HERITAGE IMPACT ASSESSMENT

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

FOR THE PROPOSED LION PRIDE EXTENSION, ON PORTION 162, REMAINDER OF PORTION 23 AND REMAINDER OF PORTION 196 OF THE FARM NOOITGEDACHT 534-JQ, MOGALE CITY LOCAL MUNICIPALITY, GAUTENG PROVINCE

Type of development:

Township Development

Client:

ISQUARE INFORMATION SYSTEMS cc

Applicant:

Cosmopolitan Projects Johannesburg (Pty) Ltd

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Project Reference:
Project number 2255
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June 2022

APPROVAL PAGE

Project Name	Lion Pride Extension
Report Title	Heritage Impact Assessment for the proposed Lion Pride Extension, on Portion 162, Remainder of Portion 23 and Remainder Of Portion 196 Of The Farm Nooitgedacht 534-Jq, Mogale City Local Municipality, Gauteng Province
Authority Reference Number	TBC
Report Status	Draft report
Applicant Name	Cosmopolitan Projects Johannesburg (Pty) Ltd

Responsibility	Name	Qualifications and Certifications	Date
Fieldwork and reporting	Jaco van der Walt - Archaeologist	MA Archaeology ASAPA #159 APHP #114	March 2022
Fieldwork	Ruan van der Merwe	BA Hons Archaeology	August 2021

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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*
(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	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 1.3
(k) Mitigation measures for inclusion in the EMPr	Section 10.1
(I) Conditions for inclusion in the environmental authorisation	Section 10. 1.
(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	Refer to EIA report
(q) Any other information requested by the competent authority	N.A

Executive Summary

Isquare Information Systems was appointed as the Environmental Assessment Practitioner (EAP) by Cosmopolitan Projects Johannesburg (Pty) Ltd to undertake the required Environmental Authorisation Process for the proposed Mixed Land Use Township, “Lion Pride Extension”, on several Portions of the Farm Nooitgedacht 534-JQ, Gauteng Province. 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 Project area has been fallow for a number of years without focal points that would have attracted human occupation in antiquity and are considered to be of low archaeological potential;
- This was confirmed during the survey and heritage observations were limited to demolished ruins within the impact area and graves just outside the impact area;
- The palaeontological sensitivity of the study area is insignificant, and no further studies are required for this aspect.

The impact 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:

- Avoidance of burial sites (Waypoint 098) with a 30 m buffer zone and access for family members;
- The project area should be monitored by the ECO;
- Implementation of a Chance Find Procedure for the project (as outlined in Section 10.2).

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	6/02/2022

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, Guinea, Afghanistan, Nigeria 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:

Beyond Heritage was appointed to conduct a HIA for the Proposed Mixed Land Use Township, “Lion Pride Extension”, on Portion 162, Remainder of Portion 23 and Remainder of Portion 196 of the Farm Nooitgedacht 534-JQ within the jurisdiction of Mogale City Local Municipality, Gauteng Province (Figure 1.1 to 1.4). The report forms part of the Environmental Impact Assessment (EIA) Report and Environmental Management Programme Report (EMPr) for the development.

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, ruins and graves 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 Regulations section 40 (1) and (2), to be submitted to SAHRA for commenting. Upon submission to SAHRA the project will be automatically given a case number as reference. As such the EA 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).

1.2 Project Description

Project components and the location of the proposed township development are outlined under Table 2 and 3.

Table 2: Project Description

Farm and Magisterial District	Portion 162, Remainder of Portion 23 and Remainder of Portion 196 of the Farm Nooitgedacht 534-JQ of Mogale City Local Municipality, Gauteng Province.
Central co-ordinate of the development	25°59'24.43"S 27°55'18.95"E
Topographic Map Number	2527 DD

Table 3: Infrastructure and project activities

Type of development	Township Development
Size of development	41 Hectares
Project Components	The proposed development involves the development of res 1 and res 3 land use township on approximately 41 hectares with the current zoning “Agriculture”.

