HERITAGE IMPACT ASSESSMENT

(REQUIRED UNDER SECTION 38(1) OF THE NHRA (No. 25 OF 1999)

FOR THE PROPOSED RE-CONTINUANCE OF CONSTRUCTION FOR RESIDENTIAL TOWNSHIP DEVELOPMENT ON ERF 25268 PROTEA GLEN EXT 1, GAUTENG PROVINCE

Type of development:

Township Development

Client:

Isquare Information Services

Developer:

Cosmopolitan Projects Johannesburg (Pty)

Report prepared by:

Beyond Heritage
Private Bag X 1049
Suite 34
Modimolle
0510
Tel: 082 373 8491
Fax: 086 691 6461
E-Mail: jaco@heritageconsultants.co.za

Report Author:
Mr. J. van der Walt
Project Reference:
Project number 22127
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October 2022

APPROVAL PAGE

Project Name	Re Continuance of Construction for Residential Township Development on Erf 25268 Protea Glen Ext 1, City of Johannesburg Metropolitan Municipality
Report Title	Heritage Impact Assessment for the proposed re continuance of construction for residential Township Development on Erf 25268 Protea Glen Ext 1, Gauteng Province
Authority Reference Number	Gaut001/ LD/21-22/09-37
Report Status	Final Report
Applicant Name	Cosmopolitan Projects Johannesburg (Pty)

Responsibility	Name	Qualifications and Certifications	Date
Fieldwork and reporting	Jaco van der Walt - Archaeologist	MA Archaeology ASAPA #159 APHP #114	October 2022
Fieldwork	Ruan van der Merwe - Archaeologist	BA Hons Archaeology	September 2022

DOCUMENT PROGRESS

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Amendments on Document

Date	Report Reference Number	Description of Amendment

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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	*Declaration of Independence p6*
(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 site plan identifying site alternatives;	Section 8 and 9
(g) Identification of any areas to be avoided, including buffers	Section 8 and 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	Section3.6
(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 1.3
(k) Mitigation measures for inclusion in the EMPr	Section 10
(I) Conditions for inclusion in the environmental authorisation	Section 10
(m) Monitoring requirements for inclusion in the EMPr or environmental authorisation	Section 10. 5.
(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 10.3
(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	NA
(q) Any other information requested by the competent authority	NA

Executive Summary

Isquare was appointed by Cosmopolitan Projects Johannesburg (Pty) Ltd to ensure environmental compliance to continue with construction of the Residential Township Establishment to be known as Protea Glen Extension 1, Gauteng Province. The project is located on Erf 25268, Protea Glen Ext 1, on the western edge of Soweto. The proposed development activities have been given environmental authorisation (Ref Gaut001/ LD/21-22/09-37). Beyond Heritage was appointed to conduct a Heritage Impact Assessment (HIA) for the project and the study area was assessed on desktop level and by a non-intrusive pedestrian field survey. Key findings of the assessment include:

- The study area is altered through the original development of the area by previous owners (Township Realtors) and the study area is considered to be of low heritage potential;
- This was confirmed through the site survey whereby no heritage resources were found within the project footprint;
- The palaeontological sensitivity of the study area is very high, and an independent study was conducted which concluded that it is extremely unlikely that any fossils would be preserved in the overlying soils and sands of the Quaternary. There is a very small chance that fossils may occur below the ground surface in the dolomites of the Malmani Subgroup so a Fossil Chance Find Protocol should be added to the EMPr (Bamford 2022).

The impact of the project on heritage resources is low and the project can commence provided that the recommendations in this report are adhered to, based on the South African Heritage Resource Authority (SAHRA) 's approval.

Recommendations:

- Implementation of a chance find procedure for the project for both the cultural heritage and paleontological components.

Declaration of Independence

Specialist Name	Jaco van der Walt
Declaration of Independence	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: • 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	2022/10/19

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 the Northern and Eastern Cape Provinces in South Africa.

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

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ABBREVIATIONS

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
EMPr: 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, 2002 (Act No. 28 of 2002)
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

Isquare was appointed by Cosmopolitan Projects Johannesburg (Pty) Ltd to ensure environmental compliance to continue with construction of the Residential Township Establishment to be known as Protea Glen Extension 1, Gauteng Province (Figure 1.1 to 1.3). Beyond Heritage was appointed to assess the potential impact to heritage resources by the proposed project.

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 utilized 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 resources 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 to be submitted to SAHRA for commenting. Upon submission to SAHRA the project will be automatically given a case number as reference.

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).

1.2 Project Description

ISQUARE is developing the re continuance of construction of the residential township establishment to be known as Protea Glen Extension 1, Gauteng Province. The project area was previously owned and in the process of construction by Township Realtors, but the development was not completed. Project components is outlined under Table 2 and 3 and the project location illustrated in Figure 1.1 to 1.3.

Table 2: Project Description

Property Details	Erf 25268, Protea Glen Ext 1
Magisterial District	City of Johannesburg
Central co-ordinate of the development	26°16'20.26"S and 27°49'11.883"E
Topographic Map Number	2627BD

Table 3: Infrastructure and project activities

Type of development	Township Residential Development
Size of development	Approximately 5.61 hectares but only 3.52 hectares will be developed
Project Components	282 units will be built with the continuation of previously unfinished development

1.3 Alternatives

No alternatives were provided to be assessed although the extent of the area assessed allows for siting of the development to minimize impacts to heritage resources.

