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**A REPORT ON A PHASE 1 AIA  
FOR PROPOSED DEVELOPMENT ON  
PORTIONS 1, 5, 7, 8 AND 9 OF THE FARM TWEELAAGTE 175JP  
NEAR PILANESBERG, NORTHWEST PROVINCE**

For:

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**REPORT: APAC016/42**

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A handwritten signature in black ink, appearing to be 'A. Pelser', located at the bottom center of the page.

## SUMMARY

APelser Archaeological Consulting was appointed by EcoPartners (Pty) Ltd to conduct a Phase 1 Archaeological Impact Assessment (AIA) for proposed development on Portions 1, 5, 7, 8 & 9 of the farm Tweelaagte 175IP near Pilanesberg in the Northwest Province. The areas surrounding the development section is characterized by rural residential developments, mining and other infrastructure, while portions of the study area itself were utilized for agriculture in the past. Some sections still contain original bushveld/thornveld and are densely vegetated which made visibility and access slightly difficult.

Previous work in the larger geographical area was utilized in the background study. A number of sites of cultural heritage (archaeological & historical) were identified in the study area during the assessment, while a number is also known to exist in the larger geographical area.

The initial report provided a discussion on the results of the physical assessment that was undertaken, as well as the background research conducted. Previous work in the larger geographical area is referred to as well. The assessment report also provided a number of recommendations in terms of required mitigation measures and the way forward at the end. *Based on comments received from SAHRA re the work done and on the location of intended Boreholes, the first report is amended here to include these here. It needs to be mentioned that at the time of the first assessment the position of boreholes and other possible related infrastructure was not available as yet. The borehole locations discussed in this document is also still in the conceptual stage.*

**From a Cultural Heritage point of view the development should however be allowed to continue taking cognizance of the recommendations provided at the end of the report.**

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## **1. INTRODUCTION**

APelser Archaeological Consulting was appointed by EcoPartners (Pty) Ltd to conduct a Phase 1 Archaeological Impact Assessment (AIA) for proposed development on Portions 1, 5, 7, 8 & 9 of the farm Tweelaagte 175IP near Pilanesberg in the Northwest Province. The areas surrounding the development section is characterized by rural residential developments, mining and other infrastructure, while portions of the study area itself were utilized for agriculture in the past. Some sections still contain original bushveld/thornveld and are densely vegetated which made visibility and access slightly difficult.

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The initial report provided a discussion on the results of the physical assessment that was undertaken, as well as the background research conducted. Previous work in the larger geographical area is referred to as well. The assessment report also provided a number of recommendations in terms of required mitigation measures and the way forward at the end. Based on comments received from SAHRA re the work done and on the location of intended Boreholes, the first report is amended here to include these here.

The client indicated the location and boundaries of the study area and the assessment focused on this demarcated portion of land.

## **2. TERMS OF REFERENCE**

The Terms of Reference for the study, based on the methodology employed by Heritage Impact Assessors, were to:

1. Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located in the proposed development area;
2. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value;
3. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions;
4. Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources;
5. Review applicable legislative requirements;

## **3. LEGISLATIVE REQUIREMENTS**

Aspects concerning the conservation of cultural resources are dealt with mainly in two acts. These are the National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998).

### **3.1 The National Heritage Resources Act**

According to the above-mentioned act the following is protected as cultural heritage resources:

- a. **Archaeological artifacts, structures and sites older than 100 years**
- b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography
- c. Objects of decorative and visual arts
- d. Military objects, structures and sites older than 75 years
- e. Historical objects, structures and sites older than 60 years
- f. Proclaimed heritage sites
- g. **Grave yards and graves older than 60 years**
- h. Meteorites and fossils
- i. Objects, structures and sites of scientific or technological value.

The National Estate includes the following:

- a. Places, buildings, structures and equipment of cultural significance
- b. Places to which oral traditions are attached or which are associated with living heritage
- c. Historical settlements and townscapes
- d. Landscapes and features of cultural significance
- e. Geological sites of scientific or cultural importance
- f. **Sites of Archaeological and palaeontological importance**
- g. **Graves and burial grounds**
- h. Sites of significance relating to the history of slavery
- i. Movable objects (e.g. archaeological, palaeontological, meteorites, geological specimens, military, ethnographic, books etc.)

A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon. **An Archaeological Impact Assessment (AIA) only looks at archaeological resources.** An HIA must be done under the following circumstances:

- a. The construction of a linear development (road, wall, power line, canal etc.) exceeding 300m in length
- b. The construction of a bridge or similar structure exceeding 50m in length
- c. Any development or other activity that will change the character of a site and exceed 5 000m<sup>2</sup> or involve three or more existing erven or subdivisions thereof
- d. Re-zoning of a site exceeding 10 000 m<sup>2</sup>
- e. Any other category provided for in the regulations of SAHRA or a provincial heritage authority

### **Structures**

Section 34 (1) of the mentioned act states that no person may demolish any structure or part thereof which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

A structure means any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith.

Alter means any action affecting the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or the decoration or any other means.