1.3 Alternatives

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

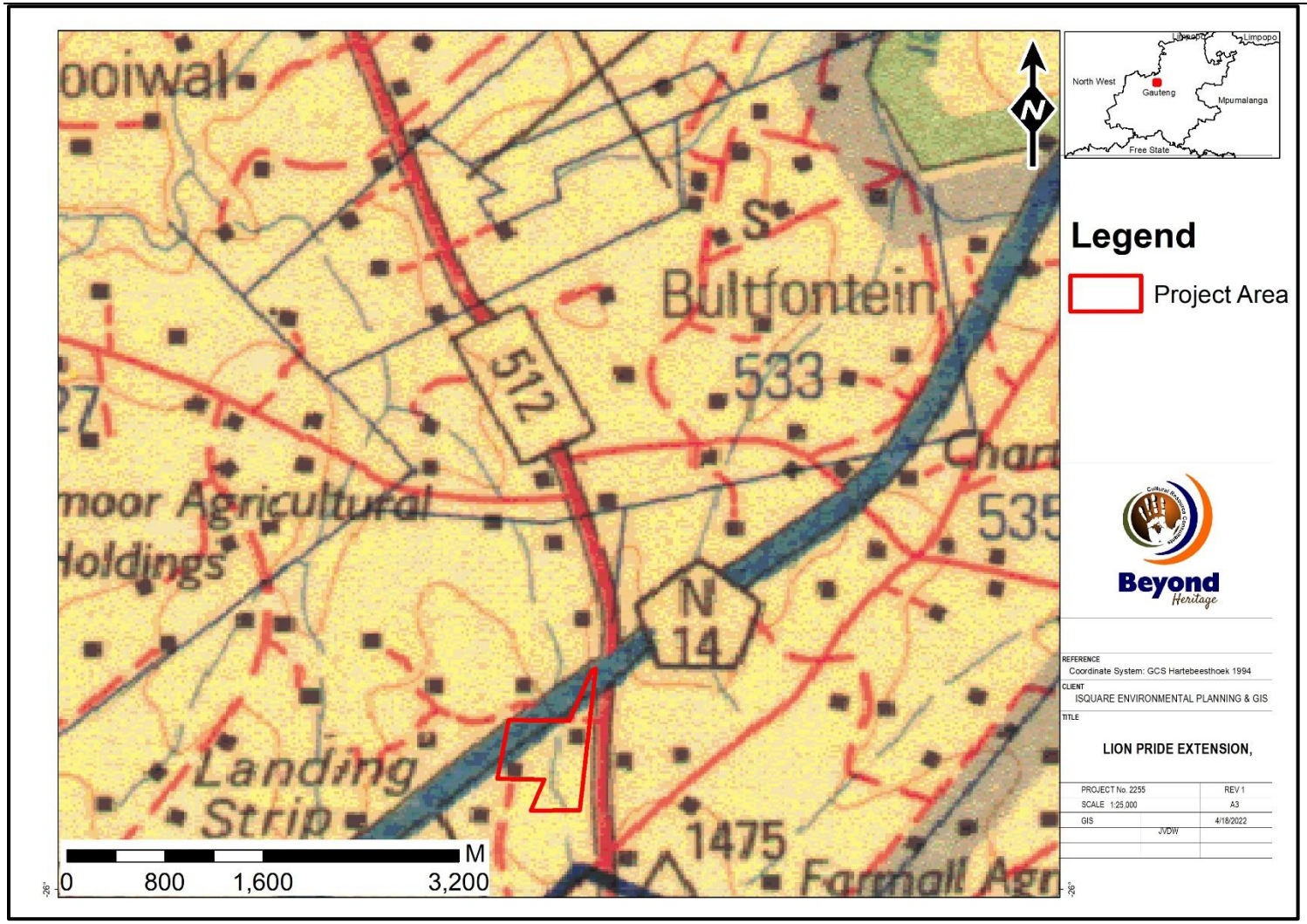

Figure 1.1. Regional setting of the project (1: 250 000 topographical map).

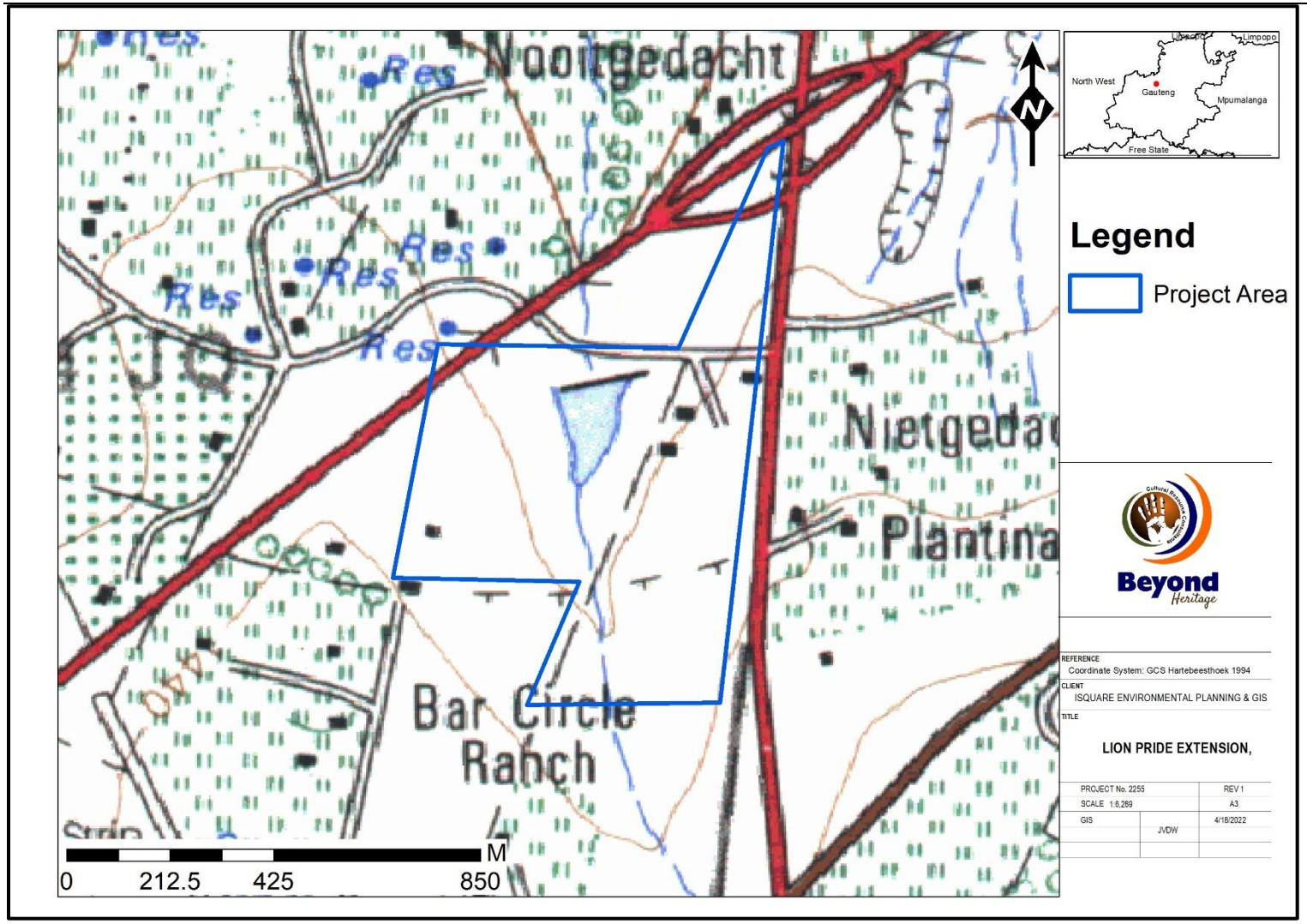

Figure 1.2. Local setting of the project (1: 50 000 topographical map).

