

HERITAGE IMPACT ASSESSMENT

(REQUIRED UNDER SECTION 38(8) OF THE NHRA (No. 25 OF 1999))

FOR THE PROPOSED CLAYVILLE THERMAL PLANT IN THE CLAYVILLE INDUSTRIAL AREA, GAUTENG PROVINCE

Type of development:

Thermal Plant

Client:

Savannah Environmental (Pty) Ltd

Thalita Botha

Developer:

Bellmall Energy Project 325 (Pty) Ltd



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APPROVAL PAGE

Project Name	Clayville Thermal Plant In The Clayville Industrial Area, Gauteng Province
Report Title	Heritage Impact Assessment Clayville Thermal Plant
Authority Reference Number	TBC
Report Status	Final Report
Applicant Name	Bellmall Energy Project 325 (Pty) Ltd

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REPORT OUTLINE

Appendix 6 of the GNR 326 EIA Regulations published on 7 April 2017 provides the requirements for specialist reports undertaken as part of the environmental authorisation process. In line with this, Table 1 provides an overview of Appendix 6 together with information on how these requirements have been met.

Table 1. Specialist Report Requirements.

Requirement from Appendix 6 of GN 326 EIA Regulation 2017	Chapter
(a) Details of - (i) the specialist who prepared the report; and (ii) the expertise of that specialist to compile a specialist report including a curriculum vitae	Section a Section 12
(b) Declaration that the specialist is independent in a form as may be specified by the competent authority	<i>Declaration of Independence</i>
(c) Indication of the scope of, and the purpose for which, the report was prepared	Section 1
(cA) an indication of the quality and age of base data used for the specialist report	Section 3.4 and 7.1.
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	9
(d) Duration, Date and season of the site investigation and the relevance of the season to the outcome of the assessment	Section 3.4
(e) Description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used	Section 3
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Section 8 and 9
(g) Identification of any areas to be avoided, including buffers	Section 9
(h) Map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers	Section 8
(I) Description of any assumptions made and any uncertainties or gaps in knowledge	Section 3.7
(j) a description of the findings and potential implications of such findings on the impact of the proposed activity including identified alternatives on the environment or activities;	Section 9
(k) Mitigation measures for inclusion in the EMPr	Section 9 and 10
(I) Conditions for inclusion in the environmental authorisation	Section 9 and 10
(m) Monitoring requirements for inclusion in the EMPr or environmental authorisation	Section 9 and 10
(n) Reasoned opinion - (i) as to whether the proposed activity, activities or portions thereof should be authorised; (iA) regarding the acceptability of the proposed activity or activities; and (ii) if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	Section 10.2
(o) Description of any consultation process that was undertaken during the course of preparing the specialist report	Section 6
(p) A summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	Refer to EIA report
(q) Any other information requested by the competent authority	Section 10

Executive Summary

HCAC was appointed to conduct a Heritage Impact Assessment of the proposed Clayville Thermal Plant project to determine the presence of cultural heritage sites and the impact of the proposed development on these non-renewable resources. The study area was assessed both on desktop level and by a field survey. The field survey was conducted as a non-intrusive pedestrian survey to cover the extent of Erf 457, Erf 459 and Erf 12 of 508 footprint as development plans were not available at the time of the survey.


In terms of Section 35 of the NHRA no archaeological sites were identified. No further mitigation prior to construction is recommended in terms of the archaeological component of Section 35 of the NHRA for the proposed development to proceed. The project site is located within an area considered to be of very high significance. A Palaeontological Impact Assessment has been compiled by Marion Bamford (2017) for the project. No fossils have been recorded in the area and it is unlikely that any fossils occur in the surface areas of the proposed project as these areas are already highly disturbed by industrial buildings and infrastructure. It was concluded that no paleontological impact assessment is required during the EIA phase of the project. It was however recommended that the monitoring protocol be included in the EMPr

In terms of the built environment of the area (Section 34 of the NHRA) no standing structures older than 60 years occur within the study area. In terms of Section 36 of the NHRA and Section 34 no burial sites were recorded. If any graves are located in future they should ideally be preserved *in-situ* or alternatively relocated according to existing legislation. No public monuments are located within or close to the study area. The study area is located in an industrial area away from main tourist routes and the proposed development will not impact negatively on significant views. During the public participation process conducted for the project no heritage concerns were raised.

The impact of the proposed project on heritage resources is considered low and it is recommended that the proposed project can commence provided that the recommendations below are adhered to and based on approval from SAHRA.

- Implementation of a chance find procedure as part of the EMPr.

Declaration of Independence

Specialist Name	Jaco van der Walt
Declaration of Independence	<p>I declare, as a specialist appointed in terms of the National Environmental Management Act (Act No 108 of 1998) and the associated 2014 Environmental Impact Assessment (EIA) Regulations, that I:</p> <ul style="list-style-type: none"> • I act as the independent specialist in this application; • I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant; • I declare that there are no circumstances that may compromise my objectivity in performing such work; • I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity; • I will comply with the Act, Regulations and all other applicable legislation; • I have no, and will not engage in, conflicting interests in the undertaking of the activity; • I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority; • All the particulars furnished by me in this form are true and correct; and • I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.
Signature	
Date	11/06/2018

a) Expertise of the specialist

Jaco van der Walt has been practising as a CRM archaeologist for 15 years. He obtained an MA degree in Archaeology from the University of the Witwatersrand focussing on the Iron Age in 2012 and is a PhD candidate at the University of Johannesburg focussing on Stone Age Archaeology with specific interest in the Middle Stone Age (MSA) and Later Stone Age (LSA). Jaco is an accredited member of ASAPA (#159) and have conducted more than 500 impact assessments in Limpopo, Mpumalanga, North West, Free State, Gauteng, KZN as well as he Northern and Eastern Cape Provinces in South Africa.

Jaco has worked on various international projects in Zimbabwe, Botswana, Mozambique, Lesotho, DRC Zambia and Tanzania. Through this he has a sound understanding of the IFC Performance Standard requirements, with specific reference to Performance Standard 8 – Cultural Heritage.

TABLE OF CONTENTS

REPORT OUTLINE.....	4
EXECUTIVE SUMMARY	5
DECLARATION OF INDEPENDENCE	1
A) EXPERTISE OF THE SPECIALIST.....	1
ABBREVIATIONS	7
GLOSSARY	7
1 INTRODUCTION AND TERMS OF REFERENCE:.....	8
1.1 TERMS OF REFERENCE.....	8
2 LEGISLATIVE REQUIREMENTS.....	13
3 METHODOLOGY	15
3.1 LITERATURE REVIEW	15
3.2 GENEALOGICAL SOCIETY AND GOOGLE EARTH MONUMENTS.....	15
3.3 PUBLIC CONSULTATION AND STAKEHOLDER ENGAGEMENT:	15
3.4 SITE INVESTIGATION.....	15
3.5 SITE SIGNIFICANCE AND FIELD RATING	17
3.6 IMPACT ASSESSMENT METHODOLOGY	18
3.7 LIMITATIONS AND CONSTRAINTS OF THE STUDY	19
4 DESCRIPTION OF SOCIO ECONOMIC ENVIRONMENTAL.....	19
5 DESCRIPTION OF THE PHYSICAL ENVIRONMENT:	19
6 RESULTS OF PUBLIC CONSULTATION AND STAKEHOLDER ENGAGEMENT:.....	20
7 LITERATURE / BACKGROUND STUDY:	21
7.1 LITERATURE REVIEW	21
7.2 GENERAL HISTORY OF THE AREA.....	21
7.3 HISTORICAL INFORMATION.....	23
8 FINDINGS OF THE SURVEY.....	29
9 DESCRIPTION OF IDENTIFIED HERITAGE RESOURCES (NHRA SECTION 34 -36):29	
9.2 POTENTIAL IMPACT	32
9.3 CUMULATIVE IMPACTS.....	33
10 RECOMMENDATIONS AND CONCLUSION	34
10.1 CHANCE FIND PROCEDURES	35

10.2	REASONED OPINION.....	35
11	REFERENCES	36
12	APPENDICES:.....	37
	LAY OUT MAP FOR THE PROJECT.	37
	CURRICULUM VITAE OF SPECIALIST	38

