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Modderfontein H/A

TO:

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HEARTLAND PROPERTIES (AECI REAL ESTATE)

A HERITAGE IMPACT ASSESSMENT (HIA) STUDY FOR CELL  
13 ON PORTION 66 OF THE FARM MODDERFONTEIN 35IR IN  
THE GAUTENG PROVINCE OF SOUTH AFRICA

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## EXECUTIVE SUMMARY

This HIA study results from an earlier Phase I HIA that was done for the farm Modderfontein 351R during 1997. Heritage resources discovered in the study area include the remains of 'Anglo Boer War shooting ranges'. As Heartland Properties intends to develop the study area into the Greenstone Hill Township these shooting ranges will have to be destroyed. The aims with this HIA were to establish whether the remains can be related to shooting ranges that date from the past; to determine the level (or degree) of significance of the remains associated with the shooting ranges and to make recommendations as to the conservation of the remains – either *in situ* (as a site museum or in the form of a commemorative needle) or in a different format elsewhere (such as a museum display).

This study describes and illustrates the remains in the study area; undertakes a brief survey of literature that illuminates the historical context of the study area and shooting ranges; interviews spokespersons that either have a knowledge of the Anglo Boer War or of the remains that still occur in the study area and also uses evidence such as soil analysis data and the presence of (lead) bullets on the shooting ranges to determine a possible historical identity for the shooting ranges.

Several factors militate against the conservation of the shooting ranges. It would be difficult to motivate the indefinite and *in situ* conservation of the shooting ranges if they are not utilized for educational or other purposes even if in-depth research would prove that the shooting ranges have historical significance (e.g. an association with the South African Constabulary and/or the Modderfontein Commando). The shooting ranges cover a considerable surface and if preserved *in situ* would prevent the construction of a large number of houses in the Greenstone Hill Township. (The residents of the township would not necessarily appreciate the remains, which may be vandalised if a site museum is established). The preservation of a few inconspicuous heaps of soil and holes in the earth would be meaningless unless the shooting ranges are restored (at a considerable cost) to their former condition and utilised in one way or another.

If future in-depth research would prove that the shooting ranges have outstanding historical significance the vanished shooting ranges can be 'replaced' by representations. It will be possible to erect a memorial or commemorative tablet/needle in a strategic position in the new residential suburb that can explain the significance of the destroyed shooting ranges. The history (story) of the shooting ranges, if need to be told, can also be accommodated in displays in the Johannesburg War Museum or in AECI's museum.

It is recommended that the shooting ranges be destroyed to make provision for the development of the Greenstone Hill Township. Heartland Properties has to apply for a permit from the South African Heritage Resources Agency (Gauteng Head Quarters) for the destruction of the shooting ranges.

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## **1 INTRODUCTION**

This Heritage Impact assessment (HIA) study is a more detailed study resulting from an earlier Phase I HIA that was done for the farm Modderfontein 351R during 1997. This Phase I survey identified a wide range of heritage resources on Modderfontein 351R, those of which are relevant to this study are confined to a portion of Portion 66 of Modderfontein 351R (also referred to as Cell 13).

The heritage resources that were discovered on Portion 16 include heaps of soil and quarries (holes) that were identified as remains from shooting ranges that date from the Anglo Boer War. As Heartland Properties intends to develop Portion 66 of the farm Modderfontein into the Greenstone Hill Township, these shooting ranges will have to be destroyed in order to make way for the new residential development project.

## 2 TERMS OF REFERENCE

The original identification of the shooting ranges as 'Anglo Boer War shooting ranges' was done without providing conclusive historical evidence that the remains could be related to the Anglo Boer War. This study did not undertake an in-depth literature survey to establish the historical identity of the shooting ranges beyond any measure of a doubt. Available evidence from the literature, evidence collected from a spokesperson (oral evidence), soil analysis data and lead bullets collected on the shooting ranges indicate that the shooting ranges may date from the distant past and that they may have some historical significance. It was accepted that if the physical remains of the shooting ranges proved to be of outstanding significance it may be necessary to have the shooting ranges conserved indefinitely, either *in situ* (within the boundaries of the new residential area) or in a different format elsewhere (e.g. as a museum display in a provincial museum [Johannesburg War Museum] or in a private museum [such as AECI's museum]).

The aims with this HIA study were the following:

- To establish whether the remains that occur on Cell 13 can be related to shooting ranges that date from the past (Anglo Boer War) by investigating the remains that are associated with the shooting ranges; scrutinizing some historical sources; collecting oral evidence and using evidence such as soil analysis data and the presence of (lead) bullets on the shooting ranges.
- To determine the level (or degree) of significance of the material remains associated with the shooting ranges. This was done by means of descriptions and illustrations (photographs) of the various features of the two shooting ranges.
- To make recommendations as to the conservation of the remains – either *in situ* (as a site museum or in the form of a commemorative needle) or in a different format elsewhere (such as a museum display). If the remains are considered

worthy of conservation it can therefore be conserved *in situ*, or elsewhere, away from the study area.

(As the continued, indefinite conservation of the shooting ranges would require that these remains be maintained [and preferably] be utilized indefinitely, some management [and financial] implications are briefly spelled out).

### 3 METHODOLOGY

This study described and illustrated (the field survey) the remains that still occur on Cell 13; undertook a brief survey of literature that illuminated the historical context of the study area and shooting ranges; interviewed spokespersons that either have a knowledge of the Anglo Boer War or of the remains that still occur on Cell 13 and also used other evidence to determine the possible historical identity of the shooting ranges.

