

HERITAGE IMPACT ASSESSMENT

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

FOR THE PROPOSED GONUBIE QUARRY, EAST LONDON, EASTERN CAPE PROVINCE

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8 January2020	21977	Addressed Comments from client. Revised report.

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REPORT OUTLINE

Appendix 6 of GNR 326 EIA Regulations (7 April 2017) as amended 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 GNR 326 EIA Regulations (7 April 2017)	Chapter
(a) Details of - (i) the specialist who prepared the report; and (ii) the expertise of that specialist to compile a specialist report including a curriculum vitae	Section a Section 12
(b) Declaration that the specialist is independent in a form as may be specified by the competent authority	<i>Declaration of Independence</i>
(c) Indication of the scope of, and the purpose for which, the report was prepared	Section 1
(cA) an indication of the quality and age of base data used for the specialist report	Section 1, 3.4 and 7.1.
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	9
(d) Duration, Date and season of the site investigation and the relevance of the season to the outcome of the assessment	Section 3.4
(e) Description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used	Section 3
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Section 8 and 9
(g) Identification of any areas to be avoided, including buffers	Section 9
(h) Map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers	Section 8
(i) Description of any assumptions made and any uncertainties or gaps in knowledge	Section 3.7
(j) a description of the findings and potential implications of such findings on the impact of the proposed activity including identified alternatives on the environment or activities;	Section 9
(k) Mitigation measures for inclusion in the EMPr	Section 9 and 10
(l) Conditions for inclusion in the environmental authorisation	Section 9 and 10
(m) Monitoring requirements for inclusion in the EMPr or environmental authorisation	Section 9 and 10
(n) Reasoned opinion - (i) as to whether the proposed activity, activities or portions thereof should be authorised; (iA) regarding the acceptability of the proposed activity or activities; and (ii) if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	Section 10.2
(o) Description of any consultation process that was undertaken during the course of preparing the specialist report	Section 6
(p) A summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	Refer to EMPr
(q) Any other information requested by the competent authority	Section 10

Executive Summary


HCAC was appointed to conduct a Heritage Impact Assessment of the proposed Gonubie Sand Quarry, on Portion 44 of the farm 807, East London, Eastern Cape Province. The entire Farm covers an area of some 21 hectares, however, only ± 4.99 hectares is being applied for as per the mining permit. The study area was assessed both on desktop level and by a field survey.

The study area has been largely transformed by previous clearing and levelling for the establishment of a caravan park, roads and possibly previous sand mining activities, these areas are now completely overgrown with limited access and visibility. The impacts of these activities would have obliterated surface evidence of heritage resources and the lack of significant heritage resources was confirmed during the survey and no heritage features or sites of significance were identified. In terms of the paleontological component of Section 35 the area is indicated as of low significance on the SAHRA paleontological map and no further studies are required in this regard.

Due to the apparent lack of significant heritage resources in the study area the impact of the proposed project is considered to be low. It is therefore recommended that the proposed project can commence on the condition that the following recommendations are implemented and based on approval from SAHRA:

- Implementation of a chance find procedure.

Declaration of Independence

Specialist Name	Jaco van der Walt
Declaration of Independence	<p>I declare, as a specialist appointed in terms of the National Environmental Management Act (Act No 108 of 1998) and the associated 2014 Environmental Impact Assessment (EIA) Regulations, that I:</p> <ul style="list-style-type: none"> - I act as the independent specialist in this application; - I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant; - I declare that there are no circumstances that may compromise my objectivity in performing such work; - I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity; - I will comply with the Act, Regulations and all other applicable legislation; - I have no, and will not engage in, conflicting interests in the undertaking of the activity; - I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority; - All the particulars furnished by me in this form are true and correct; and - I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.
Signature	
Date	10/12/2019

a) Expertise of the specialist

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

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

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ABBREVIATIONS

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

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

GLOSSARY

Archaeological site (remains of human activity over 100 years old)

Early Stone Age (~ 2.6 million to 250 000 years ago)

Middle Stone Age (~ 250 000 to 40-25 000 years ago)

Later Stone Age (~ 40-25 000, to recently, 100 years ago)

The Iron Age (~ AD 400 to 1840)

Historic (~ AD 1840 to 1950)

Historic building (over 60 years old)

1 Introduction and Terms of Reference:

Heritage Contracts and Archaeological Consulting CC (**HCAC**) has been contracted by ZN Geo Serve (Pty) Ltd to conduct a heritage impact assessment of the proposed Gonubie sand quarry located close to East London in the Eastern Cape Province (Figure 1, Figure 2 and Figure 3).

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 features were identified. General site conditions and features on sites were recorded by means of photographs, GPS locations, and site descriptions. Possible impacts were identified and mitigation measures are proposed in the following report. SAHRA as a decision-making authority under section 38(1) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) require all documents, compiled in support of this application to be submitted to SAHRA.

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 towers.

Reporting

Report on the identification of anticipated and cumulative impacts the operational units of the proposed project activity may have on the identified heritage resources for all 3 phases of the project; i.e., construction, operation and decommissioning phases. Consider alternatives, should any significant sites be impacted adversely by the proposed project. Ensure that all studies and results comply with the relevant legislation, SAHRA minimum standards and the code of ethics and guidelines of ASAPA.

To assist the developer in managing the discovered heritage resources in a responsible manner, and to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act No 25 of 1999).

