

**PHASE 1 ARCHAEOLOGICAL AND HERITAGE IMPACT ASSESSMENT
SPECIALIST STUDY REPORT**

**PROPOSED CONSTRUCTION OF A NEW 132KV DUMA
SUBSTATION IN THABA CHUE LOCAL MUNICIPALITY,
ENHLANZENI DISTRICT
MPUMALANGA PROVINCE**

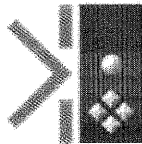
August 2009, Johannesburg

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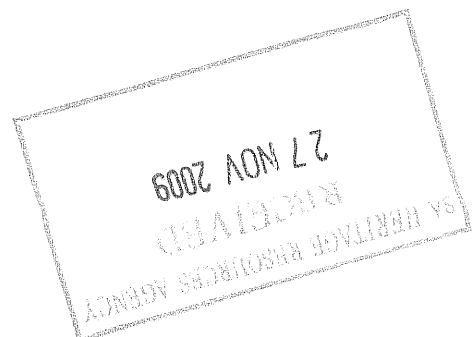
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REPORT DETAILS

PROJECT NAME: PROPOSED CONSTRUCTION OF A NEW 132KV DUMA SUBSTATION IN THABA CHUE LOCAL MUNICIPALITY, ENHANZENI DISTRICT, MPUMALANGA PROVINCE.

REPORT TITLE: ARCHAEOLOGICAL IMPACT ASSESSMENT SPECIALIST STUDY FOR PROPOSED CONSTRUCTION OF A NEW 132KV DUMA SUBSTATION IN THABA CHUE LOCAL MUNICIPALITY, ENHLANZENI DISTRICT, MPUMALANGA PROVINCE.

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REFERENCE NO.: LWI/2009HIA-Duma

STATUS OF

REPORT: Version 1.2

FINAL ISSUE: Date: October 2009

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MANAGEMENT SUMMARY

Background

Limpopo Water Initiative [LIW] commissioned Nzumbululo Heritage Solutions (South Africa) (HeSSA) to conduct Archaeological Impact Assessment [AIA] study for proposed construction of a new 132kv-powerline Duma Substation in Thaba Chue Local Municipality, Enhlanzeni District Mpumalanga Province. The development will include construction of a new substation, loop-in and out power lines and a 100m access road leading to the proposed substation. This archaeological impact assessment (AIA) study, incorporating a physical cultural property assessment, was conducted as part of the specialist studies for the EIA exercise for the proposed substation and associated development on the said property. The impact assessment study focuses on potential impacts on archaeological heritage resources and physical cultural properties that may be associated with the proposed Eskom substation construction's receiving environment. Field studies were conducted in August 2009.

Summary Results

The field survey covered the project site, as well as alternative sites and associated access road servitude route. No archaeological and physical cultural properties were recorded on the direct path of the project. The chances of recovering any surficially visible archaeological indicators on the proposed development site and its alternatives are limited by the fact that the affected sites were previously disturbed.

Summary Recommendations

In the absence any archaeological or physical cultural property barriers, we have no objection to the proposed development. The preferred substation site may be approved for the development. It will not make any difference should any of the presented substation site be accepted for the development because the affected landscape is uniform and similar in nature. We conclude that the proposed development substation development and associated infrastructure construction may be approved and recommend that the heritage compliance agency (Provincial Heritage Resources Agency [PHRA]) may grant clearance for the project to proceed as planned.

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ABBREVIATIONS

HIA	Heritage Impact Assessment
EIA	Environmental Impact Assessment
HeSSA	Nzumbululo Heritage Solutions (South Africa)
LIA	Late Iron Age
SAHRA	South African Heritage Resources Agency

DEFINITIONS

Archaeological Material remains resulting from human activities, which are in a state of disuse and are in, or on, land and which are older than 100 years, including artefacts, human and hominid remains, and artificial features and structures.

Chance Finds Archaeological artefacts, features, structures or historical cultural remains such as human burials that are found accidentally in context previously not identified during cultural heritage scoping, screening and assessment studies. Such finds are usually found during earth moving activities such as water pipeline trench excavations.

Cultural Heritage Resources Same as Heritage Resources as defined and used in the South African Heritage Resources Act (Act No. 25 of 1999). Refer to physical cultural properties such as archaeological and palaeontological sites; historic and prehistoric places, buildings, structures and material remains; cultural sites such as places of ritual or religious importance and their associated materials; burial sites or *graves* and their associated materials; geological or natural features of cultural importance or scientific significance. Cultural Heritage Resources also include intangible resources such as religion practices, ritual ceremonies, oral histories, memories and indigenous knowledge.

Cultural Significance The complexities of what makes a place, materials or intangible resources of value to society or part of, customarily assessed in terms of aesthetic, historical, scientific/research and social values.

Grave A place of interment (variably referred to as burial), including the contents, headstone or other marker of such a place, and any other structure on or associated with such place. A grave may occur in isolation or in association with others where upon it is referred to as being situated in a cemetery.

Historic Material remains resulting from human activities, which are younger than 100 years, but no longer in use, including artefacts, human remains and artificial features and structures.

In Situ material *Material culture* and surrounding deposits in their original location and context, for example an archaeological site that has not been disturbed by farming.

Late Iron Age this period is associated with the development of complex societies and state systems in southern Africa.

Material culture Buildings, structure, features, tools and other artefacts that constitute the remains from past societies.

Site A distinct spatial cluster of artefacts, structures, organic and environmental remains, as residues of past human activity.

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1 INTRODUCTION

This Archaeological and Heritage Impact Assessment (HIA) study was conducted to fulfil the requirements of the National Heritage Resources Act, Act 25 of 1999 Section 38. It was conducted as part of the Environmental Impact Assessment (EIA) for the proposed construction of a new 132kv Duma Substation and associated 100m access road to the substation. The project area is located in Thaba Chue Local Municipality of Enhlanzeni District in Mpumalanga Province (see Fig. 1 and Appendix 1). The impact assessment study focused on identifying and assessing potential impacts on archaeological resources as well as on other physical cultural properties including historical heritage resources associated with the proposed substation development project. The study was designed to ensure that any significant archaeological or cultural physical property or sites are located and recorded, and site significance is evaluated to assess the nature and extent of expected impacts from the substation development. The assessment includes recommendations to manage the expected impact of development on the site

2 AIMS OF THE HIA STUDY

Archaeological heritage impact assessment study has been initiated in response to substation and associate infrastructre development proposals that will potentially disturb or alter archaeological and cultural heritage sites that maybe situated on proposed project site. As such the proposed development requires clearance and authorisation from government compliance agencies including the heritage authority PHRA. This present study's mandate is to encourage and facilitate the protection and conservation of archaeological and cultural sites, in accordance with the provisions of the National Heritage Resources Act (Act No. 25 of 1999) Section 38.

It is important to emphasise that heritage assessment studies are very important given the fact that the archaeological and other physical cultural heritage are finite non-renewable physical and material resources. Archaeology is the study of past human societies through their material remains and artefactual assemblages. The study of archaeological remains increases our understanding and knowledge of the structure and culture of past and ancient societies that are not recorded by any other means.