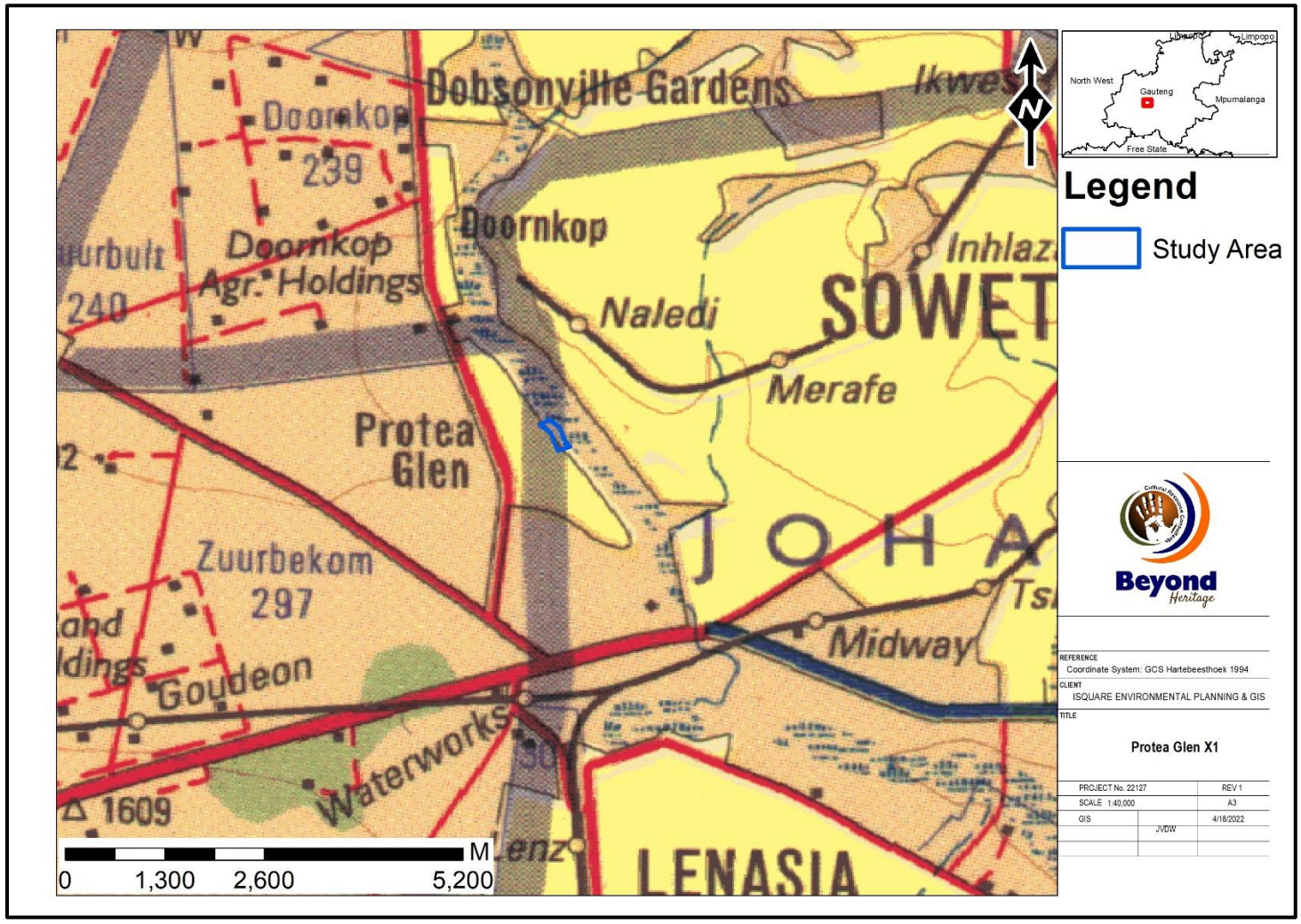


Figure 1.1. Regional setting (1: 250 000 topographical map) of the project.