Table 2: Project Description

Farm Name and Size of property	Portion 44 of Farm 807. The entire Farm covers an area of some 21 hectares, however, only ±4.99 hectares are being applied for as per the mining permit
Magisterial District	The Buffalo City Municipality
1: 50 000 map sheet number	3227 DD
Central co-ordinate of the development	-32.964434° 27.971000°

Table 3: Infrastructure and project activities

Type of development	Sand Quarry
Project size	Less than 5 hectares
Project Components	<p>The surface infrastructure of the mine includes the following:</p> <ul style="list-style-type: none"> • Haul roads, mine and access road to the main road; • Stockpiles • Screening plant • Administration offices and stores • Ablutions • Trackless mobile machinery and light delivery vehicle parking bays

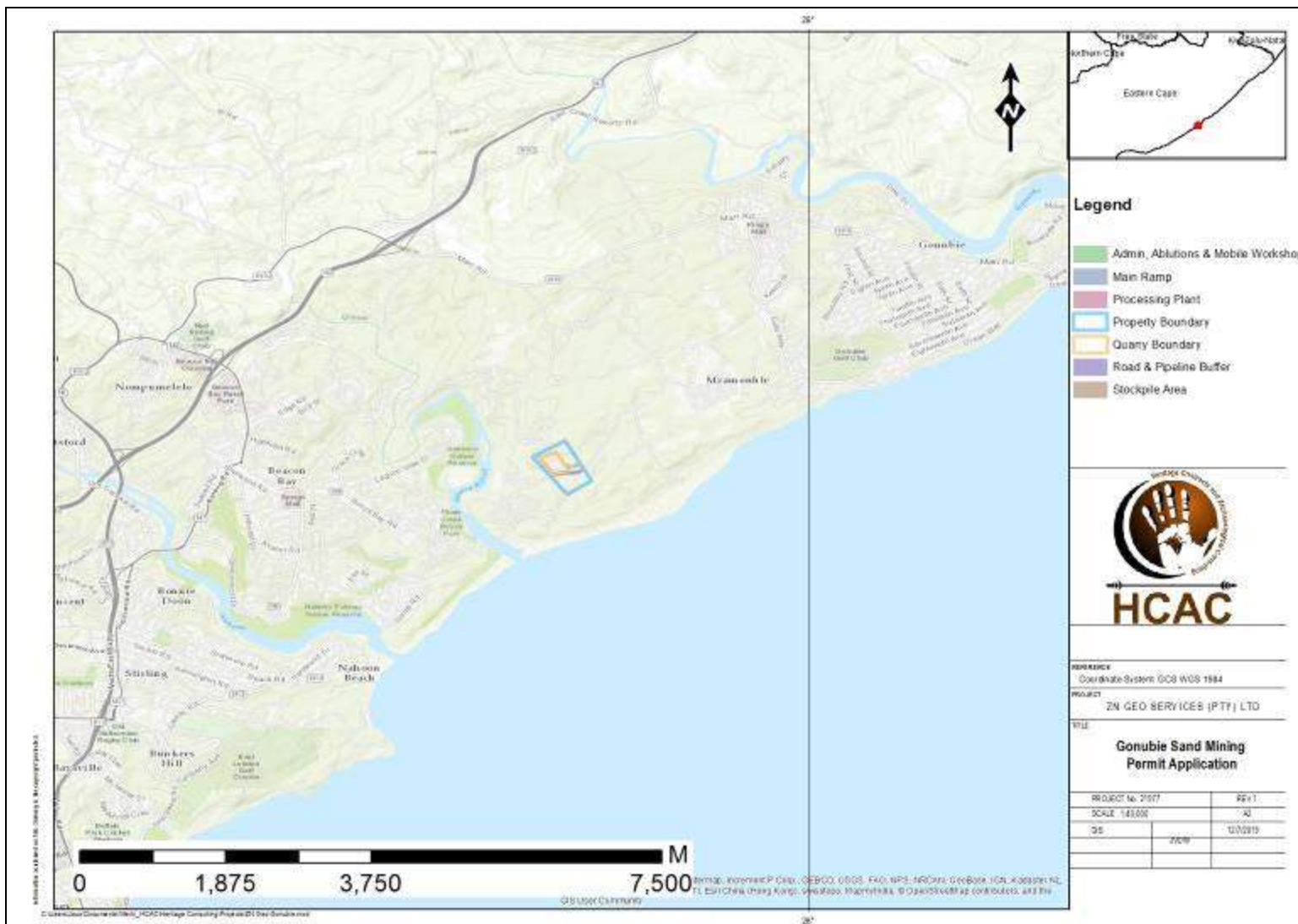


Figure 1. Provincial locality map (1: 250 000 topographical map)