LIST OF FIGURES

FIGURE 1. PROVINCIAL LOCALITY MAP (1: 250 000 TOPOGRAPHICAL MAP)	10
FIGURE 2: REGIONAL LOCALITY MAP (1:50 000 TOPOGRAPHICAL MAP).	11
FIGURE 3. SATELLITE IMAGE INDICATING THE STUDY AREA (GOOGLE EARTH 2017).....	12
FIGURE 4: TRACK LOGS OF THE SURVEY IN BLACK.	16
FIGURE 5. CONTAINERS IN THE STUDY AREA	20
FIGURE 6. ROADS AND BUILDINGS IN THE STUDY AREA.....	20
FIGURE 7. DUMPED MATERIAL.....	20
FIGURE 8. DUMPING IN STUDY AREA.....	20
FIGURE 15. 1939 TOPOGRAPHICAL MAP OF THE SITE UNDER INVESTIGATION. THE APPROXIMATE STUDY AREA IS INDICATED WITH A YELLOW BORDER. IT SEEMS THAT, FOR THE MOST PART, THE SITE UNDER INVESTIGATION WAS USED AS CULTIVATED LANDS AND FOR PLANTATIONS. TWO TRACKS / FOOTPATHS CAN BE SEEN GOING THROUGH THE SITE. THERE ARE NO SIGNS OF BUILDINGS. TWO RAILWAY LINES ARE VISIBLE TO THE EAST, AND ONE CAN SEE A LARGE RAILWAY STATION TO THE NORTH, ALONG THE EASTERN LINE (TOPOGRAPHICAL MAP 1939).	24
FIGURE 16. 1964 TOPOGRAPHICAL MAP OF THE SITE UNDER INVESTIGATION. THE APPROXIMATE STUDY AREA IS INDICATED WITH A YELLOW BORDER. A FARM ROAD, RUNNING ALONGSIDE A SECONDARY ROAD, FORMED THE EASTERN BORDER OF THE STUDY AREA. ONE CAN SEE A POWER LINE DIRECTLY TO THE EAST OF THE SITE. NO BUILDINGS ARE VISIBLE IN THE AREA UNDER INVESTIGATION. AN AREA WITH TREES / BUSHVELD CAN BE SEEN TO THE NORTH OF THE SITE. A RIVER WENT THROUGH THE AREA UNDER INVESTIGATION. FURTHER TO THE EAST AND NORTH EAST OF THE SITE, ONE CAN SEE A MAIN ROAD, A RAILWAY LINE AND THE OLIFANTSFONTEIN DEVELOPMENT (TOPOGRAPHICAL MAP 1964).	25
FIGURE 17. 1975 TOPOGRAPHICAL MAP OF THE SITE UNDER INVESTIGATION. THE APPROXIMATE STUDY AREA IS INDICATED WITH A YELLOW BORDER. THE CLAYVILLE INDUSTRIAL TOWNSHIP HAD BEEN DEVELOPED, AND BROUGHT WITH IT A NUMBER OF NEW ROADS AND RAILWAY LINES. A RIVER STILL WENT THROUGH THE STUDY AREA, A TOWN ROAD FORMED ITS WESTERN BORDER AND A SECONDARY ROAD FORMED ITS EASTERN BORDER. A SINGLE TRACK RAILWAY DIVIDED THE SITE INTO A WESTERN AND EASTERN HALF. BUILDINGS CAN BE SEEN TO THE NORTH WEST AND SOUTH EAST OF THE SITE, BUT NO BUILDINGS ARE VISIBLE IN THE STUDY AREA (TOPOGRAPHICAL MAP 1975).....	26
FIGURE 18. 1995 TOPOGRAPHICAL MAP OF THE SITE UNDER INVESTIGATION. THE APPROXIMATE STUDY AREA IS INDICATED WITH A YELLOW BORDER. A TOWN ROAD, RUNNING PARALLEL WITH A CANAL AND ANOTHER ROAD, FORMED THE WESTERN BORDER OF THE STUDY AREA. A SECONDARY ROAD FORMED THE EASTERN BORDER OF THE SITE, AND A RAILWAY LINE WENT THROUGH THE PROPERTY. AT LEAST ONE BUILDING IS VISIBLE WITHIN THE AREA OF THE SITE UNDER INVESTIGATION (TOPOGRAPHICAL MAP 1995).	27
FIGURE 19. 2001 TOPOGRAPHICAL MAP OF THE SITE UNDER INVESTIGATION. THE APPROXIMATE STUDY AREA IS INDICATED WITH A YELLOW BORDER. A TOWN ROAD STILL FORMED THE WESTERN BORDER OF THE SITE, A SECONDARY ROAD FORMED THE EASTERN BORDER AND A RAILWAY WENT THROUGH IT. SECTIONS OF AT LEAST FOUR BUILDINGS ARE VISIBLE WITHIN THE STUDY AREA (TOPOGRAPHICAL MAP 2001).	28

FIGURE 20. EXISTING BUILDINGS.....	30
FIGURE 21. EXISTING BUILDINGS.....	30
FIGURE 22. BUILT UP AREA.	30
FIGURE 23. EASTERN ENTRANCE	30
FIGURE 24. PROJECT LAY OUT.	37

LIST OF TABLES

TABLE 1. SPECIALIST REPORT REQUIREMENTS. 4

TABLE 2: PROJECT DESCRIPTION 9

TABLE 3: INFRASTRUCTURE AND PROJECT ACTIVITIES 9

TABLE 4: SITE INVESTIGATION DETAILS..... 15

TABLE 5. IMPACT TABLE – ARCHAEOLOGICAL HERITAGE RESOURCES. 32

ABBREVIATIONS

AIA: Archaeological Impact Assessment
ASAPA: Association of South African Professional Archaeologists
BGG Burial Ground and Graves
BIA: Basic Impact Assessment
CFPs: Chance Find Procedures
CMP: Conservation Management Plan
CRR: Comments and Response Report
CRM: Cultural Resource Management
DEA: Department of Environmental Affairs
EA: Environmental Authorisation
EAP: Environmental Assessment Practitioner
ECO: Environmental Control Officer
EIA: Environmental Impact Assessment*
EIA: Early Iron Age*
EIA Practitioner: Environmental Impact Assessment Practitioner
EMP: Environmental Management Programme
ESA: Early Stone Age
ESIA: Environmental and Social Impact Assessment
GIS Geographical Information System
GPS: Global Positioning System
GRP Grave Relocation Plan
HIA: Heritage Impact Assessment
LIA: Late Iron Age
LSA: Late Stone Age
MEC: Member of the Executive Council
MIA: Middle Iron Age
MPRDA: Mineral and Petroleum Resources Development Act
MSA: Middle Stone Age
NEMA National Environmental Management Act, 1998 (Act No. 107 of 1998)
NHRA National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NID Notification of Intent to Develop
NoK Next-of-Kin
PRHA: Provincial Heritage Resource Agency
SADC: Southern African Development Community
SAHRA: South African Heritage Resources Agency

**Although EIA refers to both Environmental Impact Assessment and the Early Iron Age both are internationally accepted abbreviations and must be read and interpreted in the context it is used.*

GLOSSARY

Archaeological site (remains of human activity over 100 years old)
 Early Stone Age (~ 2.6 million to 250 000 years ago)
 Middle Stone Age (~ 250 000 to 40-25 000 years ago)
 Later Stone Age (~ 40-25 000, to recently, 100 years ago)
 The Iron Age (~ AD 400 to 1840)
 Historic (~ AD 1840 to 1950)
 Historic building (over 60 years old)

1 Introduction and Terms of Reference:

Heritage Contracts and Archaeological Consulting CC (HCAC) has been contracted by Savannah Environmental (Pty) Ltd to conduct a heritage impact assessment of the proposed development footprint. The report forms part of the Environmental Impact Assessment (EIA) and Environmental Management Programme Report (EMPR) for the Clayville Thermal Plant in the Clayville Industrial Area, Gauteng Province. .

The aim of the study is to survey the proposed development footprint to identify cultural heritage sites, document, and assess their importance within local, provincial and national context. It serves to assess the impact of the proposed project on non-renewable heritage resources, and to submit appropriate recommendations with regard to the responsible cultural resources management measures that might be required to assist the developer in managing the discovered heritage resources in a responsible manner. It is also conducted to protect, preserve, and develop such resources within the framework provided by the National Heritage Resources Act of 1999 (Act No 25 of 1999). The report outlines the approach and methodology utilised before and during the survey, which includes: Phase 1, review of relevant literature; Phase 2, the physical surveying of the area on foot and by vehicle; Phase 3, reporting the outcome of the study.

During the survey no heritage sites were recorded. General site conditions and features on sites were recorded by means of photographs, GPS locations, and site descriptions. Possible impacts were identified and mitigation measures are proposed in the following report. SAHRA as a commenting authority under section 38(8) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) require all environmental documents, compiled in support of an Environmental Authorisation application as defined by NEMA EIA Regs section 40 (1) and (2), to be submitted to SAHRA. As such the EIA report and its appendices must be submitted to the case as well as the EMPr, once it's completed by the Environmental Assessment Practitioner (EAP).

1.1 Terms of Reference

Field study

Conduct a field study to: (a) locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest; b) record GPS points of sites/areas identified as significant areas; c) determine the levels of significance of the various types of heritage resources affected by the proposed development.

Reporting

Report on the identification of anticipated and cumulative impacts the operational units of the proposed project activity may have on the identified heritage resources for all 3 phases of the project; i.e., construction, operation and decommissioning phases. Consider alternatives, should any significant sites be impacted adversely by the proposed project. Ensure that all studies and results comply with the relevant legislation, SAHRA minimum standards and the code of ethics and guidelines of ASAPA. To assist the developer in managing the discovered heritage resources in a responsible manner, and to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act No 25 of 1999).

Table 2: Project Description

Purpose of the development	The purpose of the central plant would be to provide steam to off-takers in the industrial area by utilising coal fines in combination with syngas and/or natural gas as feedstock for the CFB boiler. The coal fines will be sourced from mines within the Delmas and Middelburg areas. Syngas will either be sourced from the Bellmall Energy Syngas Plant to be located at different locations and Natural gas via a Sasol gas pipeline situated along Spanner Road in the Clayville industrial area.
Size of farm and portions	The project site under investigation for the project is approximately 1,76ha in extent and consists of Erf 457, Erf 459 and Erf 12 of 508
Magisterial District	Ekurhuleni Metropolitan Municipality
1: 50 000 map sheet number	2528CC.
Central co-ordinate of the development	25° 58' 12.3241" S, 28° 14' 02.3114" E

Table 3: Infrastructure and project activities

Type of development	Thermal Plant Development
Project size	Development footprint approximately 1,76 ha
Project Components	<p>Infrastructure associated with the thermal plant will include:</p> <ul style="list-style-type: none"> » CFB boiler, » steam supply pipes from the central plant to the Astral site and to other off-takers, » steam condensate return pipes to the central plant from various off-takers within the Clayville industrial area, » gas cylinders for the storage of syngas, » an exhaust stack located adjacent to the central plant, » a condenser at each off-taker's site, » wastewater treatment plant, » effluent pipes and clean water supply pipes connected from the central plant to 4 off-takers within the Clayville industrial area; » holding tanks for the storage of water, » silos for the storage of bottom ash and fly ash, » dome for the storage of coal fines, » feedstock holding and processing area, and » maintenance building / office and control room.