### **Archaeology, palaeontology and meteorites**

Section 35(4) of this act deals with archaeology, palaeontology and meteorites. The act states that no person may, without a permit issued by the responsible heritage resources authority (national or provincial):

- a. destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
- b. destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
- c. trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
- d. bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.
- e. alter or demolish any structure or part of a structure which is older than 60 years as protected.

**The above mentioned may only be disturbed or moved by an archaeologist, after receiving a permit from the South African Heritage Resources Agency (SAHRA). In order to demolish such a site or structure, a destruction permit from SAHRA will also be needed.**

### **Human remains**

Graves and burial grounds are divided into the following:

- a. ancestral graves
- b. royal graves and graves of traditional leaders
- c. graves of victims of conflict
- d. graves designated by the Minister
- e. historical graves and cemeteries
- f. human remains

In terms of Section 36(3) of the National Heritage Resources Act, no person may, without a permit issued by the relevant heritage resources authority:

- a. destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- b. destroy, damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or

- c. bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation, or any equipment which assists in the detection or recovery of metals.

Human remains that are less than 60 years old are subject to provisions of the Human Tissue Act (Act 65 of 1983) and to local regulations. Exhumation of graves must conform to the standards set out in the **Ordinance on Excavations (Ordinance no. 12 of 1980)** (replacing the old Transvaal Ordinance no. 7 of 1925).

Permission must also be gained from the descendants (where known), the National Department of Health, Provincial Department of Health, Premier of the Province and local police. Furthermore, permission must also be gained from the various landowners (i.e. where the graves are located and where they are to be relocated to) before exhumation can take place.

Human remains can only be handled by a registered undertaker or an institution declared under the **Human Tissues Act (Act 65 of 1983 as amended)**.

**Unidentified/unknown graves are also handled as older than 60 until proven otherwise.**

### **3.2 The National Environmental Management Act**

This act states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made.

Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

## **4. METHODOLOGY**

### **4.1 Survey of literature**

A survey of available literature, including previous heritage studies in the area, was undertaken in order to place the development area in an archaeological and historical context. The sources consulted in this regard are indicated in the bibliography.

### **4.2 Field survey**

The assessment was conducted according to generally accepted HIA/AIA practices and in this case was aimed at identifying and recording any possible cultural heritage resources that might be located in the development area, assessing their archaeological & historical significance, while taking into consideration the negative impacts of the proposed development on these resources. The location/position of all sites, features and objects are determined by means of a Global Positioning System (GPS) where possible, while photographs are also taken where needed.

### 4.3 Oral histories

People from local communities are sometimes interviewed in order to obtain information relating to the surveyed area. It needs to be stated that this is not applicable under all circumstances. When applicable, the information is included in the text and referred to in the bibliography.

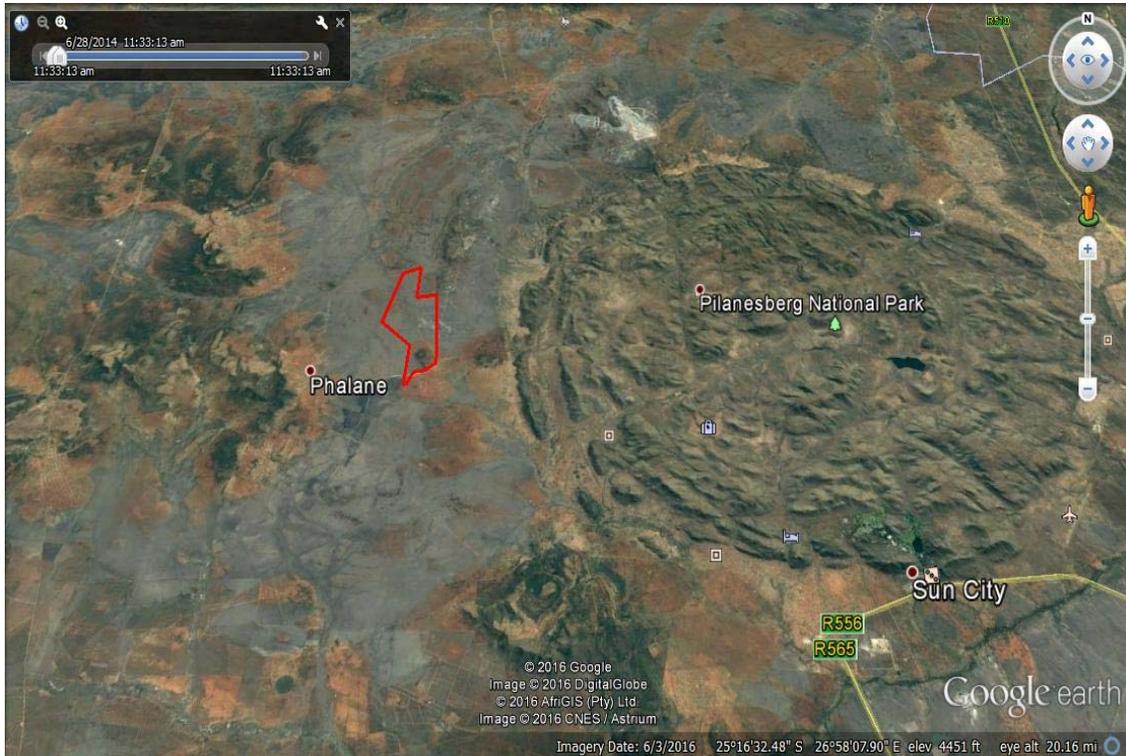
### 4.4 Documentation

All sites, objects, features and structures identified are documented according to the general minimum standards accepted by the archaeological profession. Co-ordinates of individual localities are determined by means of the Global Positioning System (GPS). The information is added to the description in order to facilitate the identification of each locality.