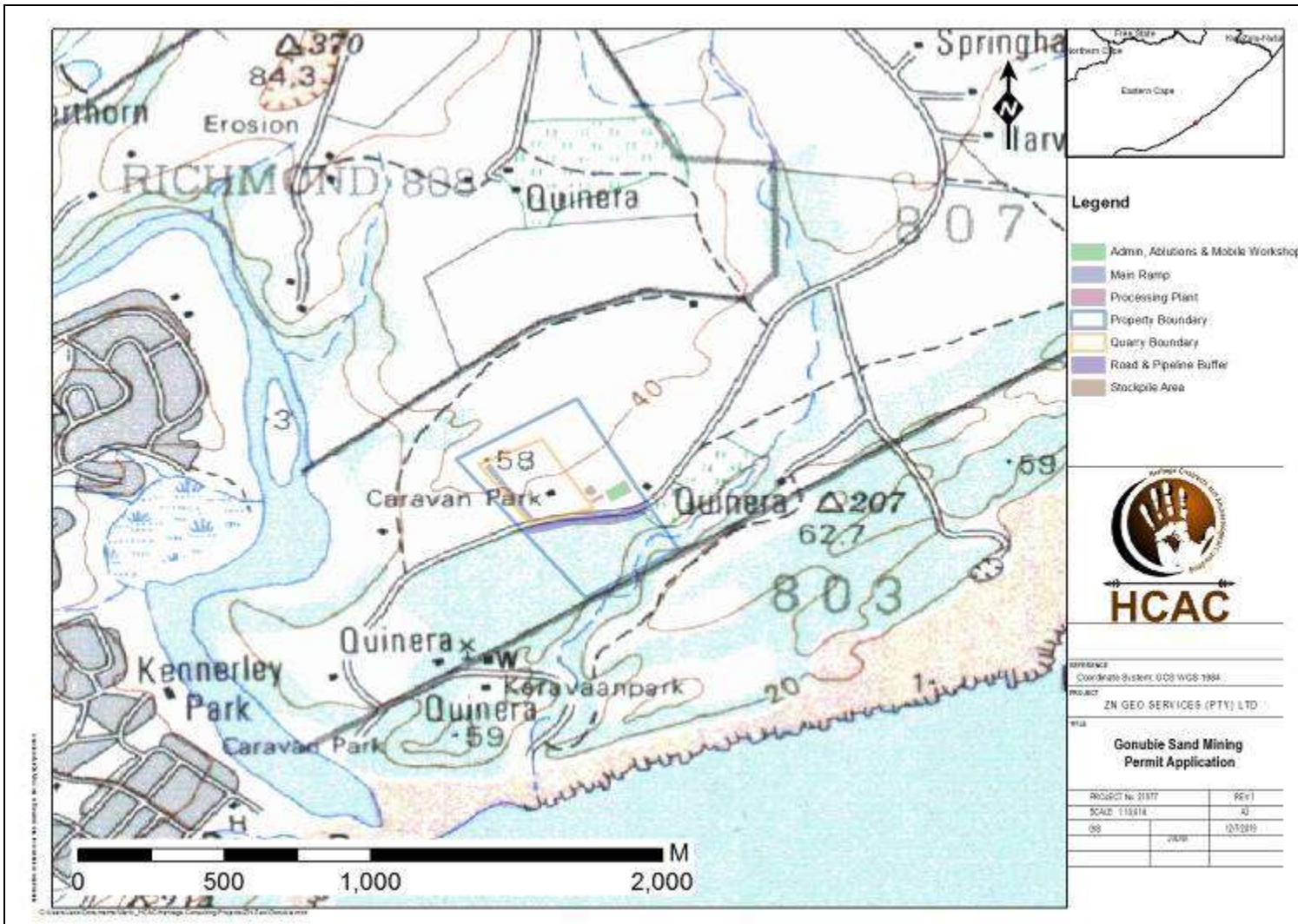


Figure 2: Regional locality map (1:50 000 topographical map).



Figure 3. Satellite image indicating the study area (Google Earth 2019).

2 Legislative Requirements

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

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

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

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

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

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

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

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

Human remains that are less than 60 years old are protected under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance No. 7 of 1925), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning; or in some cases, the MEC for Housing and Welfare. Authorisation for exhumation and reinternment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. To handle and transport human remains, the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

3 METHODOLOGY

3.1 Literature Review

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

3.2 Genealogical Society and Google Earth Monuments

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

3.3 Site Investigation

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

Table 4: Site Investigation Details

	Site Investigation
Date	5 December 2019
Season	Summer–The area is overgrown with dense vegetation limiting accessibility; the area was however sufficiently covered to understand the heritage character of the area.

