



Archaetnos Culture & Cultural
Resource Consultants
BK 98 09854/23

**A REPORT ON THE ASSESSMENT OF GRAVE SITES AT SCAW METALS,
GERMISTON, CITY OF EKURHULENI IN THE GAUTENG PROVINCE**

For:

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REPORT: **AE01668V**

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SUMMARY

Archaetnos cc was requested by Scaw Metals to assess a grave site which is inside their property and where future development is being planned. The aim was to advise and make recommendations in this regard. A Heritage Impact Assessment (HIA) was not conducted, since the site was already known. However the same principles as that of an HIA was implemented.

The site is located in Germiston, within the City of Ekurhuleni. This is in the Gauteng Province.

The site was visited in order to obtain contextual information. This was coupled with information known about the proposed development on site, applicable legislation and the best practice of dealing with graves.

Scaw Metals indicated that they wish to preserve the site in situ. However there is uncertainty about the exact size thereof. This needed to be established and the risk involved in encountering more graves had to be assessed. In order to facilitate preservation and prevent possible future delays during the implementation of the development, appropriate mitigation measures are recommended. The development can continue once the mitigation has been done.

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1. INTRODUCTION

Archaetnos cc was requested by Scaw Metals to assess a grave site which is inside of their property and where future development is being planned. The proposed development is for a waste site.

The aim was to advise and make recommendations in this regard. A Heritage Impact Assessment (HIA) was not conducted, since the site was already known. However the same principles as that of an HIA was implemented.

The grave site was visited by the author of this report in order to obtain contextual information and do the assessment. Scaw Metals indicated that they wish to preserve the site in situ. It is however contemplated that these sites might have to be exhumed for the development of the property.

The grave site is located at Scaw Metals in Germiston, within the City of Ekurhuleni. This is in the Gauteng Province (Figure 1-3). The property description is Erf 634, Junction Hill Extension 2 Township, Registration Division I.R.

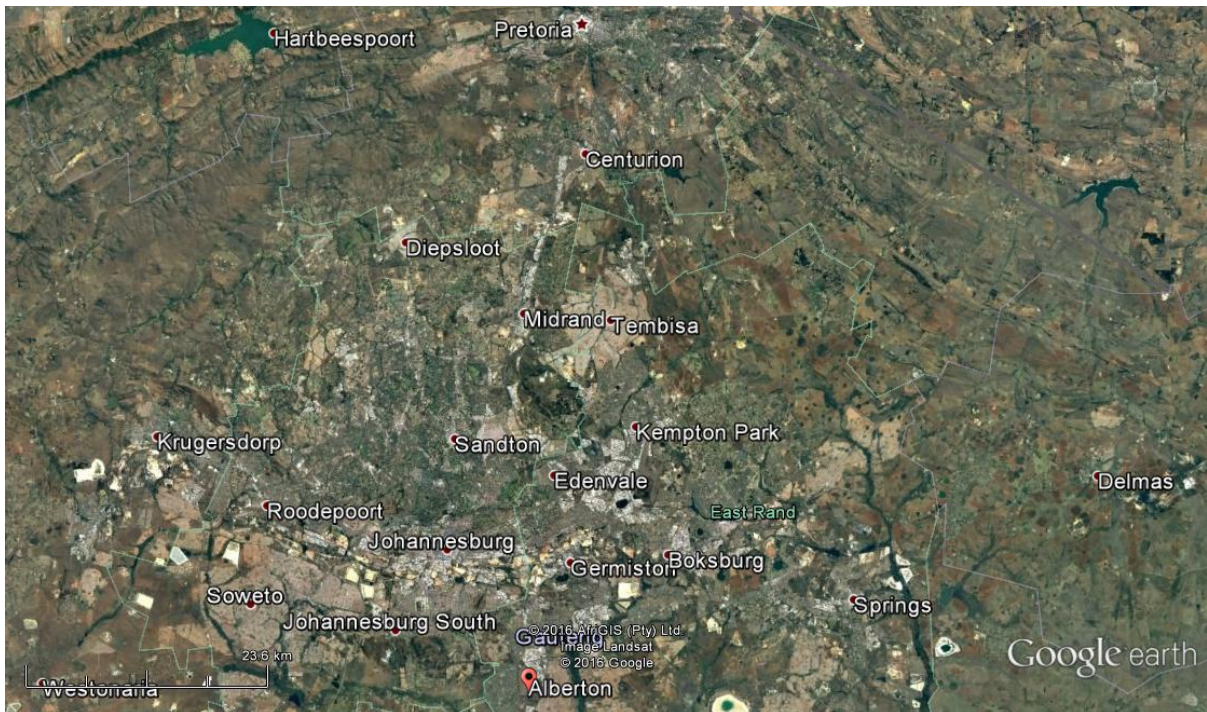


Figure 1: Location of Germiston in Gauteng. North reference is to the top.