In this context, the objectives of this present study were to document any archaeological and historic sites relative to the proposed Eskom substation development, assess the potential for occurrence of additional currently unidentified heritage resource sites in the project area, and to complete an impact assessment of any sites identified. Specifically, the field program was designed to provide information

on both existing disturbed and intact sites, determine site types, site nature and association, site context, and potential site values. These data were used to evaluate the impact of the proposed substation development program on specific archaeological and other cultural heritage resource sites identified and on the regional database. Therefore, the study primarily seeks to address the applicable regulations in order to facilitate the approval process. This study seeks to:

- Fulfil the statutory requirements of the National Heritage Resources Act, Act 25 of 1999, section 38.
- To identify and describe, (in terms of their conservation and / or preservation importance) sites of cultural and archaeological importance that may be affected by the proposed Duma substation development project. This study should include the identification of gravesites.
- Assess the significance of the resources where they are identified.
- Evaluate the impact thereon with respect to the socio-economic opportunities and benefits that would be derived from the proposed development.
- Make recommendations on mitigation measures with the view to reduce specific adverse impacts and enhance specific positive impacts on the heritage resources.
- Take responsibility for communicating with the PHRA and other authorities in order to obtain the relevant permits and authorization with reference to heritage aspects where applicable.

3 BACKGROUND SUMMARY

a. TECHNICAL GEOGRAPHICAL BACKGROUND

The proposed development consists of construction of a new substation consisting of 2 x 132kv feeder bays; 132kv Tubular busbar; 4 x22kv feeder bays; 100m loop in loop out power lines and installation of 2 x 40 MVA 132/22KV Transformers as well as a 6m wide 100m long access road.

The project area is situated in Thaba Chue Local Municipality, Enhlanzeni District in the Mpumalanga Province (see Fig. 1). The proposed project area is located 2km west of Lydenburg town. The project area is marked by road networks, power and telecommunication lines, boundary fence lines (Plate 1 to 6).

b. CULTURE HISTORICAL BACKGROUND

Culture-historically, the Lydenburg area is one of South Africa's richest early Iron Age archaeological heritage landscape. From round about 450 A D Early Iron Age (EIA) proto Bantu speaking farming communities began to arrive in the parts of what is now referred to as Mpumalanga region. These EIA communities are archaeologically refereed to as the Kwale branch of the Urehwe EIA Tradition (Huffman 2007:127-9). They occupied the foothills and valley lands introducing sedentary life, domesticated livestock, crop production and the use of iron. Along side the Urehwe tradition was the Kalundu Tradition whose EIA archaeological sites have been recorded along the Sabie and Oliphants river valley area.

Early Iron Age sites along the Lydenburg escarpment yielded outstanding and unique Iron Age ceramic sc

New groups of Late Iron Age (LIA) farmers of the Kalundu Tradition, Maguga and Lithaba facies respectively (ibid) moved into the region. By the mid 1600s, the Lydenburg escapement was effectively occupied by proto-northern Sotho speaking communities. The mid-1600s saw the arrival of pro-Nguni Koni. This group is responsible for LIA sites in the region that are characterised by stone terrace walls, cattle lanes and circular settlements. By the 1700s, the area was effectively occupied by the Koni and Pedi speaking communities whose descendants are still the main language group in the area today.

The Mpumalanga region was not spared by one of Southern Africa's most outstanding historical events. One of the most documented movements out of what is known as KwaZulu Natal today was the *mfecane* (wondering hordes) period of tremendous insecurity and military stress in the 1830s. The causes and consequences of the *mfecane* are well documented elsewhere (eg Hamilton 1995, Cobbing 1988). In this context new African kingdoms emerged such as the Zulu Kingdom under Shaka in the second quarter of the 1800s AD.

From the 1830s the Voortrekker began arriving in the region in the shadow of the weakened African communities as a result of the *mfecane*. In 1849 Lydenburg (town of suffering) town was established at Masising (pedi for area of long grass). This town became the seat of the Lydenburg Republic from 1857 to 1860. By the 1850s, the region was effectively being subjugated to settler administration and eventually the area came to be part of ZAR of Transvaal. The northeastern Transvaal, as it was known was a scene of the 1863-1869 Boer civil wars. During the Transvaal War of 1880-81, the region was a scene of intense fighting. Thereafter the region was subsequently annexed by the British effectively placing the majority of African communities under Transvaal colonial administration.

4 STUDY METHODS

In order to meet the objectives of the AIA, the following tasks were conducted: 1) site file search, 2) limited literature review, 3) completion of a field survey and assessment and 4) analysis of the acquired data and report production.

a. RECORD REVIEW

No existing records were accessed for this particular project site. Although SAHRA has repositories of all AIA and HIA study reports as well as databases and GIS records of archaeological and heritage sites recorded across the province and country respectively, these records are not readily accessible in terms of turn around time periods since this involves a long process of applications for access. Furthermore, the author does not have previous HIA or AIA study records for the specific project area.

As such the author had to rely on EIA Project Background Information Document (BID) and survey data provided by LWI Pty. Ltd and use that information to plan the field work. Secondary sources were consulted in an effort to predict the possibility of encountering archaeological and physical cultural properties in the general project area.