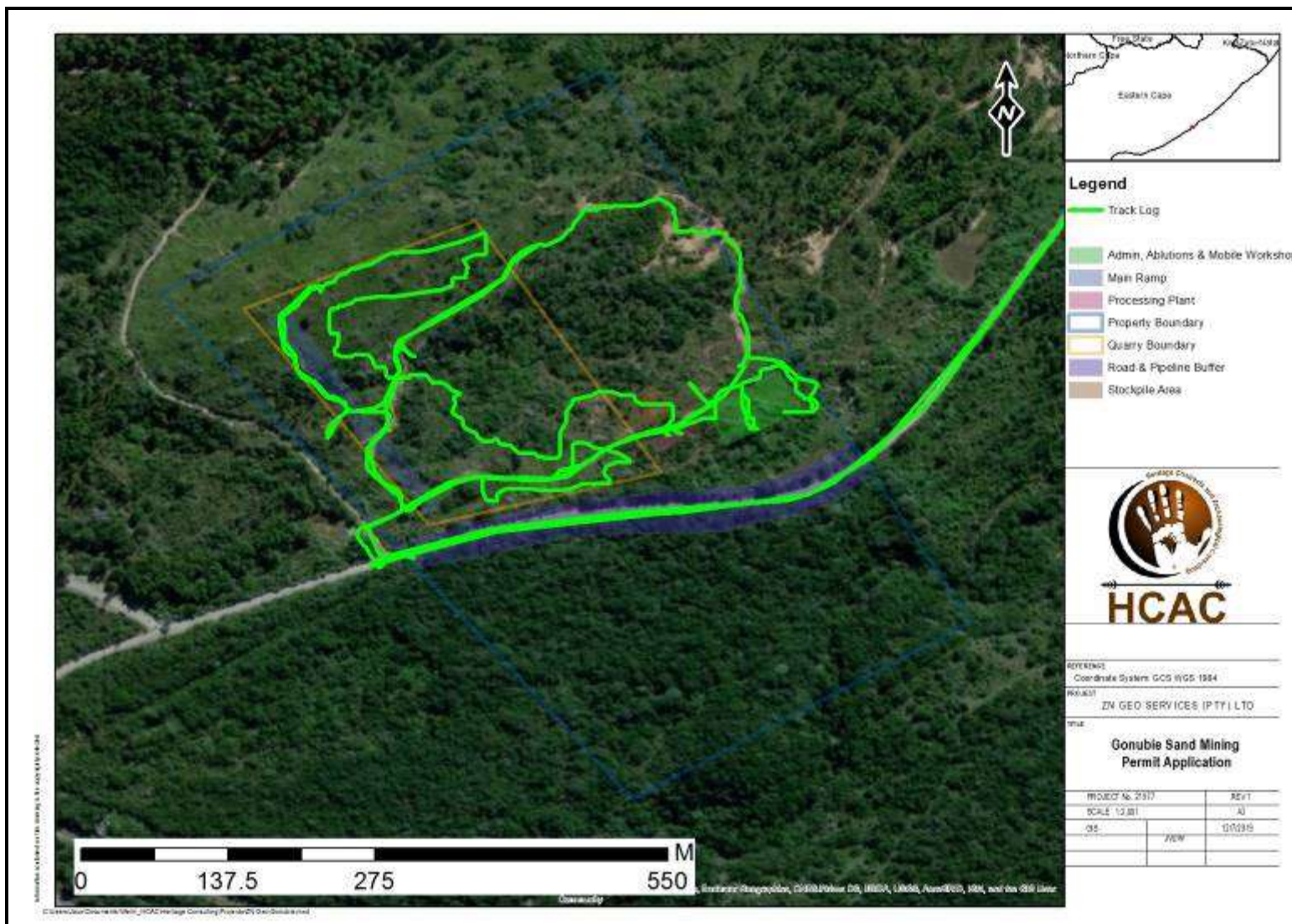


Figure 4: Track logs of the survey in green.

3.4 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. The recommendations for each site should be read in conjunction with section 10 of this report.

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

3.5 Impact Assessment Methodology

The following impact assessment methodology was provided by the client:

Direct, indirect and cumulative impacts of the issues identified, as well as all other issues identified, in the Basic Assessment phase must be assessed. This methodology allows for the identified potential impacts to be analysed in a systematic manner, with significance rating (from insignificant to very high) assigned to each potential impact. The significance of an impact is defined as a combination of the consequence of the impact occurring and the probability that the impact will occur. The criteria used to determine impact consequence include extent, intensity and duration of the impact and are presented in Table 5.

Table 5: Criteria used to determine the consequence of the impact

Rating	Definition of Rating	Score
A. EXTENT – the area in which the impact will be experienced		
Local	Confined to project or study area or part thereof (e.g. site)	1
Regional	The region, which may be defined in various ways, e.g. cadastral, catchment, topographic	2
Inter(national)	Nationally or beyond	3
B. INTENSITY – the magnitude or size of the impact		
Low	Site-specific and wider natural and / or social functions and processes are negligibly altered	1
Medium	Site-specific and wider natural and / or social functions and processes continue albeit in a modified way	2
High	Site-specific and wider natural and / or social functions or processes are severely altered	3
C. DURATION – the time frame for which the impact will be experienced		
Short-term	For the duration of project activities / up to 2 years	1
Medium-term	2 to 15 years	2
Long-term	More than 15 years	3

The combined score of these three criteria corresponds to a consequence rating, as set out in Table 2 (Note that the lowest possible consequence score is 3).

Table 6: Method used to determine the consequence score

Combined Score (A+B+C)	3 - 4	5	6	7	8 - 9
Consequence Rating	Very Low	Low	Medium	High	Very High

Once the consequence is derived, the probability of the impact occurring is considered, using the probability classifications presented in Table 7.

Table 7: Probability classification

Probability of impact – the likelihood of the impact occurring	
Improbable	< 40% chance of occurring
Possible	40% - 70% chance of occurring
Probable	> 70% - 90% chance of occurring
Definite	> 90% chance of occurring

The overall significance of impacts is determined by considering consequence and probability using the rating system prescribed in Table 8.

Table 8: Impact significance ratings

		Probability			
		Improbable	Possible	Probable	Definite
Consequence	Very Low	INSIGNIFICANT	INSIGNIFICANT	VERY LOW	VERY LOW
	Low	VERY LOW	VERY LOW	LOW	LOW
	Medium	LOW	LOW	MEDIUM	MEDIUM
	High	MEDIUM	MEDIUM	HIGH	HIGH
	Very High	HIGH	HIGH	VERYHIGH	VERY HIGH

Finally, the impacts are considered in terms of their status (positive or negative) and the confidence in the ascribed impact significance rating is noted. The classification for considering the status of impacts and the confidence in assessment is laid out in Table 9.

Table 9: Impact Status and Confidence Classification

Status of Impact	
Indication whether the impact is adverse (negative) or beneficial (positive)	+ ve (positive – a 'benefit')
	- ve (negative – a 'cost')

	Neutral
The degree of confidence in predictions based on available information, the environmental consultant's judgment and / or specialist knowledge.	Low
	Medium
	High

Different types of impacts were also considered in the impact ratings, as listed in Table 10.