The field survey consisted of the investigation of all remains visible on the surface of Cell 13 that may have some relationship with the shooting ranges. These remains were briefly described and illustrated with photographs. The position of the remains was indicated (Figure 3), but not accurately mapped, as a GIS programme was not used. The co-ordinates of these remains were determined using a GPS and were tabulated together with a summary of the main characteristics of these features (Tables 1 & 2).

The survey of literature consulted a range of sources covering the Anglo Boer War in order to establish if the Boers (or British who occupied Modderfontein during the Anglo Boer War) could have established the shooting ranges on this part of Modderfontein. The literature review also contains a very brief history of Modderfontein itself in order to contextualise the wider area where the shooting ranges are located.

Spokespersons who either possessed an in-depth knowledge about the Anglo Boer War or who were acquainted with the general history of the area were interviewed regarding the possibility that the remains on Cell 13 may be those of shooting ranges that have a historical association with the Anglo Boer War.

Supplementary evidence included analysis of soil samples from the shooting ranges and bullets retrieved from the heaps of soil associated with the shooting ranges. Scientists from SRK collected this data during earlier studies of the Modderfontein study area. The bullets are now lost. The author of this report did not personally study the soil analysis but was informed about the results.

#### 4 THE STUDY AREA

The study area is located on Portion 66 of the farm Modderfontein 351R which is located to the west of Kempton Park in the Gauteng Province of South Africa (2628AA; 1:50 000). The two shooting ranges are confined to a piece of land that was identified as Cell 13 by the developers. It covers approximately 11,9 hectares of land and is located directly to the south of the Lakeside Hospital and the bend in the Modderfontein Road (R25) running from Kempton Park (West) in the north-east to Rembrandpark in the south-west (Figures 1 & 2).

The study area is located in an undulating plain and dips from the south to the north and from the west to the east. A drainage channel that runs from the south to the north is situated on its eastern border. The site is devoid of any trees and is currently covered with short grass that has recently burnt down providing clear visibility of the site's surface.

No archaeological remains or deposits were observed in association with the shooting ranges. Two copper bullet points were picked up near one of the heaps of soil in the First Shooting Range. Refuse on the site include modern rubbish such as concrete, bricks, a pair of takkies (shoes) and a zinc drum.

Figure 1 – The farm Modderfontein 351R where the two shooting ranges are located is situated to the west of Kempton Park in the Gauteng Province of South Africa (2628AA; 1:50 000).

#### STUDY AREA

Figure 2 - The study area is confined to Cell 13 which covers approximately 11,9ha of land on Portion 66 of the farm Modderfontein 351R. Several pieces of land (cells) on Modderfontein will be developed into the Greenstone Hill Township.

CELL 13

Figure 3 – Note the approximate location of the two shooting ranges that are located parallel to each other on the western side of the drainage channel that runs along the eastern perimeter of Cell 13.

Approximate location  
of the shooting ranges

## 5 THE HERITAGE IMPACT ASSESSMENT

The HIA made use of a survey of the study area (fieldwork), a survey of historical sources and interviews with spokespersons. The results of these investigations are now discussed.

### 5.1 The field survey

The remains on Cell 13 associated with the two shooting ranges occur in two groups located parallel to each other. The two groups of remains look very similar and merely comprise of heaps of soil and quarries (holes). A few odd (unidentifiable) features also occur. Some of the features are clearly young (or recent constructions) while others seem to be older. The preservation of the remains is not good as it is located in the open air and against two slopes. The drainage channel has already eroded into the perimeter of the most easterly located shooting range (First Shooting Range).

The remains associated with these two shooting ranges are now briefly described and illustrated with photographs. Tables 1 and 2 also provide a synopsis of the characteristics of these features and their co-ordinates.

#### 5.1.1 The First Shooting Range

This shooting range is located directly adjacent (to the west) of the drainage channel on the eastern perimeter of Cell 13 and consists of six features, set from the north to the south along the bank of the drainage channel (Table 1):

- Feature 1 consists of two heaps of soil that is located in the far north.
- Feature 2 consists of a circular soil platform or heap of soil with a limited number of stones and rocks.
- Feature 3 is a quarry or a hole that has been dug into the soil.

- Feature 4 is a second heap of soil.
- Feature 5 is the most southerly (or third) heap of soil in the First Shooting Range.

The most northerly and the most southerly heaps of soil are located approximately 300m from each other. The two northerly heaps of soil is located approximately 250m from the second heap of soil while the second and the third heaps of soil are located approximately 50 m from each other. All these features are located in a straight line of view, directly opposite each other. Only the circular heap of soil (that is located slightly to the east of the other features) is not confined to this straight line of view.

The distance between the most northerly and the most southerly heaps of soil (300m) and between the two most northerly heaps of soil (50m) to a large extent corresponds with the distances recorded between the same features (heaps of soil) occurring in the Second Shooting Range.