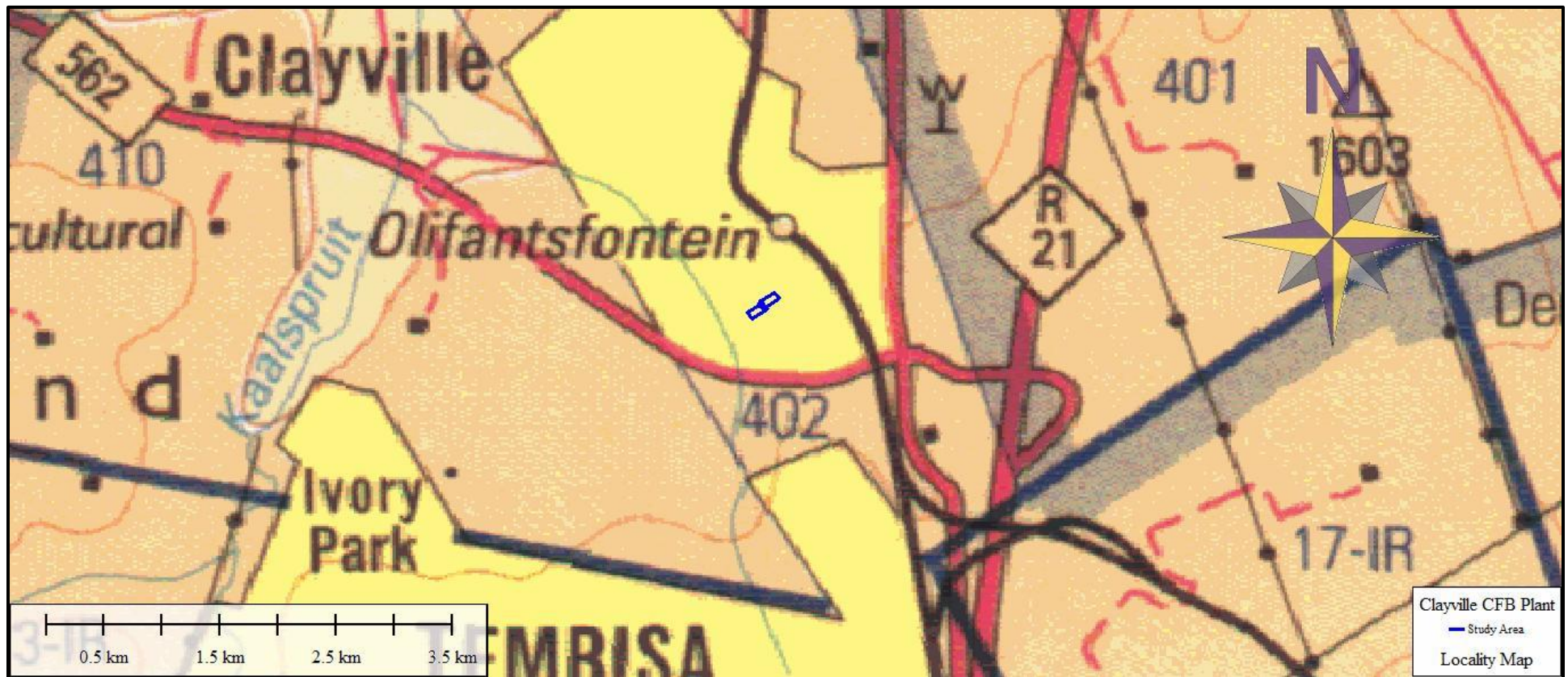


Figure 1. Provincial locality map (1: 250 000 topographical map)

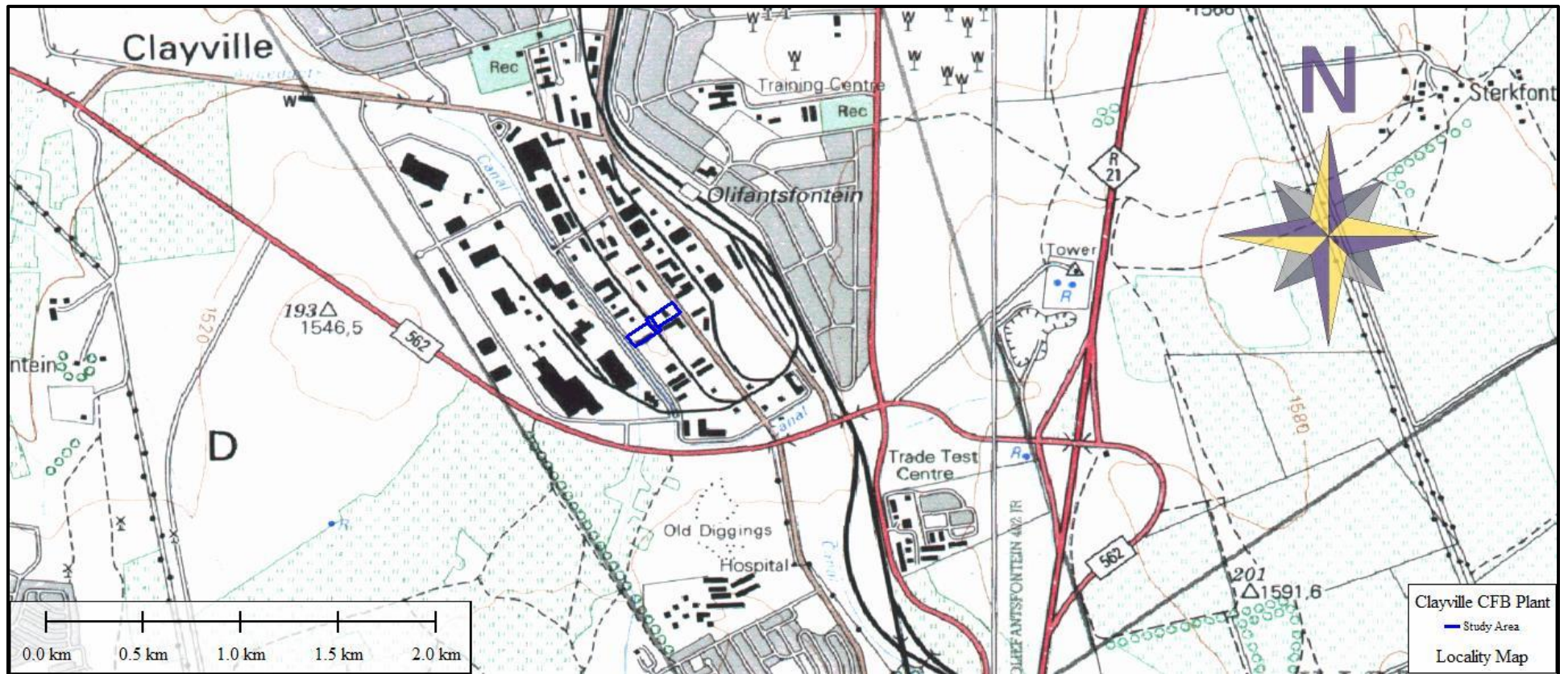


Figure 2: Regional locality map (1:50 000 topographical map).



Figure 3. Satellite image indicating the study area (Google Earth 2017).

2 LEGISLATIVE REQUIREMENTS

The HIA, as a specialist sub-section of the EIA, is required under the following legislation:

- National Heritage Resources Act (NHRA), Act No. 25 of 1999)
- National Environmental Management Act (NEMA), Act No. 107 of 1998 - Section 23(2)(b)
- Mineral and Petroleum Resources Development Act (MPRDA), Act No. 28 of 2002 - Section 39(3)(b)(iii)
- The KwaZulu-Natal Heritage Act, No. 4 of 2008

A Phase 1 HIA is a pre-requisite for development in South Africa as prescribed by SAHRA and stipulated by legislation. The overall purpose of heritage specialist input is to:

- Identify any heritage resources, which may be affected;
- Assess the nature and degree of significance of such resources;
- Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;
- Assess the negative and positive impact of the development on these resources; and
- Make recommendations for the appropriate heritage management of these impacts.

The HIA should be submitted, as part of the impact assessment report or EMPr, to the PHRA if established in the province or to SAHRA. SAHRA will ultimately be responsible for the professional evaluation of Phase 1 AIA reports upon which review comments will be issued. 'Best practice' requires Phase 1 AIA reports and additional development information, as per the impact assessment report and/or EMPr, to be submitted in duplicate to SAHRA after completion of the study. SAHRA accepts Phase 1 AIA reports authored by professional archaeologists, accredited with ASAPA or with a proven ability to do archaeological work.

Minimum accreditation requirements include an Honours degree in archaeology or related discipline and 3 years post-university CRM experience (field supervisor level). Minimum standards for reports, site documentation and descriptions are set by ASAPA in collaboration with SAHRA. ASAPA is based in South Africa, representing professional archaeology in the SADC region. ASAPA is primarily involved in the overseeing of ethical practice and standards regarding the archaeological profession. Membership is based on proposal and secondment by other professional members.

Phase 1 AIA's are primarily concerned with the location and identification of heritage sites situated within a proposed development area. Identified sites should be assessed according to their significance. Relevant conservation or Phase 2 mitigation recommendations should be made. Recommendations are subject to evaluation by SAHRA.

Conservation or Phase 2 mitigation recommendations, as approved by SAHRA, are to be used as guidelines in the developer's decision-making process.

Phase 2 archaeological projects are primarily based on salvage/mitigation excavations preceding development destruction or impact on a site. Phase 2 excavations can only be conducted with a permit, issued by SAHRA to the appointed archaeologist. Permit conditions are prescribed by SAHRA and includes (as minimum requirements) reporting back strategies to SAHRA and deposition of excavated material at an accredited repository.

In the event of a site conservation option being preferred by the developer, a site management plan, prepared by a professional archaeologist and approved by SAHRA, will suffice as minimum requirement.

After mitigation of a site, a destruction permit must be applied for with SAHRA by the applicant before development may proceed.

Human remains older than 60 years are protected by the National Heritage Resources Act, with reference to Section 36. Graves older than 60 years, but younger than 100 years fall under Section 36 of Act 25 of 1999 (National Heritage Resources Act), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of SAHRA. The procedure for Consultation Regarding Burial Grounds and Graves (Section 36[5] of Act 25 of 1999) is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local authority. Graves in this age category, located inside a formal cemetery administrated by a local authority, require the same authorisation as set out for graves younger than 60 years, in addition to SAHRA authorisation. If the grave is not situated inside a formal cemetery, but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws, set by the cemetery authority, must be adhered to.

Human remains that are less than 60 years old are protected 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 (Act 65 of 1983), and are 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. Authorisation for exhumation and reinternment 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. To handle and transport human remains, the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

3 METHODOLOGY

3.1 Literature Review

A brief survey of available literature was conducted to extract data and information on the area in question to provide general heritage context into which the development would be set. This literature search included published material, unpublished commercial reports and online material, including reports sourced from the South African Heritage Resources Information System (SAHRIS).

3.2 Genealogical Society and Google Earth Monuments

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where sites of heritage significance might be located; these locations were marked and visited during the field work phase. The database of the Genealogical Society was consulted to collect data on any known graves in the area.