Table 10: Types of Impact

Direct – impacts that result from the direct interaction between a project activity and the receiving environment (e.g. dust generation which affects air quality).
Indirect – impacts that result from other (non-project) activities but which are facilitated as a result of the project or impacts that occur as a result of subsequent interaction of direct project impacts within the environment (e.g. reduced water supply that affects crop production and subsequently impacts on subsistence-based livelihoods).
Cumulative – impacts that act together with current or future potential impacts of other activities or proposed activities in the area / region that affect the same resources and / or receptors (e.g. combined effects of waste water discharges from more than one project into the same water resource, which may be acceptable individually, but cumulatively result in a reduction in water quality quality).

There is no statutory definition of 'significance' and its determination is therefore necessarily partially subjective. Criteria for assessing the significance of impacts arise from the following key elements:

Status of compliance with relevant local legislation, policies and plans, any relevant or industry policies, environmental standards or guidelines and internationally accepted best practice:

- » The consequence of the change to the biophysical or socio-economic environment (e.g. loss of habitats, decrease in water quality) expressed, wherever practicable, in quantitative terms. For socio-economic impacts, the consequence must be viewed from the perspective of those affected, by taking into account the likely perceived importance of the impact and the ability of people to manage and adapt to the change;
- » The nature of the impact receptor (physical, biological, or human). Where the receptor is physical (e.g. a water resource) its quality, sensitivity to change and importance must be considered. Where the receptor is biological, its importance (e.g. its local, regional, national or international importance) and its sensitivity to the impact must be considered. For a human receptor, the sensitivity of the household, community or wider societal group must be considered along with their ability to adapt to and manage the effects of the impact; and
- » The probability that the identified impact will occur. This is estimated based upon experience and / or evidence that such an outcome has previously occurred.

The impact significance rating also reflects the need for mitigation. While low significance impacts may not require specific mitigation measures, high significance negative impacts demand that adequate measures be put in place, to reduce the residual significance (impact significance rating, after mitigation), as described below in Table 11.

Table 11: Definitions of Impact Significance

Insignificant: the potential impact is negligible and no mitigation measures or environmental management is required.
Very Low & Low: no specific mitigation measures required, beyond normal environmental good practices.
Medium - High: specific mitigation measures should be devised, to reduce the impact significance to an acceptable level. If mitigation is not possible, compensation measures should be considered.
Very High: specific mitigation measures should be identified and implemented, to reduce the impact significance to an acceptable level. If such mitigation is not possible, very high significance negative impacts should be considered in the project's authorisation process.

Note that impact significance will be rated in the prescribed way both without and with the effective implementation of the recommended mitigation measures.

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 subsurface nature of archaeological artefacts and dense vegetation, the possibility exists that some features or artefacts may not have been discovered/recorded during the survey and the possible occurrence of graves and other cultural material cannot be excluded. Safety concern also hampered the extend of the survey with various informal settlers in the study area. This report only deals with the footprint area of the proposed development and consisted of non-intrusive surface surveys. 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

According to Stats SA whites make up 7,7% of the population, 6% are coloureds, and other race groups comprise the remaining 1,2%. Of those aged 20 years and older, 5,2% have completed primary school, 37,9% have some secondary education, 27,2% have completed matric and 13,9% have some form of higher education.

Buffalo City Metropolitan Municipality has a strong manufacturing base, with a prominent automobile industry. In terms of the labour market for the municipality as a whole, 35,1% of the 285 223 economically active individuals (i.e., those who are employed or unemployed but looking for work) are unemployed. Of the 135 753 economically active youth (15–35 years) in the municipality.

5. Description of the Physical Environment:

The study area is situated ± 5 km south west of Gonubie, East London in the Eastern Cape province; with Quenera to the north east and Bonza Bay to the south west, in the Buffalo City Municipality. The surrounding area is characterised by other sand mining operations, a holiday resort and township development. The study area is overgrown with dense vegetation limiting access and visibility (Figure 5). The southern portion of the impact area is marked by a well-maintained gravel road (Figure 6) with a power line. Single track pathways (Figure 7) used by off-road motorcycles provided access through the dense vegetation. The study area is not fenced and illegal dumping (Figure 8) and informal dwellings occur throughout the southern portion of the impact area. According to Mucina & Rutherford (2006) the vegetation in the impact area is described as Albany Coastal Belt and Albany Dune Strandveld.



Figure 5. Dense vegetation



Figure 6. Gravel road



Figure 7. Gravel road



Figure 8. Illegal dumping in the study area.

6. Results of Public Consultation and Stakeholder Engagement:

The following activities will take place during the public participation process as per the BID:

- Advertising the EIA Process (in local press):
 - (i) Advertisements will be placed in a local newspaper and
 - (ii) site notices have been placed at the project site and surrounds;
- Registering I&APs and key stakeholders on the database. A call for stakeholders to register on the project database will be made through the advertisement and site notices, as well as through letters of notification.
- The Background Information Document (“BID”) will be distributed to I&APs (by hand and/or via e-mail, or post/fax where necessary) informing stakeholders of the EA and Mining Permit Application being applied for by East London Quarry (Pty) Ltd and other pertinent information as detailed herewith;
- The Draft Basic Assessment Report (“BAR”), Environmental Management Programme (“EMPR”) and specialist study reports will be made available for a 30-day public and authority review period;
- Stakeholders will be informed of the availability of the draft BAR, EMPR and specialist studies through the advertisements, site notices and letters of notification;
- The draft BAR, EMPR and specialist studies will be made available at a public venue in close proximity to the site and online (via a Dropbox link);
- Recording all comments, issues and concerns raised by I&APs and preparation of a PPP report and Comments & Responses Report (“CRR”);
- Updating of the BAR, EMPR and specialist studies taking into consideration all comments received; and
- Submission of the Final BAR, EMPR and specialist studies to the DMR so the competent authority can make a decision on whether or not to grant the mining permit and EA.