b. FIELD STUDIES

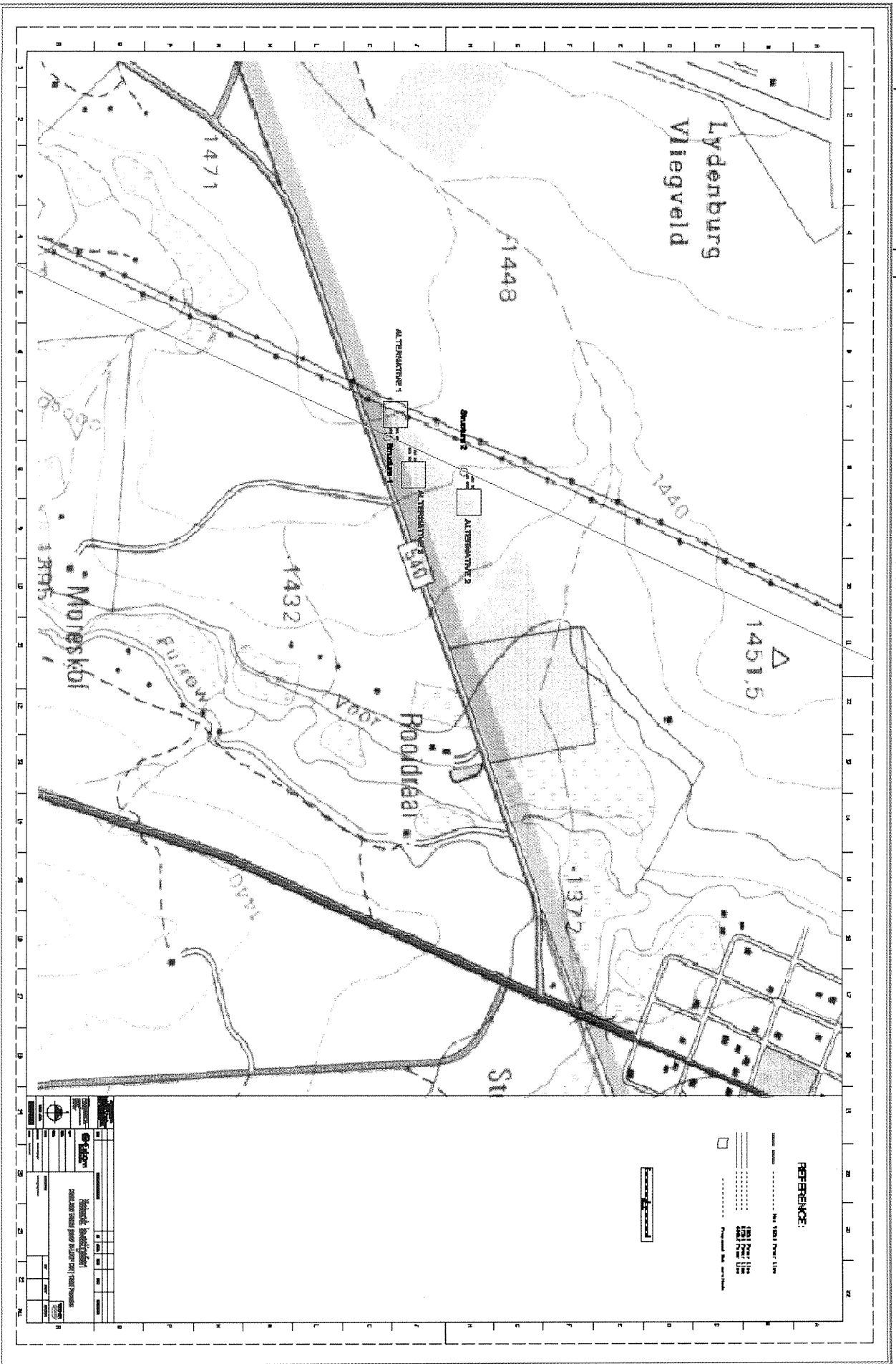
A general walk-down was undertaken in the company of the project EIA project manager from LWI (Pty.) Ltd.. The field survey assessed the terrain of the proposed project sites and two more alternative sites. Subsequently, the entire project sites were subjected to pedestrian traverse by Trust Mlilo (HeSSA Field Archaeologists). All terrain features with archaeological potential (erosion cuts and open flat terrain) were examined for archaeological and physical cultural properties and sites. The proposed substation site is on open grassland and has been heavily disturbed by farming, drilling and previous power line construction. (Plates 3 & 4). Under these disturbed conditions, it was anticipated that the chances for archaeological material preserved *in situ* in most portions of the substation site were limited. Nonetheless, we could not rule out the discovery of archaeological sites in the project area.

Naturally, identification of archaeological and historical sites during surveying depends on visibility and accessibility. The proposed project area is easily accessible with high visibility with very low grass cover. Geographic coordinates were obtained with a handheld Garmin GPS global positioning unit. Photographs were taken as part of the documentation process during field study.

c. ASSUMPTIONS AND LIMITATIONS

The field survey did not include any form of subsurface inspection beyond the inspection of burrows, road cut sections, and the sections exposed by erosion forces. Some assumptions were made as part of the study and therefore some limitations, uncertainties and gaps in information apply. No excavations or sampling were undertaken, since a permit from heritage authorities is required to disturb a heritage resource. As such the results herein discussed are based on superficially observed indicators. No research on the previous occupants of the historic settlement was conducted.

Figure 1: Proposed sites for the proposed construction of Duma substation.



5 RESULTS OF THE HIA.

RESULTS OF ARCHAEOLOGICAL EXAMINATIONS FOR THE PROPOSED DUMA SUBSTATION

Location Details

Province: Mpumalanga

Local Municipalities: Thaba Chue local Municipality

Name Properties affected: Lydenburg Vliegveld 1448 (Municipality land),

Proposed development: Construction of a new 132kv-powerline Duma substation and associated 100m access road.

1:50 000 map name: Lydenburg 2329

GPS Co-ordinates and description of proposed substation site:

- S23° 57' 10.1." E029° 23' 52.8" (centre of proposed substation)
- S25° 07'.14.3 ' E030° 25' 27.3" (T-off pylon)
- S25° 07' 11.3' E030° 25'.24.6"(concentration of historical glass fragments at the edge of the preferred substation site)
- S25° 07' 14.7" E030° 25'.29.6". (geotechnical drilling marks on Alternative 3 site)
- S25° 07'.04.6 E030 25'.32.4" (T-off pylon for the third alternative)
- S25° 07' 06.3 E 030° 25' 33.3" (T-off pylon for the second alternative)



Plates 1 and 2: Views of the proposed Alternative Site 1 for the construction of Duma substation (preferred site)

ALTERNATIVE SITE 1 [PREFERRED SITE]

Archaeological and Cultural Sites

Due to the very thin or highly disturbed nature of soil deposits and high surface visibility (see plates 1 and 2) on the proposed development Alternative Site 1, no shovel testing was conducted nor was it necessary (and a permit would be required for such test survey) as any sites present were anticipated

to be superficially visible. No archaeological sites were identified in course of field investigations. The affected landscaped is heavily degraded from previous and current land use patterns. As such the chances of recovering archaeological materials *in situ*, particularly for open sites, were seriously compromised and limited (see Plates 1 & 2). If such sites existed along the surveyed substation Alternative Site 1, they may have been destroyed over the land history of deep ploughing and other destructive land use patterns that have affected the project area prior to this proposed project.

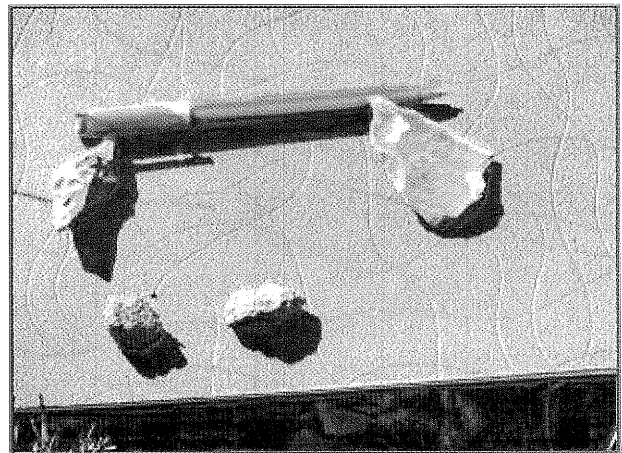
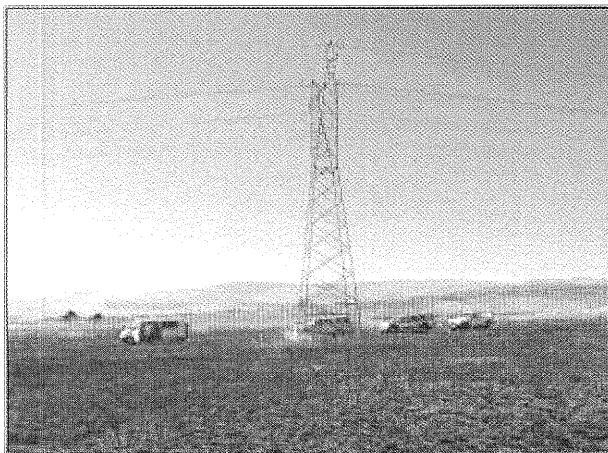
Historical and Recent sites

Generically speaking, historic sites are associated with white settlers, colonial wars, industrialization; contemporary African population settlements, contemporary ritual sites and settler farming communities are the most common and visible. The more common functions of places of cultural historical significance include:

- Domestic
- Recreation & culture
- Commerce & trade
- Agriculture & subsistence
- Social
- Health care
- Religion
- Designed landscape
- Funeral (cemeteries, graves and burial grounds)
- Civil and Structural Engineering
- Education
- Defence /Military

Ruminants of historical sites were observed in the general project area. Some indicator of recent historic sites were recorded on the project area too (see Plate 4 below). Apart from these insignificant remains, no distinct site, cultural or historical were recorded on the direct path of the proposed substation development Alternative Site 1. The proposed access road route did not yield any physical cultural property.