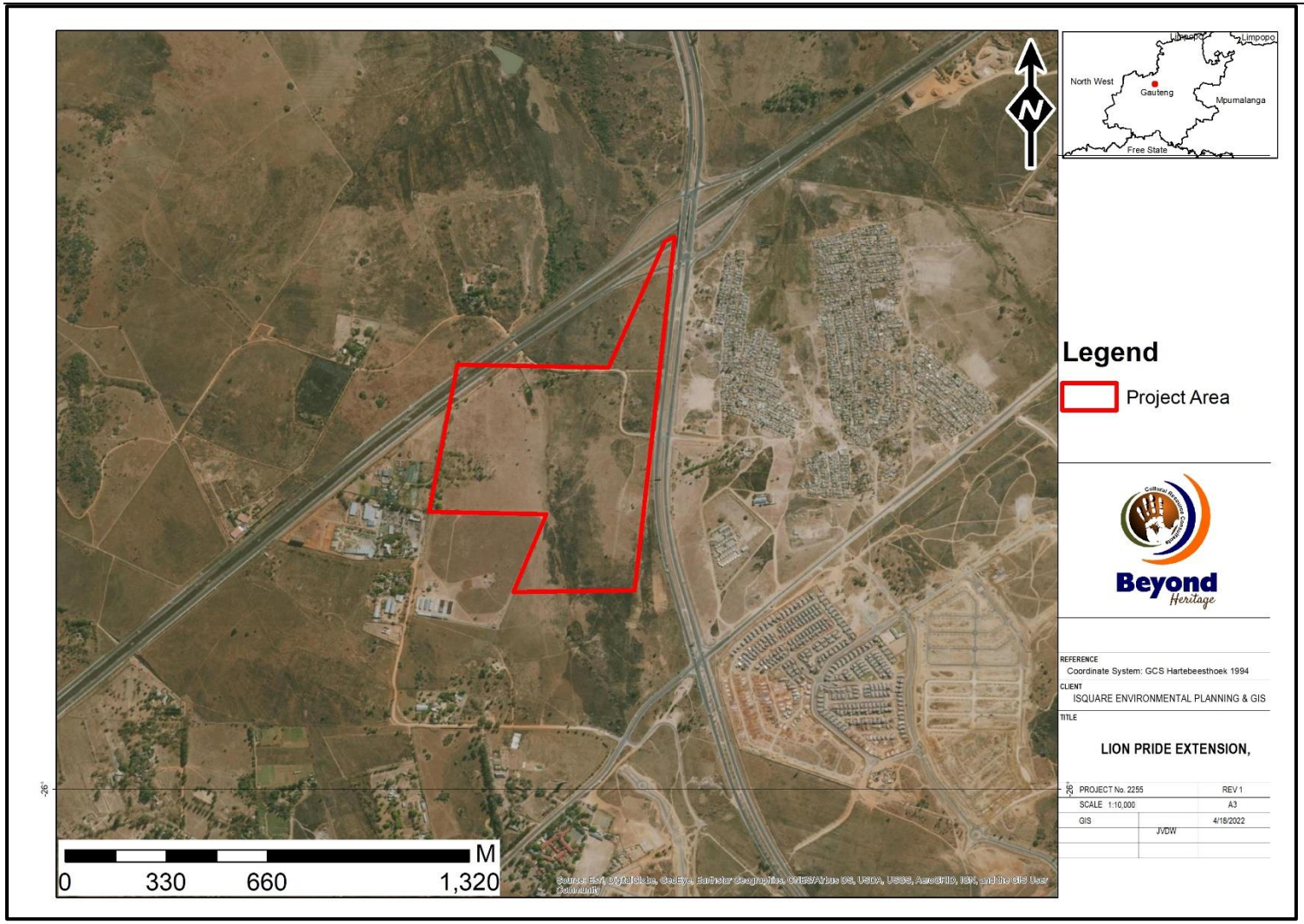

Figure 1.3. Aerial image of the development footprint and surrounds.

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, 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 evaluation of Phase 1 HIA reports upon which review comments will be issued. 'Best practice' requires Phase 1 HIA 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 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:

Stakeholder engagement is a key component of any EA 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.

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	19 August 2021
Season	Winter – The time of year and season did influence the survey. The site has been fallow in recent years and highly overgrown in some areas limiting accessibility and heritage visibility. The footprint was however sufficiently covered to understand the heritage character of the area (Figure 3.1).

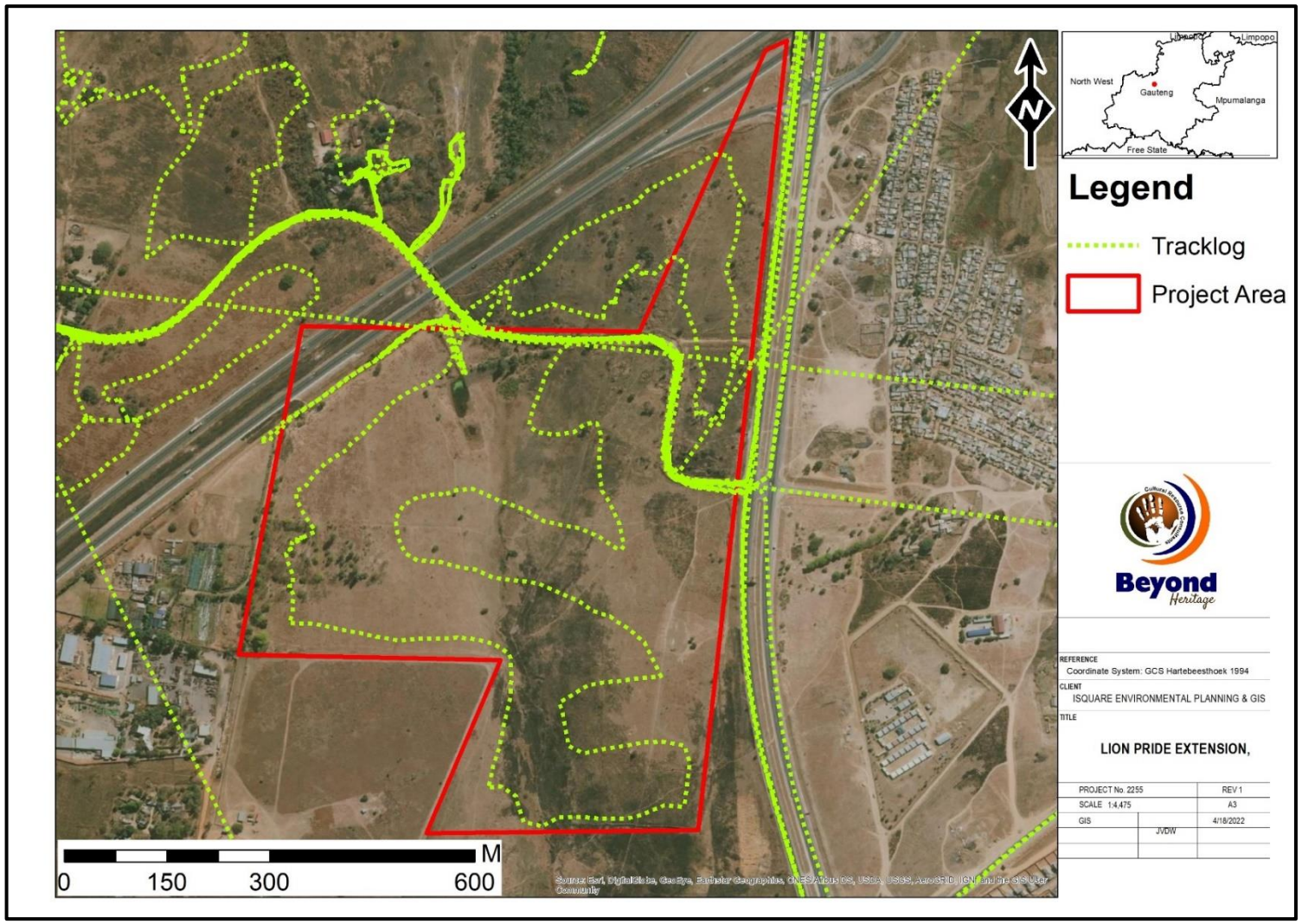

Figure 3.1. Tracklog of the survey path in green.