7. Literature / Background Study:

7.1. Literature Review

Few studies are on record in the immediate vicinity of the study area. The following Cultural Resource Management reports were consulted for this study:

Author	Year	Project	Findings
Binneman, J.	2002	Archaeological Heritage Sensitivity Survey of the Proposed N2	Stone cairns, Iron Age sites and shelters. These sites are located well away from the study area.
Mahlalela, M. and Minkely, G.	2006	Heritage Impact Report of the proposed Gqunube Valley Eco Golf resort.	Graves.
Van Schalkwyk, L.	2008	Heritage Impact Assessment of The Proposed N2 Wild Coast Toll Highway	Historical structures and graves as well as stone cairns. These sites are located well away from the study area.
Van Ryneveld, K.	2008a	Phase 1 Archaeological Impact Assessment Riverleigh Township Development, Farm 817/53, East London, Eastern Cape, South Africa	No sites
Van Ryneveld, K.	2008b	Phase 1 Archaeological Impact Assessment Residential Development, Portions 3, 4&18 Of Farm 807 Quenera East London, Eastern Cape, South Africa	No sites
Van Ryneveld, K.	2015	Phase 1 Archaeological Impact Assessment –Residential Development, Farm RE/1234, Gonubie, East London, BCMM, Eastern Cape	No sites

7.1.1. Genealogical Society and Google Earth Monuments

No cemeteries or graves are indicated in the study area.

7.2. General History of the area

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

7.2.1. 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 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.

Yet sometimes the recognition of cultural groups, affinities or trends in technology and/or subsistence practices, as represented by the sub-phases or industrial complexes, is achievable (Lombard 2011). The three main phases can be divided 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.

The Early Stone Age has not been well documented in the area although some isolated ESA material was recorded (Van Ryneveld 2010a) together with MSA artefacts from the Needs Camp / Potsdam area (Van Ryneveld 2014c). At Ikwezi Anderson (2011) documented both MSA and LSA artefact scatters and similar sites can be expected.

Two important sites in the larger area is the Nahoon footprints site, where hominin / human footprints dating to 200,000BP have been discovered (Deacon 1966). The site is situated approximately 10km east north-east of Gonubie. Another important site is the Klasies River Site (Singer and Wymer, 1982; Deacon, 1989, 1995) where the earliest Homo Sapien Sapien, or modern human remains, dating to 125,000BP was recorded.

The area contains numerous sites relating to the LSA. Deflated coastal shell middens was reported on by Binneman & Webley (1996). Anderson (2009) identified seven LSA shell midden sites at the East London IDZ. In addition, an ephemeral shell scatter situated approximately 2.5-3km inland, on the banks of the Buffalo River, was reported on (Van Ryneveld 2010b). The 5-km strip from the coast inland is considered a 'sensitive' zone where shell middens may be expected to occur as well as a sensitive environment where the prehistoric presence and use of fresh water resources may be still be evidenced.

7.2.2. The Iron Age (AD 400 to 1840)

Bantu-speaking people moved into Eastern and Southern Africa about 2,000 years ago (Mitchell, 2002). These people cultivated sorghum and millets, herded cattle and small stock and manufactured iron tools and copper ornaments. Because metalworking represents a new technology, archaeologists call this period the Iron Age. Characteristic ceramic styles help archaeologists to separate the sites into different groups and time periods. The first 1,000 years is called the Early Iron Age.

As mixed farmers, Iron Age people usually lived in semi-permanent settlements consisting of pole-and-daga (mud mixed with dung) houses and grain bins arranged around a central area for cattle (Huffman, 1982). Usually, these settlements with the 'Central Cattle Pattern' (CCP) were sited near water and good soils that could be cultivated with an iron hoe. For the project area, archaeological sites such as these are unlikely to occur except along river terraces.

Several Iron Age sites occur in the area and the following Iron Age ceramic *facies* are known to occur:

- Msuluzi Facies AD 650 -750 (Binneman 1996, Huffman 2007)
- Ndongwane AD 750 – 950 (Binneman et al 1992)

Canasta Place, an Iron Age Site, situated approximately 15-20km west of East London and outside of the study area constitutes the southernmost known EIA site in South Africa (Nongwasa 1994). Another EIA site, the site of Kulubele (Binneman 1996) dating to AD 800 is found along the Great Kei River.

From the late 1500's / early 1600's increasing numbers of LIA Nguni people moved south, into the Eastern Cape, as a result of Zulu tribal warfare and the resultant Mfecane. These people largely displaced resident KhoiSan groups (Mitchell 2002).

Another site worth mentioning is the Cove Rock Late Iron Age site, situated south of the Buffalo River (Coetzee 2008, Van Ryneveld 2008a and b). The site is closely tied with the history of Nongqawuse, the young Xhosa prophetess who in 1856 prophesized the 'Cattle Killing' (1856-1857) to ensure expulsion of the white man from Xhosa territory.

7.2.3. Historical Information

Numerous known Colonial Period Resources dating back to the 1840's occurs in the study area mostly in the vicinity of the East London harbour (Van Ryneveld 2007, 2010a, 2014a, 2014b) and Webley & Vernon (2008).