There is no listed monument in the area affected by the proposed substation site or its vicinity. However, recent historic period sites and features associated with the settler and commercial farming communities were observed. Although the affected landscape is associated with historical events such as white settler migration, colonial wars and the recent peopling of the region, no listed specific historical sites are on the proposed substation development site.



Plates 3 and 4: View of Alternative Site 1 earmarked for substation development (left) and some glass fragments identified at the edge of the proposed site (right).

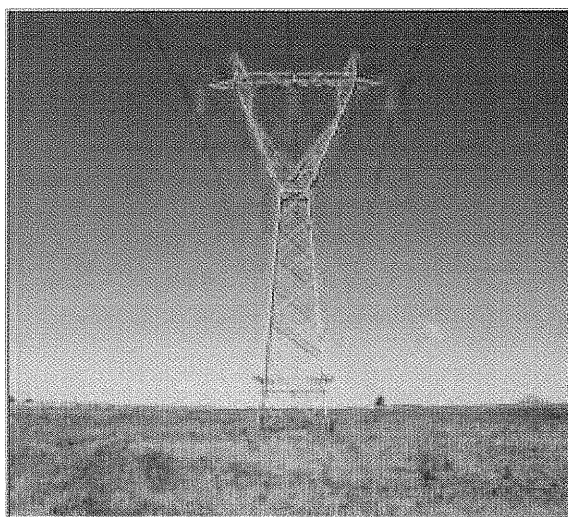
Burial grounds and graves

No formal graveyard or isolated grave site was identified within or near the proposed substation Alternative Site 1. From a heritage perspective, burial grounds and gravesites are accorded the highest social significance threshold. They have both historical and social significance and are considered sacred. They may not be tampered with or interfered with during the proposed substation construction.

Previously unidentified burial sites/graves – The project area is situated on a historic settlement site. In this same context, it is critical to note that there is always a possibility of encountering human remains anywhere on the landscape – finds are made on construction sites from time to time, but again the chances are considered to be high for this development. Although the possibility of encountering previously unidentified burial sites is limited along the affected power line servitude, should such sites be identified, they are still protected by applicable legislations and they should be protected. Should such sites be identified, they are covered by applicable legislations and they should be protected (also see Appendixes 2 to 5).

ALTERNATIVE SUBSTATION SITE 2

Alternative Substation Site 2 was presented in line with the National Environmental Management Act (NEMA, 2002) EIA regulations. The alternative site was assessed alongside the preferred site., Alternative Site 1 discussed above. The presented alternative substation site is situated in generally similar landscape to that of the preferred substation site discussed above (also see Plates 5 & 6)



Plates 5 and 6: The T off position marked by existing powerline pylon [left] and Alternative Site 2 earmarked as optional site for the substation.

Archaeological and cultural site

No archaeological sites were observed during the course of the field survey of Alternative Site 2. The alternative site of the proposed substation is equally as disturbed as the preferred site.



Plates 7: Some portions of the project area which were disturbed were inspected for possible archaeological materials from subsurface. The general area is either developed, under agricultural use or old sugar cane farms

Historical Monuments

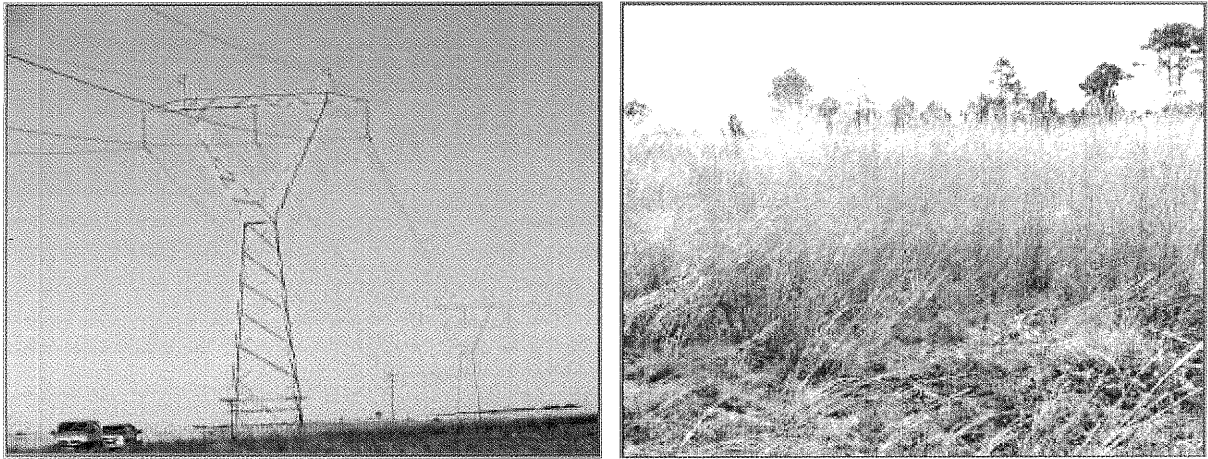
There is no listed monument in the area affected by the proposed substation's Alternative Site 2.

Cemeteries and Burial sites

No cemeteries or burial site were observed during the course of the field investigations of the Alternative Site 2.

5.3. ALTERNATIVE C

The Alternative Site 3 was also assessed alongside the preferred site, Alternative Site 1. The presented alternative substation site is located adjacent to Alternative 1 and 2 on generally similar landscape to that of the preferred substation site, discussed above (also see Plates 8 - 11). The survey did not identify any archaeological sites or physical cultural resources such as graves, burial grounds and religious or sacred sites that may be affected by the proposed development of this alternative site.



Plates 8 and 9: Existing powerline pylons. Both Alternative Sites 2 and 3 will be linked by loop-in and out power lines that will t-off from this position [left]. High grass cover over portion of Alternative Site 2 did not hinder the site survey in any way.

Archaeological and cultural site

No archaeological sites were observed during the course of the field survey of Alternative Site 3. The alternative site of the proposed substation is equally as disturbed as the preferred site.



Plates 10 and 11: The general area marked as Alternative Site 3 for the power line. The general area is either developed, under agricultural use or plantation infrastructures.

Historical Monuments

There is no listed monument in the area affected by the proposed substation's Alternative Site 3.



Plate 12: A piece of iron sheet recorded at the proposed Alternative Site 3. Such material support the observation that the affected project area is a contemporary historical landscape.