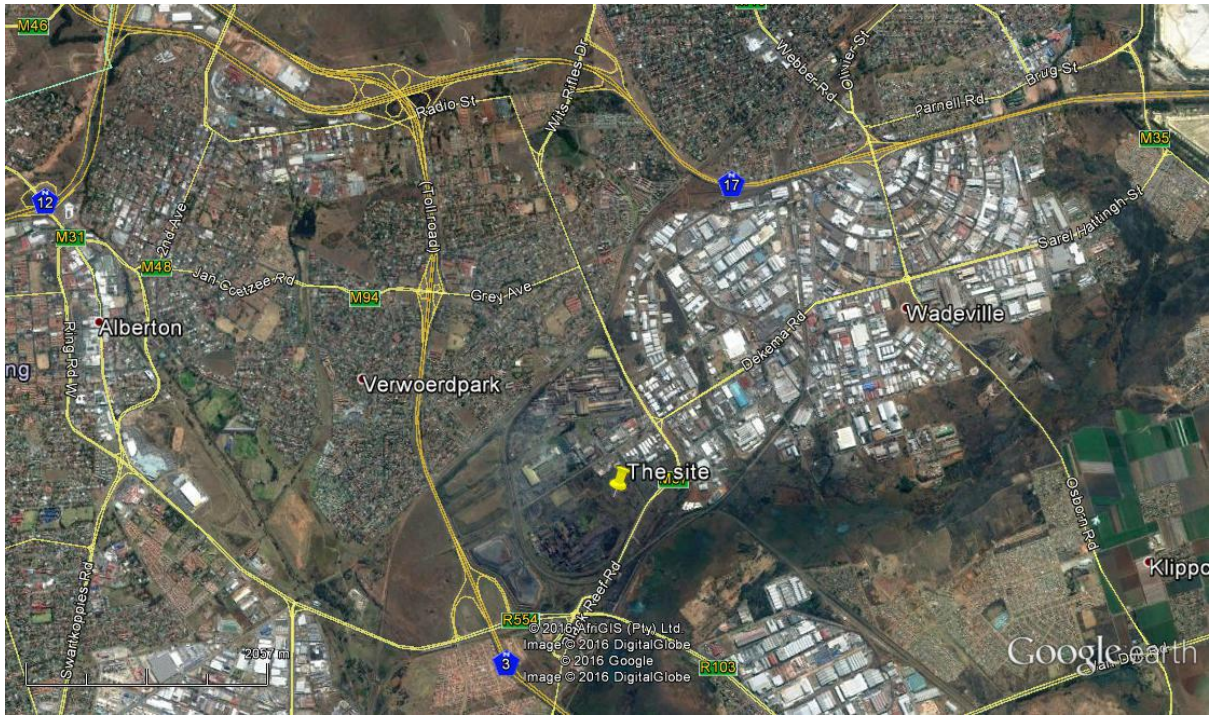


Figure 2: Location of the site within Germiston.

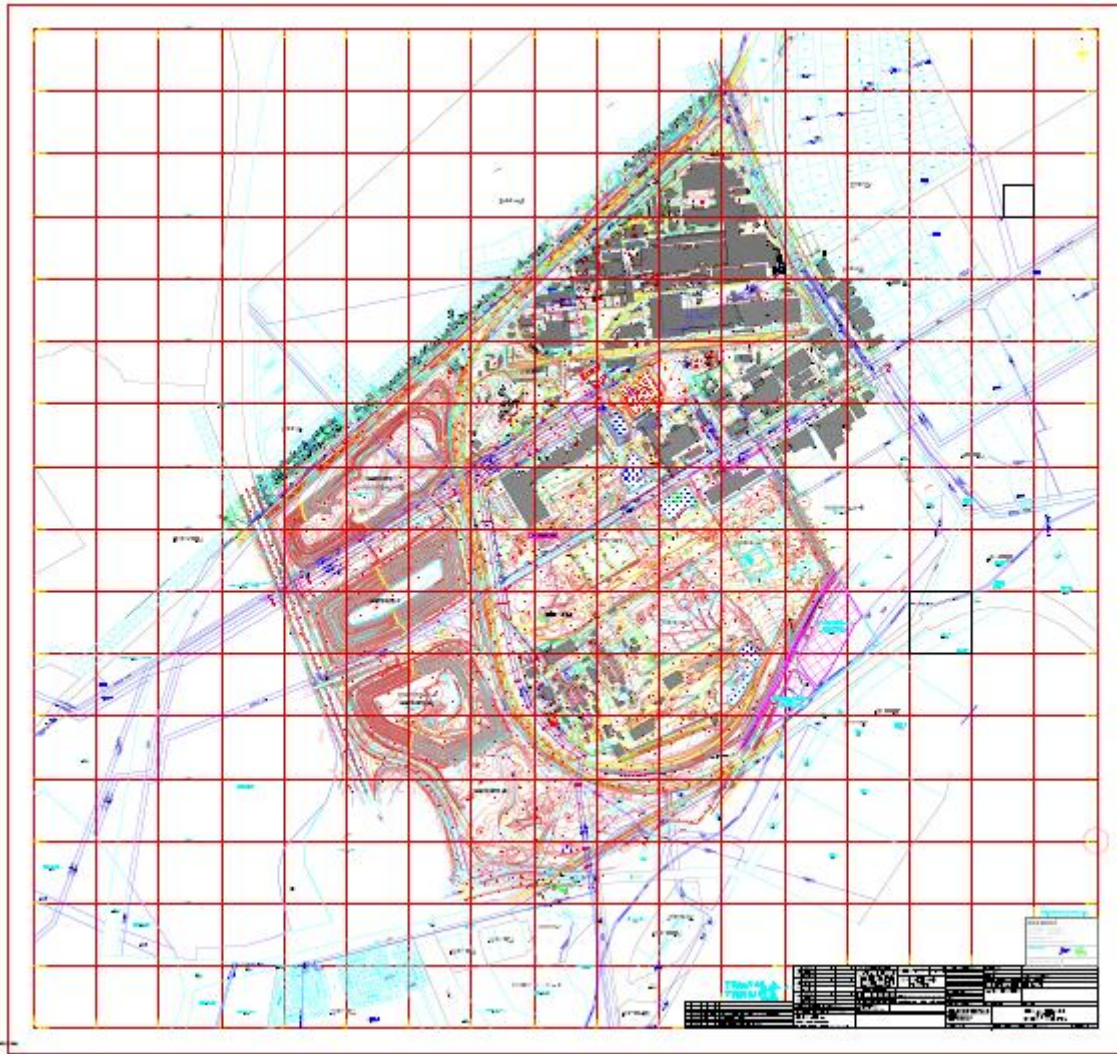


Figure 3: Site map.

2. TERMS OF REFERENCE

The Terms of Reference for the study were as follows:

1. Assessing the grave site, including counting the number of graves.
2. Establishing the perimeters of the site.
3. Doing a risk assessment as to the possible encountering of graves not seen on the surface of the site.
4. Making recommendations to facilitate preservation and prevent possible future delays during the implementation of the development.
5. To make recommendations for the creation of a buffer zone for the protection of these sites.

3. CONDITIONS & ASSUMPTIONS

The following conditions and assumptions have a direct bearing on the study:

1. Cultural Resources are all non-physical and physical man-made occurrences, as well as natural occurrences associated with human activity. These include all sites, structures and artifacts of importance, either individually or in groups, in the history, architecture and archaeology of human (cultural) development (Appendix A). **Graves and cemeteries are included in this.**
2. The significance of the sites, structures and artifacts is determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. The various aspects are not mutually exclusive, and the evaluation of any site is done with reference to any number of these aspects (Appendix B). **Graves are always given a high cultural significance as it is an extremely emotional issue.**
3. The latitude and longitude of any archaeological or historical site or feature, is to be treated as sensitive information by the developer and should not be disclosed to members of the public. **This includes graves.**
4. Cultural significance is site-specific and relates to the content and context of the site. Sites regarded as having low cultural significance have already been recorded in full and require no further mitigation. Sites with medium cultural significance may or may not require mitigation depending on other factors such as the significance of impact on the site. Sites with a high cultural significance require further mitigation (see Appendix C).
5. All recommendations are made with full cognizance of the relevant legislation.
6. It has to be mentioned that this was not a Heritage Impact Assessment (HIA), but an assessment of a specific site already known to the property owner. The area was however scrutinised for any other heritage features.