The study area is also known for many shipwrecks that are recorded along the East London coastline, roughly from the Kei River mouth in the north to Kaysers' Beach in the south (Van Ryneveld 2015) including, amongst others the wrecks of Agnes (1948), Albert Edward Prince of Wales (1882), Albert Juhl (1876), Alfred (1866), Alma (1878), Amatola (1852), Andreas (1928), Ann Staniland (1876), Ann Hutchinson (1942), Annie S (1875), Antonie (1864), Asphodel (1878), Atbara (1902) and the Aurora (1902).

7.2.4. Cultural Landscape

Historical land use and the cultural landscape are linked since the cultural landscape is shaped to some extent by the history of the area the greater study area is located in a partially developed area that is characterised by a combination of new residential developments as well as township development and informal settlements. According to the topographic map evidence, the immediate study area was developed as a caravan park previously (as per Figure 2 above) and levelling and clearing activities would have destroyed any surface indicators of heritage resources. Currently the area is overgrown and vegetation hinders visibility. (Figure 9 – 12).



Figure 9. 2004 Google image of the proposed impact area, note previously cleared areas.



Figure 10. 2013 Google image of the proposed impact area, note previously cleared areas.

8. Findings of the Survey

It is important to note that only the development footprint was surveyed and not the entire property. The study area is sloping from north to south-east towards the coast. A large well-maintained gravel road and powerline (Figure 11) cut the property roughly in half and forms the southern boundary of the development footprint. A few single-track off-road motorbike tracks exist in the area that was used as access points into the study area. The study area has been largely transformed by previous clearing and levelling for the establishment of a caravan park prior to 2004 (Figure 2), roads and possibly previous sand mining activities marked by soil heaps (Figure 12). These areas are now largely overgrown with limited access and visibility (Figure 13). The study area is void of raw material suitable for lithic manufacture and marked by a thick layer of alluvial sand cover (Figure 14). Although it was not possible to access the entire site it is clear that most of the study area has been previously disturbed and no surface indicators of significant heritage sites or features were identified. In terms of the paleontological component of Section 35 the area is indicated as of low significance on the SAHRA paleontological map and no further studies are required in this regard (Figure 15).



Figure 11. Vegetation in the study area



Figure 12. General site conditions



Figure 13. Vegetation in the study area



Figure 14. Thick sand



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 15. Paleontological sensitivity map indicating the approximate study area in yellow.

9. Potential Impact

The chances of impacting unknown archaeological sites in the study area is considered to be low. Any direct impacts that did occur would be during the construction phase only and would be of low to medium significance. Cumulative impacts occur from the combination of effects of various impacts on heritage resources. The importance of identifying and assessing cumulative impacts is that the whole is greater than the sum of its parts. Due to the fact that the area has been previously disturbed the possibility of unearthing subsurface heritage resources is small.

9.1. Pre-Construction phase:

The area will be upgraded and it is assumed that this phase will entail groundworks. Impacts (if heritage resources are present) could include destruction or partial destruction of non-renewable heritage resources.

9.2. Construction Phase

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

9.3. Operation Phase:

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

9.4. Impact Assessment for the project

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE if not mitigated					MITIGATION TYPE	SIGNIFICANCE if mitigated				
				EXTENT	INTENSITY	DURATION	PROBABILITY	RATING		EXTENT	INTENSITY	DURATION	PROBABILITY	RATING
				<ul style="list-style-type: none"> • Mining • Haul roads, mine and access road to the main road; • Stockpiles • Screening plant • Administration offices and stores • Ablutions • Trackless mobile machinery and light delivery vehicle parking bays 	Damage to heritage resources	No surface sites were identified	Pre-Construction and construction.	1		1	3	Low	Very Low	<ul style="list-style-type: none"> ▪ Chance find procedure

9.5. Environmental Management Programme Requirements

Measures for inclusion in the Environmental Management Programme for Impact Mitigation and Rehabilitation must be laid out as detailed below:

ACTIVITIES	PHASE	SIZE AND SCALE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<ul style="list-style-type: none"> • Mining • Haul roads, mine and access road to the main road; • Stockpiles • Screening plant • Administration offices and stores • Ablutions • Trackless mobile machinery and light delivery vehicle parking bays 	Pre-Construction and Construction	4,99 hectares	A chance find procedure should be implemented for the project and this will ensure that if heritage resources are uncovered potential impact on these resources is minimised.	NHRA (Act 25 of 1999)	The Chance find procedure should be applied for the life of the project.

Measures for inclusion in the Environmental Management Programme for Impact Management Outcomes must be laid out as detailed below:

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
<ul style="list-style-type: none"> • Mining • Haul roads, mine and access road to the main road; • Stockpiles • Screening plant • Administration offices and stores • Ablutions • Trackless mobile machinery and light delivery vehicle parking bays 	<p>No sites were recorded but there is a chance that completely buried sites would still be impacted but this cannot be quantified.</p>	<p>No surface sites were identified.</p>	<p>Pre-Construction and Construction Phase</p>	<p>Chance Find Procedure</p>	<p>Avoid damage to heritage resources.</p>

Measures for inclusion in the Environmental Management Programme for Impact Management Actions must be laid out as detailed below:

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
<ul style="list-style-type: none"> • Mining • Haul roads, mine and access road to the main road; • Stockpiles • Screening plant • Administration offices and stores • Ablutions • Trackless mobile machinery and light delivery vehicle parking bays 	<p>No sites were recorded but there is a chance that completely buried sites would still be impacted but this cannot be quantified.</p>	<p>Chance Procedure Find</p>	<p>Life of the project</p>	<p>Avoid damage to heritage resources</p>