Cemeteries and Burial sites

No cemeteries or burial site were observed during the course of the field investigations of the Alternative Site 3.

6 STATEMENT OF OVERALL IMPACTS

The hidden and unknown nature of archaeological features provides the biggest archaeological challenge when surveying proposed development sites, as the discovery of a large previously unknown archaeological site can lead to significant impacts and delay to the construction phase. Early identification is the key to protecting the archaeological resource and to ensuring proper management and cost control in relation to individual construction programmes. The challenge is to strike a balance between protecting the essential multi-layered historical character of the landscape while responding to modern development needs of the proposed building.

In the context of this study, the affected project area is clearly a historic settlement which consisted of farmland, historic settlements and farmsteads. However, no particular significant sites were recorded on the path of the proposed development. The likelihood of creating negative impacts on any known physical cultural property and cultural landscape during the proposed substation development is unlikely.

There were no archaeological sites that were recorded on the path of the all the alternative sites proposed for the substation development. However, there is always a possibility that chance archaeological artefacts may be unearthed during excavations and subsurface construction work during the construction phase. In principal, given the absence of any recorded heritage sites along the substation sites(s), the proposed development project will have no or minimum impact upon any cultural heritage resources including graves, historical and archaeological resources.

7 OVERALL RECOMMENDATIONS

When construction begins no conflicts between archaeological and heritage properties including burial grounds and the proposed development is anticipated (see Tables 2 and 3 for detailed management inputs and mitigation measures). However, in practice, defining the optimum level of impact management is hindered by the fact that cultural heritage resource values and preservation benefits are not easily measured in economic terms in comparison to the proposed substation and associated auxiliary developments especially given the fact that no heritage resources were on record and yet a remote possibility of encountering chance finds exists. All the same, the overriding objectives in the recommendations herein made are to promote efficiency and equity, and ensure that the benefits of such measures exceed the costs in relation to the proposed development. Be that as it may, the following recommendations are made for this specific substation development:

- The foot print impact of substation and each loop-in and out powerline pole installations and the access road development should be kept to minimal to limit the possibility of encountering chance finds. All construction activities including construction campsites should be located within the surveyed project area on previously disturbed ground.
- In situations where unpredicted impacts occur (such as accidentally disturbing a previously unknown grave), construction activities must be stopped and the heritage authority should be notified immediately. The overriding objective, where remedial action is warranted, is to minimize disruption in construction scheduling while recovering archaeological data.
- It may be necessary to implement emergency measures to mitigate unanticipated impacts on archaeological sites where project actions inadvertently uncovered significant archaeological sites.
- Furthermore, the construction team should be informed about the value of the cultural heritage resources in general so as to ensure that they do not destroy the chance archaeological sites they may encounter during subsurface construction working on the power-line route.
- In the unlikely event of chance archaeological material or previously unknown human remains being disturbed during substation construction, the finds should be left *in situ* subject to further instruction from the project archaeologist or heritage authorities (refer to Appendixes 2 - 5 for more specific details).

8 CONCLUDING REMARKS

From a heritage perspective, it is not always possible to recommend an alternative site for the development such as the substation especially when the alternative sites are located on a uniform cultural landscape as is the case for this proposed development. The project's receiving cultural landscape under potential threat from the proposed development, whilst important, it does not have high significance threshold to call for total protection. Nonetheless, recommendations herein made as

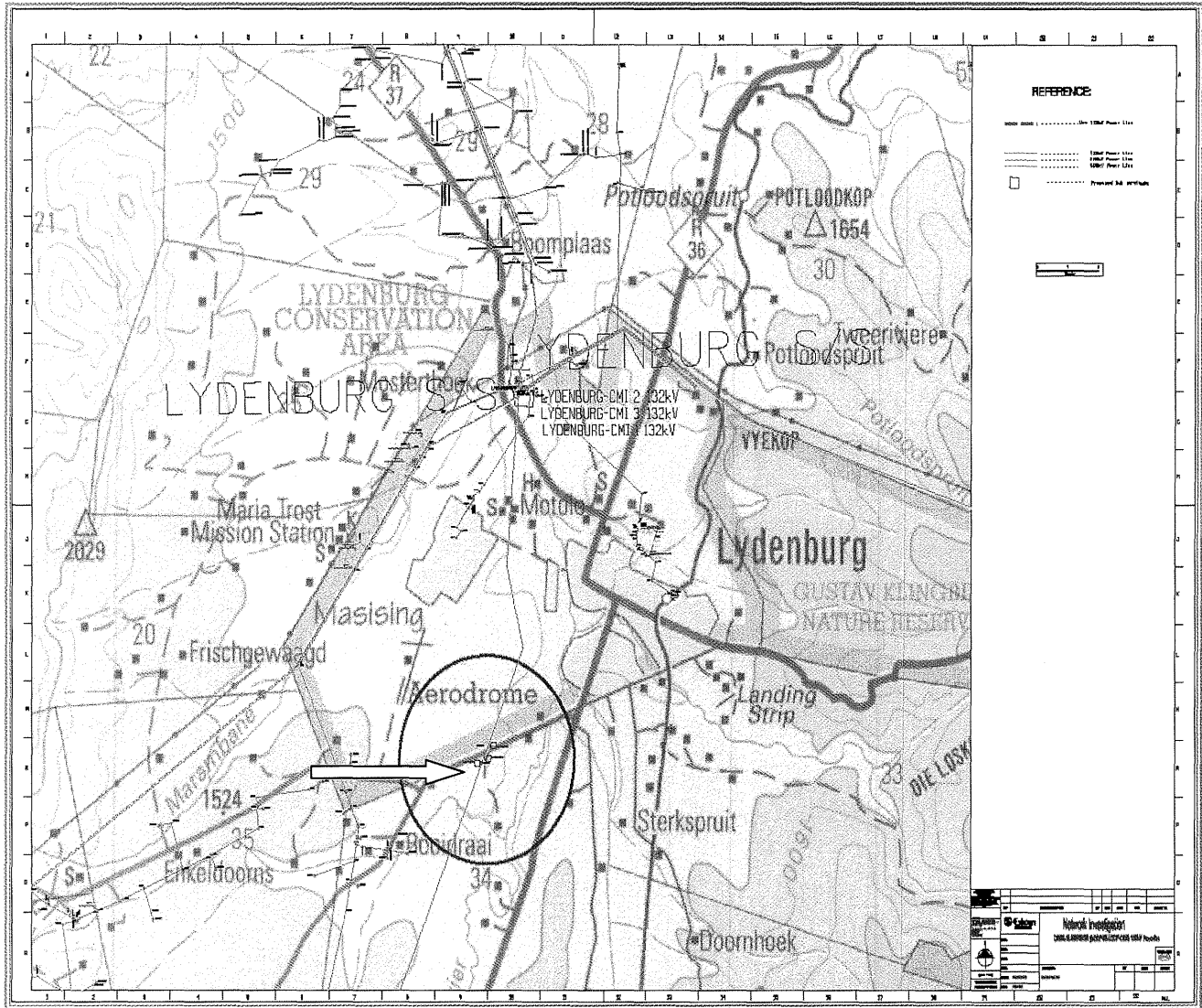
part of the proposed project EMP will help pre-empt possible and anticipated impacts on heritage resources. Detailed monitoring procedures should be scheduled in order to adequately respond to chance finds, although unlikely to be encountered, that may be found accidentally during the substation development (Appendixes 1 – 4). Subject to the recommendations herein made, there are no significant cultural heritage resources barriers to the proposed development. With the constraints herein discussed and appropriate monitoring measures adopted, there are no objections to the proposed substation development.