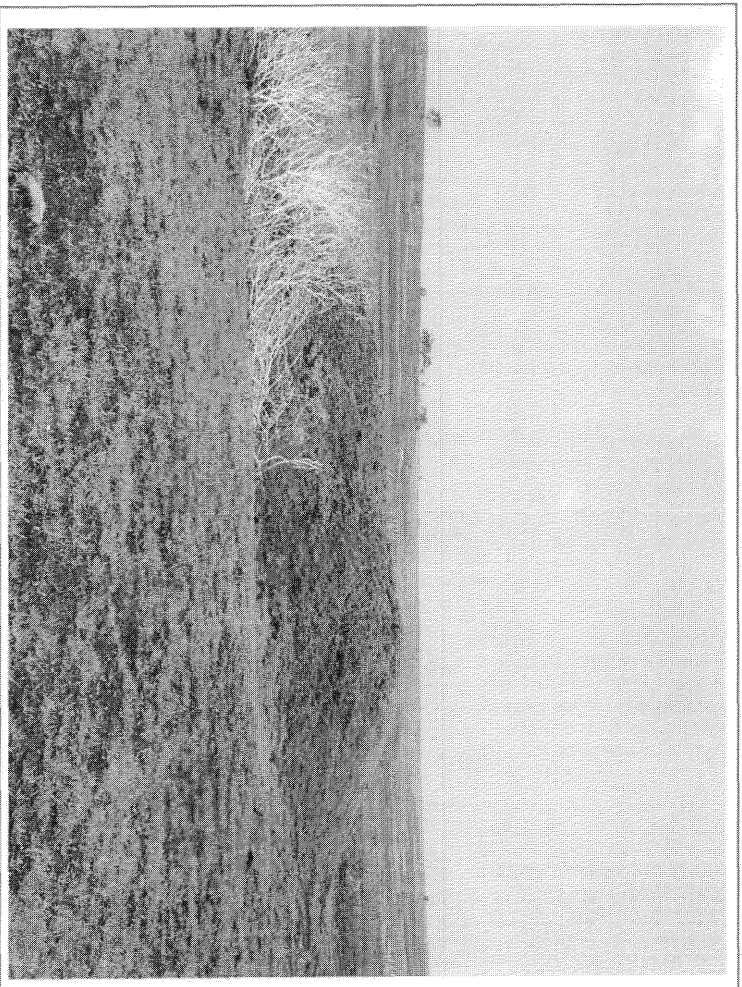
The various features of the First Shooting Range are now briefly described and illustrated with photographs.

#### Feature 1

This feature consists of two heaps of soil located in close proximity on the northern end of the First Shooting Range and close to the western bank of the drainage channel. The larger heap of soil measures approximately 14mx5m while the second heap, located 30m further to the north, consists of a long narrow heap of soil that extends into the drainage channel.

Considerable erosion has occurred around both heaps of soil and has established a network of dongas that is linked with the drainage channel.

The large heap of soil is higher than 1,0m and has well-rounded sides (slopes) that show little signs of weathering (Figure 4).



**Figure 4 - Feature 1 of the First Shooting Range is a high rising heap of soil with sides that show little signs of weathering (if this heap of soil dates from the Anglo Boer War - more than one hundred years ago).**

#### Feature 2

A circular heap of soil with a diameter of 7,0 m is located approximately midway between Feature 1 (heap of soil) and Feature 4 (second heap of soil). The circular heap of soil contains a limited number of small stones and larger rocks that are mostly concentrated along the western perimeter of the heap of soil. The heap of soil is approximately 50cm high with a flat surface and is located close to the edge of the drainage channel. This feature is not located in the straight line of view that marks the other features of the First Shooting Range (Figure 5).

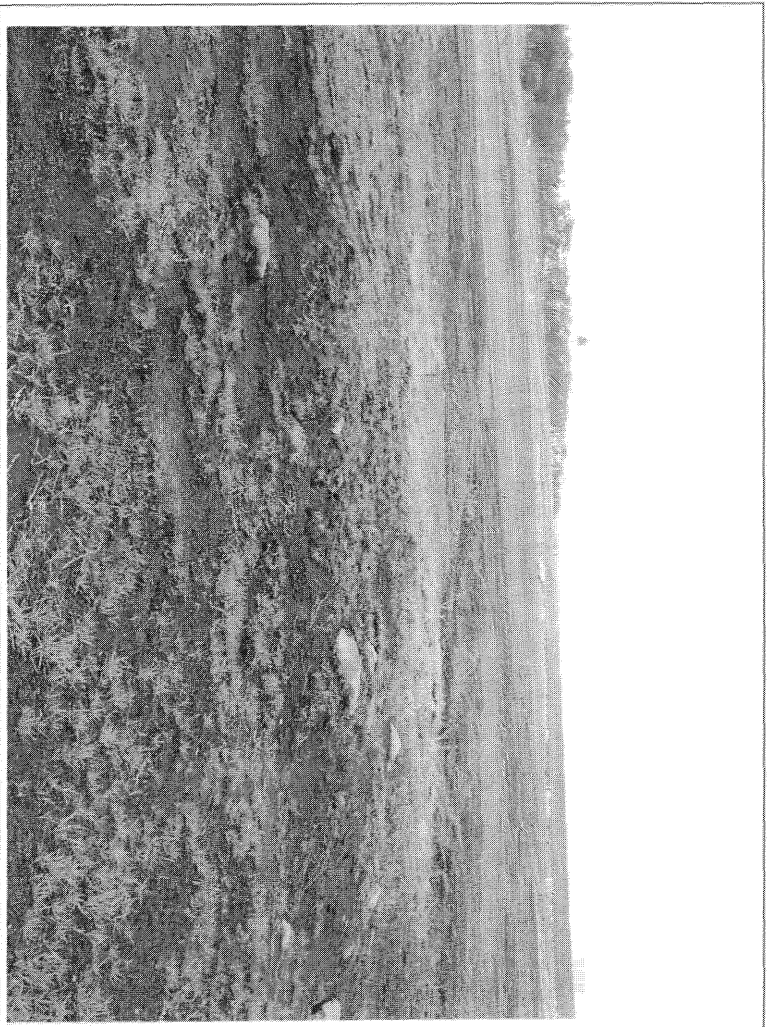


Figure 5 – The circular heap of soil located close to the drainage channel. Note the stones and rocks that are confined to the western edge of this feature. The purpose of this feature is not clear.