3.3 Public Consultation and Stakeholder Engagement:

Stakeholder engagement is a key component of any BAR process, it involves stakeholders interested in, or affected by the proposed development. Stakeholders are provided with an opportunity to raise issues of concern (for the purposes of this report only heritage related issues will be included). The aim of the public consultation process was to capture and address any issues raised by community members and other stakeholders during key stakeholder and public meetings. The process involved:

- Placement of advertisements and site notices
- Stakeholder notification (through the dissemination of information and meeting invitations);
- Stakeholder meetings undertaken with I&APs;
- Authority Consultation
- The compilation of a Basic Assessment Report (BAR).
- The compilation of a Comments and Response Report (CRR).

3.4 Site Investigation

Conduct a field study to: a) systematically survey the proposed project area to locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest; b) record GPS points of sites/areas identified as significant areas; c) determine the levels of significance of the various types of heritage resources recorded in the project area.

During the survey, no heritage sites were identified. General site conditions and features on sites were recorded by means of photographs, GPS locations, and site descriptions. Possible impacts were identified and mitigation measures are proposed in the following report.

Table 4: Site Investigation Details

	Site Investigation
Date	19 December 2017
Season	Summer - vegetation in the study area is low with good archaeological visibility. The study area was sufficiently covered (Figure 4) to adequately record the presence of heritage resources.

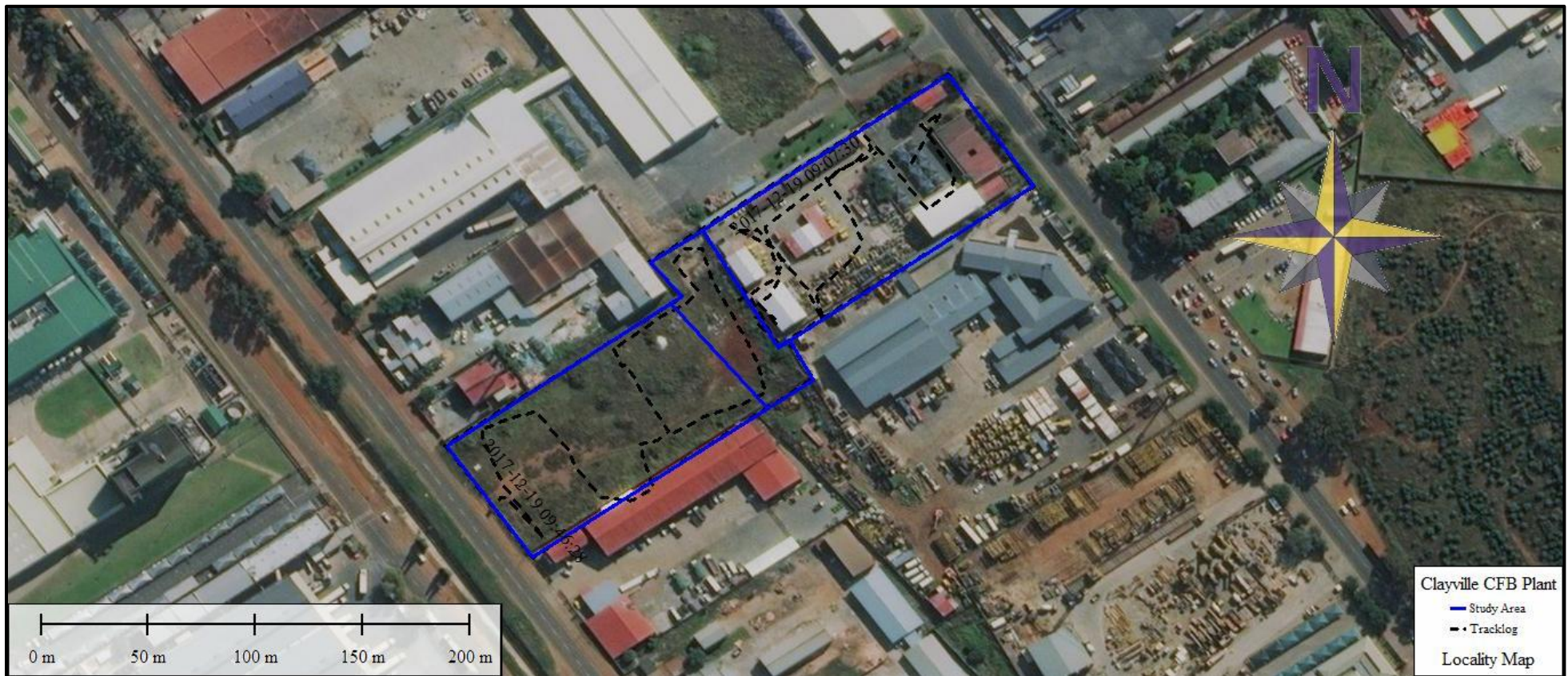


Figure 4: Track logs of the survey in black.

3.5 Site Significance and Field Rating

Section 3 of the NHRA distinguishes nine criteria for places and objects to qualify as 'part of the national estate' if they have cultural significance or other special value. These criteria are:

- » Its importance in/to the community, or pattern of South Africa's history;
- » Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- » Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- » Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- » Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- » Its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- » Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- » Its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
- » Sites of significance relating to the history of slavery in South Africa.
- » The presence and distribution of heritage resources define a 'heritage landscape'. In this landscape, every site is relevant. In addition, because heritage resources are non-renewable, heritage surveys need to investigate an entire project area, or a representative sample, depending on the nature of the project. In the case of the proposed project the local extent of its impact necessitates a representative sample and only the footprint of the areas demarcated for development were surveyed. In all initial investigations, however, the specialists are responsible only for the identification of resources visible on the surface. This section describes the evaluation criteria used for determining the significance of archaeological and heritage sites. The following criteria were used to establish site significance with cognisance of Section 3 of the NHRA:
 - The unique nature of a site;
 - The integrity of the archaeological/cultural heritage deposits;
 - The wider historic, archaeological and geographic context of the site;
 - The location of the site in relation to other similar sites or features;
 - The depth of the archaeological deposit (when it can be determined/is known);
 - The preservation condition of the sites; and
 - Potential to answer present research questions.
- » In addition to this criteria field ratings prescribed by SAHRA (2006), and acknowledged by ASAPA for the SADC region, were used for the purpose of this report. The recommendations for each site should be read in conjunction with section 10 of this report.

FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
National Significance (NS)	Grade 1	-	Conservation; national site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; provincial site nomination
Local Significance (LS)	Grade 3A	High significance	Conservation; mitigation not advised
Local Significance (LS)	Grade 3B	High significance	Mitigation (part of site should be retained)
Generally Protected A (GP. A)	-	High/medium significance	Mitigation before destruction
Generally Protected B (GP. B)	-	Medium significance	Recording before destruction
Generally Protected C (GP. C)	-	Low significance	Destruction

3.6 Impact Assessment Methodology

The criteria below are used to establish the impact rating on sites:

- The **nature**, which shall include a description of what causes the effect, what will be affected and how it will be affected.
- The **extent**, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high):
- The **duration**, wherein it will be indicated whether:
 - * the lifetime of the impact will be of a very short duration (0-1 years), assigned a score of 1;
 - * the lifetime of the impact will be of a short duration (2-5 years), assigned a score of 2;
 - * medium-term (5-15 years), assigned a score of 3;
 - * long term (> 15 years), assigned a score of 4; or
 - * permanent, assigned a score of 5;
- The **magnitude**, quantified on a scale from 0-10 where; 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- The **probability of occurrence**, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale of 1-5 where; 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).
- The **significance**, which shall be determined through a synthesis of the characteristics described above and can be assessed as low, medium or high; and
- the **status**, which will be described as either positive, negative or neutral.
- the degree to which the impact can be reversed.
- the degree to which the impact may cause irreplaceable loss of resources.
- the *degree* to which the impact can be mitigated.

The **significance** is calculated by combining the criteria in the following formula:

$$S = (E + D + M) P$$

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

The **significance weightings** for each potential impact are as follows:

- < 30 points: Low (i.e., where this impact would not have a direct influence on the decision to develop in the area),
- 30-60 points: Medium (i.e., where the impact could influence the decision to develop in the area unless it is effectively mitigated),
- 60 points: High (i.e., where the impact must have an influence on the decision process to develop in the area).

3.7 Limitations and Constraints of the study

The authors acknowledge that the brief literature review is not exhaustive on the literature of the area. Due to the subsurface nature of archaeological artefacts, the possibility exists that some features or artefacts may not have been discovered/recorded during the survey and the possible occurrence of unmarked graves and other cultural material cannot be excluded. Similarly, the depth of the deposit of heritage sites cannot be accurately determined due its subsurface nature. This report only deals with the footprint area of the proposed development and consisted of non-intrusive surface surveys. This study did not assess the impact on medicinal plants and intangible heritage as it is assumed that these components would have been highlighted through the public consultation process if relevant. It is possible that new information could come to light in future, which might change the results of this Impact Assessment.

4 DESCRIPTION OF SOCIO ECONOMIC ENVIRONMENTAL

The 2013 – 2016 Integrated Development Plan highlighted the following Socio-Economic issues in the Ekurhuleni Metropolitan Municipality, the poverty rate was at 28.3% and the unemployment rate was at 30.7%. Reports also suggest that only 8% of Ekurhuleni's population has a post-matric qualification, this suggests a mismatch between the demand for labour and the skills available in the economy. Basic services such as water and sanitation as well as the provision of housing will provide much needed improvement of conditions as well as create employment opportunities.

5 DESCRIPTION OF THE PHYSICAL ENVIRONMENT:

The proposed Clayville Thermal Plant development will be situated on Erf 457, Erf 459 and Portion 12 of Erf 508 within the Clayville Industrial Area. The properties are situated directly north of Tembisa and to the east of Midrand in the Ekurhuleni Metropolitan Municipality within the Gauteng Province.

The farm Olifantsfontein and surrounding properties are situated in an area which was originally a part of a gold mining hub. Historically, urban development in this area has been closely associated with gold mining: Germiston, Boksburg, Benoni, Brakpan Springs and Nigel were located on the mining belt, while Edenvale, Alberton and Kempton Park developed adjacent to the goldfields. The urban and industrial developments around the study area followed the same pattern as with the above mentioned towns.