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APPENDIX 1:

MAP SHOWING THE PROPOSED SITE FOR THE CONSTRUCTION OF DUMA SUBSTATION.



APPENDIX 2: HERITAGE MANAGEMENT PLAN INPUT INTO PROJECT EMP

No.	Activity	Mitigation Measures	Duration	Frequency	Responsibility	Accountable	Contacted	Informed
Pre-Construction Phase								
1	Planning	Ensure all known sites of cultural, archaeological, and historical significance are demarcated on the site layout plan, and marked as no-go areas. No cultural, archaeological sites identified during the field survey phase.	Throughout Project	Weekly Inspection	Contractor [C] CECO	SM	ECO	EA EM PM
Construction Phase								
1	Emergency Response	Should any archaeological or physical cultural property heritage resources be exposed during excavation for the purpose of construction, construction in the vicinity of the finding must be stopped until heritage authority has cleared the development to continue.	N/A	Throughout	C CECO	SM	ECO	EA EM PM
		Should any archaeological, cultural property heritage resources be exposed during excavation or be found on site, a registered heritage specialist or PHRA official must be called to site for inspection.		Throughout	C CECO	SM	ECO	EA EM PM
		Under no circumstances may any archaeological, historical or any physical cultural property heritage material be destroyed or removed from site;		Throughout	C CECO	SM	ECO	EA EM PM
		Should remains and/or artefacts be discovered on the site during earthworks, all work will cease in the area affected and the Contractor will immediately inform the Construction Manager who in turn will inform PHRA.		When necessary	C CECO	SM	ECO	EA EM PM
		Should any remains be found on site that is potentially human remains, the PHRA and South African Police Service should be contacted.		When necessary	C CECO	SM	ECO	EA EM PM
Rehabilitation Phase								
		Same as construction phase.						
Operational Phase								
		Same as construction phase.						

APPENDIX 3: ENVIRONMENTAL MANAGEMENT PLAN [EMP] HERITAGE RESOURCES MITIGATION MEASURES TABLE

SITE REF	HERITAGE ASPECT	POTENTIAL IMPACT	MITIGATION MEASURES	RESPONSIBLE PARTY	PENALTY	METHOD STATEMENT REQUIRED
Previously unknown Burials	No burial or gravesites were recorded on alternative substation development sites. However, there is a possibility of encountering previously unknown grave site on any cultural landscape particularly during subsurface construction work. Where they are identified, graves are part of a historic Cultural Landscape with historic social, religious, as well as Intangible heritage values.	<ul style="list-style-type: none"> Loss of historic cultural landscape; Destruction of burial sites and associated graves Loss of aesthetic value due to construction work Loss of sense of place Loss of intangible heritage value due to change in land use 	<ul style="list-style-type: none"> No known burial sites are on record on project area. Where gravesites are identified accidentally during subsurface construction work, all work on affected site should be suspended until relevant heritage authority processes the chance finds. Accidentally discovered burials should be salvaged and rescued to safe sites as may be directed by relevant heritage authority. The heritage officer responsible should secure relevant heritage and health authorities permits for possible relocation of affected graves accidentally encountered during construction work. Where burial sites are accidentally disturbed during construction, the affected area should be demarcated as no-go zone by use of fencing during construction, and access thereto by the construction team must be denied. 	<ul style="list-style-type: none"> The Developer Project Planners Project Manager Environmental Officer Project Social Impact Specialist Project Heritage Specialist 	Fine and or imprisonment under the National Heritage Resources Act, Act 25 of 1999.	<p>This is a compliance issue to be acted upon when construction work begins and when chance sites are encountered in the process.</p> <p>The identified impacts are associated with construction mitigation management & monitoring issues.</p> <p>Mitigation measures should be implemented as recommended should gravesites be encountered accidentally during development</p> <p>Monitoring measures should be issued as instruction within the project EMP</p>
Cultural landscape alternative substation sites	Entire project area is dotted with historic farmsteads. However, no historic or cultural property is affected by the proposed development. The project area do however, remain a historic landscape.	Destruction of significant historical cultural landscape associated with settler farming communities and African communities that may have occupied the area before.	<p>The footprint of the substation development should be limited to approved project sites.</p> <p>No further action is required. Should previously unknown physical cultural properties including archaeological, historical and burial sites, be accidentally be encountered during construction phase, they should be recorded in detail before further construction is authorised on affected site.</p>	<ul style="list-style-type: none"> The Developer Project Planner Project Manager Environmental Officer Project Heritage Specialist 	Fine and or imprisonment under the National Heritage Resources Act, Act 25 of 1999.	This is a monitoring compliance issue related to construction phase. No impacts are anticipated but should chance sites be encountered mitigation measures should be implemented as recommended before development is allowed to continue on affected landscape.
Chance Archaeological Sites	The project area is a cultural landscape with history of human occupation. Therefore, there is a remote possibility of encountering previously unknown archaeological sites.	Possible damage to previously unidentified archaeological and burial sites during subsurface construction phase. Unanticipated impacts on archaeological sites where project actions inadvertently uncovered significant sites	<p>In situations where unpredicted impacts occur construction activities must be stopped and the heritage authority should be notified.</p> <p>Where remedial action is warranted, minimize disruption in construction scheduling while recovering archaeological data. Where necessary, implement emergency measures to mitigate.</p>	<ul style="list-style-type: none"> Contractor / Project Manager Archaeologist Project EO 	Fine and or imprisonment under the National Heritage Resources Act, Act 25 of 1999.	<p>Monitoring measures should be issued as instruction within the project EMP.</p> <p>PM/EO/Archaeologists Monitor construction work on sites.</p>

APPENDIX 4: SIGNIFICANCE VALUATION OF HERITAGE RESOURCES

An effective HIA system revolves around three independent but related aspects: conservation; significance and utilisation with reference to interferences that would result from the proposed development in the project area.

Conservation – this element focus on physical condition of the resources (site condition survey), potential threats or vulnerability (exposure of site or resource to immediate interference from development activities, deterioration or damaging elements), and accessibility (frequency of and density of human visitation). The physical condition, threats and accessibility of a given resource has implications on the intangible value of significance of the particular resource.

Significance archaeological, architectural, palaeontological, historical, scientific, biophysical, socio-cultural, religious, aesthetic, uniqueness, emotional and contextual value of the site, feature and the overall cultural landscape.

Utilisation relates to the site’s current use and utilisation status varying between two continuums of no utilisation (0 points) to utilised (5 points).

- **Scientific utilisation** – Primary aim of scientific research lies in the search for answers to fundamental issues about the biophysical natural and the human world. Evaluation for scientific utilisation value for heritage resources revolves around context, i.e. primary versus secondary contexts whereby primary contexts are original and undisturbed or less disturbed and therefore more important scientifically as opposed to secondary contexts. This also borders around the preservation status of the given site(s). High levels of preservation obviously are very favourable for the site’s scientific utilisation.
- **Educational/ interpretative** – This is similar to evaluation of uKhahlamba-Drakensberg cultural heritage resources for tourism utilisation. This refers to the presence of humans in the region and on heritage sites. This depends on potential for public display and interpretation capacity while embodying conservation principle for sustainability.