4. 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).

4.1 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 (see Appendix D) 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. Archaeological and paleontological importance
- g. Graves and burial grounds**
- h. Sites of significance relating to the history of slavery
- i. Movable objects (e.g. archaeological, paleontological, 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 only looks at archaeological resources. The different phases during the HIA process are described in Appendix E. 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 000m² or involve three or more existing erven or subdivisions thereof
- d. Re-zoning of a site exceeding 10 000 m²
- 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 paleontological site or any meteorite;
- b. destroy, damage, excavate, remove from its original position, collect or own any archaeological or paleontological 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 paleontological material or object, or any meteorite; or
- d. bring onto or use at an archaeological or paleontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and paleontological 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.

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

4.2 The National Environmental Management Act

This Act (Act 107 of 1998) 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.

5. METHODOLOGY

5.1 Survey of literature

A survey of literature was undertaken in order to obtain background information regarding the process of dealing with graves.

5.2 Study of additional documentation

Additional documentation provided by the client (Scaw Metals) was studied. This included the development plan for the area (Figure 3-6).

5.3 Site visit

The grave site of relevance to this report was visited in order to obtain contextual information on the area and the implications the development may have thereon. The area surrounding the graves was also scrutinised in order to see if there are any related or other cultural heritage resources nearby.

The site was marked by means of the Global Positioning System (GPS), while photographs were also taken. A track route was done (Figure 7).

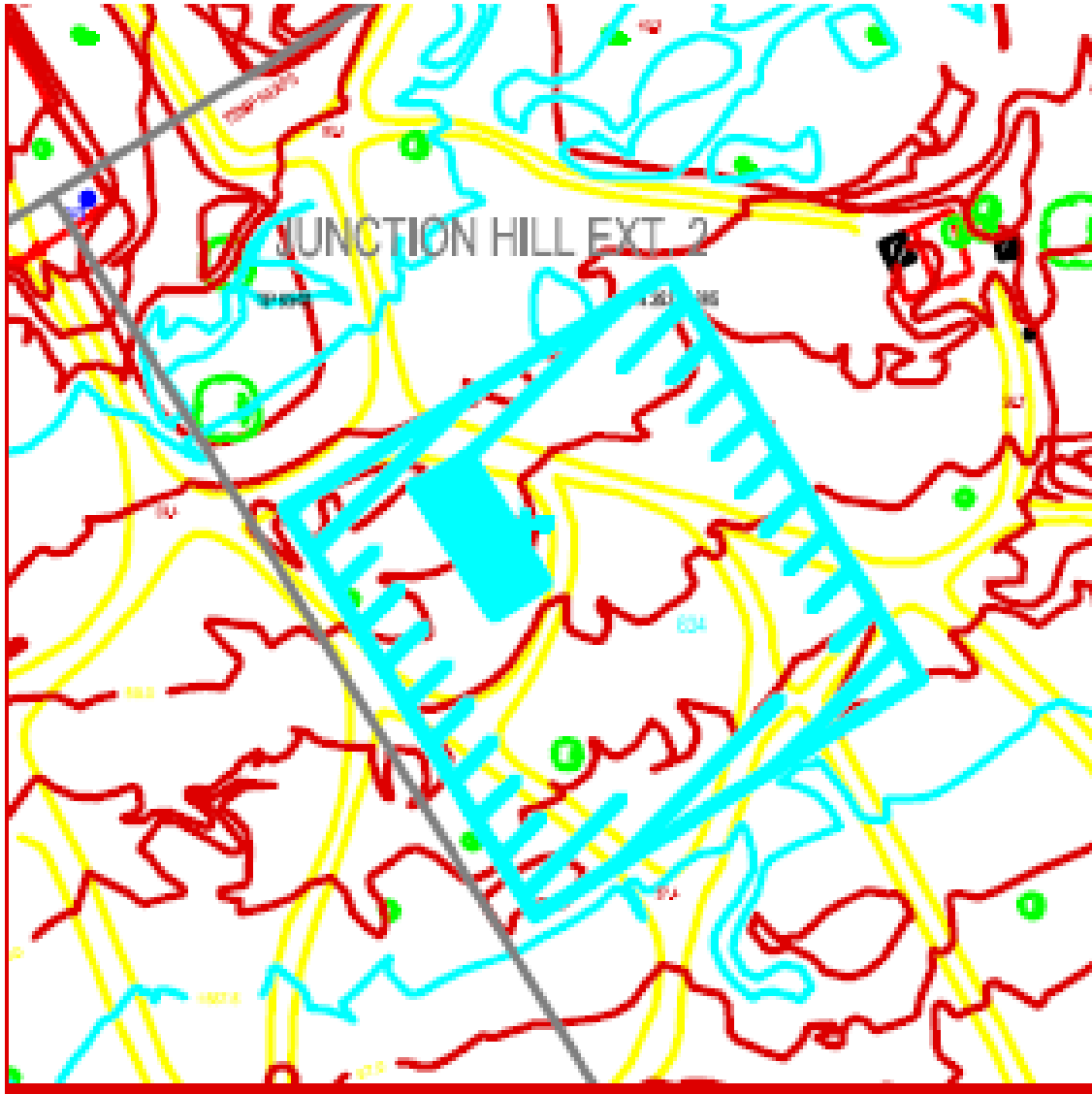


Figure 4: Zoomed in map of the area indicating the surveyed area in blue, with the graves in the shaded blue block.