## 5. DESCRIPTION OF THE AREA

The study area where the proposed development is situated is on Portions 1, 5, 7, 8 & 9 of the farm Tweelaagte 175IP, close to the Pilanesberg area in the Northwest Province. The study area is bordered by various existing rural residential settlements such as Phalane and Witrandjie, while mining developments and earlier agricultural activities have impacted on some portions of Tweelaagte in the past as well. If any sites, features or objects of cultural heritage (archaeological and/or historical) did occur in these sections in the past it would have been destroyed or severely disturbed as a result.

Sections of the area are characterized by dense stretches of thorn trees and sekelbos, while some parts are open, old ploughed fields with a generally flat topography. The thorn trees and sekelbos are mainly concentrated around the foot of a very prominent hill in the study area, which also contained an extensive Later Iron Age stone-walled settlement all around it. This find will be discussed in more detail further on in the report.



**Fig.1: General view of study area location in red polygon (Google Earth 2016).**



**Fig.2: Closer view of study area location. Note the prominent hill lower center of the image (Google Earth 2016). Existing mining activities are visible in the central north western section.**



**Fig.3: General view of a section of the area towards the prominent hill in the area.**



**Fig.4: Another view. Note the dense vegetation in this section approaching the hill.**



**Fig.5: A view of an open section of the study area.  
This is part of the old ploughed fields.**



**Fig.7: A view from the top of the hill. The dense sekelbos  
& thorn tree around the foot of it is visible, as well as some stone walling.**



**Fig.8: Another view from on top of the hill.  
The large sections of old ploughed fields are visible here.**



**Fig.9: An existing sand quarry in the south-eastern section  
have also impacted on a section of the area in the recent past.**

## **6. DISCUSSION**

A short background to the archaeology & history of the larger geographical and specific study area is given in the section below before the results of the fieldwork will be discussed.

The Stone Age is the period in human history when lithic (stone) material was mainly used to produce tools. In South Africa the Stone Age can be divided basically into three periods. It is however important to note that these dates are relative and only provide a broad framework for interpretation. A basic sequence for the South African Stone Age (Lombard et.al 2012) is as follows:

Earlier Stone Age (ESA) up to 2 million – more than 200 000 years ago

Middle Stone Age (MSA) less than 300 000 – 20 000 years ago

Later Stone Age (LSA) 40 000 years ago – 2000 years ago

It should also be noted that these dates are not a neat fit because of variability and overlapping ages between sites (Lombard et.al 2012: 125).

There are no known Stone Age sites or features in the specific study area, and no material were identified during the area assessment. It should be noted that it is possible that single out of context tools could be located in the area. The closest known Stone Age sites in the larger geographical area are located in the so-called Magaliesberg Research Area and at a site called Kruger Cave. These sites are all dated to the Later Stone Age (Bergh 1999: 4).

The Iron Age is the name given to the period of human history when metal was mainly used to produce artifacts. In South Africa it can be divided in two separate phases according to Van der Ryst & Meyer (Bergh 1999: 96-98), namely:

Early Iron Age (EIA) 200 – 1000 A.D.

Late Iron Age (LIA) 1000 – 1850 A.D.

Huffman (2007: xiii) however indicates that a Middle Iron Age should be included. His dates, which now seem to be widely accepted in archaeological circles, are:

Early Iron Age (EIA) 250 – 900 A.D.

Middle Iron Age (MIA) 900 – 1300 A.D.

Late Iron Age (LIA) 1300 – 1840 A.D.

The closest known Iron Age sites to the area are those of Broederstroom (EIA) and known LIA sites in the Pilanesberg area (Bergh 1999: 7; Morton 2013: 15-26). A large Late Iron Age stone-walled settlement site was identified in the area during the assessment and will be discussed later on in the report. By the early 19<sup>th</sup> century the Kgatla were settled in the area (Bergh 1999: 10), while the Ndebele of Mzilikazi moved into the area by the 1830's during the so-called difaqane (Bergh 1999: 11).

Based on his pottery research, Huffman indicates that the following LIA pottery traditions could be present in the area. This includes the Madikwe; Olifantspoort; Rooiberg; Uitkomst & Buispoort facies of the Urewe Tradition, dating to alternatively AD1500-1700; AD1650 – 1750; AD1650-1820 & AD1700-1840 (Huffman 2007: 171; 175; 191; 199 & 203).

