north-east of Site 9. The dimensions of the enclosure are 10 x 8 metres with the walling 0.7 metres in height. No substantial deposits were recorded inside the enclosure. The layout is however square, associating it with a post late 19 <sup>th</sup> century occupation period. No other features were recorded in the area. Probably associated with Site 11.			
<b>Assessment update:</b> Note that the site has been damaged by a new access road (see Figure 16).			
<b>B. SITE EVALUATION</b>			
<b>B1. HERITAGE VALUE</b>	<b>Yes</b>	<b>No</b>	
<b>Historic Value</b>			
It has importance to the community or pattern of South Africa's history or precolonial history.	√		
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.		√	
It has significance relating to the history of slavery in South Africa.		√	
<b>Aesthetic Value</b>			
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.		√	
<b>Scientific Value</b>			
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.	√		
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.		√	
It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.	√		
<b>Social Value</b>			
It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).		√	
<b>Tourism Value</b>			
It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.		√	
<b>Rarity Value</b>			
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.		√	
<b>Representative Value</b>			
It is importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.	√		
<b>B2. REGIONAL CONTEXT</b>			
Other similar sites in the regional landscape.	√		
<b>B3. CONDITION OF SITE</b>			
Integrity of deposits/structures.	Dilapidated		
<b>C. SPHERE OF SIGNIFICANCE</b>	<b>High</b>	<b>Medium</b>	<b>Low</b>
International			√
National			√
Provincial			√
Local		√	
Specific community		√	
<b>D. FIELD REGISTER RATING</b>			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			
Generally Protected A [High/Medium significance, mitigation]			



Generally protected B [Medium significance, to be recorded]	√
Generally Protected C [Low significance, no further action]	
<b>E. GENERAL STATEMENT OF SITE SIGNIFICANCE</b>	
Low	
Medium	√
High	
<b>F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT</b>	
None	
Peripheral	
Destruction	√
Uncertain	
<b>G. RECOMMENDED MITIGATION</b>	
<ul style="list-style-type: none"> <li>• Phase 2 investigation</li> <li>• Survey and recording</li> </ul>	
<b>H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS</b>	
<ul style="list-style-type: none"> <li>• National Heritage Resources Act (Act no. 25 of 1999)</li> <li>• Permit from SAHRA</li> </ul>	
<b>I. PHOTOGRAPHS</b>	
	
<p><b>Figure 45: A section of the wall of the cattle enclosure</b></p>	
	
<p><b>Figure 56: Damage to the site by a new access road</b></p>	

12.11 Site 11

<b>A. GENERAL SITE DESCRIPTION</b>				
<p>The site consists of an extended settlement complex comprising several homesteads in a dilapidated state of preservation. Several walls are still 0.7 metres in height. Roofs and all the fittings (doors &amp; windows) have been removed. Additional stone foundations have also been noted a few metres to the west of the site. The complex is probably associated with Site 12.</p> <p>The site has been damaged by a track that runs through the middle. Although no midden deposits were recorded in the area, a lower grindstone was found in associated with the remains. Generally, the site is located very high up the eastern slope of <i>Tautes Heights</i> mountain range. This aspect together with the western (square) influence evident in the remains might indicate a late 19<sup>th</sup> century occupation possibly associated with period of conflict known as the War of Mapoch (1882-1883).</p> <p><b>Assessment update:</b> An additional road has been constructed through the site causing further damage.</p>				
<b>B. SITE EVALUATION</b>				
<b>B1. HERITAGE VALUE</b>			<b>Yes</b>	<b>No</b>
<b>Historic Value</b>				
It has importance to the community or pattern of South Africa's history or precolonial history.				√
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.			√	
It has significance relating to the history of slavery in South Africa.				√
<b>Aesthetic Value</b>				
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.				√
<b>Scientific Value</b>				
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.			√	
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.				√
It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.			√	
<b>Social Value</b>				
It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).				√
<b>Tourism Value</b>				
It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.				√
<b>Rarity Value</b>				
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.				√
<b>Representative Value</b>				
It is importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.			√	
<b>B2. REGIONAL CONTEXT</b>				
Other similar sites in the regional landscape.			√	
<b>B3. CONDITION OF SITE</b>				
Integrity of deposits/structures.		Dilapidated, damaged		
<b>C. SPHERE OF SIGNIFICANCE</b>				
	<b>High</b>	<b>Medium</b>	<b>Low</b>	
International			√	
National			√	
Provincial			√	
Local		√		
Specific community		√		
<b>D. FIELD REGISTER RATING</b>				