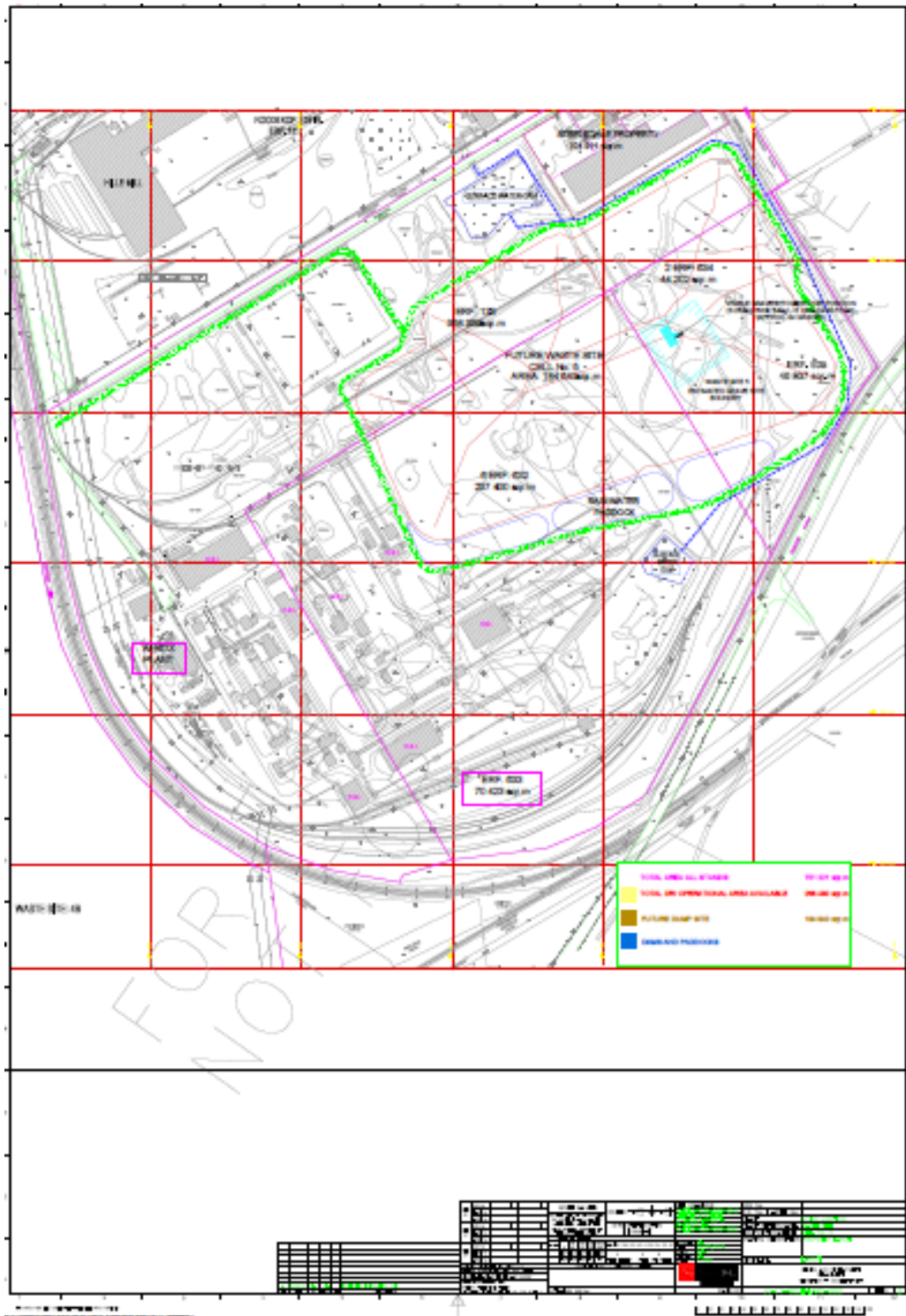


Figure 5: Map indicating the future development of a waste site where the graves are situated.

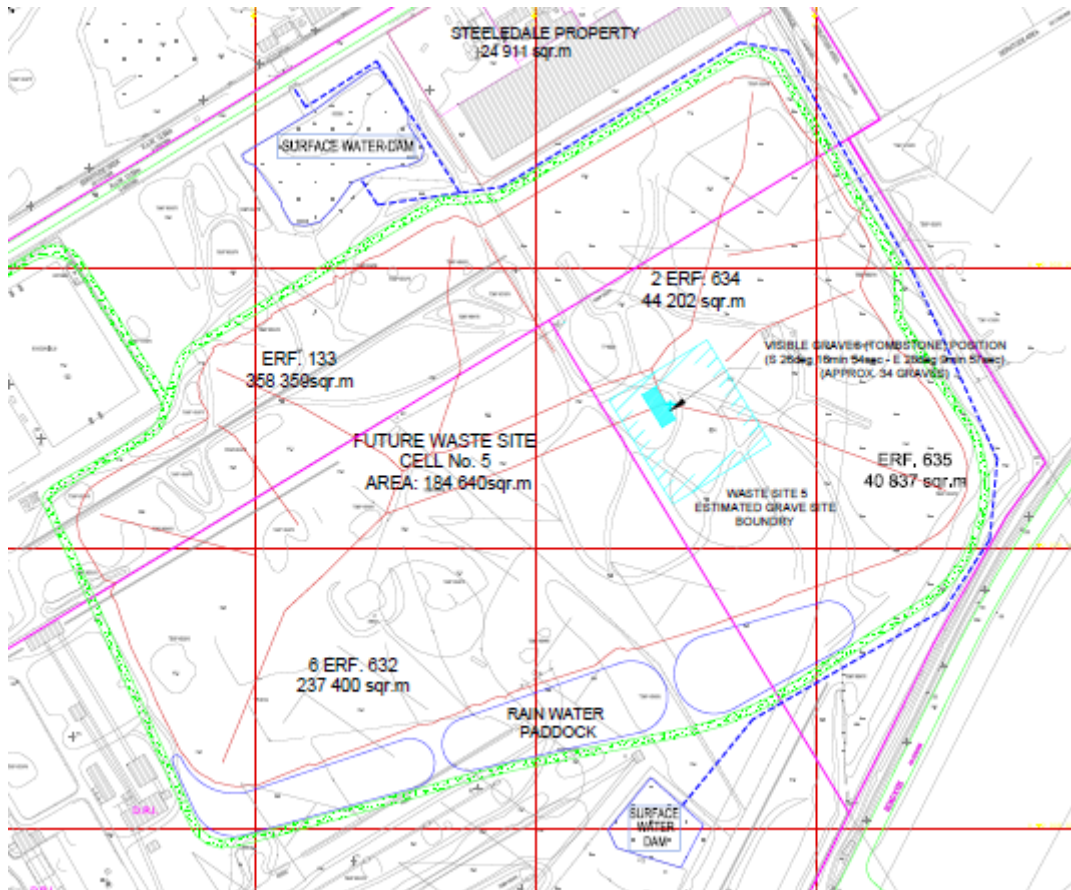


Figure 6: Zoomed in section of above map. The waste site is planned somewhere within the green area and the graves are the blue rectangle.