3.5 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.

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

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 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. Loiterers and vagrants in the study area also limited accessibility. 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 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

The process followed in the Public Participation Process (as approved by GDARD) undertaken for this project involves the following:

- Phase 1 Initial Advertising Process Compilation of a Register of Interested & Affected Parties
- A complete list of Key Stakeholders and Interested & Affected Parties was compiled and is being maintained throughout the entire project period.
- Onsite Notification Two laminated A2 onsite notification had been placed on site on 1 March 2022.
- A 30 day advertising period for registration as a stakeholder was stated on the notices.

- Newspaper Advertisement A newspaper advertisement was placed in the Citizen on 28 February 2022 with an invitation to register as a stakeholder.
- A 30 day period was allowed.

Phase 2 Scoping Phase

- Distribution of the Draft Scoping Report for comment will be done via e-mail to everyone on the Register of Interested & Affected Parties.
- Should any of the stakeholders not have access to e-mails and the internet, they will be notified telephonically of the availability of the Draft Scoping Report at a publicly accessible venue close to the proposed development site. This venue will, if relevant, be identified in cooperation with the relevant Ward Councillor(s).
- A 30 day will apply for comment on the Draft Scoping Report. Phase 3 EIR Phase

Distribution of the Draft Environmental Impact Report (EIR) for comment will be done via e-mail to everyone on the Register of interested & Affected Parties.

- Should any of the stakeholders not have access to e-mails and the internet, they will be notified telephonically of the availability of the Draft Environmental Impact Report at the publicly accessible venue at the previously public accessible confirmed venue.
- A 30 day will apply for comment on the Draft EIR.
- All communication received on the Draft EIR will be included in the Final EIR to be submitted to GDARD for their consideration for Environmental Authorisation. Only if significant changes that change the recommendations made in the Draft EIR are relevant, will it again be communicated and/or circulated for comment to the relevant stakeholders.

No heritage concerns have been raised this far.

6 Literature / Background Study:

6.1 Literature Review (SAHRIS)

Twenty-four sites are on record for the larger geographical area at the Wits database. These sites consist of Stone Age (ESA & LSA), Late Iron Age, engraving sites and cemeteries. None of these sites are located within or close to the project area but provide a background of to the sites that can be expected. The following CRM reports were consulted for this report as outlined in Table 6 highlighting the lack of heritage sites in the area apart from graves:

Table 6. Studies consulted for the project

Author	Year	Project	Findings
Kusel, U.	2007	Cultural Heritage Resources Impact Assessment of Portion 29 Of the Farm Lindley 528 JQ Lanseria Gauteng	No sites were recorded
Pelser, A.	2011	A Report on A Heritage Impact Assessment for The Proposed Lanseria Commercial Crossing Development on Various Portions of Bultfontein 533 JQ, Nooitgedacht 534 JQ And Nietgedacht 535 JQ, Near Lanseria Gauteng	Informal cemeteries were identified
Kitto, J.	2013	Proposed Establishment of a New Industrial Township on Portions 38 And 39 Of the Farm Bultfontein No. 533-JQ, Lanseria, City of Johannesburg Metropolitan Municipality, Gauteng Province Heritage Impact Assessment Report.	Modern Structures and graves were recorded
Van Schalkwyk	2013	Basic Cultural Heritage Assessment for The Proposed Bulk Water Supply Pipeline Between Lanseria And Cosmo City, Gauteng Province. Unpublished Report.	No sites were recorded
Van der Walt, J.	2015 a	Archaeological Impact Assessment for The Proposed Kya Sand Extension 104 Township Development, Gauteng	No sites were recorded
Van der Walt, J.	2015b	Archaeological Impact Assessment for The Proposed Township Development on Portion 96 Of the Farm Lindley 528 J.Q. Lanseria, Gauteng Province.	No sites were recorded
Van der Walt, J.	2016	Archaeological impact assessment for the proposed Nietgedacht building waste storage, handling and distribution facility, Gauteng Province	No sites recorded
Van der Walt, J.	2017	Heritage Impact Assessment Heron Bridge Sports Field Development, Gauteng Province.	No sites were recorded.
Van der Walt, J.	2018	Heritage Impact Assessment for the proposed K33 Upgrade Gauteng Province	Graves, structures
Van der Walt, J.	2018	Heritage Impact Assessment for the proposed Cedar Road Development. Gauteng Province.	No sites were recorded
Van der Walt, J.	2018	Heritage Impact Assessment for the proposed Nietgedacht P71 Filling Station. Gauteng Province.	A stone cairn of unknown purpose was recorded.

6.1.1 Genealogical Society and Google Earth Monuments

No known grave sites are indicated in the study area.

6.1.2 Google Earth and The Genealogical Society of South Africa (Graves and burial sites)

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where archaeological and historical sites might be located. The database of the Genealogical Society of South Africa indicated no known grave sites within the study area

6.2 Archaeological Background

The archaeological record for the greater study area consists of the Stone Age and Iron Age.

6.2.1 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 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 Glennferness cave on the farm Witkoppen located 30 km to the west. Another Stone Age site worth mentioning is the Melville Koppies site, which is a Middle Stone-Age site and the Linksfield and Primrose Middle Stone Age terrains (Bergh 1999: 4-8). There is evidence of the use of the wider area by Stone Age communities for example along the Kliprivier where ESA and MSA tools were recorded. In terms of the Later Stone Age, some petroglyphs occur to the south at Redan as well as along the Vaal River (Bergh 1999).

6.2.2 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 the University of Witwatersrand (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 was built by people in the Fokeng cluster.

In this area, the Klipriviersberg walling would have ended at approximately 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 to expand their area of influence (Bergh 1999: 11). 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.