The study area measures approximately 2ha in size and is situated within the Clayville Industrial Area on the northern side of Olifantsfontein Road. The three properties are adjacent to each other and are situated in between Industry Road to the east and Spanner Road on the western side. The proposed site is bordered by industries and workshops on the northern and southern sides.



Figure 5. Containers in the study area



Figure 6. Roads and Buildings in the study area.



Figure 7. Dumped Material



Figure 8. Dumping in study area

6 RESULTS OF PUBLIC CONSULTATION AND STAKEHOLDER ENGAGEMENT:

Adjacent landowners and the public at large were informed of the proposed activity as part of the EIA process. Site notices and advertisements notifying interested and affected parties were placed at strategic points and in local newspapers as part of the process.

7 LITERATURE / BACKGROUND STUDY:

7.1 Literature Review

Five previously recorded sites are on record for the 2528 CC topographic map at the Wits database.

CRM reports consulted for this study:

Author	Year	Project	Findings
Van der Walt, J.	2017	Heritage impact assessment (For the proposed Clayville bulk services and mixed-use development, Gauteng province)	No identified heritage resources.
Pelser, A.J.	2016	A Report on A Phase 1 HIA For Proposed Sand Mine Development n Olifantsfontein 410JR, Near Tembisa, Gauteng	No heritage resources were identified.
Van Schalkwyk, J.A.	2006	Heritage Impact Assessment: Clayville	A Large Cemetery was identified.

7.1.1 Genealogical Society and Google Earth Monuments

No known grave sites are indicated close to the study area.

7.2 General History of the area

7.2.1 Archaeology of the area

South Africa has a long and complex Stone Age sequence of more than 2 million years. The broad sequence includes the Later Stone Age, the Middle Stone Age and the Earlier Stone Age. Each of these phases contain sub-phases or industrial complexes, and within these we can expect regional variation regarding characteristics and time ranges. Excavations by Mason (1997) at the Boulders Shopping Centre (approximately 12 km to the south west of the current study area) was aimed at interpreting the cultural layering of the Midrand area and provides a good platform for understanding the cultural use of the wider landscape. He identified 7 occupational layers in his excavations that can be broadly divided into Stone Age, Iron Age and historical occupations.

The Stone Age can be divided in three main phases as follows;

- Later Stone Age; associated with Khoi and San societies and their immediate predecessors. Recently to ~30 thousand years ago.
- Middle Stone Age; associated with Homo sapiens and archaic modern humans. 30-300 thousand years ago.
- Earlier Stone Age; associated with early Homo groups such as Homo habilis and Homo erectus. 400 000-> 2 million years ago.

Remains dating to all three of these phases were identified by Mason at the Boulders Shopping Centre site, MSA and LSA material was also recorded at Glenn Ferness cave. The Iron Age of the region consists of Tswana speaking people who settled in the area from the early 16th century. J. S. Bergh's historical atlas of the four northern provinces of South Africa is a very useful source for the writing of local and regional history. The study area is located about 34 km north east of the Melville Koppies, which is a Middle Stone-Age site. (Bergh 1999: 4) This area was also important to Iron Age communities, since these people had smelted and worked iron ore at the Melville Koppies site since the year 1060, by approximation. (Bergh 1999: 7, 87).

There is evidence of the use of the larger area by Stone Age communities for example along the Kliprivier where ESA and MSA tools were recorded. The greater study area is located in the vicinity of the Linksfield and Primrose Middle Stone Age terrains (Bergh 1999: 4-8). For the Later Stone Age some petroglyphs occur to the south at Redan as well as along the Vaal River (Bergh 1999).

7.2.1.1 The Iron Age

The Iron Age as a whole represents the spread of Bantu speaking people and includes both the pre-Historic and Historic periods. It can be divided into three distinct periods:

- The Early Iron Age: Most of the first millennium AD.
- The Middle Iron Age: 10th to 13th centuries AD.
- The Late Iron Age: 14th century to colonial period.

The Iron Age is characterised by the ability of these early people to manipulate and work Iron ore into implements that assisted them in creating a favourable environment to make a better living.

Regarding the Iron Age, the Smelting Site at Melville Koppies requires further mention. The site was excavated by Professor Mason from the Department of Archaeology of WITS in the 1980's. Extensive Stone walled sites are also recorded further South at Klipriviers Berg Nature reserve belonging to the Late Iron Age period. A large body of research is available on this area. These sites (Taylor's Type N, Mason's Class 2 & 5) are now collectively referred to as Klipriviersberg (Huffman 2007). These settlements are complex in that aggregated settlements are common, the outer wall sometimes includes scallops to mark back courtyards, there are more small stock kraals, and straight walls separate households in the residential zone. These sites date to the 18th and 19th centuries and were built by people in the Fokeng cluster.

In this area, the Klipriviersberg walling would have ended at about AD 1823, when Mzilikazi entered the area (Rasmussen 1978). This settlement type may have lasted longer in other areas because of the positive interaction between Fokeng and Mzilikazi.

The Difaqane (Sotho), or Mfekane ("the crushing" in Nguni) was a time of bloody upheavals in Natal and on the Highveld, which occurred around the early 1820's until the late 1830's (Bergh 1999: 10). It came about in response to heightened competition for land and trade, and caused population groups like gun-carrying Griquas and Shaka's Zulus to attack other tribes (Bergh 1999: 14; 116-119). In 1827, Mzilikazi's Ndebele started moving through the area where Johannesburg is located today. This group went on raids to various other areas in order to expand their area of influence (Bergh 1999: 11).

7.3 Historical Information

During the time of the Difaqane, a northwards migration of white settlers from the Cape was also taking place. Some travellers, missionaries and adventurers had gone on expeditions to the northern areas in South Africa, some already as early as the 1720's. It was however only by the late 1820's that a mass-movement of Dutch speaking people in the Cape Colony started advancing into the northern areas. This was due to feelings of mounting dissatisfaction caused by economical and other circumstances in the Cape. This movement later became known as the Great Trek.

This migration resulted in a massive increase in the extent of that proportion of modern South Africa dominated by people of European descent (Ross 2002: 39). By 1939 to 1940, farm boundaries were drawn up in an area that includes the present-day Johannesburg and Krugersdorp (Bergh 1999: 15).

The first settlers moved into the Midrand area in the 1820s, this included hunters, traders, missionaries and other travellers. Voortrekker farmers such as Frederik Andries Strydom and Johannes Elardus Erasmus established the farms Olifantsfontein and Randjesfontein respectively around the 1840's and this indicated permanent occupation of the area by white settlers. These early white settlers and their descendants were often buried on their farms and formal and informal graves and graveyards can be expected anywhere on the landscape (Van Schalkwyk 1998).

The Anglo-Boer War (1899-1902) also impacted the Midrand area. The area was a key focus of the British war effort for a short period of time when the British forces under Lord Roberts advanced through Midrand from Johannesburg while travelling to Pretoria. Pretoria was occupied on 5 June 1900. Some British military units were stationed close to the study area. This includes the Eskom Training Centre as well as Bibury Grange. No major battles took place in Midrand. Conflict in the area was defined by the Boer attempts to sabotage the railway line as well as attacks on troop trains. A notable incident was the successful Boer demolition of the railway culvert near the Pinedene Station (Van Schalkwyk 1998).

7.3.1 Anglo-Boer War

No major battles took place in Midrand. Conflict in the area was defined by the Boer attempts to sabotage the railway line as well as attacks on troop trains. A notable incident was the successful Boer demolition of the railway culvert near the Pinedene Station (Van Schalkwyk 1998). During the Anglo-Boer War (1899-1902) there was a skirmish between Boer and British forces near Olifantsfontein, while there was also a Black Concentration Camp built by the British near Olifantsfontein station/railway (Bergh 1999: 51; 55).

7.3.2 Cultural Landscape of the area

The site under investigation is located in the Clayville Industrial area in Gauteng Province. This area was rural in character but have been transformed over the years into a highly developed industrial zone.