- High magnitude with regional extent and long term duration.
- High magnitude with either a regional extent and medium term duration or a local extent and long term duration.
- Medium magnitude with a regional extent and long term duration.

MEDIUM SIGNIFICANCE

- High magnitude with local extent and medium term duration.
- High magnitude with regional extent and short term duration or a site specific extent and long term duration.
- High magnitude with either a local extent and short term duration or a site specific extent and medium term duration.
- Medium magnitude with any combination of extent and duration except site specific and short term or regional and long term.
- Low magnitude with a regional extent and long term duration.

LOW SIGNIFICANCE

- High magnitude with a site specific extent and short term duration.
- Medium magnitude with a site specific extent and short term duration.
- Low magnitude with any combination of extent and duration except site specific and short term.
- Very low magnitude with a regional extent and long term duration.

VERY LOW SIGNIFICANCE

- Low magnitude with a site specific extent and short term duration.
- Very low magnitude with any combination of extent and duration except regional and long term.

Table 1: Conservation valuation system.

Criteria	Valuation Points
Physical condition	No damage = 0 points
	Serious damage = 5 points
Potential threats	Not vulnerable = 0 points
	Serious vulnerability = 5 points
Accessibility	Not accessible = 0 points
	Highly accessible = 5 points

The following guidelines for determining site significance were developed by the South African Heritage Resources Agency in 2003.

HIGH SIGNIFICANCE

Table 2: Significance Valuation details.

Significance	Value details
Scientific significance	<ul style="list-style-type: none"> Relates to the assessment of the research potential of a site and the relevance of any data that the site(s) might contain for the pursuit of academic research questions. This also concerns the potential of a site(s) to address anticipated future trends, research capabilities and interests. The importance of a place will depend on its rarity, quality or representativeness, and degree to which the place may contribute further substantial information (see Burra Charter, 1988, p.12) May be measured against the site(s)'s values as unique sources of information; whether such information is not available from other sites; can it answer pertinent questions (Bickford and Sullivan 1977: 23-24).
Archaeological Significance	<ul style="list-style-type: none"> The significance of an archaeological site is based on the amount of deposit, the integrity of the context (that is primary versus secondary context), the kind of deposit and the potential to help answer present research questions.
Historical Significance	<ul style="list-style-type: none"> Historical significance relates exclusively to the last 100 years or a period of importance associated with events, developments, artistic excellence, outstanding achievement and evolution of a nation, group, region or locality. Historical value encompasses the history of aesthetics, science and society, and therefore to a large extent underlies all forms of significance valuation. A place may have historical significance because it has influenced, or has been influenced by an historic figure, event, phase or activity. It may value as a site of an important event. For any given place the significance will be greater where the evidence of the association or event survives in situ, or where the settings are substantially in tact, than where it has been changed where evidence does not survive. However, some events or association may be so important that the place retains significance regardless of the subsequent treatment.
Aesthetic Significance	<ul style="list-style-type: none"> Mostly associated with intangible heritage values and cultural landscapes. Deals with visual values. In this context the significance is classified by response derived from the experience of the environment and cultural attributes within the project area. Important in the context of this study is the observation that aesthetic significance is a product of emotional experience rather than a checklist of attributes. As such many archaeological sites are sub-surface and therefore will not be able to be assessed on aesthetic criteria. This study uses site to site assessment whether aesthetic significance is a relevant category to assess, rather than taking this as a given.

Social Significance	<ul style="list-style-type: none"> Social value embraces the qualities for which a place has become a focus of spiritual, political, national or other cultural sentiments to a majority group Social significance threshold also include religious sites bordering around the fact that they are considered sacred and they are used for rituals. Data on the ritual activities relating to their significance is not readily available. Access to these sites is normally strictly restricted. The sites are supposed to be located away from settlements or areas where the public may not have easy access.
Religious	<ul style="list-style-type: none"> The significance threshold of religious sites border around the fact that they are considered sacred and they are used for rituals. Data on the ritual activities relating to their significance is not readily available. Access to these sites is normally strictly restricted. The sites are supposed to be located away from settlements or areas where the public may not have easy access.

APPENDIX 5: HUMAN REMAINS AND BURIALS IN DEVELOPMENT CONTEXT

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Developers, land use planners and professional specialist service providers often encounter difficult situations with regards to burial grounds, cemeteries and graves that may be encountered in development contexts. This may be before or during a development project. There are different procedures that need to be followed when a development is considered on an area that will impact upon or destroy existing burial grounds, cemeteries or individual graves. In contexts where human remains are accidentally found during development work such as road construction or building construction, there are different sets of intervention regulations that should be instigated. This brief is an attempt to highlight the relevant regulations with emphasis on procedures to be followed when burial grounds, cemeteries and graves are found in development planning and development work contexts. The applicable regulations operate within the national heritage and local government legislations and ordinances passed in this regard. These guidelines assist you to follow the legal pathway.

1. First, establish the context of the burial:

A. Are the remains less than 60 years old? If so, they may be subject to provisions of the Human Tissue Act, Cemeteries Ordinance(s) and to local, regional, or municipal regulations, which vary from place to place. The finding of such remains must be reported to the police but are not automatically protected by the National Heritage Resources Act (Act 25 of 1999).

B. Is this the grave of a victim of conflict? If so, it is protected by the National Heritage Resources Act (Section 36(3a)). (Relevant extracts from the Act and Regulations are included below).

C. Is it a grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority? If so, it is protected by the National Heritage Resources Act (Section 36(3b)).

D. Are the human or hominid remains older than 100 years? If so, they are protected by the National Heritage Resources Act (Section 35(4), see also definition of "archaeological" in Section 2).

2. Second, refer to the terms of the National Heritage Resources Act most appropriate to the situation, or to other Acts and Ordinances:

A. Human remains that are NOT protected in terms of the National Heritage Resources Act (i.e. less than 60 years old and not a grave of a victim of conflict or of cultural significance) are subject to provisions of the Human Tissue Act and to local and regional regulations, for example Cemeteries Ordinances applicable in different Provincial and local Authorities.

B). All finds of human remains must be reported to the nearest police station to ascertain whether or not a crime has been committed.

C). If there is no evidence for a crime having been committed, and if the person cannot be identified so that their relatives can be contacted, the remains may be kept in an institution where certain conditions are fulfilled. These conditions are laid down in the Human Tissue Act (Act No. 65 of 1983). In contexts where the local traditional authorities given their consent to the unknown remains to be re-buried in their area, such re-interment may be conducted under the same regulations as would apply for known human remains.

3. In the event that a graveyard is to be moved or developed for another purpose, it is incumbent on the local authority to publish a list of the names of all the persons buried in the graveyard if there are gravestones or simply a notification that graves in the relevant graveyard are to be disturbed. Such a list would have to be compiled from the names on the gravestones or from parish or other records. The published list would call on the relatives of the deceased to react within a certain period to claim the remains for re-interment. If the relatives do not react to the advertisement, the remains may be re-interred at the discretion of the local authority.