National/Grade 1 [should be registered, retained]	
Provincial/Grade 2 [should be registered, retained]	
Local/Grade 3A [should be registered, mitigation not advised]	
Local/Grade 3B [High significance; mitigation, partly retained]	
Generally Protected A [High/Medium significance, mitigation]	
Generally protected B [Medium significance, to be recorded]	√
Generally Protected C [Low significance, no further action]	
<b>E. GENERAL STATEMENT OF SITE SIGNIFICANCE</b>	
Low	
Medium	√
High	
<b>F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT</b>	
None	
Peripheral	
Destruction	√
Uncertain	
<b>G. RECOMMENDED MITIGATION</b>	
<ul style="list-style-type: none"> <li>• Phase 2 investigation</li> <li>• Survey and recording</li> </ul>	
<b>H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS</b>	
<ul style="list-style-type: none"> <li>• National Heritage Resources Act (Act no. 25 of 1999)</li> <li>• Permit from SAHRA</li> </ul>	
<b>I. PHOTOGRAPHS</b>	
	
<p>Figure 17: A section of the stone walling</p>	



Figure 18: Damage to the site by a new access road

## 12.12 Site 12

### A. GENERAL SITE DESCRIPTION

This site consists of an isolated single grave. The grave has been marked by a heap of packed stones (Figure 19) with an east-west orientation (headstone on the western side). The grave is situated on terraces on the eastern slopes of *Tautes Heights* mountain range.

The inscription on the headstone reads:

- Meyiwa? Mabhena

The date of the burial could not be determined and no recent grave offerings were noted.

**Assessment update:** The grave has recently been cleared and restored, probably by relatives.

### B. SITE EVALUATION

B1. HERITAGE VALUE	Yes	No
<b>Historic Value</b>		
It has importance to the community or pattern of South Africa's history or precolonial history.	√	
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.		√
It has significance relating to the history of slavery in South Africa.		√
<b>Aesthetic Value</b>		
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.		√
<b>Scientific Value</b>		
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.	√	
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.		√
It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.	√	
<b>Social Value</b>		
It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).	√	
<b>Tourism Value</b>		
It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.		√
<b>Rarity Value</b>		



It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.			√
<b>Representative Value</b>			
It is importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.		√	
<b>B2. REGIONAL CONTEXT</b>			
Other similar sites in the regional landscape.		√	
<b>B3. CONDITION OF SITE</b>			
Integrity of deposits/structures.		Grave: Stable and complete	
<b>C. SPHERE OF SIGNIFICANCE</b>	<b>High</b>	<b>Medium</b>	<b>Low</b>
International			√
National			√
Provincial			√
Local	√		
Specific community	√		
<b>D. FIELD REGISTER RATING</b>			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			
Generally Protected A [High/Medium significance, mitigation]			√
Generally protected B [Medium significance, to be recorded]			
Generally Protected C [Low significance, no further action]			
<b>E. GENERAL STATEMENT OF SITE SIGNIFICANCE</b>			
Low			
Medium			
High			√
<b>F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT</b>			
None			
Peripheral			
Destruction			√
Uncertain			
<b>G. RECOMMENDED MITIGATION</b>			
<ul style="list-style-type: none"> <li>• Phase 2 investigation</li> <li>• Social consultation</li> <li>• Surveying and recording</li> </ul>			
<b>H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS</b>			
<ul style="list-style-type: none"> <li>• National Heritage Resources Act (Act no. 25 of 1999)</li> <li>• Human Tissue Act (Act 65 of 1983 as amended).</li> <li>• Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925)</li> <li>• Ordinance on Excavations (Ordinance no. 12 of 1980)</li> <li>• Local and regional provisions, laws and by-laws</li> <li>• Permit from SAHRA</li> </ul>			
<b>I. PHOTOGRAPH</b>			




Figure 69: Grave with headstone.

### 12.13 Site 13

<b>A. GENERAL SITE DESCRIPTION</b>		
<p>The site consists of a settlement complex comprising two square homesteads with north facing verandas. One of the foundation walls is still partly standing (Figure 20). The roofs and all the fittings (doors &amp; windows) have been removed. No midden deposits were recorded in the area.</p> <p>Generally, the site is located very high up the eastern slope of <i>Tautes Heights</i> mountain range. This aspect together with the western (square) influence evident in the remains might indicate a late 19<sup>th</sup> century occupation possibly associated with period of conflict known as the War of Mapoch (1882-1883).</p>		
<b>B. SITE EVALUATION</b>		
<b>B1. HERITAGE VALUE</b>	<b>Yes</b>	<b>No</b>
<b>Historic Value</b>		
It has importance to the community or pattern of South Africa's history or precolonial history.	√	
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.		√
It has significance relating to the history of slavery in South Africa.		√
<b>Aesthetic Value</b>		
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.		√
<b>Scientific Value</b>		
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.	√	
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.		√
It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.	√	
<b>Social Value</b>		
It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).		√
<b>Tourism Value</b>		
It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.		√
<b>Rarity Value</b>		
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.		√
<b>Representative Value</b>		
It is importance in demonstrating the principle characteristics of a particular class of South	√	