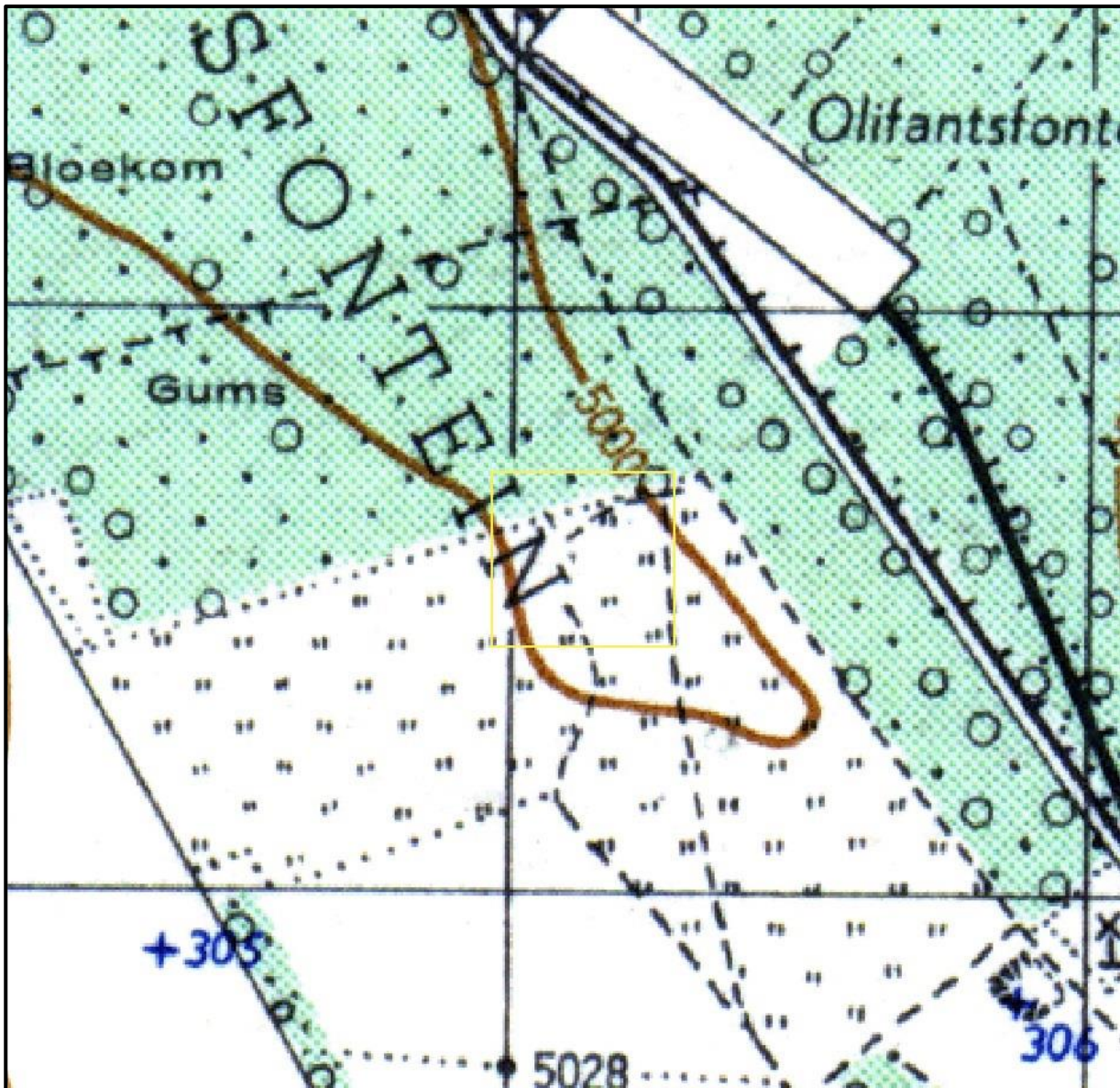


Figure 9. 1939 Topographical map of the site under investigation. The approximate study area is indicated with a yellow border. It seems that, for the most part, the site under investigation was used as cultivated lands and for plantations. Two tracks / footpaths can be seen going through the site. There are no signs of buildings. Two railway lines are visible to the east, and one can see a large railway station to the north, along the eastern line (Topographical Map 1939).

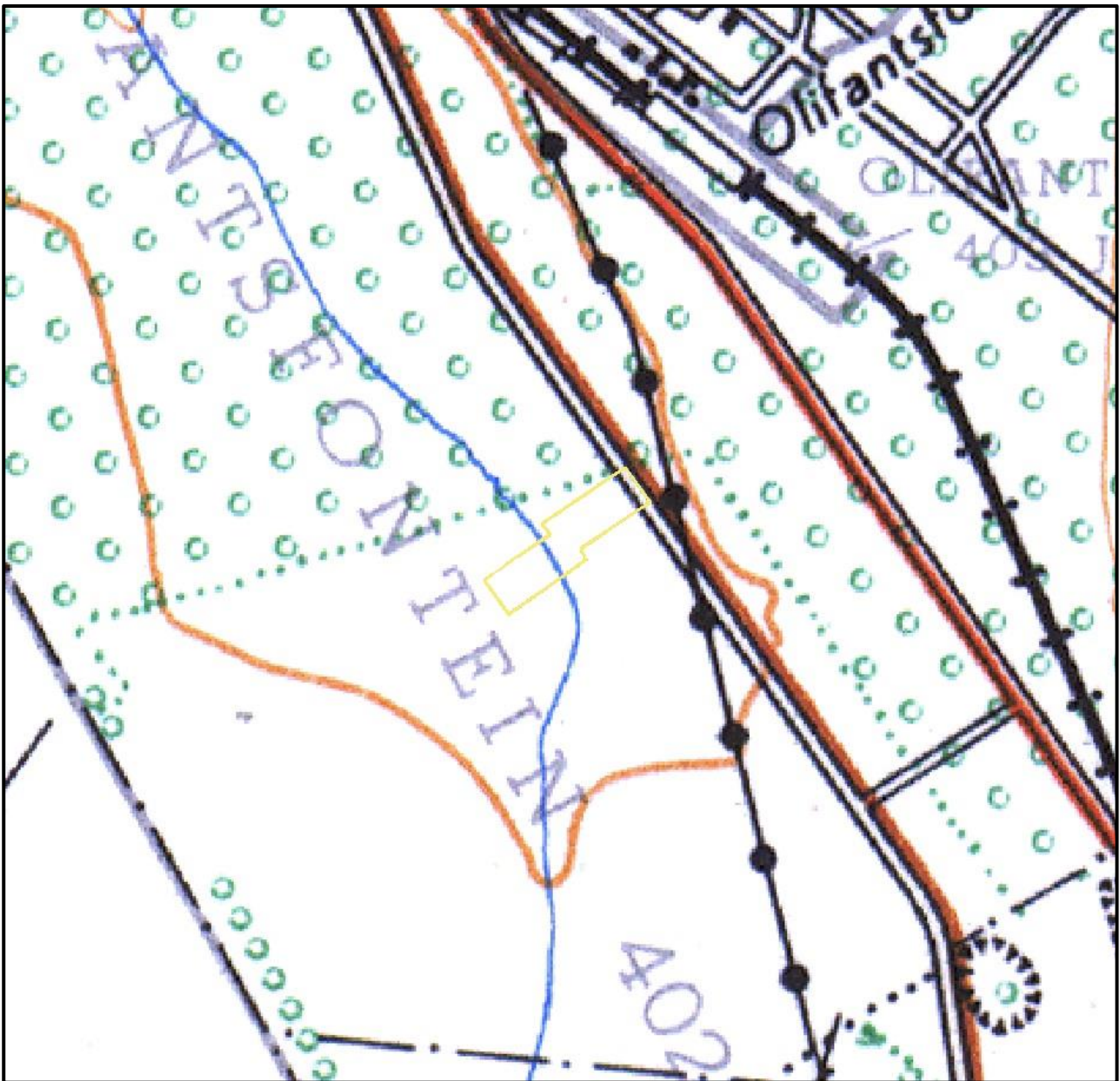


Figure 10. 1964 Topographical map of the site under investigation. The approximate study area is indicated with a yellow border. A farm road, running alongside a secondary road, formed the eastern border of the study area. One can see a power line directly to the east of the site. No buildings are visible in the area under investigation. An area with trees / Bushveld can be seen to the north of the site. A river went through the area under investigation. Further to the east and north east of the site, one can see a main road, a railway line and the Olifantsfontein development (Topographical Map 1964).

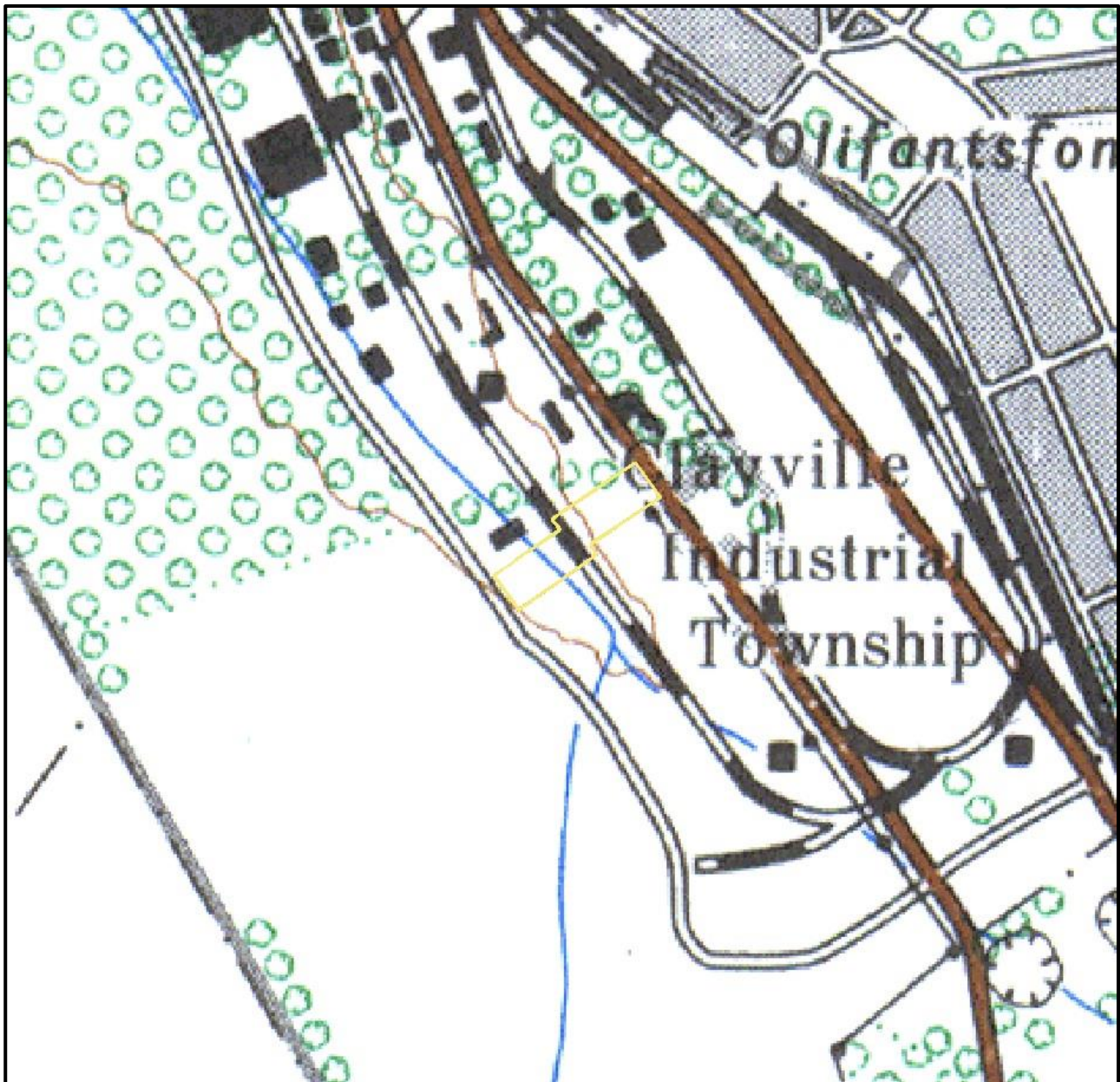


Figure 11. 1975 Topographical map of the site under investigation. The approximate study area is indicated with a yellow border. The Clayville Industrial Township had been developed, and brought with it a number of new roads and railway lines. A river still went through the study area, a town road formed its western border and a secondary road formed its eastern border. A single track railway divided the site into a western and eastern half. Buildings can be seen to the north west and south east of the site, but no buildings are visible in the study area (Topographical Map 1975).