A. However, it is the responsibility of the developer to ensure that none of the affected graves within the cemetery are burials of victims of conflict. The applicant is also required in line with the heritage legislation to verify that the graves have no social significance to the local communities.

B. It is illegal in terms of the Human Tissue Act for individuals to keep human remains, even if they have a permit, and even if the material was found on their own land.

4. The Exhumations Ordinance (Ordinance No. 12 of 1980 and as amended) is also relevant. Its purpose is "To prohibit the desecration, destruction and damaging of graves in cemeteries and receptacles containing bodies; to regulate the exhumation, disturbance, removal and re-interment of bodies, and to provide for matters incidental thereto". This ordinance is supplemented and supported by local authorities regulations, municipality by-laws and ordinances.

DEFINITIONS AND APPLICABLE REGULATIONS

1). A "Cemetery" is defined as any land, whether public or private, containing one or more graves.

2). A "grave" includes "(a) any place, whether wholly or partly above or below the level of ground and whether public or private, in which a body is permanently interred or intended to be permanently interred, whether in a coffin or other receptacle or not, and (b) any monument, tombstone, cross, inscription, rail, fence, chain, erection or other structure of whatsoever nature forming part of or appurtenant to a grave.

3). No person shall desecrate, destroy or damage any grave in a cemetery, or any coffin or urn without written approval of the Administrator.

4). No person shall exhume, disturb, remove or re-inter anybody in a cemetery, or any coffin or urn without written approval of the Administrator.

5). Application must be made for such approval in writing, together with:

a). A statement of where the body is to be re-interred.

b). Why it is to be exhumed.

c). The methods proposed for exhumation.

d). Written permission from local authorities, nearest available relatives and their religious body owning or managing the cemetery, and where all such permission cannot be obtained, the application must give reasons why not.

6). The Administrator has the power to vary any conditions and to impose additional conditions.

7). Anyone found guilty and convicted is liable for a maximum fine of R200 and maximum prison sentence of six months.

5. Human remains from the graves of victims of conflict, or any burial ground or part thereof which contains such graves and any other graves that are deemed to be of cultural significance may not be destroyed, damaged, altered, exhumed or removed from their original positions

without a permit from the National Heritage Resources Agency. They are administered by the Graves of Conflict Division at the SAHRA offices in Johannesburg.

"Victims of Conflict" are:

- a). Those who died in this country as a result of any war or conflict but excluding those covered by the Commonwealth War Graves Act, 1992 (Act No. 8 of 1992).
- b). Members of the forces of Great Britain and the former British Empire who died in active service before 4 August 1914.
- c). Those who, during the Anglo Boer War (1899-1902) were removed from South Africa as prisoners and died outside South Africa, and,
- d). Those people, as defined in the regulations, who died in the "liberation struggle" both within and outside South Africa.

6. Any burial that is older than 60 years, which is outside a formal cemetery administered by a local authority, is protected in terms of Section 36(3b) of the National Heritage Resources Act. No person shall destroy damage, alter, exhume or remove from its original position, remove from its original site or export from the Republic any such grave without a permit from the SAHRA.

There are some important new considerations applicable to B & C (above).

SAHRA may, for various reasons, issue a permit to disturb a burial that is known to be a grave of conflict or older than 65 years, or to use, at a burial ground, equipment for excavation or the detection or the recovery of metals.

(Permit applications must be made on the official form Application for Permit: Burial Grounds and Graves available from SAHRA or provincial heritage resources authorities.) Before doing so, however, SAHRA must be satisfied that the applicant:

- a). Has made satisfactory arrangements for the exhumation and re-interment of the contents of such a grave at the cost of the applicant.
- b). Has made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such a grave and,
- c). Has reached an agreement with these communities and individuals regarding the future of such a grave or burial ground.

PROCEDURE FOR CONSULTATION

The regulations in the schedule describe the procedure of consultation regarding the burial grounds and graves. These apply to anyone who intends to apply for a permit to destroy damage, alter, remove from its original position or otherwise disturb any grave or burial ground older than 60 years that is situated outside a formal cemetery administered by a local authority. The applicant must make a concerted effort to identify the descendants and family members of the persons buried in and/or any other person or community by tradition concerned with such grave or burial ground by:

- 1). Archival and documentary research regarding the origin of the grave or burial ground;
- 2). Direct consultation with local community organizations and/or members;
- 3). The erection for at least 60 days of a notice at the grave or burial ground, displaying in all the official languages of the province concerned, information about the proposals affecting the site, the telephone number and address at which the applicant can be contacted by any interested person and the date by which contact must be made, which must be at least 7 days after the end of the period of erection of the notice; and
- 4). Advertising in the local press.

The applicant must keep records of the actions—undertaken, including the names and contact details of all persons and organizations contacted and their response, and a copy of such records must be submitted to the provincial heritage resources authority with the application. Unless otherwise agreed by the interested parties, the applicant is responsible for the cost of any remedial action required.

If the consultation fails to reach an agreement, the applicant must submit records of the consultation and the comments of all interested parties as part of the application to the provincial heritage resources authority.

In the case of a burial discovered by accident, the regulations state that when a grave is discovered accidentally in the course of development or other activity:

a). SAHRA or the provincial heritage resources authority (or delegated representative) must, in co-operation with the Police, inspect the grave and decide whether it is likely to be older than 60 years or otherwise protected in terms of the Act; and whether any further graves exist in the vicinity.

b). If the grave is likely to be so protected, no activity may be resumed in the immediate vicinity of the grave, without due investigation approved by SAHRA or the provincial heritage resources authority; and

c). SAHRA or the provincial heritage resources authority may at its discretion modify these provisions in order to expedite the satisfactory resolution of the matter.

d). Archaeological material, which includes human and hominid remains that are older than 100 years (see definition in section 2 of the Act), is protected by the National Heritage Resources Act (Section 35(4)), which states that no person may, without a permit issued by the responsible heritage resources authority - destroy, damage, excavate, alter or remove from its original site any archaeological or palaeontological material.

The implications are that anyone who has removed human remains of this description from the original site must have a permit to do so. If they do not have a permit, and if they are convicted of an offence in terms of the National Heritage Resources Act as a result, they must be liable to a maximum fine of R100 000 or five years imprisonment, or both.

TREAT HUMAN REMAINS WITH RESPECT

a). Every attempt should be made to conserve graves in situ. Graves should not be moved unless this is the only means of ensuring their conservation.

b). The removal of any grave or graveyard or the exhumation of any remains should be preceded by an historical and archaeological report and a complete recording of original location, layout, appearance and inscriptions by means of measured drawings and photographs. The report and recording should be placed in a permanent archive.

c). Where the site is to be re-used, it is essential that all human and other remains be properly exhumed and the site left completely clear.

d). Exhumations should be done under the supervision of an archaeologist, who would assist with the identification, classification, recording and preservation of the remains.

e). No buried artifacts should be removed from any protected grave or graveyard without the prior approval of SAHRA. All artifacts should be re-buried with the remains with which they are associated. If this is not possible, proper arrangements should be made for the storage of such relics with the approval of SAHRA.