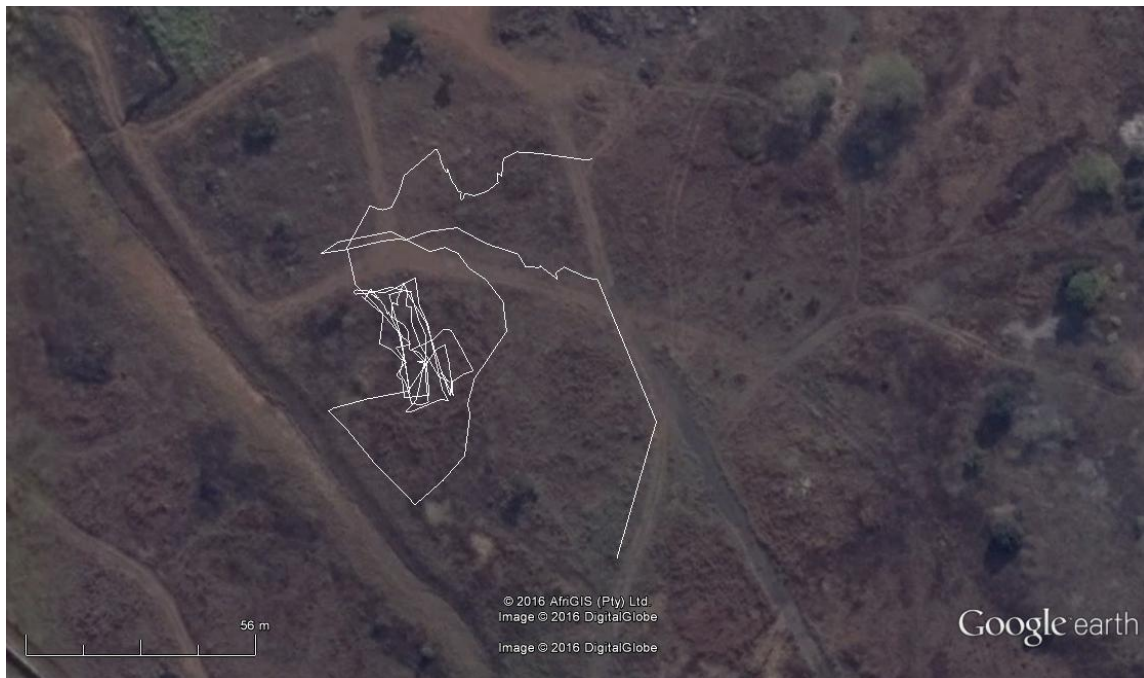


Figure 7: Track route of the assessment.

6. DESCRIPTION OF THE ENVIRONMENT

The environment where the grave site is situated has been entirely disturbed and no natural vegetation exists. The vegetation that does occur consists of pioneer species such as grass and weeds (Figure 8). It is however clear that the area had been subjected to ground work activities during the recent past. It also was used as a scrap metal yard, with many remains of metal and other rubble still being present (Figure 9).

The topography of the area is flat with no outstanding rock outcrops or high lying areas or rivers. In summary it can be said that it is an entirely cultivated landscape.



Figure 8: General view of the area where the graves are situated.



Figure 9: View of scrap metal on site.

7. DISCUSSION

The relevant questions regarding the matter of the graves are discussed under this section. From the discussion the recommendations will follow.

7.1 Site assessment

As indicated earlier, one site was assessed (Figure 10). The corners of the site was also determined by GPS, being:

1. 26°16'54.5"S; 28°09'56.7"E
2. 26°16'54.4"S; 28°09'57.1"E
3. 26°16'53.4"S; 28°09'56.8"E
4. 26°16'53.5"S; 28°09'56.3"E

The site contains at least 46 graves (Figure 11). These are mostly stone packed or have brick dressings with the majority being without headstones. Except for one, all headstones are made from stone with no legible information thereon. The exception is one with a granite headstone, with the following information: Joel Dube, Died, 23 March 1944 (Figure 12).

This is the only grave with legible information and therefore 'Dube' is the only known surname on site and '1944' the only known date of death. Therefore two of the three categories of graves was identified, being one older than 60 years of age, called heritage graves, and unknown graves. The latter are handled similarly to heritage graves.

The development proposed for the area will entail ground work activities, but no blasting. Such activities would not endanger the site, although dust monitoring should be implemented during construction activities. A dust monitoring specialist should be contacted in this regard.

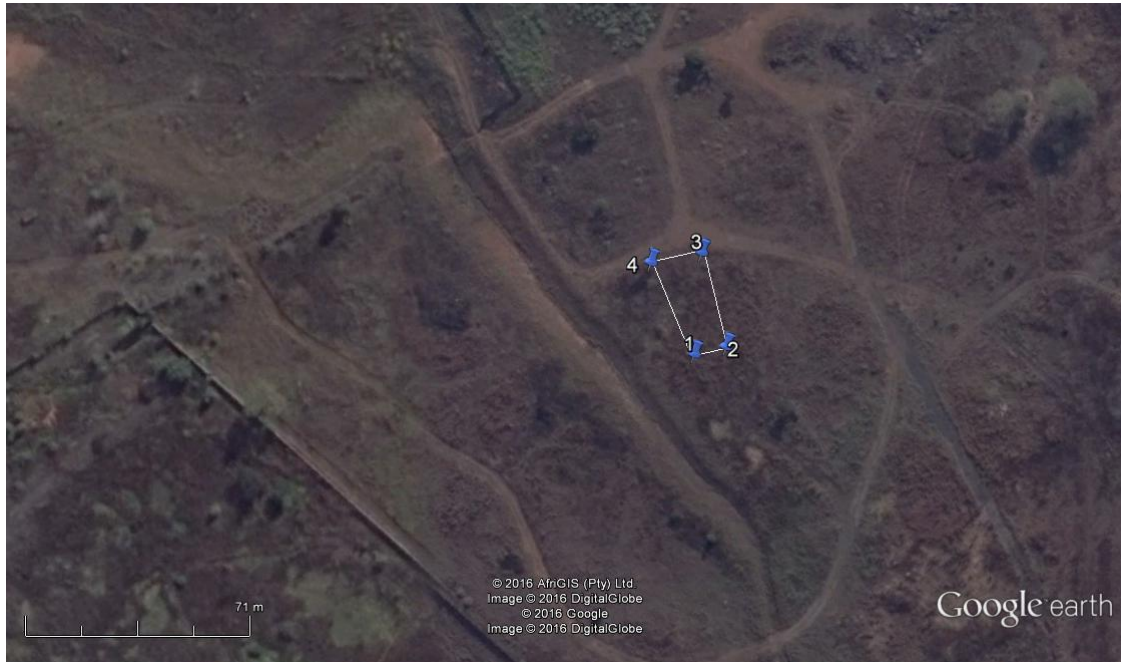


Figure 10: Google image indicating the four corners of the site that was assessed. North reference is to the top.