### Feature 3

Feature 3 comprises of a quarry or a dugout hole, which is smaller in size than a second quarry (Feature 5), located slightly further to the south (Figure 6).

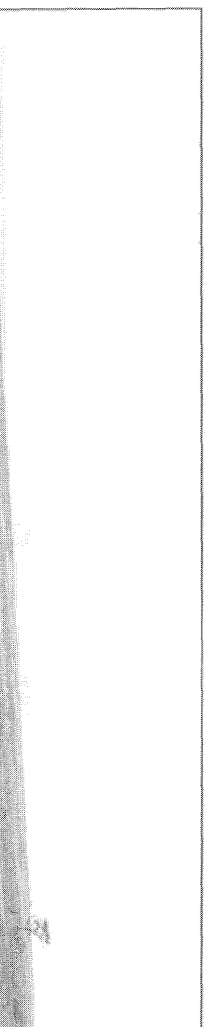


Figure 6 – One of two quarries that are part of the First Shooting Rang. (Was the soil that was used for the heaps of soil collected from these holes?)

Feature 4

This feature represents a second heap of soil that is higher than 1,0m and which measures approximately 14mx12m. It is situated some distance from the drainage channel.

Feature 5

This elongated quarry or dugout hole measures approximately 25mx10m. It has become part of the drainage channel as several eroded dongas connects it with the channel (Figure 7).

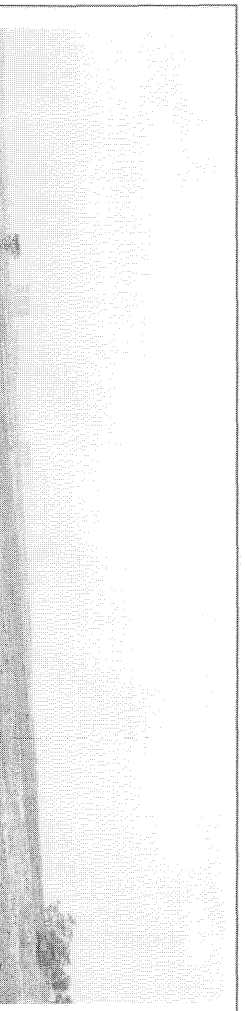


Figure 7 – Feature 5 is an elongated donga that runs via several eroded dongas into the drainage channel on the eastern perimeter of Cell 13.

#### Feature 6

Feature 6 represents a third heap of soil measuring approximately 24mx12m and which is higher than 1,0m. It has well-rounded sides that show little signs of weathering. This heap of soil is located furthest to the south of all the features that constitute the First Shooting Range (Figure 8).

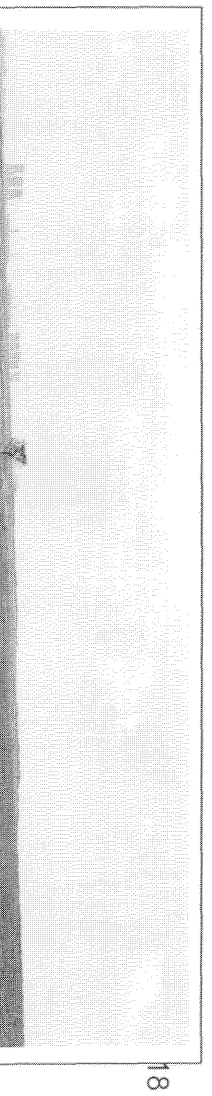


Figure 8 – A third heap of soil is located on the most southerly edge of the First Shooting Range. (This feature seems to be young as it shows little signs of weathering).

<b>SHOOTING RANGE 1</b>	<b>BRIEF DESCRIPTION</b>	<b>CO-ORDINATES</b>
Feature 1	Large high-rising heap of soil and elongated low-rising heap of soil	26° 06' 39" 28° 08' 59"
Feature 2	Circular soil platform with stones and rocks	26° 06' 45" 28° 08' 56"
Feature 3	Quarry or dug-out hole	26° 06' 47" 28° 08' 54"
Feature 4	Large high rising heap of soil	26° 06' 49" 28° 08' 52"
Feature 5	Elongated quarry that is connected with the drainage channel through several eroded dongas	26° 06' 50" 28° 08' 51"
Feature 6	Large high-rising heap of soil	26° 06' 51" 28° 08' 49"

**Tables 1 & 2 – Features and structures (mainly heaps of soil and holes) that are part of the First Shooting Range (above) and of the Second Shooting Range (below).**

<b>SHOOTING RANGE 2</b>	<b>BRIEF DESCRIPTION</b>	<b>CO-ORDINATES</b>
Feature 1	Two square hollows that are joined	26° 06' 43" 28° 08' 55"
Feature 2	Elongated trench	26° 06' 42" 28° 08' 53"
Feature 3	Two elongated heaps of soil – one with depressions on both sides	26° 06' 51" 28° 08' 50"
Feature 4	Two high (fresh) heaps of soil with adjoining holes and modern rubbish	26° 06' 51" 28° 08' 49"

### 5.1.2 The Second Shooting Range

The Second Shooting range is located parallel and to the west of the First Shooting Range. It is located further away (to the west) of the drainage channel and therefore located on higher ground than the First Shooting Range. This shooting range consists of four features, located from the north to the south (Table 2).