Africa's natural or cultural places or objects.					
<b>B2. REGIONAL CONTEXT</b>					
Other similar sites in the regional landscape.					√
<b>B3. CONDITION OF SITE</b>					
Integrity of deposits/structures.			Dilapidated		
<b>C. SPHERE OF SIGNIFICANCE</b>		<b>High</b>	<b>Medium</b>	<b>Low</b>	
International				√	
National				√	
Provincial				√	
Local			√		
Specific community			√		
<b>D. FIELD REGISTER RATING</b>					
National/Grade 1 [should be registered, retained]					
Provincial/Grade 2 [should be registered, retained]					
Local/Grade 3A [should be registered, mitigation not advised]					
Local/Grade 3B [High significance; mitigation, partly retained]					
Generally Protected A [High/Medium significance, mitigation]					
Generally protected B [Medium significance, to be recorded]					√
Generally Protected C [Low significance, no further action]					
<b>E. GENERAL STATEMENT OF SITE SIGNIFICANCE</b>					
Low					
Medium					√
High					
<b>F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT</b>					
None					
Peripheral					
Destruction					√
Uncertain					
<b>G. RECOMMENDED MITIGATION</b>					
<ul style="list-style-type: none"> <li>• Phase 2 investigation</li> <li>• Surveying &amp; recoding</li> </ul>					
<b>H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS</b>					
<ul style="list-style-type: none"> <li>• National Heritage Resources Act (Act no. 25 of 1999)</li> <li>• Permit from SAHRA</li> </ul>					
<b>I. PHOTOGRAPH</b>					
					
<p><b>Figure 20: A foundation wall of one of the houses.</b></p>					

## 12.14 Site 14

<b>A. GENERAL SITE DESCRIPTION</b>			
The site consists of two circular stone walled stock enclosures attached together by a secondary wall (Figure 21). The diameter of the enclosures is approximately 8 metres with the walling 0.7 metres in height. The site is located very high up the eastern slope of <i>Tautes Heights</i> mountain range. No substantial deposits were recorded inside the enclosures. These structures probably represent a cattle outpost. No other features were recorded in the immediate vicinity.			
<b>B. SITE EVALUATION</b>			
<b>B1. HERITAGE VALUE</b>	<b>Yes</b>	<b>No</b>	
<b>Historic Value</b>			
It has importance to the community or pattern of South Africa's history or precolonial history.	√		
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.		√	
It has significance relating to the history of slavery in South Africa.		√	
<b>Aesthetic Value</b>			
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.		√	
<b>Scientific Value</b>			
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.	√		
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.		√	
It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.	√		
<b>Social Value</b>			
It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).		√	
<b>Tourism Value</b>			
It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.		√	
<b>Rarity Value</b>			
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.		√	
<b>Representative Value</b>			
It is importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.	√		
<b>B2. REGIONAL CONTEXT</b>			
Other similar sites in the regional landscape.	√		
<b>B3. CONDITION OF SITE</b>			
Integrity of deposits/structures.	Well preserved and stable		
<b>C. SPHERE OF SIGNIFICANCE</b>	<b>High</b>	<b>Medium</b>	<b>Low</b>
International			√
National			√
Provincial			√
Local		√	
Specific community		√	
<b>D. FIELD REGISTER RATING</b>			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			
Generally Protected A [High/Medium significance, mitigation]			



Generally protected B [Medium significance, to be recorded]	√
Generally Protected C [Low significance, no further action]	
<b>E. GENERAL STATEMENT OF SITE SIGNIFICANCE</b>	
Low	
Medium	√
High	
<b>F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT</b>	
None	
Peripheral	
Destruction	√
Uncertain	
<b>G. RECOMMENDED MITIGATION</b>	
<ul style="list-style-type: none"> <li>• Phase 2 investigation</li> <li>• Survey and recording</li> </ul>	
<b>H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS</b>	
<ul style="list-style-type: none"> <li>• National Heritage Resources Act (Act no. 25 of 1999)</li> <li>• Permit from SAHRA</li> </ul>	
<b>I. PHOTOGRAPH</b>	
	