Figure 11: One of the stone packed graves on site.



Figure 12: Granite headstone at one of the graves.

7.2 Dealing with graves

Graves always are regarded as having a high cultural significance and receives a field rating of Local Grade IIIB. It should be included in the heritage register, but may be mitigated. The register is kept by SAHRA/ the Provincial Heritage authority.

Usually there are two options when dealing with graves. The first option would be to fence the graves in and have a management plan drafted for the sustainable preservation thereof. This should be written by a heritage expert. This usually is done when the graves are in no danger of being damaged, but where there will be a secondary impact due to the activities of the development.

The second option is to exhume the mortal remains and then to have it relocated. This usually is done when the graves are in the area to be directly affected by the development activities. For this a specific procedure should be followed which includes social consultation. For graves younger than 60 years only an undertaker is needed. For those older than 60 years and unknown graves an undertaker and

archaeologist is needed. Permits should be obtained from the Burial Grounds and Graves unit of SAHRA. This procedure is quite lengthy and involves social consultation.

7.2.1 Option 1: Fencing of the site and management plan

Scaw Metals indicated that they do not wish to have the graves relocated at present, but that they would rather preserve it on site. It is contemplated that due to the development these may have to be exhumed and a separate process will have to be followed when this becomes certain. Therefore only Option 1 is considered herein. Since there always is a secondary impact due to construction and other activities on site, this needs to be regulated. One also needs to make provision for the accessibility to the site for descendants. Of course this should be done within the health and safety regulations of the land owner.

The mentioned matters need to be addressed via the management plan, which needs to be written in accordance with the SAHRA guidelines in this regard. For the short term the site should be temporarily demarcated, either with a wire fence or even danger tape. A buffer zone of 20 m is sufficient, but this may change once more information becomes available via the risk assessment, proposed below.

Usually this is the best option as it preserves the graves in situ. It is less time consuming than that of grave relocation and it also may be less expensive. However it does leave the land owner with the responsibility to preserve the site.

In summary, this option would entail erecting a fence, writing a management plan for the preservation and management of the site and implementing the latter.

7.2.2 Option 2: Exhuming and relocation of the graves

The second option is the exhumation and relocation of the graves to another graveyard, most likely the nearest municipal graveyard. Although Scaw Metals have indicated that the present exercise was only to assess the extent of the graves and to ensure the necessary is done in the short term, it is necessary to provide the information on option 2 so that an informed decision can be made.

The first important aspect is that SAHRA prefers not to have graves exhumed. Therefore an additional motivation would be required, indicating why this is the only viable option. Should it then be allowed, the process, which is quite complicated, can be implemented. This is a more expensive option and is also time consuming as a result of the permitting and social consultation process one is compelled by law to engage into. However, it is a permanent solution meaning that the responsibility of the land owner ends after relocation has been done. The grave relocation process is discussed below.

The grave relocation process:

Reporting the discovery

The discovery of all graves not located in a formal cemetery administered by a recognized local authority should be reported to the regional representative of the South African Heritage Resources Agency and the South African Police Service. SAHRA and the SAPS should visit the site and are required to advise regarding heritage related and possible criminal and judicial, and legal issues.

This step is part of the process and should the graves be exhumed this report will serve as informing document.

Identifying the graves

Three categories of graves can be identified. These are:

- Graves younger than 60 years;
- Heritage graves (these are divided into two sub-categories being graves older than 60 years, but younger than 100 years and graves older than 100 years (archaeological graves);
- Unknown graves.

Both the categories older and younger than 60 years may also include graves of victims of conflict or of individuals of royal descent which also are protected.

The graves to be relocated should be classified as accurately as possible into these categories. A concerned effort should also be made to identify the specific buried individual. These tasks must be accomplished by the social consultation process.

Social Consultation

Section 36 (3)(a) of the National Heritage Resources Act 25 of 1999 reads:

“No person may, without a permit issued by SAHRA or a provincial 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, 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 equipment, or any equipment which assists in the detection or recovery of metals.”

Furthermore, Section 36 (5) of the Act reads:

“SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection (3)(b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority-

- (a) Made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and
- (b) Reached agreements with such communities and individuals regarding the future of such grave or burial ground.”

In terms of social consultation and permits issued by SAHRA, these sections from the Act means that a permit will only be supplied if a “concerted effort” has been made to “contact and consult” the relatives or persons associated with those specific graves. Normally, such a social consultation process would (as a minimum) consist of the following:

- Full documentation of the entire social consultation process, including signed permission forms from the closest relatives providing permission for the grave to be relocated
- Site notices (in the format and for the duration required by the Act), and proof thereof
- Newspaper notices, and proof thereof
- Documentary proof of social consultation process, i.e. minutes of meetings held with family members/affected parties

The process is dealt with by a social consultant. Most of the undertakers are qualified to handle this as they, in any case, have to place the necessary advertisements in newspapers before being able to apply for their permits.

Authorization

This component incorporates obtaining permissions, permits and authorizations from the relevant compliance agencies. In order to obtain permits, the above mentioned is needed:

Different legislation applies to the different categories of graves set out above:

- Graves younger than 60 years fall under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925) as well as the Human Tissues Act 65 of 1983. These graves fall under the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the Office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning, or in some cases the MEC for Housing and Welfare. Authorization for exhumation and re-interment must also be obtained from the relevant local or regional council where the grave is

situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. The institution undertaking the relocation must be authorized under Section 24 of the Human Tissues Act 65 of 1983 to handle and transport human remains.