The historical period started with the moving into the area of people who could read and write (European travellers, missionaries, the Voortrekkers). The first Europeans to move into and close to the study area were the groups of Moffat & Archbell and Schoon & McLuckie (both in 1829), followed by Cornwallis Harris in 1836 and then by David Livingstone in 1847 (Bergh 1999: 12-13). They were followed closely by the Voortrekkers and European farmers (p. 14).

The oldest map that could be located in the Chief Surveyor General's database ([www.csg.dla.gov.za](http://www.csg.dla.gov.za)) dates to 1886 and indicates that Tweelaagte was then numbered as 180 was first surveyed and mapped for one Joseph Guttmann in May 1886 (CSG Document 10IFUJ01). A 1920 map of Portion 1 shows that it was surveyed in November 1920 and indicates that the whole of the original farm was granted by Deed on 10 August 1866 to one

J.J.Robbertse & Son (CSG Document 10IFVV01). No cultural heritage sites could be identified from these maps.

Two recent historical Cemetery Sites were identified in the study area and will be discussed in the next section.

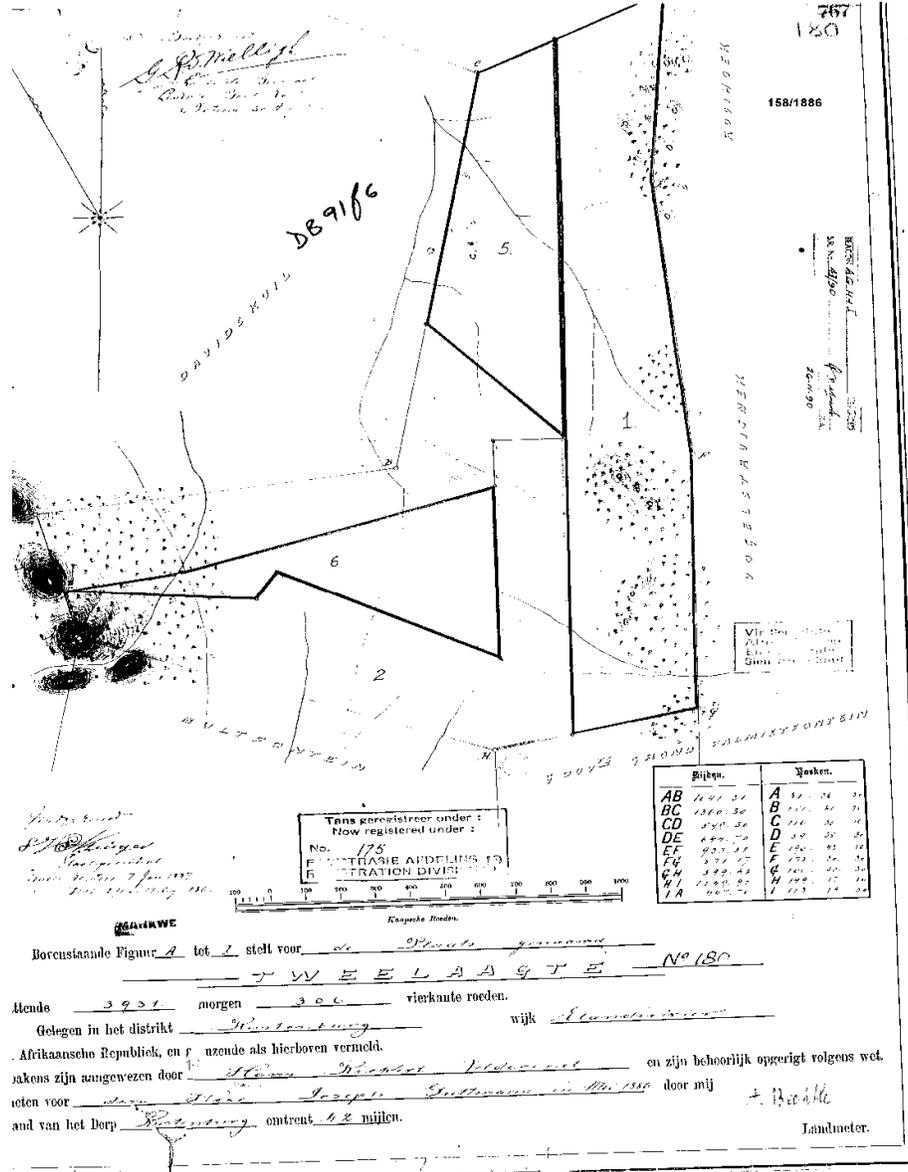


Fig.10: 1886 map of Tweelaagte (www.csg.dla.gov.za).