- Feature 1 consists of two square hollows that are joined together.
- Feature 2 is two elongated trenches.
- Feature 3 consists of two elongated heaps of soil – one with depressions on both sides.
- Feature 4 is two high heaps of soil with two adjoining quarries and modern rubbish.

All these features are located in a straight line of view. The distance between the most northerly and the most southerly heaps of soil (300m) and between the two most northerly heaps of soil (50m) largely corresponds with the distances that were recorded for these features at the First Second Shooting Range.

The various features of the Second Shooting Range are now briefly described and illustrated with photographs.

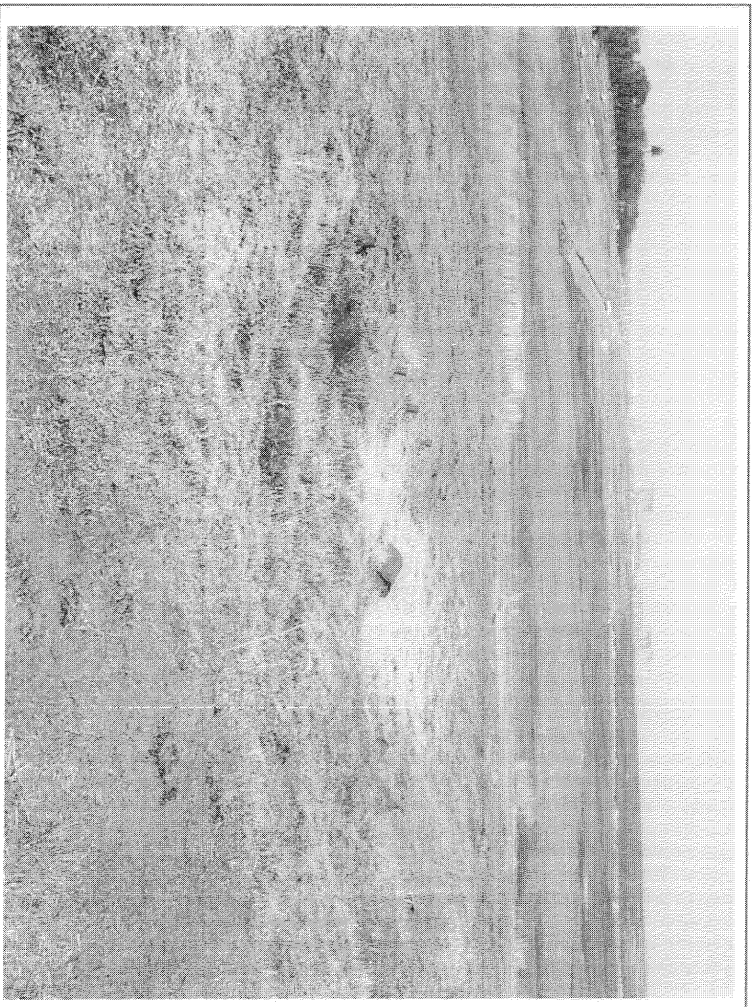
#### Feature 1

This feature consists of two square holes that are joined together. The large hole measures approximately 4.5mx9m and the smaller one 3.5mx3.5m. The lower parts of six steel pipes are located along the northern edge of the two square holes – five of the

steel pipes on the edge of the large hole and one of the steel pipes on the edge of the small hole.

The two square holes are also associated with an old corroded drum and steel sieve (Figure 9).

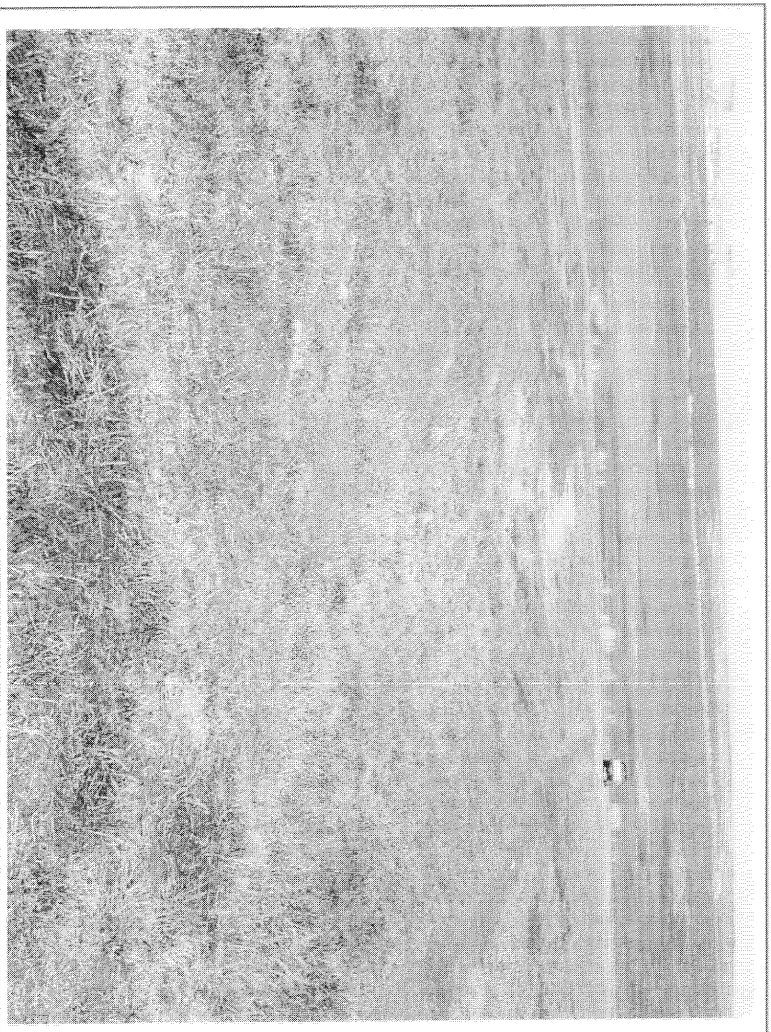
**Figure 9 – The two square holes that are joined together with the lower parts of steel pipes located on the northern edges of both features.**



## Feature 2

This feature is an elongated trench that is approximately 30m long, 8m wide and only 40cm deep. It has pieces of concrete laying in it. (Pieces of concrete are also scattered around the two square holes) (Figure 10).

