HERITAGE IMPACT ASSESSMENT

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

FOR THE PROPOSED ELANDS SPRUIT QUARRY, LADYSMITH, KWA ZULU NATAL PROVINCE

Type of development:

Mining Development

Client:

Greenmined Environmental

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Project Reference:
HCAC Project number 217094
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September 2017

APPROVAL PAGE

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Report Title	Heritage Impact Assessment Elands Spruit Quarry
Authority Reference Number	SAH17/10669
Report Status	Report V1
Applicant Name	Raubex KZN (Pty) Ltd

	Name	Signature	Qualifications and Certifications	Date
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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 a 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 9
(k) Mitigation measures for inclusion in the EMPr	Section 9
(l) Conditions for inclusion in the environmental authorisation	Section 9
(m) Monitoring requirements for inclusion in the EMPr or environmental authorisation	Section 9
(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 9.2
(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 BA report
(q) Any other information requested by the competent authority	Section 9

Executive Summary

Raubex (Pty) Ltd appointed Greenmined Environmental to conduct a Basic Assessment for a mining permit application for the expansion of an existing quarry on the farm Elandspruit 5523 close to Ladysmith, Kwa Zulu Natal Province. HCAC was appointed to conduct a Heritage Impact Assessment to determine the presence of cultural heritage sites and the impact of the proposed development on these non-renewable resources. The study area was assessed both on desktop level and by a field survey. The field survey was conducted as a non-intrusive pedestrian survey to cover the extent of the development footprint. The western part of the proposed study area was previously quarried and an access road was bulldozed around the quarry for trucks to move to and from the existing quarry. Large parts of the proposed site to the east of the existing quarry were also exposed to previous earth-moving activities. Overall, most of the proposed site is disturbed and damaged to a large extent by these previous earth-moving activities.

No archaeological sites or artefacts of significance were recorded during the survey. In terms of the palaeontology of the area an independent paleontological study by Rossouw (2017) did not identify any palaeontological reason to prejudice the development of the quarry provided that all excavation activities are restricted to within the boundaries of the development footprint. No further mitigation prior to construction is recommended in terms of Section 35 of the NHRA and Section 36 of the KZN Heritage Act for the proposed development to proceed.

In terms of the built environment of the area (Section 34 of the NHRA and Section 33 of the KZN Heritage Act) no standing structures older than 60 years occur within the study area. In terms of Section 36 of the NHRA and Section 34 and 35 of the KZN Heritage Act no burial sites were recorded. If any graves are located in future they should ideally be preserved *in-situ* or alternatively relocated according to existing legislation. No public monuments are located within or close to the study area.

During the public participation process conducted for the project no heritage concerns were raised. The study area is marked by an existing quarry, the surrounding area has been disturbed by earth moving activities and the proposed development will not impact negatively on significant cultural landscapes or viewscapes.

Due to the lack of significant heritage resources in the study area the impact of the proposed project on heritage resources is considered low and it is recommended that the proposed project can commence on the condition that a chance find procedure are implemented as part of the EMPr and based on approval from SAHRA and AMAFA.

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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	26/09/2017

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 Greenmined Environmental to conduct a heritage impact assessment of the proposed Elands Spruit Quarry. The report forms part of the Basic Assessment Report (BAR) 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, no heritage sites were identified. General site conditions and features on sites were recorded by means of photographs, GPS locations, and site descriptions. Possible impacts were identified and mitigation measures are proposed in the following report. 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, complied in support of an Environmental Authorisation application as defined by NEMA EIA Regulations section 40 (1) and (2), to be submitted to SAHRA. As such the Basic Assessment 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 & AMAFA 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

Size of farm and portions	5 ha of the Remaining Extent of the farm Elands Spruit 5523, Ladysmith, Kwa-Zulu Natal Province
Magisterial District	Alfred Duma Local Municipality, Uthukela District of KwaZulu-Natal
1: 50 000 map sheet number	2829BD
Co-ordinates of the development	A 28°22'05,17"S; 29°56'23.64"E B 28°22'07.24"S; 29°56'37.29"E C 28°22'03.55"S; 29°56'37.69"E D 28°22'01.21"S; 29°56'24.96"E