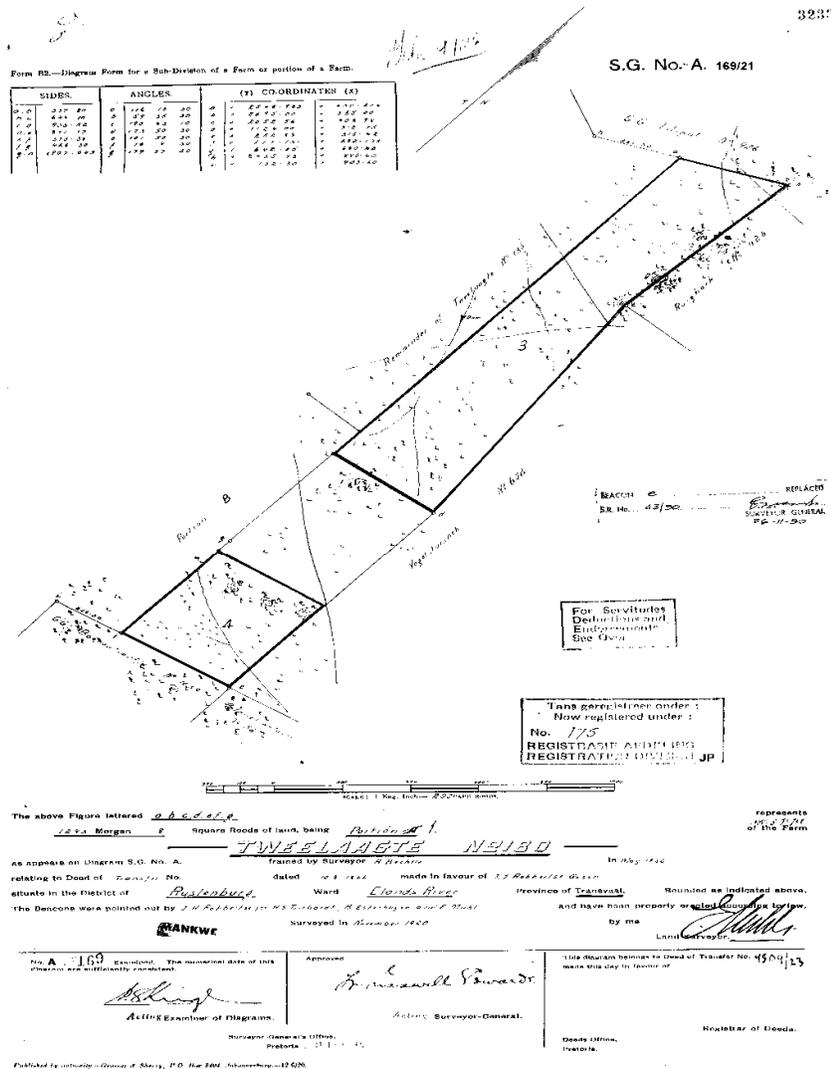


Fig.11: 1920 map of Tweelaagte (www.csg.dla.gov.za).

## Results of the Assessment

### Site 1 - Cemetery

This cemetery contains 15 graves, with 8 of these stone packed without headstones and 7 with formal headstones. The oldest grave (with an identifiable date of death) is 1962, with the most recent being February 2016. It is possible that these graves (as are the ones on Site) are associated with the small rural settlement situated close by.

**GPS Location:** S25.25721 E26.90241

**Cultural Significance:** High – Graves always carry a High Significance rating

**Heritage Significance:** Grade III: Other heritage resources of local importance and therefore worthy of conservation

**Field Ratings:** Local Grade IIIB: should be included in the heritage register and may be mitigated (high/ medium significance).

**Mitigation:** If the graves cannot be protected in situ and is to be negatively impacted then they could be exhumed and relocated after detailed consultation with possible descendants have been concluded and permits have been obtained from various local, provincial and National government departments. The first prize would however be to preserve and Manage the Site and graves intact.



**Fig.12: Site 1 Graves.**

### **Site 2 - Cemetery**

This site contains around 25 graves, with most stone-packed. One grave has a wrought-iron (old bed?) as headstone, while 3 others have formal granite headstones. The graves all belong to the Raborifi/Raborife family (two different spellings of the name seen), with the oldest identifiable date of death being 1985 and the youngest 2002. The others might be older or younger however. During the assessment, Mr. Abel Raborifi approached us and indicated that both the graves and the little settlement here belongs to his family, and that they have been the owners of 3 portions of Tweelaagte for a long time. He also indicated that the stone-walled settlement was here when they arrived in the area, but that his grandfather (who has passed away already) would have been able to give more history on this.

**GPS Location:** S25.25719 E26.89764

**Cultural Significance:** High – Graves always carry a High Significance rating

**Heritage Significance:** Grade III: Other heritage resources of local importance and therefore worthy of conservation

**Field Ratings:** Local Grade IIIB: should be included in the heritage register and may be mitigated (high/ medium significance).

**Mitigation:** If the graves cannot be protected in situ and is to be negatively impacted then they could be exhumed and relocated after detailed consultation with possible descendants have been concluded and permits have been obtained from various local, provincial and National government departments. The first prize would however be to preserve and Manage the Site and graves intact.



**Fig.13: Some of the stone-packed graves on Site 2.**



**Fig.14: Another section of the Site 2 Graveyard.**



**Fig.15: Another view of the graves on Site 2.**

### **Site 3 – LIA Stone Walled Settlement**

This stone-walled settlement most likely dates to between AD1650 and AD1800, and consists of large circular enclosures (cattle kraals), smaller enclosures for huts, granary stands, agricultural terraces and other features. Cultural material in the form of upper and lower grinding stones as well as scatters of pottery were also recorded throughout the settlement. The site covers an extensive area located all around the base and foot of the hill and could possibly be termed a mega-site. Various GPS coordinates were taken to indicate the position and extent of the site.