**Figure 10 – The elongated shallow trench that is associated with pieces of concrete.**

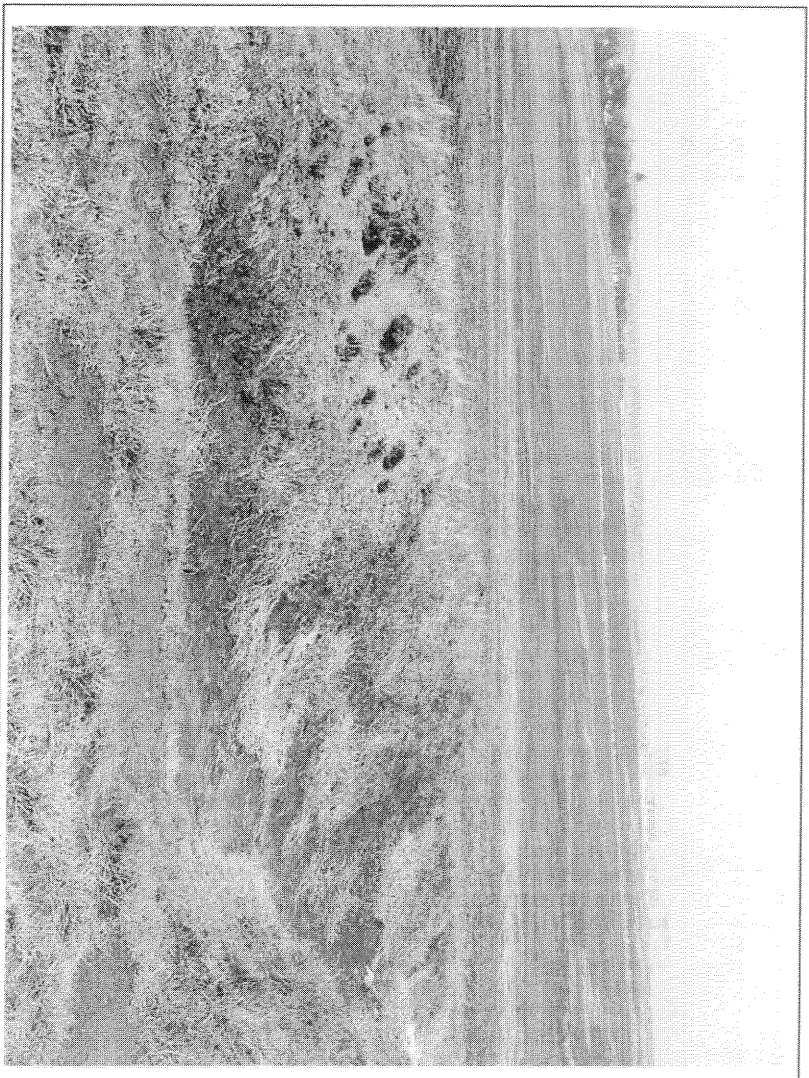


**Feature 3**

Feature 3 consists of two elongated heaps of soil located parallel with each other and approximately 30m from each other. Both heaps are approximately 25m long and 5m in widths. Both heaps are not higher than 80cm and both are severely eroded.

The most southerly of the two elongated heaps of soil have depressions on both sides (to the north and to the south) while the northern elongated heap of soil is associated with only one depression (or trench) on its southern side (Figure 11).

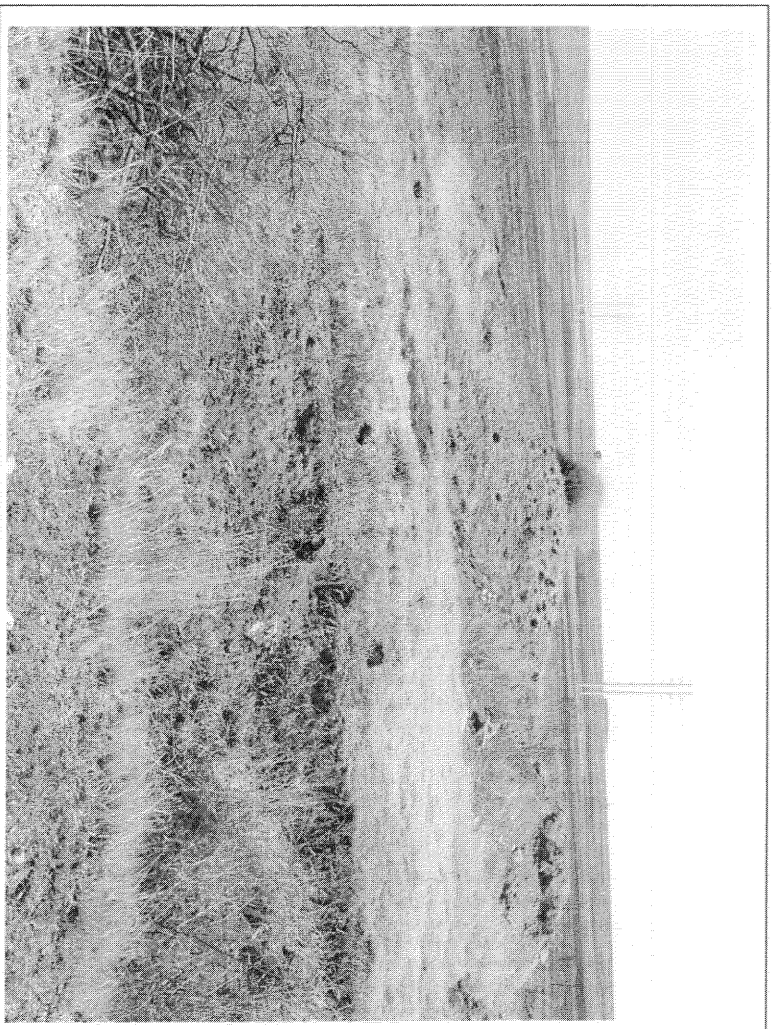
Figure 11 – One of the two elongated heaps of soil located next to each other. The northern heap has a depression (or trench) on its southern side.