<p>Figure 21: A section of the stone wall at one of the enclosures.</p>	

12.15 Site 15

<b>A. GENERAL SITE DESCRIPTION</b>		
<p>The site consists of the foundation structure of a square house (Figure 22). The measurements of the structure are approximately 10 x 5 metres. The foundation of an additional outbuilding was also recorded (roughly 3 x 3 metres). No midden deposits were recorded. The site is located in the lower lying floodplain of the Steelpoort River. These remains together with cemented rondavel-shaped houses (a hundred metres further east) seem to date fairly late and might be associated with recent farm worker occupation.</p>		
<b>B. SITE EVALUATION</b>		
<b>B1. HERITAGE VALUE</b>	<b>Yes</b>	<b>No</b>
<b>Historic Value</b>		
It has importance to the community or pattern of South Africa's history or precolonial history.	√	
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.		√
It has significance relating to the history of slavery in South Africa.		√
<b>Aesthetic Value</b>		
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.		√

<b>Scientific Value</b>			
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.	√		
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.			√
It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.	√		
<b>Social Value</b>			
It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).			√
<b>Tourism Value</b>			
It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.			√
<b>Rarity Value</b>			
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.			√
<b>Representative Value</b>			
It is importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.	√		
<b>B2. REGIONAL CONTEXT</b>			
Other similar sites in the regional landscape.	√		
<b>B3. CONDITION OF SITE</b>			
Integrity of deposits/structures.		Foundations only	
<b>C. SPHERE OF SIGNIFICANCE</b>	<b>High</b>	<b>Medium</b>	<b>Low</b>
International			√
National			√
Provincial			√
Local		√	
Specific community		√	
<b>D. FIELD REGISTER RATING</b>			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			
Generally Protected A [High/Medium significance, mitigation]			
Generally protected B [Medium significance, to be recorded]			√
Generally Protected C [Low significance, no further action]			
<b>E. GENERAL STATEMENT OF SITE SIGNIFICANCE</b>			
Low			
Medium			√
High			
<b>F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT</b>			
None			
Peripheral			√
Destruction			
Uncertain			
<b>G. RECOMMENDED MITIGATION</b>			
<ul style="list-style-type: none"> <li>• Site should be fenced off with access gate.</li> <li>• Conservation management plan</li> </ul>			
<b>H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS</b>			
<ul style="list-style-type: none"> <li>• National Heritage Resources Act (Act no. 25 of 1999)</li> <li>• Permit from SAHRA</li> </ul>			
<b>I. PHOTOGRAPH</b>			





Figure 22: Stone foundation of one of the houses.

### Site 16

#### A. GENERAL SITE DESCRIPTION

The site consists of a single isolated linear stone wall approximately 100 metres long and 0.5 metres in height. No midden deposits were recorded. The site is located in the lower lying floodplain west of the Steelpoort River.

#### B. SITE EVALUATION

##### B1. HERITAGE VALUE

Yes	No
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##### Historic Value

It has importance to the community or pattern of South Africa's history or precolonial history.	√	
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It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.		√
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It has significance relating to the history of slavery in South Africa.		√
---	--	---

##### Aesthetic Value

It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.		√
--	--	---

##### Scientific Value

It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.		√
---	--	---

It has importance in demonstrating a high degree of creative or technical achievement at a particular period.		√
---	--	---

It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.	√	
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##### Social Value

It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).		√
--	--	---

##### Tourism Value

It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.		√
---	--	---

##### Rarity Value


It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.		√
---	--	---

##### Representative Value

It is importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.		√
--	--	---

##### B2. REGIONAL CONTEXT


Other similar sites in the regional landscape.	√	
--	---	--

<b>B3. CONDITION OF SITE</b>			
Integrity of deposits/structures.	Stable		
<b>C. SPHERE OF SIGNIFICANCE</b>	<b>High</b>	<b>Medium</b>	<b>Low</b>
International			√
National			√
Provincial			√
Local		√	
Specific community		√	
<b>D. FIELD REGISTER RATING</b>			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			
Generally Protected A [High/Medium significance, mitigation]			
Generally protected B [Medium significance, to be recorded]			
Generally Protected C [Low significance, no further action]			
<b>E. GENERAL STATEMENT OF SITE SIGNIFICANCE</b>			
Low			
Medium			
High			
<b>F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT</b>			
None			
Peripheral			
Destruction			
Uncertain			
<b>G. RECOMMENDED MITIGATION</b>			
<ul style="list-style-type: none"> <li>• Site should be fenced off with access gate</li> <li>• Conservation management plan</li> </ul>			
<b>H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS</b>			
<ul style="list-style-type: none"> <li>• National Heritage Resources Act (Act no. 25 of 1999)</li> <li>• Permit from SAHRA</li> </ul>			
<b>I. PHOTOGRAPH</b>			
			