6.2.3 Anglo-Boer War

The Anglo-Boer War (1899-1902) also impacted the wider study 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 Academy of Learning (approximately 8km southwest) as well as Bibury Grange (17 km to the west). 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).

7 Description of the Physical Environment

The site is undeveloped and has been fallow for a number of years, resulting in some areas totally overgrown with grass and thickets of trees. The topography is slightly undulating with a perennial stream draining the study area without major focal points like rocky outcrops or hills. The study area is bordered on two sides by provincial roads. General site conditions are illustrated in Figures 7.1 to 7.4.

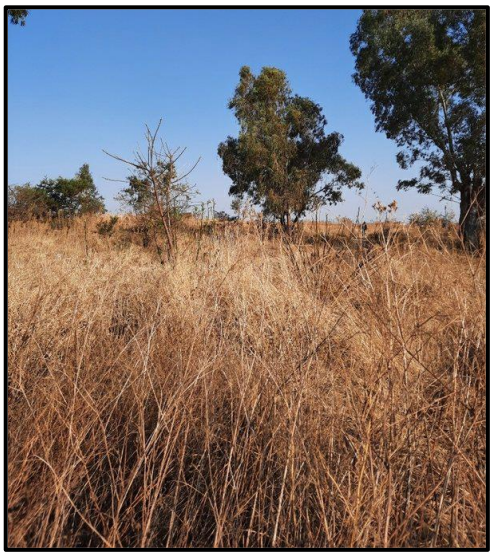

Figure 7.1. General site conditions showing grass cover in the study area.

Figure 7.2. The study are is characterised by thickets of trees.

Figure 7.3. view toward the N14.

Figure 7.4. Areas that was burned that has less vegetation cover.

8 Findings of the Survey

8.1 Heritage Resources

The study area consists of an undeveloped open field that have been fallow for a number of years. Access to the site is readily available resulting in loiterers and vagrants that have put up temporary shelters in the thickets of trees that is found throughout the study area. During the survey ruins within the Project footprint and a cemetery **outside** of the study area recorded. Site distribution of the features located in the study area are illustrated in Figure 8.1. Recorded observations are briefly described in Table 7 and features recorded within the study area are illustrated in Figure 8.2 to 8.5

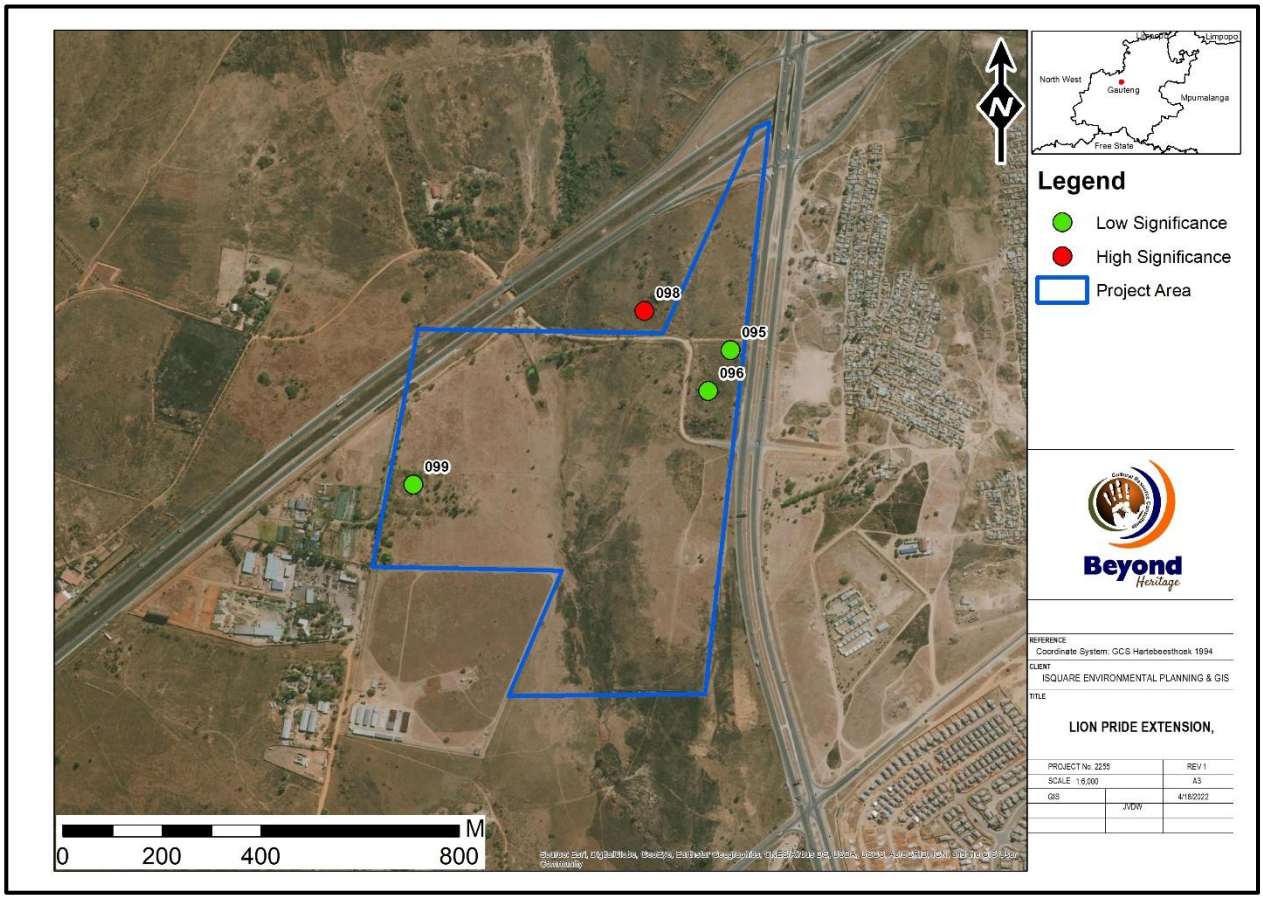

Figure 8.1. Site distribution map.

Table 7. Recorded features.

Label	Location	Site description	Significance
095	-25.9879716, 27.9243688	Remains of a demolished structure marked by a cement slab and some bricks. The site measures ~ 10 x 20 m.	GP C Low Significance
096	-25.988623, 27.923815	Large cement foundation marking a demolished structure. The feature extends over an area of 40 x 40 m.	GP C Low significance
098	-25.987191, 27.922709	2 Packed graves marked by stone dressing with no headstones just outside of the Project area	GP A High social significance
099	-25.990388, 27.91853	Large broken-down homestead. Multiple foundations and remnants of structures scattered across the site. No standing structures remain. The sites extend over an area of 30 x 30 m.	GP C Low Significance

Figure 8.2. General site conditions at 095.