- Graves older than 60 years, but younger than 100 years, fall under the jurisdiction of two acts, namely the National Heritage Resources Act 25 of 1999 (Section 36) as well as the Human Tissues Act 65 of 1983. Should graves older than 60 years, or if the age of the grave cannot be ascertained either by a grave marking or through a social consultation process, be located outside a formal cemetery, the Procedure for Consulting Regarding Burial Grounds and Graves (Section 36(5) of the Heritage Resources Act 25 of 1999) is applicable. However, graves older than 60 years but younger than 100 years, which are located within a formal cemetery administered by a local authority will also require the same authorization as set out for graves younger than 60 years over and above SAHRA authorization. If the grave is not located within a formal cemetery, but is to be relocated to one, permission must also be acquired from the local authority and all regulations, laws and by-laws set by the cemetery authority must be adhered to. The institution undertaking the relocation must be authorized under Section 24 of the Human Tissues Act 65 of 1983 to handle and transport human remains. A qualified archaeologist accredited by SAHRA must personally supervise any alteration to, or relocation of, graves in this category.
- Graves older than 100 years are classified as archaeological, and are protected in terms of Section 35 of the National Heritage Resources Act 25 of 1999. Authorization from SAHRA is required for these graves. A qualified archaeologist accredited by SAHRA must also supervise any alteration or relocation of graves in this category. On the discretion of SAHRA, the Procedure for Consultation Regarding Burial Grounds and Graves (Section 36(5) of Act 25 of 1999) might also be required. If the grave is situated in cemetery administered by a local authority the authorizations as set out for graves younger than 60 years are also applicable over and above SAHRA authorization. The institution undertaking the relocation must be authorized under Section 24 of the Human Tissues Act 65 of 1983 to handle and transport human remains.
- All graves of victims of conflict regardless of how old they are or where they are situated are protected by Act 25 of 1999 (National Heritage Resources Act). SAHRA authorization is required for all graves in this category. Any alteration to a grave in this category or the relocation thereof must be personally supervised by a qualified archaeologist accredited by SAHRA. If the grave is situated in a cemetery administered by a local authority the authorizations as set out for graves younger than 60 years are also applicable over and above SAHRA authorization. On the discretion of SAHRA the Procedure for Consultation Regarding Burial Grounds and Graves (Section 36(5) of Act 25 of 1999 (National Heritage Resources Act)) might also be required. In order to handle and transport human remains the institution

conducting the relocation should be authorized under Section 24 of Act 65 of 1983 (Human Tissues Act).

Exhuming the remains

The methods employed during exhumation will aim to recover all the remains, to minimize damage to the remains, to record the three-dimensional context of the remains and should preserve and respect the dignity of the buried individual. All evidence that might allude to the events leading to the death of the individual and circumstances regarding the event will be recorded and interpreted. The information gathered will be presented in a technical report as required by the relevant compliance agency.

The aim of the excavation should be the in situ exposure of the burial and associated artifacts (Nienaber and Steyn 1999). The focus should be on accurate and complete documentation (Nienaber 1997; Van Vollenhoven 1998). Various methods for the excavation of graves have been proposed by different authors (Hester et.al. 1975; Joukowsky 1980; Krogman and Iscan 1986; Morse 1978) but all stress the need for adequate workspace around the exposed remains and a systematic approach to the removal of individual bones.

The archaeological method, including extensive test trenching to prevent damage to the remains, should be employed. This approach should be largely similar to that of forensic archaeology where buried body cases are concerned. This approach should be adapted for the situation since graves vary in shape, size, depth and content (Nienaber 1999). The methods of forensic archaeology are discussed by Steyn, et al. (2000).

This part of the process can only be followed after a permit has been issued by SAHRA and the health authorities. Both an undertaker and an archaeologist are needed for heritage graves as they are responsible for different aspects of the exhumation.

Confirming the identity of the buried individual (Analysis)

Where any doubts exist regarding the identity of exhumed remains, a physical anthropological analysis aiming to help confirm or ascertain the identity could be conducted. This can be accomplished by comparing the results of the reconstruction of certain characteristics of the remains with known facts regarding the individual. Data on the remains should be recorded in a suitable format (such as that proposed Buikstra and Ubelaker (1994)) for future reference and comparison.

Physical anthropological analysis of remains of archaeological origin can be undertaken as a matter of course, and could be required on the discretion of SAHRA. The techniques that are applied should aim to achieve the reconstruction of individuals rather than the study of populations. The only parallel methodology that exists is the techniques of forensic anthropology that also aims to ascertain the identity of individuals (Krogman and Iscan 1986). Where possible, deductions

regarding pathology, health and other indicators of stress should be considered during a reconstruction of events and the interpretation of evidence.

Usually it is not necessary to go through this step.

Reinternment of the remains

If the outcome of the social consultation allows for the curation of the remains, i.e. reinternment is not required by the identified families, persons or communities, the remains should be handed over for curation to a collaborating institution under Act 25 of 1999 (National Heritage Resources Act) authorized under section 24 of Act 65 of 1983 (Human Tissues Act).

Should the remains be reburied, it will be done by a registered funeral undertaker acting in compliance with the relevant local regulations, laws and by-laws stipulated by the cemetery authority. The ceremony will be organized with the full participation of stakeholders and according to the wishes of the concerned families where these were identified.

Reporting

Reports compliant to the stipulations of the relevant legislation will be submitted as required by the relevant compliance agencies. Copies of all reports will be made available to the families and other stakeholders on request. All stakeholders are to have access to information generated by the project at all stages.

Anticipated timing

The aspects that take most of the time during the process of grave relocation are the social consultation and advertisements. Advertisement has to be placed on site for at least 60 days (unless all families are identified in a shorter period of time). The archaeologist needs the copies of the advertisements and results of the social consultation before it is possible to apply for a permit. Copies of the SAHRA comments on the HIA, also needs to be included in the application, which in this case is already available.

Another factor to be taken into consideration is that SAHRA takes a long time to issue permits. In theory it should only take about three weeks, but the process usually takes much longer (sometimes up to six months). SAHRA has a Burials Grounds and Graves Unit (BGG) dealing with these issues. This body did indicate that they are in a process of streamlining their service, which may considerably shorten the time period. The BGG unit has a committee to whom the application is sent via e-mail for comments. The flaw in the system is that these members may not respond or take a long time to respond resulting in a slowing down of the process.

7.2.3 Comparison of options

The management of risks is a difficult issue as one is never sure what kind of problems may occur under different circumstances. It is therefore necessary to indicate possible risks for the two options (Table 1).

Table 1: Comparison of options

Risk factor	Option 1: Fencing of site	Option 2: Exhumation and Relocation of graves
Access	Descendants will need undisturbed access to graves (only if descendants are identified)	Descendants will have access to new grave yard (only if descendants are identified)
Compensation	Not needed	Descendants may want compensation, but it is advised that this be limited to a night vigil (only if descendants are identified)
Approval from descendants	Not needed	Needed and without it no relocation will be allowed (only if descendants are identified)
Security risk	Yes, as descendants must get access (only if descendants are identified)	No, as access would be at new cemetery
Management of sites	Yes, a sustainable management plan will be needed	No, as this will form part of an existing cemetery
Upgrade and cleaning	Yes, site should be left by developer in a better state than before and it should be maintained	No, as this would be dealt with as part of the existing cemetery
Land claims	Yes, but only in case of a forced removal (only if descendants are identified)	Yes, but only in case of a forced removal (only if descendants are identified)
Finances	Less expensive	More expensive
Time frames	Less time consuming	More time consuming
Responsibility	Permanent responsibility for the developer	The developers responsibility ends after the exhumation and relocation process

7.3 The way forward (Risk assessment)

Since Scaw Metals indicated the present exercise is the preservation of the graves in situ in the short term, this is discussed further. The issue to deal with is that whichever option is chosen, the condition of the site makes it difficult to determine whether the 46 graves identified are the final total. It has been calculated from previous projects that an approximate under-representation of 20% is possible when counting graves.