10. Recommendations and conclusion

The study area is situated ± 5 km south west of Gonubie, East London in the Eastern Cape Province and the area is characterised by other sand mining operations, a holiday resort and township development. The study area is sloping from north to south-east towards the coast. A large well-maintained gravel road and powerline cut the property roughly in half and forms the southern boundary of the development footprint. A few single-track off-road motorbike tracks exist in the area that were used as access points into the study area. The study area has been largely transformed by previous clearing and levelling for the establishment of a caravan park prior to 2004, roads and possibly previous sand mining activities marked by soil heaps. These areas are now completely overgrown with limited access and visibility. The study area is void of raw material suitable for lithic manufacture and marked by a thick layer of alluvial sand cover. Although it was not possible to access the entire site due to the dense vegetation it is clear that most of the study area has been previously disturbed and no surface indicators of significant heritage sites or features were identified similar to other studies in the immediate vicinity (e.g.; van Ryneveld 2008a & b, 2015). In terms of the paleontological component of Section 35 the area is indicated as of low significance on the SAHRA paleontological map and no further studies are required in this regard.

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

- Implementation of a chance find procedure as outlined below.

10.1. Chance Find Procedure

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

11. 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.
12. 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.
13. The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA.

10.2. Reasoned Opinion

The impact of the proposed project on heritage resources is considered low and no further pre-construction mitigation in terms of heritage resources is required based on approval from SAHRA. Furthermore, the socio-economic benefits also outweigh the possible impacts of the development if the correct mitigation measures (i.e. chance find procedure) are included in the EMPr.

10.3. Potential risk

Potential risks to the proposed project are the occurrence of unknown and unmarked graves. The possibility exists that the study area could contain graves of which surface indicators have been destroyed and subsurface material could be uncovered during earth works. These risks can be mitigated to an acceptable level with the implementation of a chance find procedure as outlined in Section 10.1.

11. References

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- Van Ryneveld, K. 2008b. Phase 1 Archaeological Impact Assessment Residential Development, Portions 3, 4&18 Of Farm 807 Quenera East London, Eastern Cape, South Africa

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- Wits Archaeological Database (2009)

Appendix A - Curriculum Vitae of Specialist

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Archaeologist

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Education:

Particulars of degrees/diplomas and/or other qualifications:

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

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

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

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

EMPLOYMENT HISTORY:

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

Countries of work experience include:

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

SELECTED PROJECTS INCLUDE:

Archaeological Impact Assessments (Phase 1)

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

Archaeological Impact Assessment Mmamethlake Landfill

Archaeological Impact Assessment Libangeni Landfill

Linear Developments

Archaeological Impact Assessment Link Northern Waterline Project At The Suikerbosrand Nature Reserve

Archaeological Impact Assessment Medupi – Spitskop Power Line,

Archaeological Impact Assessment Nelspruit Road Development

Renewable Energy developments

Archaeological Impact Assessment Karoshoek Solar Project

Grave Relocation Projects

Relocation of graves and site monitoring at Chloorkop as well as permit application and liaison with local authorities and social processes with local stakeholders, Gauteng Province.

Relocation of the grave of Rifle Man Maritz as well as permit application and liaison with local authorities and social processes with local stakeholders, Ndumo, Kwa Zulu Natal.

Relocation of the Magolwane graves for the office of the premier, Kwa Zulu Natal

Relocation of the OSuthu Royal Graves office of the premier, Kwa Zulu Natal

Phase 2 Mitigation Projects

Field Director for the Archaeological Mitigation For Booyesdal Platinum Mine, Steelpoort, Limpopo Province. Principle investigator Prof. T. Huffman

Monitoring of heritage sites affected by the ARUP Transnet Multipurpose Pipeline under directorship of Gavin Anderson.

Field Director for the Phase 2 mapping of a late Iron Age site located on the farm Kameelbult, Zeerust, North West Province. Under directorship of Prof T. Huffman.

Field Director for the Phase 2 surface sampling of Stone Age sites effected by the Medupi – Spitskop Power Line, Limpopo Province

Heritage management projects

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

MEMBERSHIP OF PROFESSIONAL ASSOCIATIONS:

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

PUBLICATIONS AND PRESENTATIONS

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

- Ceramic analysis of an Early Iron Age Site with vitrified dung, Limpopo Province South Africa.
 - J van der Walt. Poster presented at SAFA, Frankfurt Germany 2008

- Bantu Speaker Rock Engravings in the Schoemanskloof Valley, Lydenburg District, Mpumalanga (*In Prep*)
 - J van der Walt and J.P Celliers

- Sterkspruit: Micro-layout of late Iron Age stone walling, Lydenburg, Mpumalanga. W. Fourie and J van der Walt. A Poster presented at the Southern African Association of Archaeologists Biennial Conference 2011

- Detailed mapping of LIA stone-walled settlements' in Lydenburg, Mpumalanga. J van der Walt and J.P Celliers
 - Paper read at the Southern African Association of Archaeologists Biennial Conference 2011

- Bantu-Speaker Rock engravings in the Schoemanskloof Valley, Lydenburg District, Mpumalanga. J.P Celliers and J van der Walt
 - Paper read at the Southern African Association of Archaeologists Biennial Conference 2011

- Pleistocene hominin land use on the western trans-Vaal Highveld ecoregion, South Africa, Jaco van der Walt.
 - J van der Walt. Poster presented at SAFA, Toulouse, France. Biennial Conference 2016

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