Figure 8.3. Large cement slab at 096.

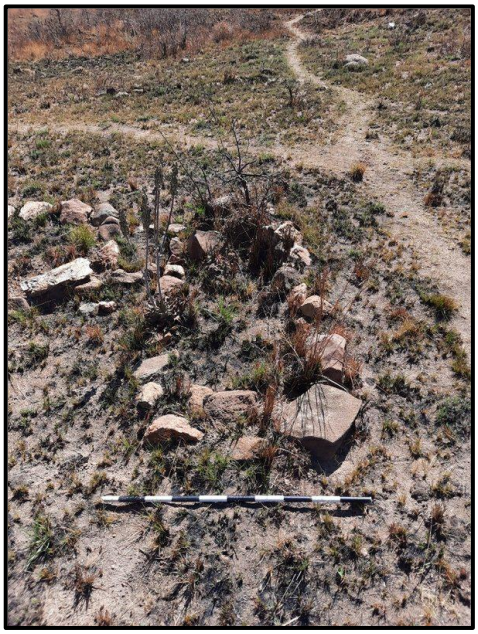

Figure 8.4. Grave at 098 aligned North to South.

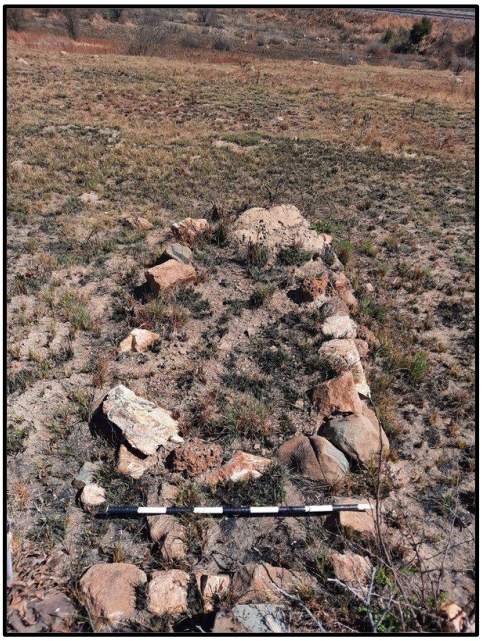

Figure 8.5. Grave aligned East to West at 098.

Figure 8.6. demolished remains of a structure at 099.

Figure 8.7. Cement slab at 099.

8.2 Cultural Landscape

The study area is rural in character with no developments older than 60 years in the immediate area (Figure 8.1 & 8.2).

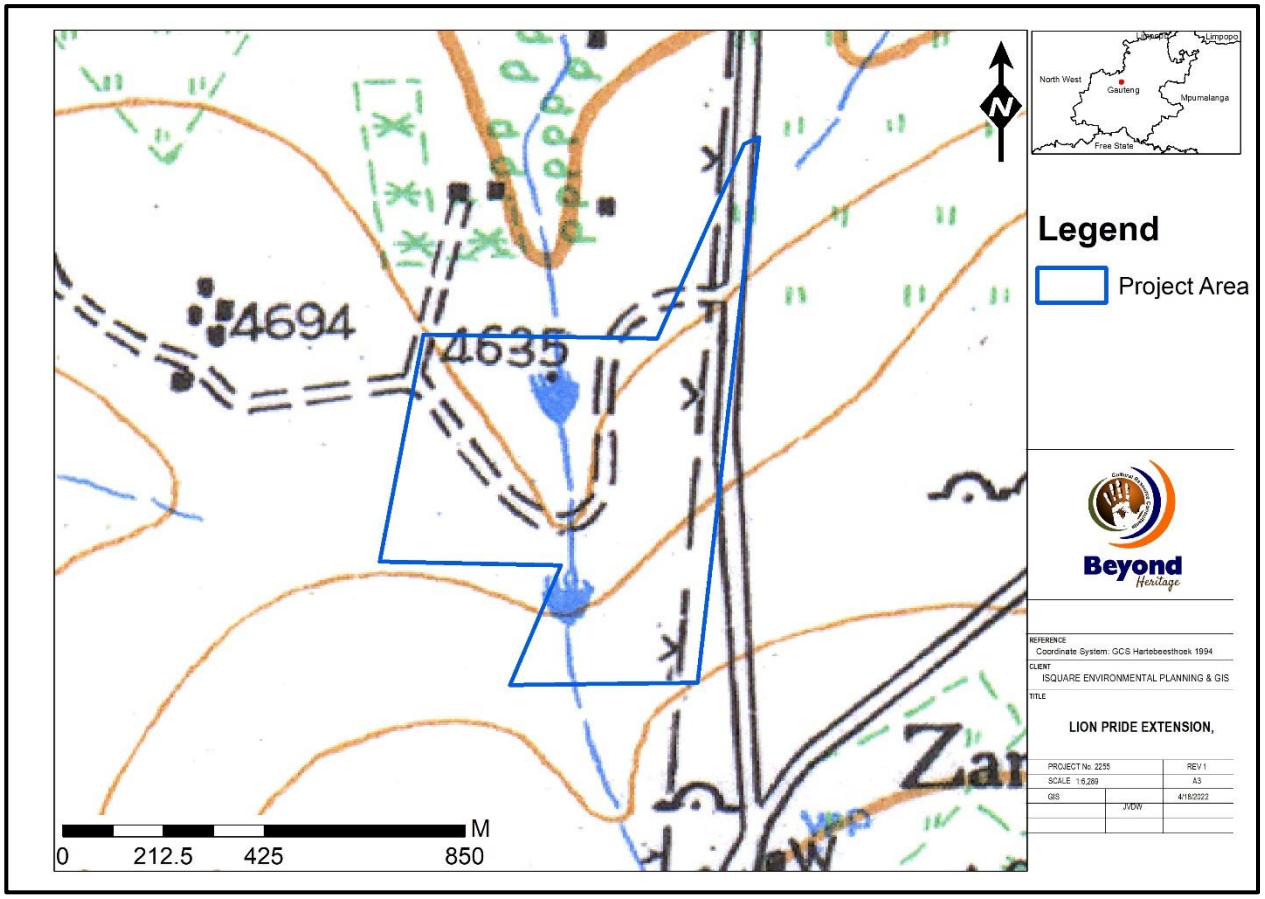

Figure 8.8. 1943 Topographic map of the study area indicating roads in the area as well as a stream.