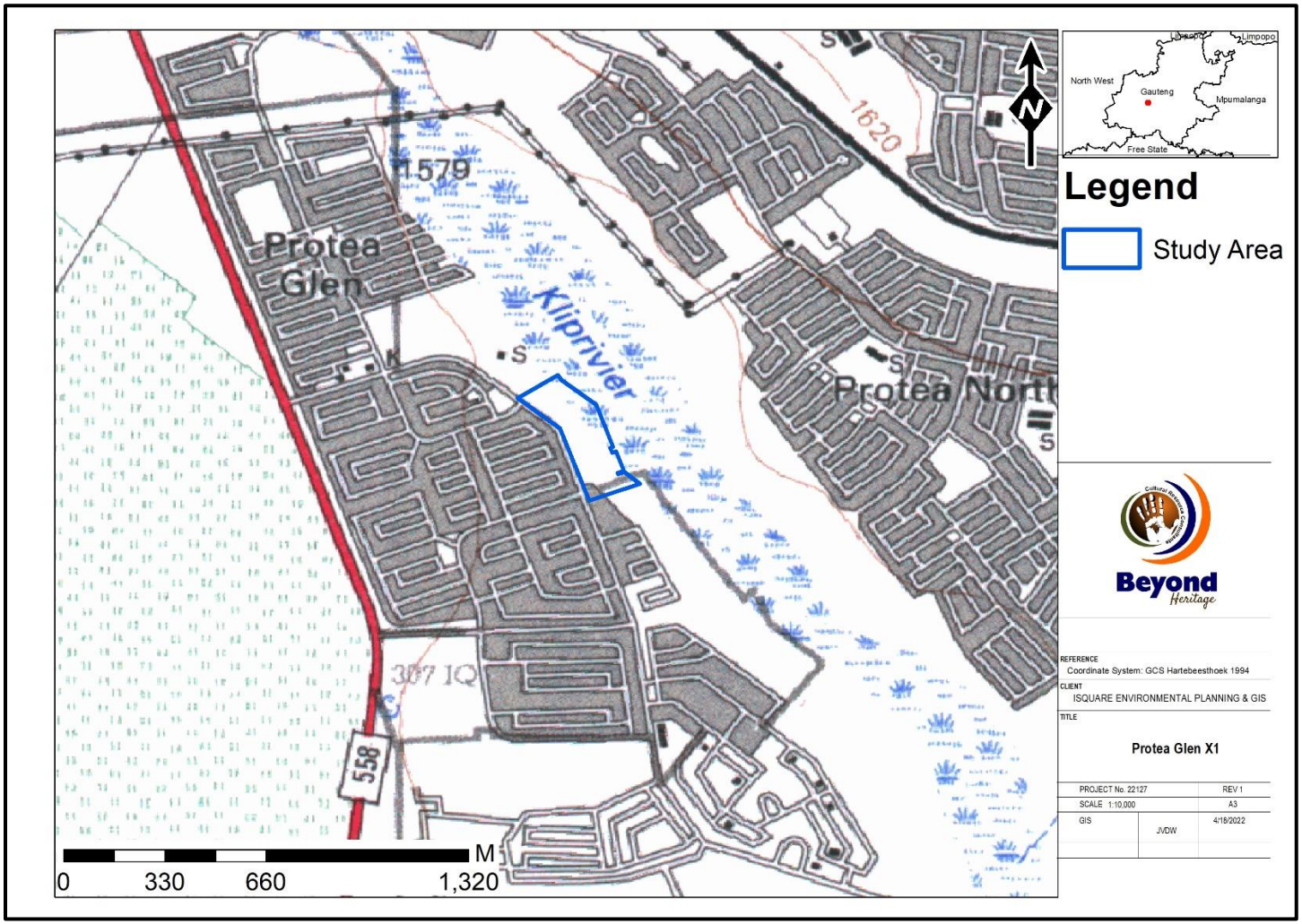


Figure 1.2. Local Setting of the project (1:50 000 topographical map).

Figure 1.3. Aerial image of the development footprint.

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)

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 to the PHRA if established in the province or to SAHRA. SAHRA will ultimately be responsible for the evaluation of Phase 1 HIA reports upon which review comments will be issued. 'Best practice' requires Phase 1 HIA reports and additional development information to be submitted in duplicate to SAHRA after completion of the study. SAHRA accepts Phase 1 HIA 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 HIA'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 fieldwork 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:

No public consultation was conducted by the author of this report.

3.4 Site Investigation

The aim of the site visit was to:

a) 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.

Table 4: Site Investigation Details

	Site Investigation
Date	14 September 2022
Season	Spring – The area is covered in dense vegetation, but the development footprint was sufficiently covered to understand the heritage character of the area (Figure 3.1).

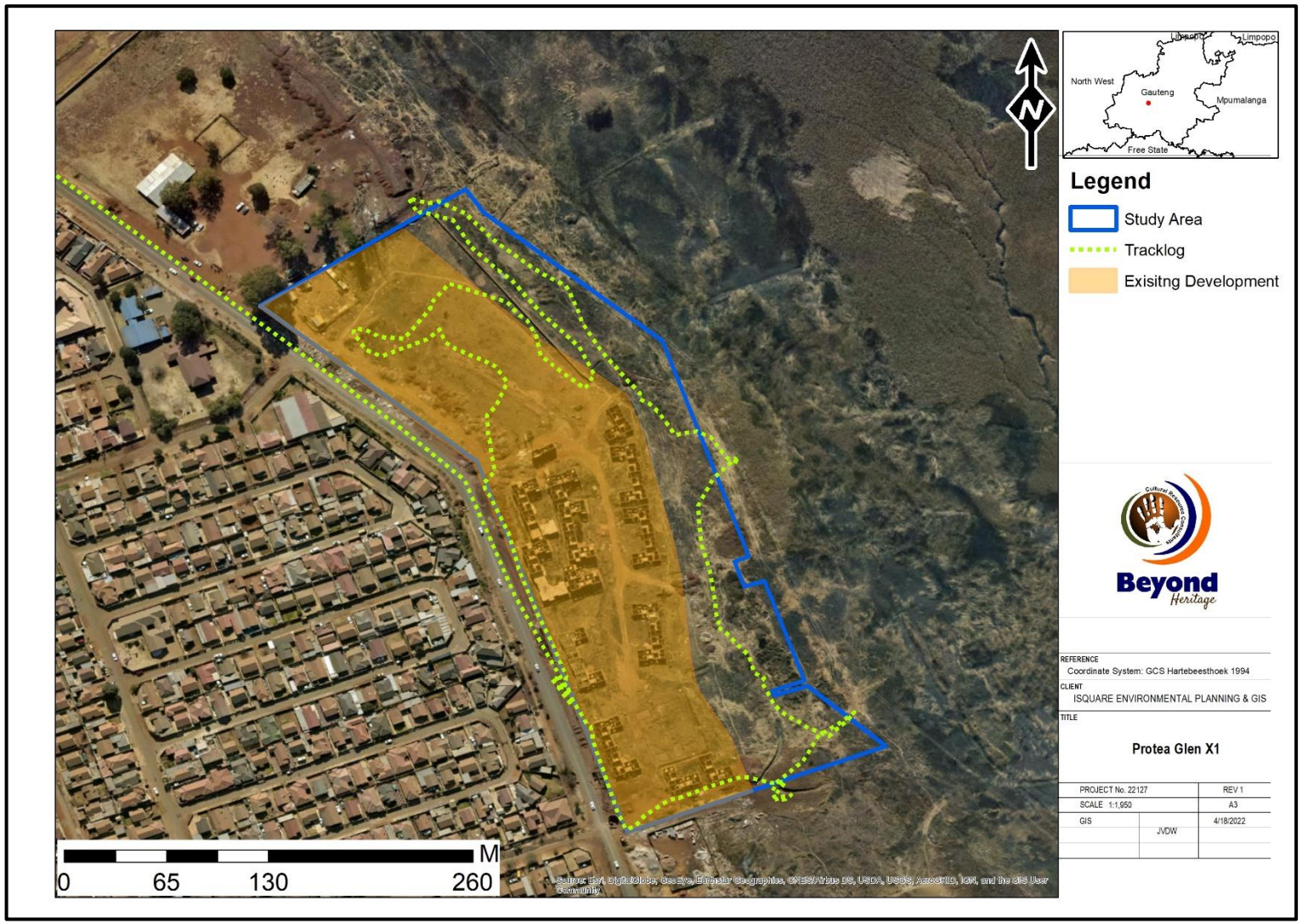


Figure 3.1: Tracklog of the survey path in green.

3.5 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).

3.6 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 nature of heritage resources and pedestrian surveys, the possibility exists that some features or artefacts may not have been discovered/recorded and the possible occurrence of graves and other cultural material cannot be excluded. Similarly, the depth of cultural deposits and the extent 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.