<p><b>Figure 23: Isolated stone wall</b></p>			



**12.17 Sites 17 & 18**

<b>A. GENERAL SITE DESCRIPTION</b>				
<p>The site consists of an extensive Late Iron Age stone walled settlement (Site 17) and associated terracing (Site 18). At the centre of the settlement is a large circular stock enclosure (22 metres in diameter) with attached secondary enclosures (calves and small stock). Several smaller enclosures, attached by secondary walling, are situated around the main central kraal (Figure 24). Extensive deposits were recorded in the main kraal. The stone walls average about 1 metre in height. Several possible midden deposits were recorded. The site is located in the lower lying floodplain west of the Steelpoort River. Prospecting activities were recorded adjacent to the site but no damage was done.</p> <p>Extensive terracing, approximately 50 metres in length were recorded in association with Site 17 and Site 19.</p>				
<b>B. SITE EVALUATION</b>				
<b>B1. HERITAGE VALUE</b>			<b>Yes</b>	<b>No</b>
<b>Historic Value</b>				
It has importance to the community or pattern of South Africa's history or precolonial history.			√	
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.			√	
It has significance relating to the history of slavery in South Africa.				√
<b>Aesthetic Value</b>				
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.			√	
<b>Scientific Value</b>				
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.			√	
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.				√
It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.			√	
<b>Social Value</b>				
It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).				√
<b>Tourism Value</b>				
It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.				√
<b>Rarity Value</b>				
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.				√
<b>Representative Value</b>				
It is importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.			√	
<b>B2. REGIONAL CONTEXT</b>				
Other similar sites in the regional landscape.			√	
<b>B3. CONDITION OF SITE</b>				
Integrity of deposits/structures.		Stable, well preserved, intact deposits		
<b>C. SPHERE OF SIGNIFICANCE</b>				
	<b>High</b>	<b>Medium</b>	<b>Low</b>	
International			√	
National			√	
Provincial		√		
Local	√			
Specific community	√			
<b>D. FIELD REGISTER RATING</b>				
National/Grade 1 [should be registered, retained]				
Provincial/Grade 2 [should be registered, retained]				

Local/Grade 3A [should be registered, mitigation not advised]	
Local/Grade 3B [High significance; mitigation, partly retained]	
Generally Protected A [High/Medium significance, mitigation]	√
Generally protected B [Medium significance, to be recorded]	
Generally Protected C [Low significance, no further action]	
<b>E. GENERAL STATEMENT OF SITE SIGNIFICANCE</b>	
Low	
Medium	
High	√
<b>F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT</b>	
None	
Peripheral	√
Destruction	
Uncertain	
<b>G. RECOMMENDED MITIGATION</b>	
<ul style="list-style-type: none"> <li>• Site should be fenced off with access gate</li> <li>• Conservation management plan</li> </ul>	
<b>H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS</b>	
<ul style="list-style-type: none"> <li>• National Heritage Resources Act (Act no. 25 of 1999)</li> <li>• Permit from SAHRA</li> </ul>	
<b>I. PHOTOGRAPH</b>	
	
<p><b>Figure 24: The main stock enclosure of Site 17.</b></p>	

**12.18 Site 19**

<b>A. GENERAL SITE DESCRIPTION</b>		
<p>The site consists of an extensive Late Iron Age stone walled settlement with a large circular stock enclosure (12 metres in diameter) in the centre. Several secondary enclosures (calves and small stock) are attached to the central kraal on the outside. Extensive deposits were recorded in the main kraal. The stone walls average about 1 metre in height. Several possible midden deposits were recorded. The site is located in the lower lying floodplain west of the Steelpoort River. The site was recorded in association with Sites 17 and 18.</p>		
<b>B. SITE EVALUATION</b>		
<b>B1. HERITAGE VALUE</b>	<b>Yes</b>	<b>No</b>
<b>Historic Value</b>		
It has importance to the community or pattern of South Africa's history or precolonial history.	√	
It has strong or special association with the life or work of a person, group or organisation of		√