Since the client wishes to minimize possible delays during construction activities, the following possible protocols can be followed:

- Ground penetrating radar
- A watching brief during construction
- A watching brief before construction (systematic investigation to determine whether more graves may be present)

7.3.1 Ground penetrating radar

GPRS can be used to determine whether there may be more graves present on site. A permit from SAHRA will be needed.

The problem with GPRS is that it cannot indicate whether skeletal remains are present. It only shows anomalies, e.g. a hole underground. It can therefore not provide conclusive evidence of graves being present.

7.3.2 Watching brief during construction

This would entail having an archaeologist on standby while construction work on site commences. Should any skeletal remains be unearthed these should be dealt with by the archaeologist. This may result in delays.

It is advisable to obtain a permit from SAHRA beforehand, so that the application for such a permit, do not cause further delays. However, the skeletal remains will then need to be removed and relocated. Although this can be done on site, together with the known graves, it will undoubtedly delay the project.

7.3.3 Watching brief before construction

A watching brief before construction would entail the systematic investigation to determine whether more graves may be present. The advantage is that this can be done before the construction work commences, allowing ample time to handle possible human remains that may be unearthed. Therefore expensive delays may be prevented.

Again it is advisable that a permit be obtained from SAHRA before such an investigation is undertaken. This will prevent further delays during the investigation. An archaeologist needs to be present on site during the investigation in order to handle any human remains that may be encountered.

Here also the skeletal remains will then need to be removed and relocated. With permission of SAHRA, this can be done on site, together with the known graves.

7.3.4 Risk assessment

The risk assessment table related to these possibilities (Table 2) are indicated below. It is extremely important that none of these provides for a 100% certainty that all possible graves have been located, but all will minimize risk.

Table 2: Risk assessment

Risk factor	GPRS	Watching brief	Systematic investigation
SAHRA permit	Yes	Yes	Yes
Social consultation	No	No	No*
Approval from descendants	Not needed	Not needed	Not needed
Finances	Cost of GPRS and archaeologist	Archaeologist [#]	Archaeologist [#]
Time frames	One day	As long as ground breaking work is done [@]	One-two days [@]
Result accuracy	Will only indicate anomalies which may or may not be graves	Will probably find all skeletal remains present	Will find skeletal remains if these are present, but may not find everything
Delays	Remains a possibility	Remains a possibility	Remains a possibility, but is minimised
Evaluation	Expensive and provides no real results Watching brief may still be needed	Expensive and may cause delays during project	Less expensive, but may still cause delays

* It is however advisable as it will minimize problems that may be encountered with descendants later on

[#] Should it be necessary to relocate human remains, an undertaker will need to be available

[@] This is for the investigation without taking into account that human remains needs to be dealt with

8. CONCLUSIONS AND RECOMMENDATIONS

In conclusion it is clear that that there is no easy solution. The nature of the grave site is such that it is impossible to determine its exact perimeters. Those indicated in the report are however reasonably likely to indicate the extent of the site.

This is due to the disturbance of the site, which may indicate that nothing else of heritage value did exist previously. This include graves, as the ones on site were probably left in situ since they were visible, meaning that other areas were disturbed since nothing was visible.

The final recommendations therefore are as follows:

- Since the present scope is to preserve the graves' *in situ*, it means that they wish to minimise the direct impact thereon. As a preliminary measure, a buffer zone of 20 m needs to be implemented. The site should also be demarcated temporarily.
- Any of the three possibilities discussed under 'The way forward' can be implemented by the client. Whichever they choose should be approved by SAHRA.
- It is recommended that the third possibility, 'a watching brief before construction', entailing the systematic investigation to determine whether more graves may be present, be implemented. The protocol for this is as follows:
 - Obtain a permit from the SAHRA BGG unit. The permit should allow for the reburial of any human remains unearthed at the current grave site.
 - In line with a buffer zone of 20 m and calculating that one can expect a burial every 3 metres (including 2 m for the remains and 1 m space in between graves) – dig trenches with a back actor or similar equipment on all four sides of the known graves.
 - The first trench should be 2 m from the current graves and thereafter every three meters.
 - Should the first three trenches deliver no results, the investigation can be stopped.
 - Should human remains be found, two additional trenches (respectively 3 and 6 m from the remains) will be needed.
 - Once two trenches deliver no result, the investigation can be stopped.
 - Any remains encountered should be removed by an archaeologist, who should be present on site for the duration of the investigation.
 - A funeral undertaker should be on standby to rebury any remains encountered. This should be done on site, together with the known graves.
- Dust monitoring should be done on the grave site once the construction on site commences. A dust pollution specialist should be consulted in this regard.
- A management plan needs to be drafted for the grave site. This entails the permanent establishment of a buffer zone, permanent fencing and the implementation of the sustainable preservation measures indicated in the plan. Such a management plan will entail detailed information regarding the preservation of the sites.
- The management plans should be approved by SAHRA.
- After implementation of the mitigation measures proposed, the development on site may continue.
- It needs to be emphasized that there will always be a chance that more skeletal remains or other archaeological material may be unearthed during construction activities. Although a watching brief may not be implemented further, one should have an archaeologist on stand-by (via telephone) to immediately

investigate such matters as soon as it occurs. Since permits will be in place, the only delay would be giving the archaeologist time to visit the site and remove the remains. Construction on another section of the site may however continue while this is in progress.

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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:

- National Grade I significance should be managed as part of the national estate
- Provincial Grade II significance should be managed as part of the provincial estate
- Local Grade IIIA should be included in the heritage register and not be mitigated (high significance)
- Local Grade IIIB should be included in the heritage register and may be mitigated (high/ medium significance)
- General protection A (IV A) site should be mitigated before destruction (high/ medium significance)
- General protection B (IV B) site should be recorded before destruction (medium significance)
- 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, paleontology 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.