4 Description of Socio-Economic Environment

Stats SÁ provides the following information: According to 2011 census the City of Johannesburg Local Municipality has a total population of 4,4 million of which 76,4% are black African, 12,3% are white people, 5,6% are coloured people, and 4,9% are Indian/Asian. Of those 20 years and older 3,4%have completed primary school, 32,4% have some secondary education, 34,9% have completed matric, 19,2% have some form of higher education, and 2.9% of those aged 20 years and older have no form of schooling. There are 2 261 490 economically active (employed or unemployed but looking for work) people in the City of Johannesburg; of these 25,0% are unemployed. Of the 1 228 666 economically active youth (15–35 years) in the area, 31,5% are unemployed.

5 Results of Public Consultation and Stakeholder Engagement:

5.1.1 Stakeholder Identification

No stakeholder engagement was conducted as part of this HIA.

6 Literature / Background Study:

6.1 Literature Review (SAHRIS)

Several previous studies are on record for the general study area (de Jong 2004, Fourie & van der Walt 2008, Huffman 2008, Küsel 2016, Nienaber 2007, van Schalkwyk 2003; 2012; 2019). Some surveys around the project footprint found no heritage resources (Küsel 2016, van Schalkwyk 2012; 2019). Just east of the project footprint, de Jong identified a quarry but of low heritage significance. Van Schalkwyk (2007), identified historical stone structures as well as two potential Anglo Boer War blockhouses of medium heritage significance as well as MSA scatters of low significance. Nienaber (2007), found a single stone tool flake and a stone circle, both of which were given a low significance rating. Huffman (2008), identified two European farms with related structures. Fourie and van der Walt (2008), an old stone packed beacon, old gold mining diggings and shaft remains, a stone and concrete bridge, as well as an historical building remains. The finds were not of high heritage significance.

6.1.1 Graves and Burial sites

No known grave sites are indicated in the study area.

6.2 Background to the general area

6.2.1 Archaeology of the area

The archaeological record for the greater study area consists of the Stone Age, Iron Age and Historical Period. Stone Age and Iron Age sites in the direct vicinity of the study area are rare.

6.2.2 The Stone Age

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 contains sub-phases or industrial complexes, and within these we can expect regional variation regarding characteristics and time ranges. For Cultural Resources Management (CRM) purposes it is often only expected/ possible to identify the presence of the three main phases.
The three main phases can be divided as follows:

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

Excavations by Mason (1997), further away at the Boulders shopping centre (approximately 40 km northeast 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. Remains dating to all three Stone Age Phases were identified by Mason at the Boulders shopping Centre site, MSA and LSA material was also recorded at Glenferness cave.

The study area is also located roughly 20 km southwest of the Melville Koppies, which is a prominent Middle Stone Age site in the landscape (Bergh 1999: 4). Early and Middle Stone Age tools have also been found near Klipriviersberg, east of the study area as well as further away south east at Henly-On-Klip (van Schalkwyk 2019). Other Stone Age sites near the study area are found near watercourses and are generally isolated to artefact scatters (van Schalkwyk 2003).

6.2.3 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.

The Boulders excavation found that the earliest Iron Age settlement of the area was occupied between AD 350 and AD 600 by ancestors of Tswana speaking communities (Mason 1997). Associated pottery was compared to similar pottery from Zeerust to determine its age. The Melville Koppies 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 AD 1060, by approximation (Bergh 1999: 7, 87). 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 east of the project area 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 was built by people in the Fokeng cluster. Pottery found at Klipriviersberg is a combination of *Ntsuanatsatsi* and *Olifantspoort* indicating interaction amongst groups (Huffman 2007). 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). It seems that, 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).

6.3 Historical Overview

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 discovery of the Johannesburg Main Reef of gold in the 1880s resulted in an influx of people into the Johannesburg area and the subsequent establishment of mining related infrastructure. Prior to mining, the area was largely used for mainly farming activities and was not as densely populated.

Soweto, abbreviated from South West Townships, was established in the 1930s as a township which would supplement for labour needed in Johannesburg. Soweto was previously its own municipality but is now part of the City of Johannesburg Municipality.

The Soweto uprising that occurred from the 16th to 18th June 1976, came in retaliation of the implementation of learning in Afrikaans in schools in Soweto. Thousands of students marched in protest of this action. This was met by police forces who fired teargas and later live ammunition at the protesters and many young students were killed and injured. In retaliation of the killed and wounded children, students from the University of Witwatersrand began protesting. The 16th of June has since been declared a national public holiday of Youth Day in remembrance of the events that took place.

6.4 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 (Table 5). The recommendations for each site should be read in conjunction with section 10 of this report.

Table 5. Heritage significance and field ratings

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

7 Description of the Physical Environment

The study area is located on a landscape of slightly undulating plains dissected by prominent rocky chert ridges. Species-rich grasslands forming a complex mosaic pattern dominated by many species. This area is dominated by the Mesic Highveld Grassland. These are considered to be 'sour' grasslands, and are dominated primarily by andropogonoid grasses (Mucina & Rutherford 2006). The different grassland units are distinguished on the basis of geology and other substrate properties, as well as elevation, topography and rainfall.

The proposed project area is located between Wild Chestnut Street on the western edge and a large wetland system along the eastern edge of the proposed project area. The site is about 2 km north of the N12 highway. The proposed project area is almost completely built-up or disturbed by a previously unfinished development project. Most of the proposed project area contains partially built housing units and multi-storied buildings. The various structures have become degraded and seems to be used by local community members as informal housing. Along with the previous development, multiple pipelines were constructed that were associated with the partial development. These pipelines are found across the entire proposed project area and seem to be emptying out into the large wetland on the eastern edge of the proposed project area. Some sections of these pipelines are also degraded. The run-off from these pipelines also artificially increases the size of the wetland causing some difficulty in accessing the eastern edge of the proposed project area. The northern edge of the proposed project area is close to an informal church and a section of the township. These features seem to be encroaching into the proposed project area. The western edge of the proposed project area along the large wetland area can be characterised as a disturbed section of the project area due to multiple existing pipelines as well as a large powerline running along the wetland. The area contains a thick cover of green grass due to the high humidity from various emptying pipelines. The entire project area is covered in scattered dumping sites of building rubble and refuse. Illegal dumping is also taking place along the western edge of the proposed project area. General site conditions are illustrated in Figure 7.1 to Figure 7.8.

Figure 7.1. General site conditions along Wild Chestnut road - Section of the unfinished development is visible.