importance in the history of South Africa.			
It has significance relating to the history of slavery in South Africa.			√
<b>Aesthetic Value</b>			
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.			√
<b>Scientific Value</b>			
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.	√		
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.			√
It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.	√		
<b>Social Value</b>			
It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).			√
<b>Tourism Value</b>			
It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.			√
<b>Rarity Value</b>			
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.			√
<b>Representative Value</b>			
It is importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.	√		
<b>B2. REGIONAL CONTEXT</b>			
Other similar sites in the regional landscape.		√	
<b>B3. CONDITION OF SITE</b>			
Integrity of deposits/structures.	Stable, well preserved, intact deposits		
<b>C. SPHERE OF SIGNIFICANCE</b>	<b>High</b>	<b>Medium</b>	<b>Low</b>
International			√
National			√
Provincial		√	
Local	√		
Specific community	√		
<b>D. FIELD REGISTER RATING</b>			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			
Generally Protected A [High/Medium significance, mitigation]			√
Generally protected B [Medium significance, to be recorded]			
Generally Protected C [Low significance, no further action]			
<b>E. GENERAL STATEMENT OF SITE SIGNIFICANCE</b>			
Low			
Medium			
High			√
<b>F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT</b>			
None			
Peripheral			√
Destruction			
Uncertain			
<b>G. RECOMMENDED MITIGATION</b>			
<ul style="list-style-type: none"> <li>• The site should be fenced off with an access gate</li> <li>• Conservation management plan</li> </ul>			
<b>H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS</b>			

- National Heritage Resources Act (Act no. 25 of 1999)
- Permit from SAHRA

**12.19 Site 20**

<b>A. GENERAL SITE DESCRIPTION</b>					
<p>The site consists of an extensive settlement complex comprising a large square semi-enclosure (roughly 10 metres in length) as well as the remains (foundations) of several square houses (Figures 25 &amp; 26). The stone walls average about 1 metre in height. Several possible midden deposits and a lower grinding stone were recorded. The site is located in the lower lying floodplain west of the Steelpoort River. Due to their square layout these structures are associated with the later period of farm worker occupation. Several disturbances caused by prospecting activities on the site have damaged some of the structures.</p>					
<b>B. SITE EVALUATION</b>					
<b>B1. HERITAGE VALUE</b>			<b>Yes</b>	<b>No</b>	
<b>Historic Value</b>					
It has importance to the community or pattern of South Africa's history or precolonial history.			√		
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.				√	
It has significance relating to the history of slavery in South Africa.				√	
<b>Aesthetic Value</b>					
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.				√	
<b>Scientific Value</b>					
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.			√		
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.				√	
It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.			√		
<b>Social Value</b>					
It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).				√	
<b>Tourism Value</b>					
It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.				√	
<b>Rarity Value</b>					
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.				√	
<b>Representative Value</b>					
It is importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.			√		
<b>B2. REGIONAL CONTEXT</b>					
Other similar sites in the regional landscape.			√		
<b>B3. CONDITION OF SITE</b>					
Integrity of deposits/structures.			Dilapidated, damaged		
<b>C. SPHERE OF SIGNIFICANCE</b>		<b>High</b>	<b>Medium</b>	<b>Low</b>	
International				√	
National				√	
Provincial				√	
Local			√		
Specific community			√		
<b>D. FIELD REGISTER RATING</b>					
National/Grade 1 [should be registered, retained]					




Provincial/Grade 2 [should be registered, retained]	
Local/Grade 3A [should be registered, mitigation not advised]	
Local/Grade 3B [High significance; mitigation, partly retained]	
Generally Protected A [High/Medium significance, mitigation]	
Generally protected B [Medium significance, to be recorded]	√
Generally Protected C [Low significance, no further action]	
<b>E. GENERAL STATEMENT OF SITE SIGNIFICANCE</b>	
Low	
Medium	√
High	
<b>F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT</b>	
None	
Peripheral	√
Destruction	
Uncertain	
<b>G. RECOMMENDED MITIGATION</b>	
<ul style="list-style-type: none"> <li>• The site should be fenced off with an access gate</li> <li>• Conservation management plan</li> </ul>	
<b>H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS</b>	
<ul style="list-style-type: none"> <li>• National Heritage Resources Act (Act no. 25 of 1999)</li> <li>• Permit from SAHRA</li> </ul>	
<b>I. PHOTOGRAPHS</b>	
	
<p><b>Figure 25: The internal structure of the house walls</b></p>	
	
<p><b>Figure 26: The foundation of a house and one of the outer stone walls</b></p>	