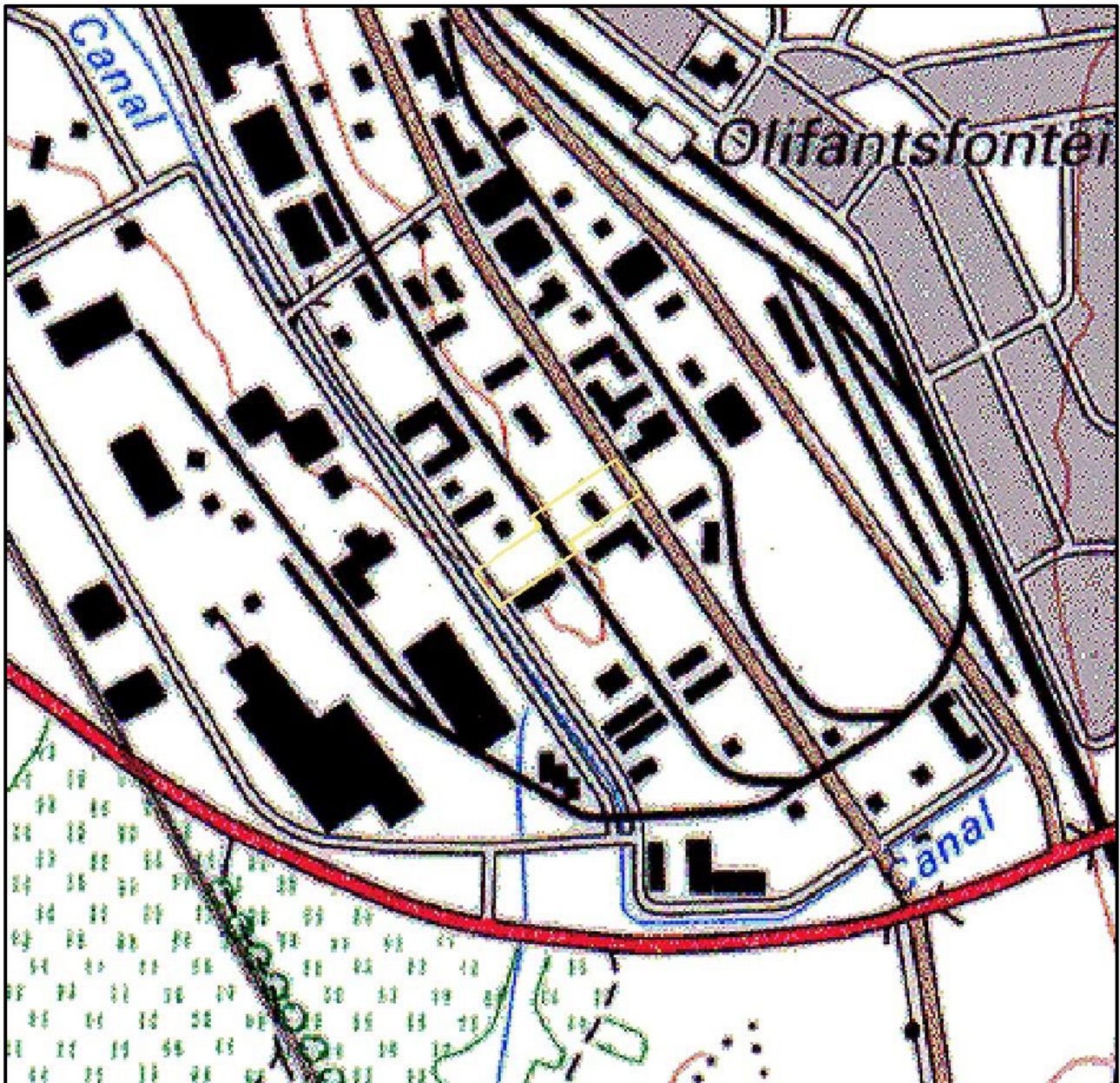


Figure 12. 1995 Topographical map of the site under investigation. The approximate study area is indicated with a yellow border. A town road, running parallel with a canal and another road, formed the western border of the study area. A secondary road formed the eastern border of the site, and a railway line went through the property. At least one building is visible within the area of the site under investigation (Topographical Map 1995).



Figure 13. 2001 Topographical map of the site under investigation. The approximate study area is indicated with a yellow border. A town road still formed the western border of the site, a secondary road formed the eastern border and a railway went through it. Sections of at least four buildings are visible within the study area (Topographical Map 2001).

8 FINDINGS OF THE SURVEY

It is important to note that only the development footprint of approximately 1,76 hectares was surveyed. The proposed site is fenced off or walled off on all sides and access is controlled through security guards and locked gates. The eastern half of the project site is occupied by Civcon Engineering Works and BO's Plant and Tool Hire. These businesses occupy several buildings, workshops and storerooms. The areas in between the buildings are either paved or tarred.

The western half of the proposed site is open with no buildings at all. This part of the site is also fenced off and the entrance gate is locked. Several large shipping containers are lined up along the northern boundary of the property. A few mounds of dumped material are also scattered across the property. Most of this part of the study area is overgrown with weeds and grass.

The proposed site is largely disturbed by the development of the Industrial Area and the numerous modern buildings and infrastructure that occupy the site.

In terms of the national estate as defined by the NHRA no sites of significance were found during the survey as described below.

9 DESCRIPTION OF IDENTIFIED HERITAGE RESOURCES (NHRA SECTION 34 -36):

9.1.1 Built Environment (Section 34 of the NHRA)

No standing structures older than 60 years occur in the project site.

The eastern half of the proposed properties is occupied by Civcon Engineering Works and BO's Plant and Tool Hire. These businesses occupy several buildings, workshops and storerooms. The areas in between the buildings are either paved or tarred. Based on historical maps the buildings were constructed after 1975.



Figure 14. Existing buildings



Figure 15. Existing buildings



Figure 16. Built up area.



Figure 17. Eastern Entrance

9.1.2 Archaeological resources (Section 35 of the NHRA)

No Stone Age or Iron Age resources were identified in the project site and no further mitigation is recommended in terms of the archaeological component of Section 35 for the proposed development to proceed.

9.1.3 Burial Grounds and Graves (Section 36 of the NHRA)

In terms of Section 36 of the Act no burial sites were recorded. If any graves are located in future they should ideally be preserved *in-situ* or alternatively relocated according to existing legislation.

9.1.4 Cultural Landscapes, Intangible and Living Heritage.

The cultural landscape of the greater study area is characterised by industrial developments and the project will not impact on significant views.

9.1.5 Paleontological Resources



Colour	Sensitivity	Required Action
RED	VERY HIGH	Field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	Desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	Desktop study is required
BLUE	LOW	No palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	No palaeontological studies are required
WHITE/CLEAR	UNKNOWN	These areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

The project site is located within an area considered to be of very high significance. A Palaeontological Impact Assessment has been compiled by Marion Bamford (2017) for the project. No fossils have been recorded in the area and it is unlikely that any fossils occur in the surface areas of the proposed project as these areas are already highly disturbed by industrial buildings and infrastructure. It was concluded that no paleontological impact assessment is required during the EIA phase of the project. It was however recommended that the monitoring protocol be included in the EMPr.

9.1.6 Battlefields and Concentration Camps

No Battlefield sites were identified in the project site.

9.2 Potential Impact

The impact on heritage sites by the proposed development is considered to be low. Any direct impacts that may occur would be during the construction phase only and would be of very low significance. Cumulative impacts occur from the combination of effects of various impacts on heritage resources. The importance of identifying and assessing cumulative impacts is that the whole is greater than the sum of its parts. This and other projects in the area could have an indirect impact on the heritage landscape.

9.2.1 Pre-Construction phase:

It is assumed that the pre-construction phase involves the removal of topsoil and vegetation as well as the establishment of infrastructure needed for the construction phase. These activities can have a negative and irreversible impact on heritage sites. Impacts include destruction or partial destruction of non-renewable heritage resources.

9.2.2 Construction Phase

During this phase, the impacts and effects are similar in nature but more extensive than the pre-construction phase. These activities can have a negative and irreversible impact on heritage sites. Impacts include destruction or partial destruction of non-renewable heritage resources.

9.2.3 Operation Phase:

No impact is envisaged for the recorded heritage resources during this phase.

Table 5. Impact table – Archaeological heritage resources.

Nature: During the construction phase activities resulting in disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological material or objects.		
	Without mitigation	With mitigation (Preservation/ excavation of site)
Extent	Site specific (1)	Site specific (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Low (2)	Low (2)
Probability	Improbable (2)	Improbable (2)
Significance	16 (Low)	16 (Low)
Status (positive or negative)	Negative	Negative
Reversibility	Not reversible	Not reversible
Irreplaceable loss of resources?	No resources were recorded	No resources were recorded.
Can impacts be mitigated?	Yes, a chance find procedure should be implemented.	Yes
Mitigation: A Chance Find Procedure should be implemented for the project should any sites be identified during the construction process.		
Residual Impacts: If sites are destroyed this results in the depletion of archaeological record of the area. However, if sites are recorded and preserved or mitigated this adds to the record of the area.		

9.3 Cumulative Impacts

The Clayville Thermal Plant is proposed to be located in the centre of the Clayville industrial area, approximately 4,3km south east of Olifantsfontein which falls within the jurisdiction of the Ekurhuleni Metropolitan Municipality, Gauteng Province. The project site and the greater Clayville area has been identified as an industrial area and falls within Zone 5 (Industrial and Commercial Development Area) as described by the Gauteng Provincial Environmental Management Framework 2014. As the area is earmarked for the development of industrial industries, it can be expected that various industrial developments will take place in addition to the already industrial nature of the area.

From a cumulative perspective, it is anticipated that the development of the Clayville Thermal Plant will not result in a whole-scale change of the environment. Due to the disturbed nature of the site and the surrounding area, it is unlikely that any archaeological material or objects remain within the area. A Chance Find Procedure should however be implemented for the project should any sites be identified during the construction process.