It is recommended that should the proposed development continue and if it is to impact on this site that detailed archaeological measures be implemented to negate this impact. This would include the archaeological excavation, mapping and drawing of the site. An excavation permit for this work, as well as an eventual destruction permit from SAHRA, will have to be applied for. If it is possible for the proposed development to avoid any negative impacts it is proposed that comprehensive Cultural Heritage Resources Management Plan for the site be drafted, submitted and implemented.

**GPS Location:** S25.25816 E26.89951; S25.25843 E26.90011; S25.26409 E26.90085; S25.26509 E26.90184; S25.26573 E26.90220; S25.26751 E26.90369; S25.25985 E26.89934 & S25.25861 E26.89799

**Cultural Significance:** Medium - High

**Heritage Significance:** Grade III: Other heritage resources of local importance and therefore worthy of conservation

**Field Ratings:** Local Grade IIIB: Should be included in the heritage register and may be mitigated (high/ medium significance).

**Mitigation:** Should the proposed development continue and if it is to impact on this site detailed archaeological measures be implemented to negate this impact. This would include the archaeological excavation, mapping and drawing of the site. An excavation permit for this

work, as well as an eventual destruction permit from SAHRA, will have to be applied for. If it is possible for the proposed development to avoid any negative impacts it is proposed that comprehensive Cultural Heritage Resources Management Plan for the site be drafted, submitted and implemented.



**Fig.16: Large stone-walled enclosure.**



**Fig.17: View from the hill. Some stone walling is visible.**



**Fig.18: A hut enclosure.**



**Fig.19: More stone walling.**



**Fig.20: A Lower grinding stone.**



**Fig.21: Part of the rim of a ceramic vessel.**



**Fig.22: A fragment of decorated pottery.**



**Fig.23: Possible terracing.**



**Fig.24: Another large enclosure.**



**Fig.25: A possible granary stand.**



**Fig.26: Aerial view showing the location of the sites identified (Google Earth 2016).**

Although these were the only sites found in the area during the assessment, there is always a possibility that some sites, feature and material could have been missed. This would include low stone-packed or unmarked graves. It is however envisaged that the sites found would be the more significant cultural heritage resources in the study area, as most of the rest of the area consists of old ploughed fields and areas that have been extensively disturbed (the mining areas) in the recent past. The proposed development should however, from a Heritage point of view, therefore be allowed to continue, taking cognizance of the recommendations put forward at the end of this report.

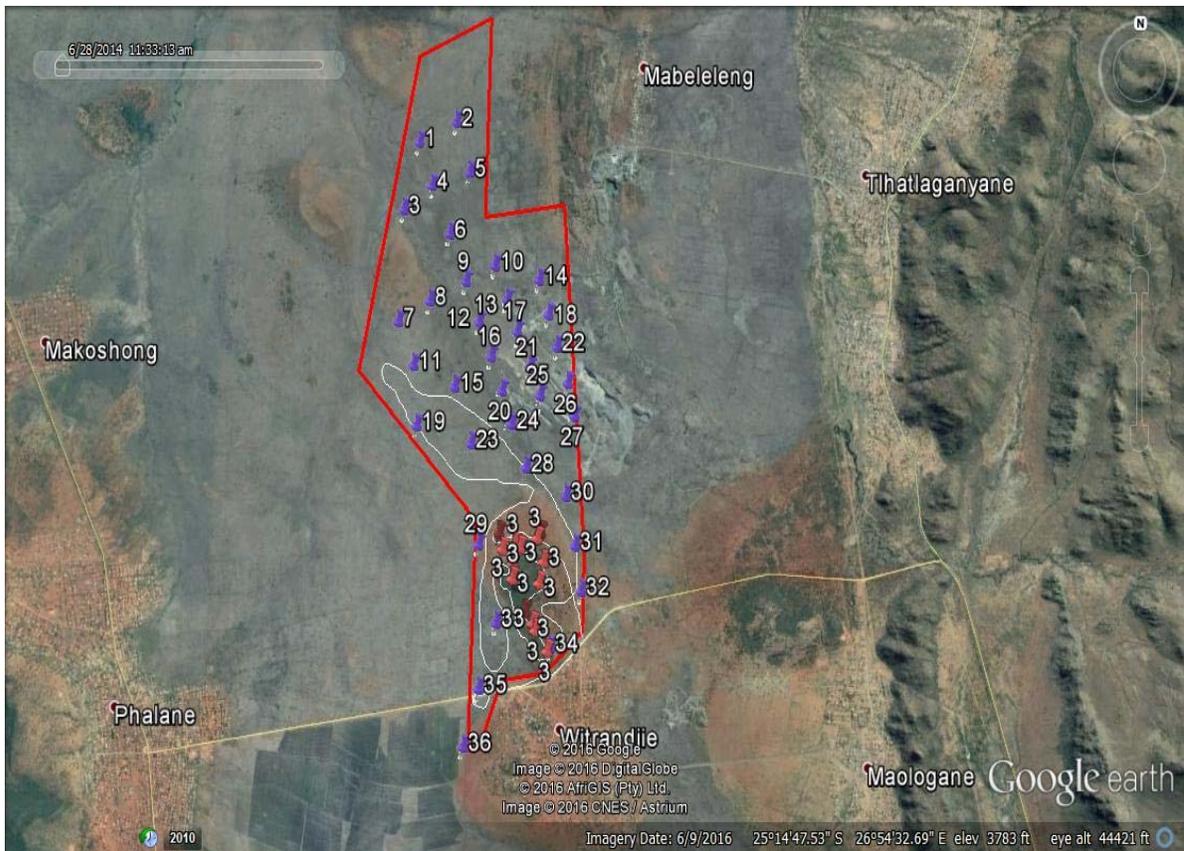
### **Comments on Track Logs and Discussion of impacts of Borehole on Heritage Sites**