12.20 Site 21

<b>A. GENERAL SITE DESCRIPTION</b>			
<p>This site consists of three graves associated with the foundation remains of a square house. The graves are lined with packed stones with an east-west orientation (headstone on the western side). The graves have no inscription on the headstone and are situated on the eastern slopes of <i>Tautes Heights</i> mountain range.</p> <p>The names and affiliation that were recorded in association with the graves are:</p> <ul style="list-style-type: none"> <li>• Ou-Douman Msweni;</li> <li>• Klein Douman; and</li> <li>• The wife of Ou-Douman Msweni</li> </ul> <p>The date of the burials could not be determined and no recent grave offerings were noted.</p>			
<b>B. SITE EVALUATION</b>			
<b>B1. HERITAGE VALUE</b>	<b>Yes</b>	<b>No</b>	
<b>Historic Value</b>			
It has importance to the community or pattern of South Africa's history or precolonial history.	√		
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.	√		
It has significance relating to the history of slavery in South Africa.			√
<b>Aesthetic Value</b>			
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.	√		
<b>Scientific Value</b>			
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.	√		
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.			√
It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.	√		
<b>Social Value</b>			
It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).	√		
<b>Tourism Value</b>			
It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.			√
<b>Rarity Value</b>			
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.			√
<b>Representative Value</b>			
It is importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.	√		
<b>B2. REGIONAL CONTEXT</b>			
Other similar sites in the regional landscape.		√	
<b>B3. CONDITION OF SITE</b>			
Integrity of deposits/structures.	Graves: Stable and complete		
<b>C. SPHERE OF SIGNIFICANCE</b>	<b>High</b>	<b>Medium</b>	<b>Low</b>
International			√
National			√
Provincial			√
Local	√		
Specific community	√		
<b>D. FIELD REGISTER RATING</b>			




National/Grade 1 [should be registered, retained]	
Provincial/Grade 2 [should be registered, retained]	
Local/Grade 3A [should be registered, mitigation not advised]	
Local/Grade 3B [High significance; mitigation, partly retained]	
Generally Protected A [High/Medium significance, mitigation]	√
Generally protected B [Medium significance, to be recorded]	
Generally Protected C [Low significance, no further action]	
<b>E. GENERAL STATEMENT OF SITE SIGNIFICANCE</b>	
Low	
Medium	
High	√
<b>F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT</b>	
None	
Peripheral	√
Destruction	
Uncertain	
<b>G. RECOMMENDED MITIGATION</b>	
<ul style="list-style-type: none"> <li>• Social consultation</li> <li>• The site should be fenced off with an access gate</li> <li>• Conservation management plan</li> </ul>	
<b>H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS</b>	
<ul style="list-style-type: none"> <li>• National Heritage Resources Act (Act no. 25 of 1999)</li> <li>• Human Tissue Act (Act 65 of 1983 as amended).</li> <li>• Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925)</li> <li>• Ordinance on Excavations (Ordinance no. 12 of 1980)</li> <li>• Local and regional provisions, laws and by-laws</li> <li>• Permit from SAHRA</li> </ul>	
<b>I. PHOTOGRAPHS</b>	
	
<p><b>Figure 27: Demarcated grave.</b></p>	

## 12.21 Site 22

<b>A. GENERAL SITE DESCRIPTION</b>			
<p>This site consists of four graves associated with the foundation remains of a square house. The graves are demarcated by heaps of packed stones with an east-west orientation (headstone on the western side). The graves have no inscription on their headstones. The graves are situated on terraces on the eastern slopes of <i>Tautes Heights</i> mountain range.</p> <p>The names and affiliation that were recorded in association with the graves are:</p> <ul style="list-style-type: none"> <li>• Petrus Msweni (Father);</li> <li>• Mabule Msweni (Son);</li> <li>• Koporaal Msweni (Son); and</li> <li>• Langman Msweni (Son)</li> </ul> <p>The date of the burials could not be determined and no recent grave offerings were noted.</p>			
<b>B. SITE EVALUATION</b>			
<b>B1. HERITAGE VALUE</b>	<b>Yes</b>	<b>No</b>	
<b>Historic Value</b>			
It has importance to the community or pattern of South Africa's history or precolonial history.	√		
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.		√	
It has significance relating to the history of slavery in South Africa.		√	
<b>Aesthetic Value</b>			
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.	√		
<b>Scientific Value</b>			
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.	√		
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.		√	
It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.	√		
<b>Social Value</b>			
It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).	√		
<b>Tourism Value</b>			
It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.		√	
<b>Rarity Value</b>			
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.		√	
<b>Representative Value</b>			
It is important in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.	√		
<b>B2. REGIONAL CONTEXT</b>			
Other similar sites in the regional landscape.	√		
<b>B3. CONDITION OF SITE</b>			
Integrity of deposits/structures.	Graves: Stable and complete		
<b>C. SPHERE OF SIGNIFICANCE</b>	<b>High</b>	<b>Medium</b>	<b>Low</b>
International			√
National			√
Provincial			√
Local	√		