Nature: The development of the project and other industrial developments within the industrial area may result in disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological material or objects.		
	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Extent	Local (1)	Local (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Minor (2)	Minor (2)
Probability	Very Improbable (1)	Very Improbable (1)
Significance	8 (Low)	8 (Low)
Status (positive or negative)	Negative	Negative
Reversibility	Not reversible	Not reversible
Irreplaceable loss of resources?	No resources were recorded	No resources were recorded.
Can impacts be mitigated?	Yes, a chance find procedure should be implemented.	Unknown
Confidence in findings	High	High
Mitigation: A Chance Find Procedure should be implemented should any sites be identified.		

10 RECOMMENDATIONS AND CONCLUSION

The development footprint of approximately 1,76 hectares was assessed both on desktop level and by a field survey. The proposed site is largely disturbed by the development of the Industrial Area and the numerous modern buildings and infrastructure that occupy the site. The property is disturbed or damaged from a heritage point of view and in terms of the national estate as defined by the NHRA no sites of significance were found during the survey as described below

In terms of Section 35 of the NHRA no archaeological sites were identified. No further mitigation prior to construction is recommended in terms of the archaeological component of Section 35 of the NHRA for the proposed development to proceed. The project site is located within an area considered to be of very high significance. A Palaeontological Impact Assessment has been compiled by Marion Bamford (2017) for the project. No fossils have been recorded in the area and it is unlikely that any fossils occur in the surface areas of the proposed project as these areas are already highly disturbed by industrial buildings and infrastructure. It was concluded that no paleontological impact assessment is required during the EIA phase of the project. It was however recommended that the monitoring protocol be included in the EMPr.

In terms of the built environment of the area (Section 34 of the NHRA) no standing structures older than 60 years occur within the study area. In terms of Section 36 of the NHRA no burial sites were recorded. If any graves are located in future they should ideally be preserved *in-situ* or alternatively relocated according to existing legislation. No public monuments are located within or close to the study area. The study area is located in an industrial area away from main tourist routes and the proposed development will not impact negatively on significant views. The cumulative impact of the project is considered to be acceptable. During the public participation process conducted for the project no heritage concerns were raised.

The impact of the proposed project on heritage resources is considered to be of low significance and it is recommended that the proposed project can commence on the condition that the following recommendations are implemented as part of the EMPr and based on approval from SAHRA.

- Implementation of a chance find procedure as outlined below.

10.1 Chance Find Procedures

The possibility of the occurrence of subsurface finds cannot be excluded. Therefore, if during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped and a qualified archaeologist must be contacted for an assessment of the find and therefore chance find procedures should be put in place as part of the EMP. A short summary of chance find procedures is discussed below.

This procedure applies to the developer's permanent employees, its subsidiaries, contractors and subcontractors, and service providers. The aim of this procedure is to establish monitoring and reporting procedures to ensure compliance with this policy and its associated procedures. Construction crews must be properly inducted to ensure they are fully aware of the procedures regarding chance finds as discussed below.

- If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area.
- The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA.

10.2 Reasoned Opinion

The impact of the proposed project on heritage resources is considered to be acceptable from a heritage perspective of low significance and no further pre-construction mitigation in terms of archaeological resources is required based on approval from SAHRA. Furthermore, the socio-economic benefits also outweigh the possible impacts of the development with the correct mitigation measures (i.e. chance find procedure and avoidance of sites) implemented for the project.

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12 APPENDICES:

Lay out Map for the project.



Figure 18. Project lay out.

Curriculum Vitae of Specialist

Jaco van der Walt
Archaeologist

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Education:

Particulars of degrees/diplomas and/or other qualifications:

Name of University or Institution: University of Pretoria
Degree obtained : BA Heritage Tourism & Archaeology
Year of graduation : 2001

Name of University or Institution: University of the Witwatersrand
Degree obtained : BA Hons Archaeology
Year of graduation : 2002

Name of University or Institution: University of the Witwatersrand
Degree Obtained : MA (Archaeology)
Year of Graduation : 2012

Name of University or Institution: University of Johannesburg
Degree : PhD
Year : Currently Enrolled

EMPLOYMENT HISTORY:

2011 – Present: **Owner – HCAC (Heritage Contracts and Archaeological Consulting CC).**
 2007 – 2010: **CRM Archaeologist**, Managed the Heritage Contracts Unit at the University of the Witwatersrand.
 2005 - 2007: **CRM Archaeologist**, Director of Matakoma Heritage Consultants
 2004: **Technical Assistant**, Department of Anatomy University of Pretoria
 2003: **Archaeologist**, Mapungubwe World Heritage Site
 2001 - 2002: **CRM Archaeologists**, For R & R Cultural Resource Consultants, Polokwane
 2000: **Museum Assistant**, Fort Klapperkop.

Countries of work experience include:

Republic of South Africa, Botswana, Zimbabwe, Mozambique, Tanzania, The Democratic Republic of the Congo, Lesotho and Zambia.

SELECTED PROJECTS INCLUDE:

Archaeological Impact Assessments (Phase 1)

Heritage Impact Assessment Proposed Discharge Of Treated Mine Water Via The Wonderfontein Spruit Receiving Water Body Specialist as part of team conducting an Archaeological Assessment for the Mmamabula mining project and power supply, Botswana
 Archaeological Impact Assessment Mmamethlake Landfill
 Archaeological Impact Assessment Libangeni Landfill

Linear Developments

Archaeological Impact Assessment Link Northern Waterline Project At The Suikerbosrand Nature Reserve
 Archaeological Impact Assessment Medupi – Spitskop Power Line,
 Archaeological Impact Assessment Nelspruit Road Development

Renewable Energy developments

Archaeological Impact Assessment Karoshoek Solar Project

Grave Relocation Projects

Relocation of graves and site monitoring at Chloorkop as well as permit application and liaison with local authorities and social processes with local stakeholders, Gauteng Province.
 Relocation of the grave of Rifle Man Maritz as well as permit application and liaison with local authorities and social processes with local stakeholders, Ndumo, Kwa Zulu Natal.
 Relocation of the Magolwane graves for the office of the premier, Kwa Zulu Natal
 Relocation of the OSuthu Royal Graves office of the premier, Kwa Zulu Natal

Phase 2 Mitigation Projects

Field Director for the Archaeological Mitigation For Booyseendal Platinum Mine, Steelpoort, Limpopo Province. Principle investigator Prof. T. Huffman
 Monitoring of heritage sites affected by the ARUP Transnet Multipurpose Pipeline under directorship of Gavin Anderson.
 Field Director for the Phase 2 mapping of a late Iron Age site located on the farm Kameelbult, Zeerust, North West Province. Under directorship of Prof T. Huffman.
 Field Director for the Phase 2 surface sampling of Stone Age sites effected by the Medupi – Spitskop Power Line, Limpopo Province

Heritage management projects

Platreef Mitigation project – mitigation of heritage sites and compilation of conservation management plan.

MEMBERSHIP OF PROFESSIONAL ASSOCIATIONS:

- Association of Southern African Professional Archaeologists. Member number 159
Accreditation:
 - Field Director Iron Age Archaeology
 - Field Supervisor Colonial Period Archaeology, Stone Age Archaeology and Grave Relocation
- Accredited CRM Archaeologist with SAHRA
- Accredited CRM Archaeologist with AMAFA
- Co-opted council member for the CRM Section of the Association of Southern African Association Professional Archaeologists (2011 – 2012)

PUBLICATIONS AND PRESENTATIONS

- A Culture Historical Interpretation, Aimed at Site Visitors, of the Exposed Eastern Profile of K8 on the Southern terrace at Mapungubwe.
 - J van der Walt, A Meyer, WC Nienaber
 - Poster presented at Faculty day, Faculty of Medicine University of Pretoria 2003
- 'n Reddingsondersoek na Anglo-Boereoorlog-ammunisie, gevind by Ifafi, Noordwes-Provinsie. South-African Journal for Cultural History 16(1) June 2002, with A. van Vollenhoven as co-writer.
- Fieldwork Report: Mapungubwe Stabilization Project.
 - WC Nienaber, M Hutten, S Gaigher, J van der Walt
 - Paper read at the Southern African Association of Archaeologists Biennial Conference 2004
- A War Uncovered: Human Remains from Thabantšho Hill (South Africa), 10 May 1864.
 - M. Steyn, WS Boshoff, WC Nienaber, J van der Walt
 - Paper read at the 12th Congress of the Pan-African Archaeological Association for Prehistory and Related Studies 2005
- Field Report on the mitigation measures conducted on the farm Bokfontein, Brits, North West Province .
 - J van der Walt, P Birkholtz, W. Fourie
 - Paper read at the Southern African Association of Archaeologists Biennial Conference 2007
- Field report on the mitigation measures employed at Early Farmer sites threatened by development in the Greater Sekhukhune area, Limpopo Province. J van der Walt
 - Paper read at the Southern African Association of Archaeologists Biennial Conference 2008
- Ceramic analysis of an Early Iron Age Site with vitrified dung, Limpopo Province South Africa.
 - J van der Walt. Poster presented at SAFA, Frankfurt Germany 2008

- Bantu Speaker Rock Engravings in the Schoemanskloof Valley, Lydenburg District, Mpumalanga (*In Prep*)
 - J van der Walt and J.P Celliers
- Sterkspruit: Micro-layout of late Iron Age stone walling, Lydenburg, Mpumalanga. W. Fourie and J van der Walt. A Poster presented at the Southern African Association of Archaeologists Biennial Conference 2011
- Detailed mapping of LIA stone-walled settlements' in Lydenburg, Mpumalanga. J van der Walt and J.P Celliers
 - Paper read at the Southern African Association of Archaeologists Biennial Conference 2011
- Bantu-Speaker Rock engravings in the Schoemanskloof Valley, Lydenburg District, Mpumalanga. J.P Celliers and J van der Walt
 - Paper read at the Southern African Association of Archaeologists Biennial Conference 2011
- Pleistocene hominin land use on the western trans-Vaal Highveld ecoregion, South Africa, Jaco van der Walt.
 - J van der Walt. Poster presented at SAFA, Toulouse, France. Biennial Conference 2016

REFERENCES:

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| 1. Prof Marlize Lombard | Senior Lecturer, University of Johannesburg, South Africa
E-mail: mlombard@uj.ac.za |
| 2. Prof TN Huffman | Department of Archaeology Tel: (011) 717 6040
University of the Witwatersrand |
| 3. Alex Schoeman | University of the Witwatersrand
E-mail: Alex.Schoeman@wits.ac.za |