Although the whole area (based on the track logs) was seemingly not surveyed in its entirety (especially the most extreme north and northwest sections) it does not mean it had not been assessed. Based on experience of working in similar areas and visual observations these sections have been extensively disturbed in the past through agriculture and some mining and it is also located in flat, turf areas where the likelihood of any archaeological sites/features being present is doubtful. This would have been areas where grazing and crop growing would have taken place, with settlement taking place close to and around the hills and koppies in the area as is the case in point at Tweelaagte as well.

In terms of the Boreholes and the possible impact of these on the archaeological and possible other cultural heritage in the area it should firstly be mentioned that at the time of the initial field survey that the positions of the intended boreholes and other possible related infrastructure was not available. The Borehole positions (see Google Image below) are also at this stage in conceptual stage. There are a total of 36 planned boreholes across the study area, with most

located in the northern and northwestern sections of the study area (Boreholes 1 – 28). Boreholes 29 – 36 is located in the central and southern sections, with only Boreholes 33 & 34 being in close proximity to and in the area where Site 3 (the LIA Stone Walled settlement) is situated.

It is therefore recommended that no drilling at Boreholes 33 and 34 be allowed as there is a high likelihood of these activities will impact on the archaeological site and other invisible features and material associated with it. SAMACOR has also indicated their willingness to not do any drilling at these locations. Drilling at the other locations can however be conducted with the understanding that the subterranean nature of historical and/or archaeological sites, features or material (including unmarked burials) always make it a possibility that cultural resources could be uncovered and disturbed during activities. Should this happen work at these locations should be halted and an expert be called in to investigate and recommend on the way forward. This could result in delays and the work at specific Borehole locations being stopped indefinitely.



**Fig.27: Aerial view showing location of intended Boreholes in the area (Google Earth 2016).**

## 7. CONCLUSIONS AND RECOMMENDATIONS

In conclusion it is possible to say that the Phase 1 Archaeological Impact Assessment (AIA) for proposed development on Portions 1, 5, 7, 8 & 9 of the farm Tweelaagte 175IP near Pilanesberg in the Northwest Province was conducted successfully. The areas surrounding the development section is characterized by rural residential developments, mining and other

infrastructure, while portions of the study area itself were utilized for agriculture in the past. Some sections still contain original bushveld/thornveld and are densely vegetated which made visibility and access slightly difficult.

The initial report provided a discussion on the results of the physical assessment that was undertaken, as well as the background research conducted. Previous work in the larger geographical area is referred to as well. The assessment report also provided a number of recommendations in terms of required mitigation measures and the way forward at the end. Based on comments received from SAHRA re the work done and on the location of intended Boreholes, the first report is amended here to include these here. The sites recorded during the assessment included two grave sites (Sites 1 & 2) and an extensive LIA Stone-walled settlement (Site 3). All three sites have a High Significance and mitigation measures – should these site be impacted by the proposed development – are recommended.

For the graves the following recommendations are made:

- (a) **If the graves cannot be protected in situ and is to be negatively impacted then they could be exhumed and relocated after detailed consultation with possible descendants have been concluded and permits have been obtained from various local, provincial and National government departments. The first prize would however be to preserve and Manage the Site and graves intact.**

For the LIA Stone-walled settlement site the following recommendations are given:

- (a) **Should the proposed development continue and if it is to impact on this site detailed archaeological measures be implemented to negate this impact. This would include the archaeological excavation, mapping and drawing of the site. An excavation permit for this work, as well as an eventual destruction permit from SAHRA, will have to be applied for. If it is possible for the proposed development to avoid any negative impacts it is proposed that comprehensive Cultural Heritage Resources Management Plan for the site be drafted, submitted and implemented.**

*Based on comments received from SAHRA in terms of the initial Phase 1 work done and On the location of intended Boreholes, the first report is amended here to include this. It needs to be mentioned that at the time of the first assessment the position of boreholes and other possible related infrastructure was not available as yet. The Borehole positions are also at this stage in conceptual stage. There are a total of 36 planned boreholes across the study area, with most located in the northern and northwestern sections of the study area (Boreholes 1 – 28). Boreholes 29 – 36 is located in the central and southern sections, with only Boreholes 33 & 34 being in close proximity to and in the area where Site 3 (the LIA Stone Walled settlement) is situated.*