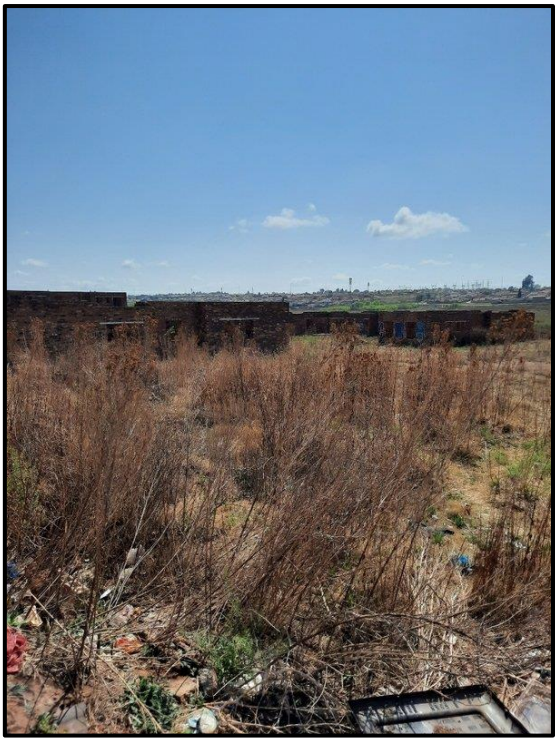


Figure 7.2. General site conditions - Southern section of the proposed project area facing north along the unfinished development.

Figure 7.3. Various unfinished structures are scattered across the proposed project area.

Figure 7.4. Large scale illegal dumping taking place throughout the proposed project area.

Figure 7.5. General site conditions - Various pipelines emptying out into the existing wetland on the eastern edge of the proposed project area**.**

Figure 7.6. The water run-off from pipelines are artificially increasing the size of the wetland along the eastern edge of the proposed project area.

Figure 7.7. General site conditions - Open area between the unfinished development and the wetland.

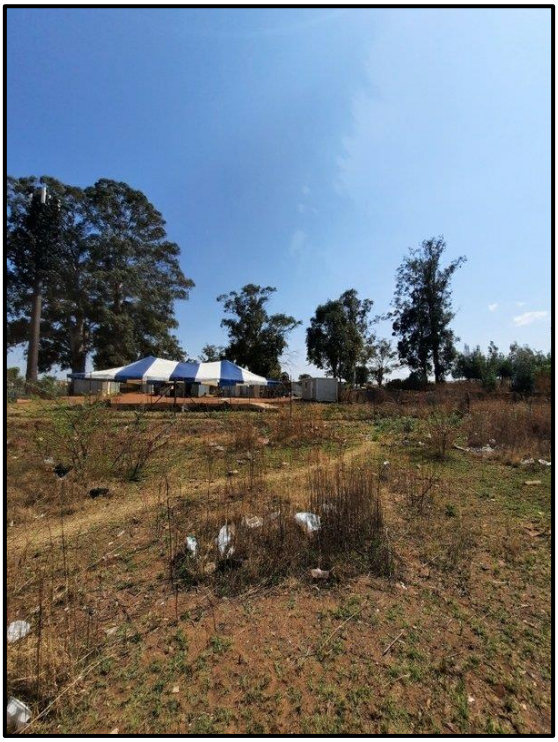


Figure 7.8. General site conditions - Northern edge of the proposed project area showing an informal church and section of the local township starting to encroach into the proposed project area.

8 Findings of the Survey

8.1 Cultural Heritage

The study area is flat without focal points that would have attracted human occupation in antiquity. Prior to the establishment of Soweto, the landscape was largely used for farming and cultivation. The study area is highly disturbed through previous unfinished construction in the study area. A wetland runs through the eastern edge of the project footprint which has since been artificially enlarged due to multiple pipelines running through the project area which empty into the wetlands. The study area has been completely disturbed through the original developments of the residential township in study area. The entire project area is covered in scattered dumping sites of building rubble and refuse with illegal dumping also taking place along the western edge of the proposed project area. No heritage resources were noted during the survey.

8.2 Cultural Landscape

The study area is urban in character and used to be undeveloped in the 1940's. Development of a road through the area in 1965 and cultivation by1976 changed the character of the site (Figure 8.2 and 8.3).