#### Feature 4

Feature 4 consists of two fresh heaps of soil with two small adjacent quarries and freshly (or recently) dumped soil with rubbish such as a pair of takkies, pieces of cement and bricks (Figure 12).

Figure 12 – Two heaps of fresh soil, adjacent quarries and modern rubbish such as a pair of takkies, bricks and cement are the most southerly located features in the Second Shooting Range.



## 5.2 Brief historical background

### 5.2.1 The context of the study area

The context of the study area on the farm Modderfontein 351R is perhaps in some way related to the development of the first commercial explosive industry in South Africa which had its origins on this particular farm. The commercial explosives industry developed as result of Johannesburg's expanding gold mines that became the biggest market for explosives in South Africa during the 1888's. A company was created in 1894 to provide in this demand, namely 'De Zuid Afrikaanse Fabrieken voor Ontploffbare Stoffen Beperkt', shortly called the 'Dinamietmaatskappy'. The company's buildings were erected on the farms Modderfontein and Klipfontein, premises that covered a surface of 2 400hectares. This factory was the largest in South Africa and was established, from the onset, to be the biggest provider for commercially explosives in the world.

The factory complex was composed of four explosive factories and other plants. It provided work for 2 000 workers. When in full production it manufactured 80 000 cases of dynamite each weighing 25kg per annum. Production soon increased to 120 000 cases and then to 240 000 cases of explosives per annum.

Skilled workers from all over the world were imported to work in the factory or to build the complex plant. These immigrants largely contributed to the multi-cultural character that marks Johannesburg today.

Paul Kruger officially opened the Modderfontein explosives factory in 1896. The exorbitant profits that the Zuid Afrikaanse Republic (ZAR) enjoyed with the selling of explosives were indirectly responsible for the Jameson invasion of the ZAR and the First Anglo Boer War.

The British engaged the factories during the Second Anglo Boer War and Modderfontein became the headquarters of General Baden-Powell. The British-South African Explosives Company was established in 1902 and Modderfontein again started with production.

After the Anglo Boer War Baden Powell brought a semi-military force, the South African Constabulary on its feet. It was planned that this force should be something like the North-West Mounted Police of Canada. Its officers were men that were seconded from the regular army and Major-General Baden Powell was given the command. (Baden Powell when still a Colonel won great reputation during the siege of Mafekeng).

'Modderfontein became the South African Constabulary's first depot and Baden Powell's headquarters. He chose his men well. They were all fine horsemen and crack shots. He assembled them on the factory property and began to 'lick them into shape' for their new duties. It was not an easy task.' (Cartwright, 1964:88).

The increased demand for explosives led to the expansion of the factory during the following years. The company maintained its position as the worlds leading manufacturer of commercial explosives. The name was changed to African Explosives and Chemical Industries (AECI) in 1944. Modderfontein was proclaimed a town in 1986 with AECI as the most important industry and the largest owner of land. The contribution of German immigrants in particular gives the town an unmistakeable Germanic character.

### 5.2.1 Historical sources

Several historical sources on battles during the Anglo Boer War were consulted (see Bibliography). None of these, as well as the scholars consulted (see below), could confirm that any battle occurred on the farm Modderfontein during the Second Anglo Boer War. Battles were fought at Modder River (outside Ladysmith) and at

Modderspruit (North West Cape), but no battle occurred on the farm Modderfontein in the Transvaal Republic.

### 5.3 Oral evidence

Spokespersons were consulted about the question whether the shooting ranges on Modderfontein could have been used during the Anglo Boer War. These spokespersons included persons who had a long association with the study area and scholars who have an intimate knowledge about the Anglo Boer Wars.

According to Mr Ernst van der Merwe the Modderfontein Commando who was established in 1912 may have used the shooting ranges. However, by 1954 when he was a member of the Modderfontein Commando, the Commando did not use these shooting ranges. (Mr. Van der Merwe was also a member of other shooting clubs in the area and lived near the shooting ranges for many decades).

Scholars agree that the Boers did not use 'elaborate' shooting ranges such as those that existed at Modderfontein to practise their firing skills. Numerous accounts indicate that the Boers did practised rifle shooting but that these activities occurred haphazard and not on formally constructed shooting ranges.