*It is therefore recommended that no drilling at Boreholes 33 and 34 be allowed as there is a high likelihood of these activities will impact on the archaeological site and other invisible features and material associated with it. SAMACOR has also indicated their willingness to not do any drilling at these locations. Drilling at the other locations can however be conducted with the understanding that the subterranean nature of historical and/or archaeological sites, features or material (including unmarked burials) always make it a possibility that cultural resources could be uncovered and disturbed during*

*activities. Should this happen work at these locations should be halted and an expert be called in to investigate and recommend on the way forward. This could result in delays and the work at specific Borehole locations being stopped indefinitely.*

The development should be allowed to continue taking the above recommendations in mind. However, the subterranean presence of archaeological and/or historical sites, features or artifacts are always a distinct possibility and this aspect needs to be kept in mind at all times. This could include unknown and unmarked burials. If during any development activities, if any sites, features and objects of a cultural heritage (archaeological or historical) nature, are exposed, an expert should be called in to investigate and suitable mitigation measures are implemented. All development in these areas should be halted until the situation had been satisfactorily resolved.

## 8. REFERENCES

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## APPENDIX A

### DEFINITION OF TERMS:

**Site:** A large place with extensive structures and related cultural objects. It can also be a large assemblage of cultural artifacts, found on a single location.

**Structure:** A permanent building found in isolation or which forms a site in conjunction with other structures.

**Feature:** A coincidental find of movable cultural objects.

**Object:** Artifact (cultural object).

(Also see Knudson 1978: 20).

## **APPENDIX B**

### **DEFINITION/ STATEMENT OF HERITAGE SIGNIFICANCE:**

- Historic value: Important in the community or pattern of history or has an association with the life or work of a person, group or organization of importance in history.
- Aesthetic value: Important in exhibiting particular aesthetic characteristics valued by a community or cultural group.
- Scientific value: Potential to yield information that will contribute to an understanding of natural or cultural history or is important in demonstrating a high degree of creative or technical achievement of a particular period
- Social value: Have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.
- Rarity: Does it possess uncommon, rare or endangered aspects of natural or cultural heritage.
- Representivity: Important in demonstrating the principal characteristics of a particular class of natural or cultural places or object or a range of landscapes or environments characteristic of its class or of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province region or locality.

## APPENDIX C

### SIGNIFICANCE AND FIELD RATING:

#### Cultural significance:

- Low A cultural object being found out of context, not being part of a site or without any related feature/structure in its surroundings.
- Medium Any site, structure or feature being regarded less important due to a number of factors, such as date and frequency. Also any important object found out of context.
- High Any site, structure or feature regarded as important because of its age or uniqueness. Graves are always categorized as of a high importance. Also any important object found within a specific context.

#### Heritage significance:

- Grade I Heritage resources with exceptional qualities to the extent that they are of national significance
- Grade II Heritage resources with qualities giving it provincial or regional importance although it may form part of the national estate
- Grade III Other heritage resources of local importance and therefore worthy of conservation

#### Field ratings:

- |                                      |  |
|--------------------------------------|--|
| i. National Grade I significance     | should be managed as part of the national estate   |
| ii. Provincial Grade II significance | should be managed as part of the provincial estate   |
| iii. Local Grade IIIA                | should be included in the heritage register and not be mitigated (high significance)         |
| iv. Local Grade IIIB                 | should be included in the heritage register and may be mitigated (high/ medium significance) |
| v. General protection A (IV A)       | site should be mitigated before destruction (high/ medium significance)                      |
| vi. General protection B (IV B)      | site should be recorded before destruction (medium significance)                             |
| vii. General protection C (IV C)     | phase 1 is seen as sufficient recording and it may be demolished (low significance)          |

## APPENDIX D

### PROTECTION OF HERITAGE RESOURCES:

#### **Formal protection:**

National heritage sites and Provincial heritage sites – Grade I and II

Protected areas - An area surrounding a heritage site

Provisional protection – For a maximum period of two years

Heritage registers – Listing Grades II and III

Heritage areas – Areas with more than one heritage site included

Heritage objects – e.g. Archaeological, palaeontological, meteorites, geological specimens, visual art, military, numismatic, books, etc.

#### **General protection:**

Objects protected by the laws of foreign states

Structures – Older than 60 years

Archaeology, palaeontology and meteorites

Burial grounds and graves

Public monuments and memorials

## **APPENDIX E**

### **HERITAGE IMPACT ASSESSMENT PHASES**

1. Pre-assessment or Scoping phase – Establishment of the scope of the project and terms of reference.
2. Baseline Assessment – Establishment of a broad framework of the potential heritage of an area.
3. Phase I Impact Assessment – Identifying sites, assess their significance, make comments on the impact of the development and makes recommendations for mitigation or conservation.
4. Letter of Recommendation for Exemption – If there is no likelihood that any sites will be impacted.
5. Phase II Mitigation or Rescue – Planning for the protection of significant sites or sampling through excavation or collection (after receiving a permit) of sites that may be lost.
6. Phase III Management Plan – For rare cases where sites are so important that development cannot be allowed.