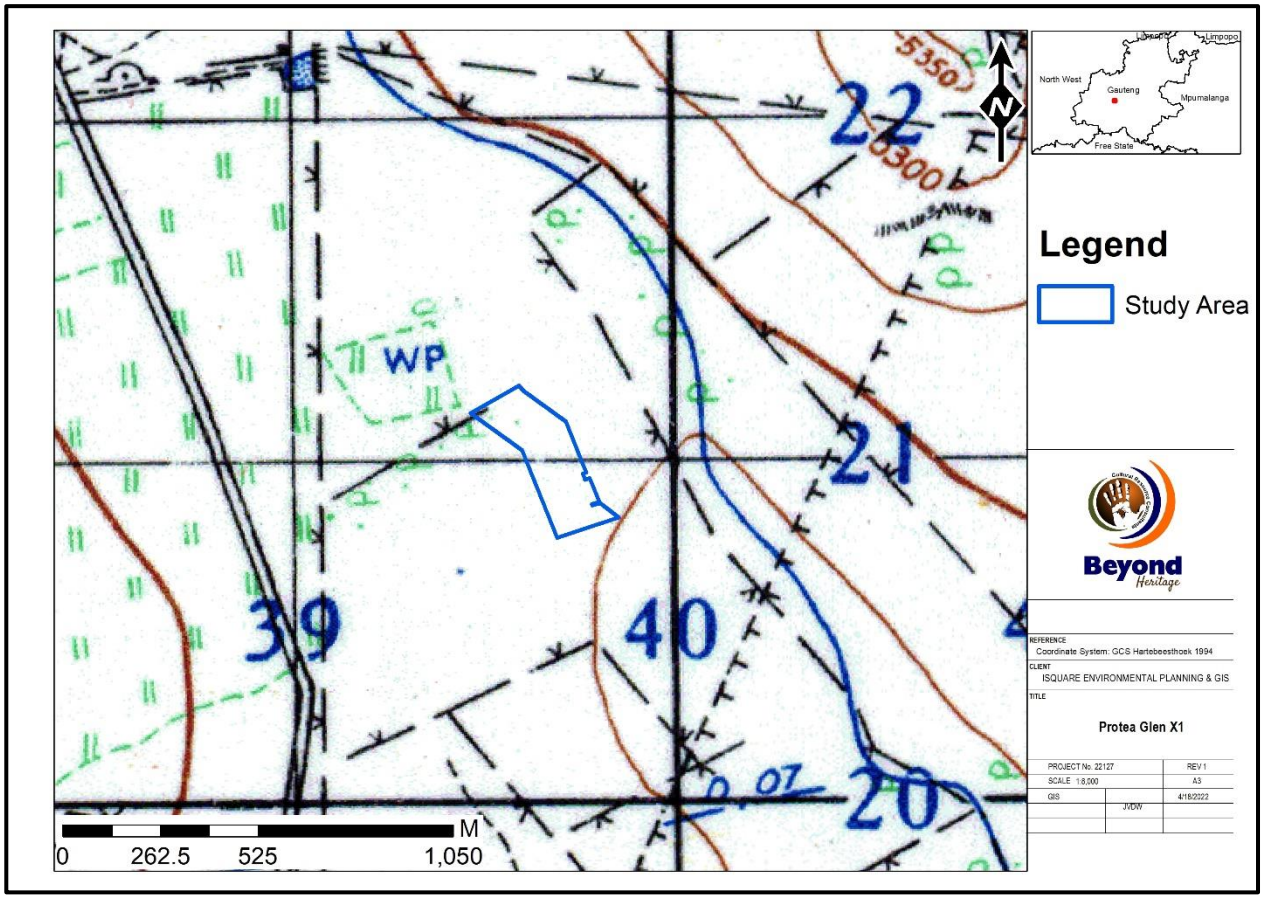


Figure 8.1. 1944 Topographic map indicating no development in the study area and surrounds.

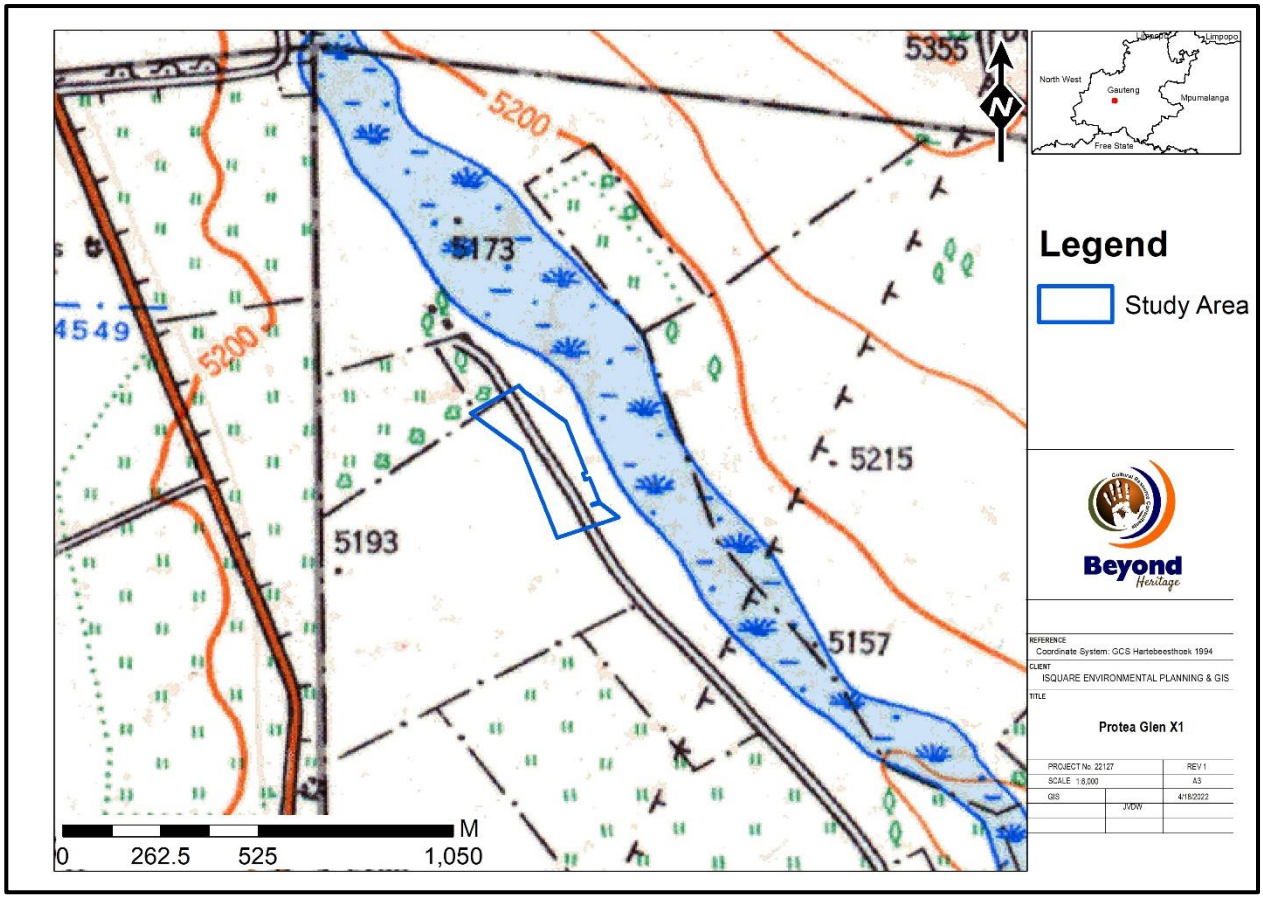


Figure 8.2. 1965 Topographic map indicating a road in the study area.