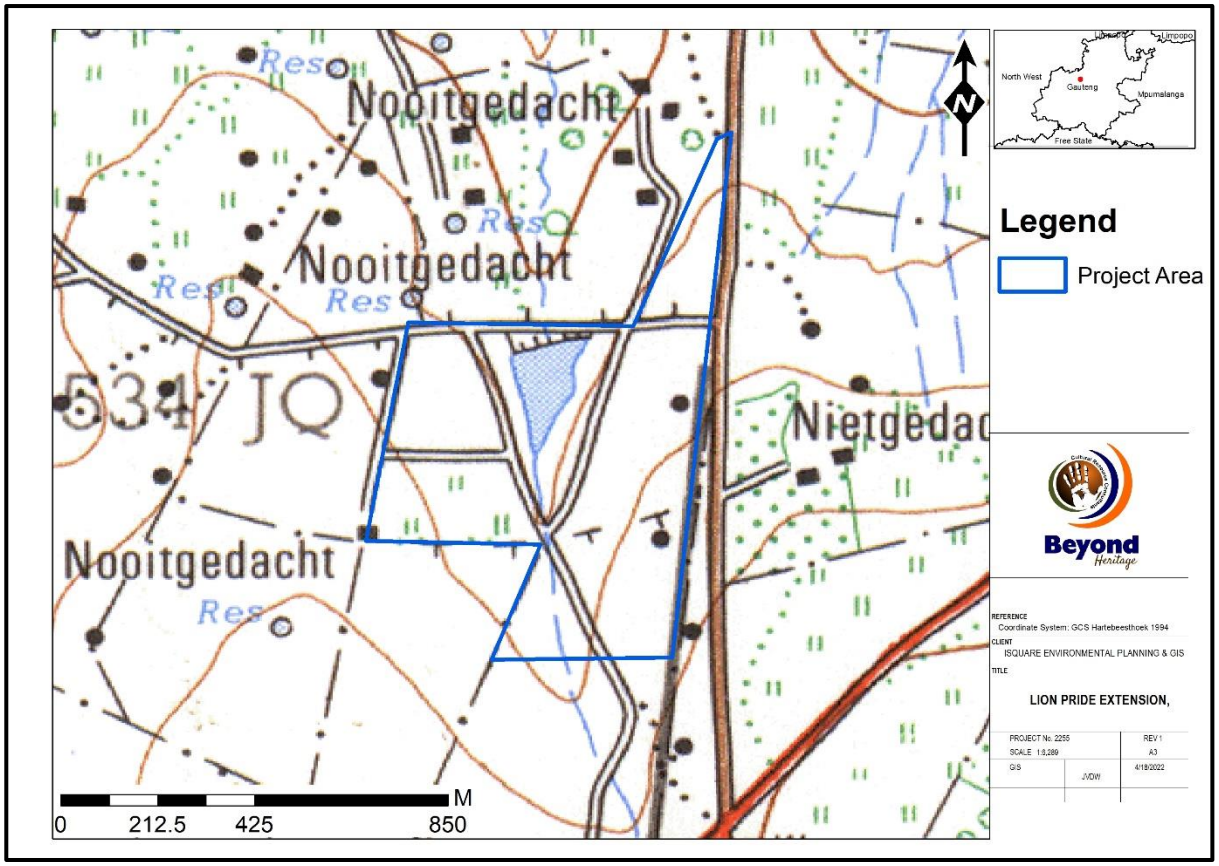

Figure 8.9.1968 Topographic map indicating a water catchment area, structures and roads in the study area.