There is little doubt that Baden Powell's Constabulary must have used shooting ranges as this force was well trained. It is therefore not impossible that the South African Constabulary may have used one (or both) of the shooting ranges after the Anglo Boer War. It is also not impossible that the Modderfontein Commando may have continued to use these shooting rang after their establishment in 1912.

### 5.4 Other supplementary evidence

According to a soil analysis that was done by SRK Consulting the shooting ranges contained high levels of lead. Various types of bullets (now regrettably lost) were also sieved from some of the heaps of soil. These included bullets that were manufactured

from lead. Old rifles such as the Lee Enfield (used by the British forces) and Mausers (used by the Boers) during the Anglo Boer War used bullets that were manufactured from lead. The South African Constabulary also used Lee Enfield rifles while the Modderfontein Commando after their establishment (in 1912) would also have used rifles that shot bullets made from lead.

## 6 CONSIDERING THE SIGNIFICANCE OF THE SHOOTING RANGES

The field survey and evidence such as lead bullets and high levels of lead in the soil of the shooting ranges indicate that the heaps of soil, quarries (holes) and few odd features (raised soil platform, linked square holes) represent the remains of one and perhaps two shooting ranges. The bullet points that were picked up near one of the heaps of soil were identified as those of .303 rifles that were used in more recent times. Lead bullets collected during the sampling of soil (but now lost) for analysis indicate that the shooting ranges are old (historical) and were used decades ago – perhaps by the South African Constabulary and/or by the Modderfontein Commando during the early decades of the 20<sup>th</sup> century. Spokespersons could not confirm this assumption. However, based on the available evidence it must be accepted that the shooting ranges have historical significance.

The significance of the remains associated with the shooting ranges and the establishment of a new residential area over these remains should therefore be considered. The remains of the two shooting ranges look very similar. It merely comprises of heaps of soil (symmetrical or elongated) and quarries (deep or shallow holes). Odd features include a circular heap of soil (First Shooting Range) and two adjoining square holes (Second Shooting Range). Features such as the high-rising heaps of soil (higher than 1,0m) are young and date from the recent past. Some of these heaps may have been topped on older heaps of soil. The modern rubbish found with one of the structures (Feature 4, Second Shooting Range) indicates that some of these heaps may have been dumped in the recent past. Some of the heaps and quarries also show little signs of weathering (e.g. Feature 1, First Shooting Range) that indicate that the original shooting range(s) may have been altered to a large extent. Some of the remains currently in place on the shooting ranges therefore date from the recent past and do not necessarily represent the original shooting ranges any more.

Erosion along the eastern edge of the First Shooting Range is taking its toll. There is little doubt that this shooting range, if not maintained purposefully, will eventually become part of the network of dongas that are currently extending into the drainage channel on the eastern perimeter of this site. The heaps of soil on both shooting ranges will gradually disappear while the holes (trenches?) will either be filled-in or washed open by erosion activities.

The current unattractive (unimposing) shooting ranges will therefore gradually disappear to assume the general character of the landscape if not deliberately maintained. It must be emphasised that both shooting ranges have little aesthetic appeal. These features will generate little, if any, interest when they are restored or being utilized in any way.

Several factors militate against the indefinite conservation of these remains, namely:

- It would be difficult to motivate the indefinite and *in situ* conservation of these remains if the latter are not utilized for educational or other purposes even if in-depth research would prove that the shooting ranges have historical significance such as an association with the South African Constabulary and/or the Modderfontein Commando.
- The shooting ranges cover a considerable surface and if preserved *in situ* would prevent the construction of a large number of houses in the Greenstone Hill Township. (The residents of the township would not necessarily appreciate the remains and may vandalise any site museum that may be established).
- The preservation of a few inconspicuous heaps of soil heaps and holes in the earth would be meaningless unless the shooting ranges are restored (at a considerable cost) to their former condition and utilised in one way or another.

If future in-depth research (by who ever for what ever purpose) would conclusively prove that the shooting ranges (by then destroyed) have outstanding historical significance the vanished shooting ranges can be 'replaced' by representations commemorating the once existence of these features. It will be possible to erect a memorial (commemorative tablet/needle or plaque) in a strategic position in the new residential suburb that can explain the significance of the destroyed shooting ranges. The history (story) of the shooting ranges, if need to be told, can also be accommodated in displays such as in the Johannesburg War Museum or in AECI's museum. Such displays can be cross-referenced to the memorial tablet/needle.

## **7 CONCLUSION AND RECOMMENDATIONS**

It is recommended that the shooting ranges be destroyed in order to make provision for the development of the Greenstone Hill Township.

Heartland Properties has to apply for a permit from the South African Heritage Resources Agency (Gauteng Head Quarters) for the destruction of the shooting ranges.

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## 8 SELECTED BIBLIOGRAPHY

- Behrens, J.P. 2000. *Ethnic identity and process. European migrant workers at Modderfontein dynamite factory*. Unpublished MA Dissertation. Department of Archaeology. University of the Witwatersrand.
- Cartwright, A.P. 1964. *The dynamite company*. Purnell
- Cloete, P.G. 2000. *The Anglo-Boer War, a chronology*. JP van der Walt & Son (Ltd): Pretoria.
- Martin Mars & Evans. 2000. *Encyclopedia of the Boer War 1899-1902*. ABC-CCIO Inc: Santa Barbara.
- Pretorius, F. *Life on commando during the Anglo Boer War 1899-1902*. Human & Rossouw: Cape Town.
- Standard Encyclopaedia of Southern Africa*. Volume 7 (LIT-MUS) 1970. Kaapstad: Nasionale Opvoedkundige Uitgewery.

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