Specific community	√	
<b>D. FIELD REGISTER RATING</b>		
National/Grade 1 [should be registered, retained]		
Provincial/Grade 2 [should be registered, retained]		
Local/Grade 3A [should be registered, mitigation not advised]		
Local/Grade 3B [High significance; mitigation, partly retained]		
Generally Protected A [High/Medium significance, mitigation]		√
Generally protected B [Medium significance, to be recorded]		
Generally Protected C [Low significance, no further action]		
<b>E. GENERAL STATEMENT OF SITE SIGNIFICANCE</b>		
Low		
Medium		
High		√
<b>F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT</b>		
None		
Peripheral		√
Destruction		
Uncertain		
<b>G. RECOMMENDED MITIGATION</b>		
<ul style="list-style-type: none"> <li>• Social consultation</li> <li>• Site should be fenced off with an access gate</li> <li>• Conservation management plan</li> </ul>		
<b>H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS</b>		
<ul style="list-style-type: none"> <li>• National Heritage Resources Act (Act no. 25 of 1999)</li> <li>• Human Tissue Act (Act 65 of 1983 as amended).</li> <li>• Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925)</li> <li>• Ordinance on Excavations (Ordinance no. 12 of 1980)</li> <li>• Local and regional provisions, laws and by-laws</li> <li>• Permit from SAHRA</li> </ul>		
<b>I. PHOTOGRAPHS</b>		
		
<p><b>Figure 28: Demarcated grave.</b></p>		

## 12.22 Site 23

<b>A. GENERAL SITE DESCRIPTION</b>				
This site consists of one isolated grave (Figure 29). The grave is marked by an upright stone but the family is in the process of erecting a formal granite headstone (Figure 30). The grave is situated on the eastern slopes of <i>Tautes Heights</i> mountain range.				
The inscribed name on the new headstone is:				
<ul style="list-style-type: none"> <li>Jantjie Sengalela (1900-02-27 – 1944-09-02)</li> </ul>				
This grave is clearly older than 60 years and therefore protected by the stipulations of the NHRA (Act 25 of 1999).				
<b>B. SITE EVALUATION</b>				
<b>B1. HERITAGE VALUE</b>			<b>Yes</b>	<b>No</b>
<b>Historic Value</b>				
It has importance to the community or pattern of South Africa's history or precolonial history.			√	
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.				√
It has significance relating to the history of slavery in South Africa.				√
<b>Aesthetic Value</b>				
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.			√	
<b>Scientific Value</b>				
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.			√	
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.				√
It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.			√	
<b>Social Value</b>				
It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).			√	
<b>Tourism Value</b>				
It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.				√
<b>Rarity Value</b>				
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.				√
<b>Representative Value</b>				
It is importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.			√	
<b>B2. REGIONAL CONTEXT</b>				
Other similar sites in the regional landscape.			√	
<b>B3. CONDITION OF SITE</b>				
Integrity of deposits/structures.		Grave: Stable		
<b>C. SPHERE OF SIGNIFICANCE</b>		<b>High</b>	<b>Medium</b>	<b>Low</b>
International				√
National				√
Provincial				√
Local		√		
Specific community		√		
<b>D. FIELD REGISTER RATING</b>				
National/Grade 1 [should be registered, retained]				
Provincial/Grade 2 [should be registered, retained]				



Local/Grade 3A [should be registered, mitigation not advised]	
Local/Grade 3B [High significance; mitigation, partly retained]	
Generally Protected A [High/Medium significance, mitigation]	√
Generally protected B [Medium significance, to be recorded]	
Generally Protected C [Low significance, no further action]	
<b>E. GENERAL STATEMENT OF SITE SIGNIFICANCE</b>	
Low	
Medium	
High	√
<b>F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT</b>	
None	
Peripheral	√
Destruction	
Uncertain	
<b>G. RECOMMENDED MITIGATION</b>	
<ul style="list-style-type: none"> <li>• Social consultation</li> <li>• Site should be fenced off with an access gate</li> <li>• Conservation management plan</li> </ul>	
<b>H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS</b>	
<ul style="list-style-type: none"> <li>• National Heritage Resources Act (Act no. 25 of 1999)</li> <li>• Human Tissue Act (Act 65 of 1983 as amended).</li> <li>• Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925)</li> <li>• Ordinance on Excavations (Ordinance no. 12 of 1980)</li> <li>• Local and regional provisions, laws and by-laws</li> <li>• Permit from SAHRA</li> </ul>	
<b>I. PHOTOGRAPHS</b>	
	
<p><b>Figure 29: Upright stone demarcating the position of the grave.</b></p>	