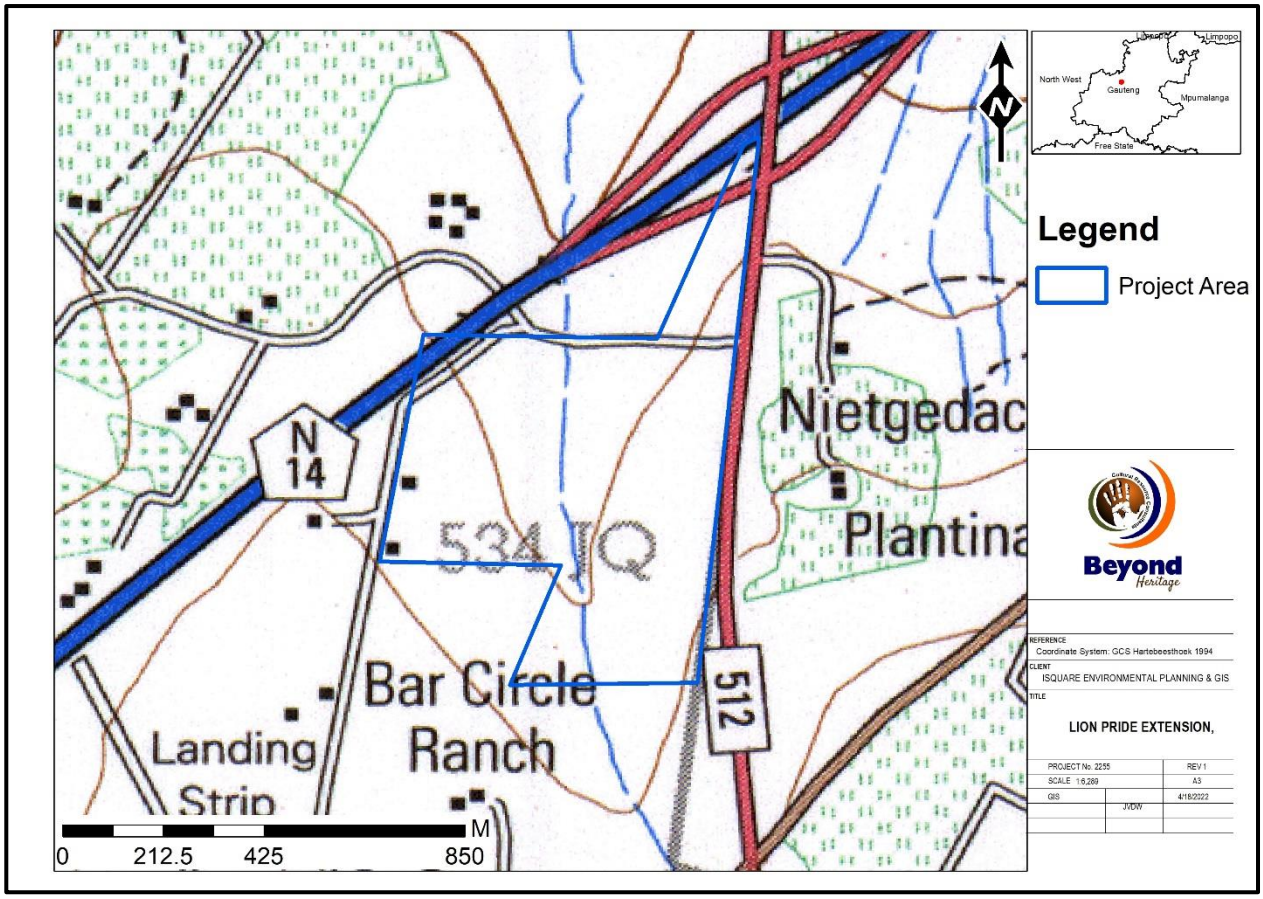

Figure 8.10. 1996 Topographic map of the study area indicating new structures in the west of the study area.

8.3 Paleontological Heritage

According to the SAHRA Paleontological map the study area is of insignificant paleontological sensitivity and no further studies are required for this aspect.

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 8.11. Paleontological sensitivity of the approximate study area (yellow polygon) as indicated on the SAHRA Palaeontological sensitivity map.

9 Potential Impact

Impacts to heritage resources without mitigation within the project footprint will be permanent and negative and occur during the pre-construction and construction activities. The ruins at 095, 096 and 099 are totally demolished and very little of these features remains. These features potential to contribute to aesthetic, historic, scientific and social aspects are non-existent, and it is therefore of low heritage significance unless associated with burial sites (e.g., still born graves) in which case the burial sites are of high social significance. Graves are always of high social significance and impacts to 098 will be high without mitigation. Based on the current lay out the graves will be avoided as they are located outside of the Project footprint and no direct impact is foreseen on these features.

Any additional effects to subsurface heritage resources can be successfully mitigated by implementing a chance find procedure. Mitigation measures for specific sites as outlined under Table 8 and additional recommendations in this report should be implemented during all phases of the project. With the implementation of the recommended mitigation measures impacts of the project on heritage resources is acceptable (Table 9).

Cumulative impacts considered as an effect caused by the proposed action that results from the incremental impact of an action when added to other past, present, or reasonably foreseeable future actions. (Cornell Law School Information Institute, 2020). 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. In the case of this project, impacts can be mitigated to an acceptable level. However, this and other projects in the area can have a negative impact on Stone Age sites in the area where these sites have been destroyed unknowingly. Additional impacts can be successfully mitigated with the implementation of a chance find procedure (Table 8).

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 8. Impact assessment of the project on demolished structures at Waypoint 095, 096 and 099.

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	Probable (3)	Probable (3)
Significance	**27 (Low)**	**27 (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: • The ruins at 095, 096 and 099 have been degraded to the extent that it has no heritage value, unless proven to be associated with burial sites through social consultation; • Implementation of a Chance Find Procedure for the project; • The project area should be monitored by the ECO.		
Cumulative impacts: With the implementation of the mitigation measures as proposed in this report the cumulative impact is low.		
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.		

Table 9. Impact assessment of the proposed project on the Burial site at Waypoint 098.

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	Regional (4)	Regional (3)
Duration	Permanent (5)	Permanent (5)
Magnitude	Moderate (6)	Moderate (4)
Probability	Probable (3)	Improbable (2)
Significance	**45 (Medium)**	**24 (Low)**
Status (positive or negative)	Negative	Negative
Reversibility	Not reversible	Not reversible
Irreplaceable loss of resources?	Yes	Yes
Can impacts be mitigated?	Yes	
Mitigation: • The recorded burial sites at waypoint 098 is located outside of the Project footprint but should be indicated on development plans and avoided with an buffer zone of 30 meters to ensure the protection and preservation of the graves as stipulated by SAHRA; • Implementation of a Chance Find Procedure for the project; • The project area should be monitored by the ECO.		
Cumulative impacts: With the implementation of the mitigation measures as proposed in this report the cumulative impact is medium. .		
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

The Project area has no focal points like rocky outcrops or hills that could have attracted human occupation in antiquity and is considered to be of low archaeological potential. This was confirmed during the field survey and no archaeological sites of significance were noted and finds were limited to the ephemeral remains of demolished structures (Waypoint 095, 096 and 099) and a burial site (Waypoint 098) located outside of the Project footprint. The recorded ruins' potential to contribute to aesthetic, historic, scientific, and social aspects are non-existent, and it is therefore of low heritage significance unless associated with burial sites (e.g., still born graves) in which case the burial sites are of high social significance. The graves are of high significance and should be avoided.

According to the SAHRA Paleontological sensitivity map the study area is of insignificant paleontological significance, no further studies are required for this aspect.

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 for Environmental Authorisation apply and the project may only proceed based on approval from SAHRA:

Recommendations:

- Avoidance of burial sites (Waypoint 098) with a 30 m buffer zone and access for family members;
- Implementation of a Chance Find Procedure for the project (as outlined in Section 10.2);
- The project area should be monitored by the ECO.

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 as part of the EMP. A short summary of chance find procedures is discussed below and monitoring guidelines for this procedure are provided in Section 10.5.

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

Day to day monitoring can be conducted by the Environmental Control Officers (ECO). The ECO or other responsible persons should be trained along the following lines:

- *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 from pre-construction and construction activities. The ECO should monitor all such activities daily. If any heritage resources are found, the chance finds procedure must be followed as outlined above.

Table 10. Monitoring requirements for the project

Heritage Monitoring					
Aspect	**Area**	**Responsible for monitoring and measuring**	**Frequency**	**Proactive or reactive measurement**	**Method**
Cultural heritage resources	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 inclusion in the EMPr

Table 11. Heritage Management Plan for EMPr implementation

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	Construction	Throughout the project	Applicant EAP	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 35, 36 and 38 of NHRA	ECO Checklist/Report
Graves at 098	Avoid and retain in situ with a 30 m buffer.	Pre Construction	Throughout the project	Applicant/ EAP	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 36 of NHRA	ECO Checklist/Report

10.7 Knowledge Gaps

Due to the often-ephemeral nature of heritage resources and the limitations to pedestrian surveys, the possibility of discovery of heritage resources during the construction phase cannot be excluded. This limitation is successfully mitigated with the implementation of a chance find procedure and monitoring of the study area by the ECO.

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