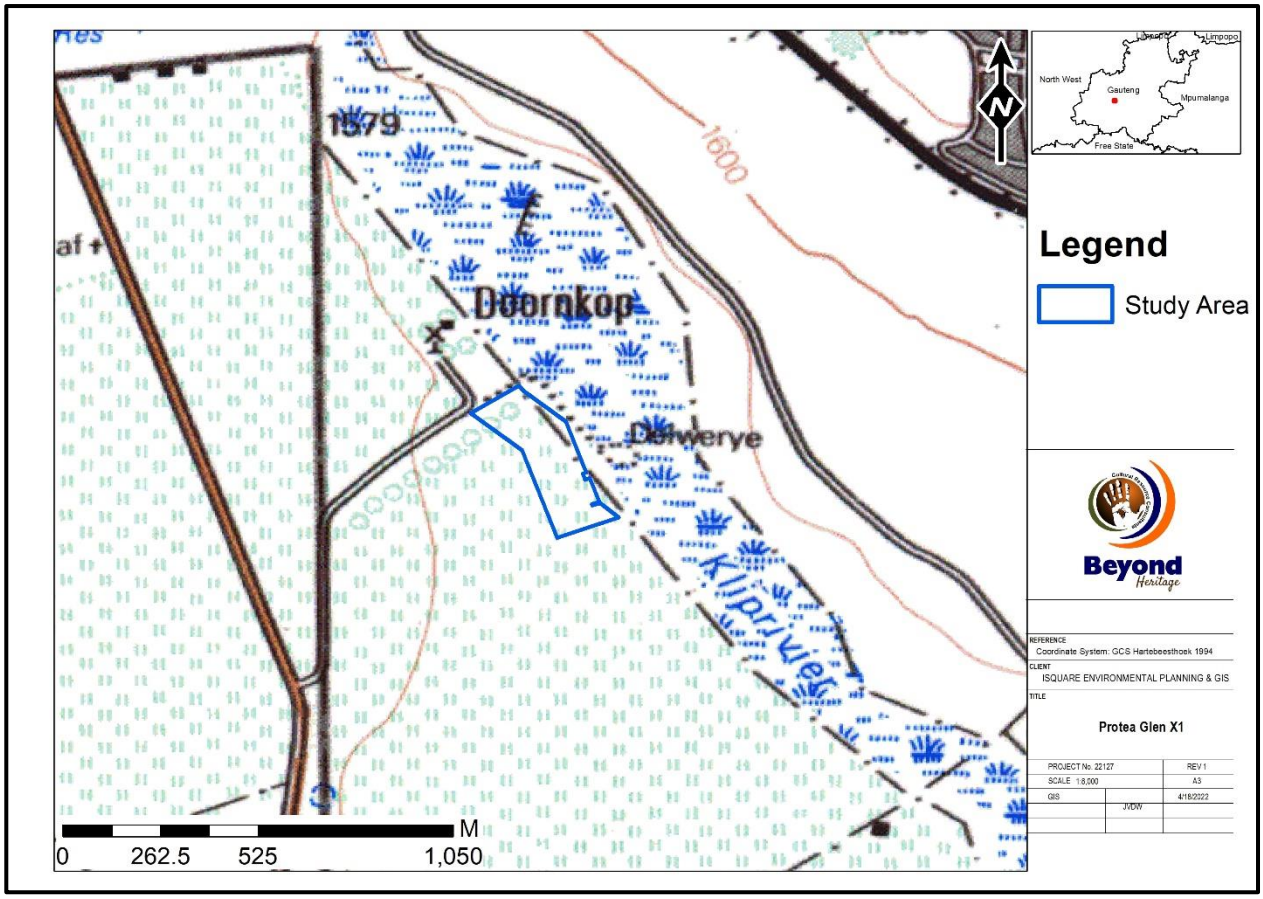
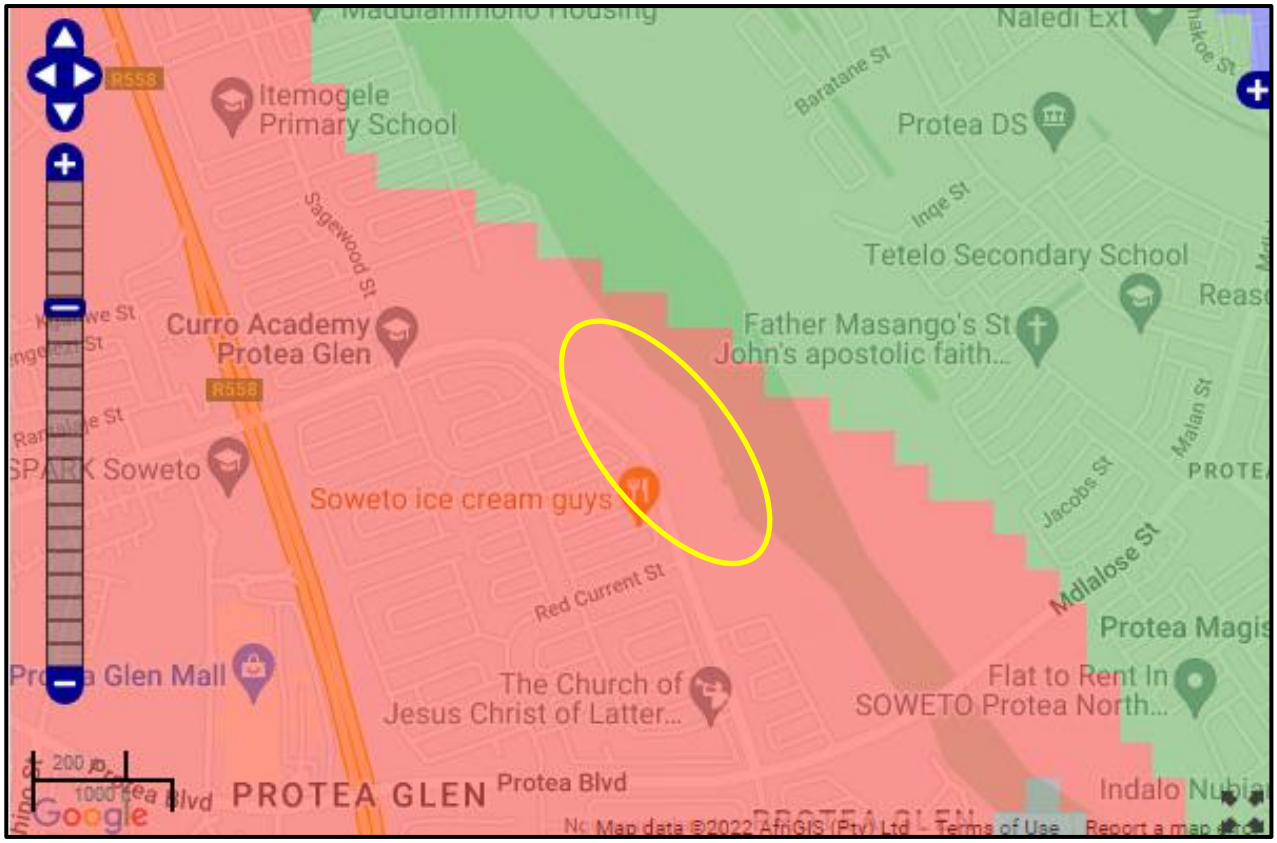


Figure 8.3. 1976 Topographic map indicating cultivation throughout the study area.

8.3 Paleontological Heritage

Based on the SAHRA Paleontological map the study area is of very high sensitivity (Figure 8.5) and therefore an independent palaeontological study was done to access the project area. Bamford (2022) found that the proposed site lies on the potentially fossiliferous Malmani subgroup (Transvaal Supergroup) that might contain trace fossils such as stromatolites. The site visit and walk through by a palaeontologist confirmed that the site was highly disturbed and there were NO FOSSILS on the surface or eroded areas. Nonetheless, a Fossil Chance Find Protocol should be added to the EMPr



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

Figure 8.4.Paleontological sensitivity of the approximate study area as indicated on the SAHRA Palaeontological sensitivity map.

9 Potential Impact

No heritage sites of significance occur within the impact area and no adverse impact to heritage resources is expected. Any additional effects to subsurface heritage resources can be successfully mitigated by implementing a chance find procedure. Mitigation measures as recommended in this report should be implemented during all phases of the project. Impacts of the project on heritage resources is expected to be low during all phases of the development (Table 6).

9.1.1 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. These activities can have a negative and irreversible impact on heritage features if any occur. Impacts include destruction or partial destruction of non-renewable heritage resources.

9.1.2 Construction Phase

During this phase, the impacts and effects are similar in nature but more extensive than the pre-construction phase. Potential impacts include destruction or partial destruction of non-renewable heritage resources.

9.1.3 Operation Phase

No impacts are expected during the operation phase.

9.1.4 Impact Assessment for the Project

Table 6. Impact assessment of the proposed project.

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 and paleontological material or objects.		
	Without mitigation	**With mitigation (Preservation/ excavation of site)**
Extent	Local (2)	Local (2)
Duration	Permanent (5)	Permanent (5)
Magnitude	Minor (2)	Minor (2)
Probability	Improbable (2)	Improbable (2)
Significance	**18 (Low)**	**18 (Low)**
Status (positive or negative)	Negative	Negative
Reversibility	Not reversible	Not reversible
Irreplaceable loss of resources?	Yes	Yes
Can impacts be mitigated?	NA	NA
Mitigation: • Implementation of a chance find procedure for the project;		
Cumulative impacts: The proposed project will have a low cumulative impact as no known heritage resources will be adversely affected.		
Residual Impacts: Although surface sites can be avoided or mitigated, there is a chance that completely buried sites would still be impacted on, but this cannot be quantified.		

10 Conclusion and recommendations

From a heritage perspective the study area is altered by previously unfinished developments and historical cultivation of the site. Cumulatively these activities would have impacted on surface indicators of heritage resources if any ever occurred in the area and the study area is considered to be of low heritage potential. This was confirmed during the site visit and no heritage resources were recorded.

No adverse impact on heritage resources is expected by the project and it is recommended that the project can commence on the condition that the following recommendations (Section 10) are implemented as part of the EMPr and based on approval from SAHRA.

10.1 Recommendations for condition of authorisation

The following recommendations apply, and the project may only proceed based on approval from SAHRA:

Recommendations:

- Implementation of a chance find procedure for the project.

10.2 Chance Find Procedures

10.2.1 Heritage Resources

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 therefor chance find procedures should be put in place for the project. 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.

10.3 Reasoned Opinion

The overall impact of the project is considered to be low and residual impacts can be managed to an acceptable level through implementation of the recommendations made in this report. The socio-economic benefits also outweigh the possible impacts of the development if the correct mitigation measures are implemented for the project.

10.4 Potential risk

Potential risks to the proposed project are the occurrence of intangible features and unrecorded cultural resources (of which graves are the highest risk). This can cause delays during construction, as well as additional costs involved in mitigation and possible layout changes.

10.5 Monitoring Requirements

- *Induction training:* Responsible staff identified by the developer should attend a short course on heritage management and identification of heritage resources.
- *Site monitoring and watching brief*: As most heritage resources occur below surface, all earth-moving activities need to be routinely monitored in case of accidental discoveries. The greatest potential impacts are the initial soil removal and subsequent earthworks during construction. The ECO should monitor all such activities daily. If any heritage resources are found, the chance finds procedure must be followed as outlined above.

Monitoring requirements for the project is outlined in Table 7.

Table 7. Heritage monitoring required for the project.

Heritage Monitoring					
Aspect	**Area**	**Responsible for monitoring and measuring**	**Frequency**	**Proactive or reactive measurement**	**Method**
Clearing activities and construction	Entire project area	ECO	Weekly (Pre construction and construction phase)	Proactively	• If risks are manifested (accidental discovery of heritage resources) the chance find procedure should be implemented: 1. Cease all works immediately; 2. Report incident to the Sustainability Manager; 3. Contact an archaeologist/ palaeontologist to inspect the site; 4. Report incident to the competent authority; and 5. Employ reasonable mitigation measures in accordance with the requirements of the relevant authorities. • Only recommence operations once impacts have been mitigated.

10.6 Management Measures for the project.

Table 8. Heritage Management Plan for the project

Area	Mitigation measures	Phase	Timeframe	Responsible party for implementation	Target	Performance indicators (monitoring tool)
General project area	Implement chance find procedures in case possible heritage finds are uncovered	Pre Construction and construction	Throughout the project	Applicant ECO	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 35, 36 and 38 of NHRA	ECO Checklist/Report

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