Table 3: Infrastructure and project activities

Type of development	Mining Permit
Project size	5 hectares
Project Components	THE MINING ACTIVITIES WILL CONSIST OF THE FOLLOWING: • Stripping and stockpiling of topsoil • Blasting • Excavation • Crushing • Stockpiling and transporting • Sloping and landscaping upon closure of the site • Replacing the topsoil and vegetating the disturbed area THE MINING SITE WILL CONTAIN THE FOLLOWING: • Drilling Equipment • Excavation Equipment • Earth Moving Equipment • Mobile Crushing and Screening Plant • Mobile Office and Ablution Facilities

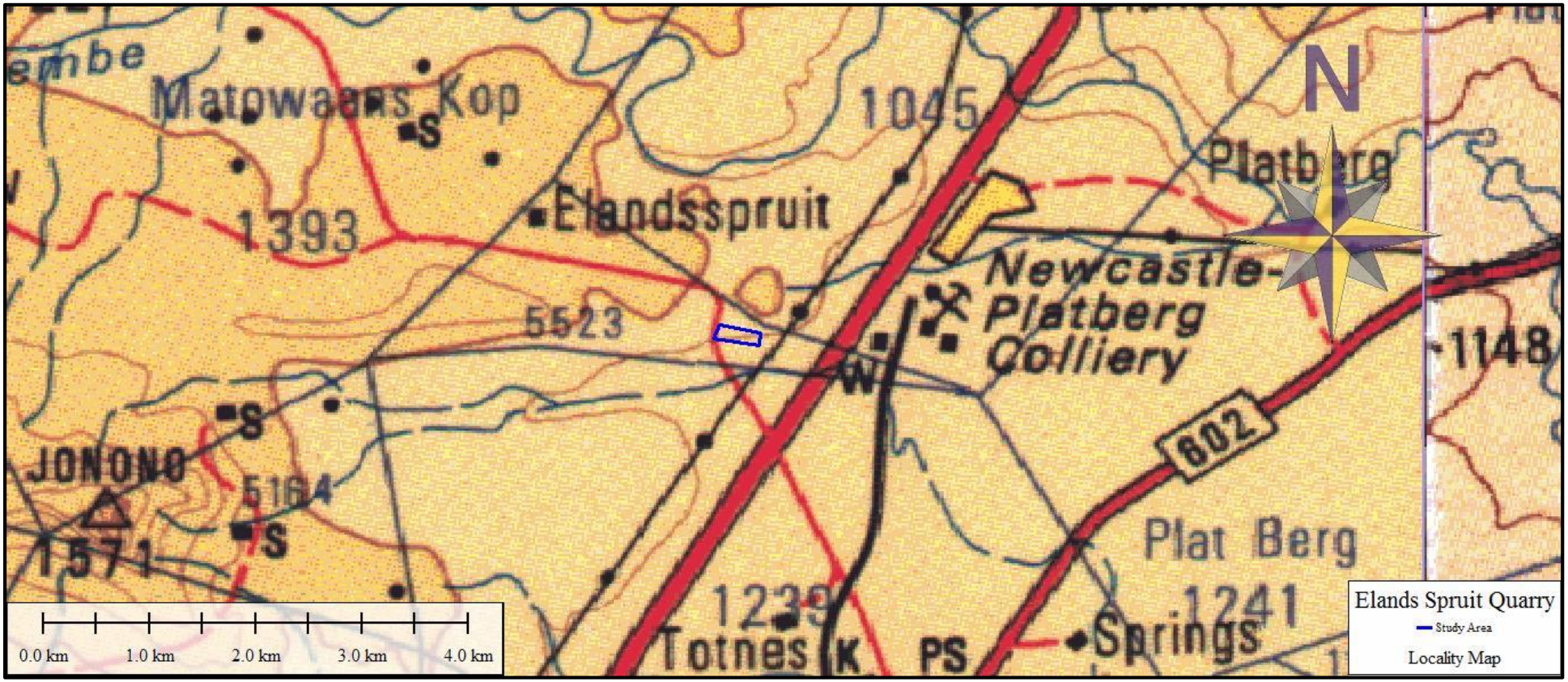

Figure 1. Provincial locality map (1: 250 000 topographical map)

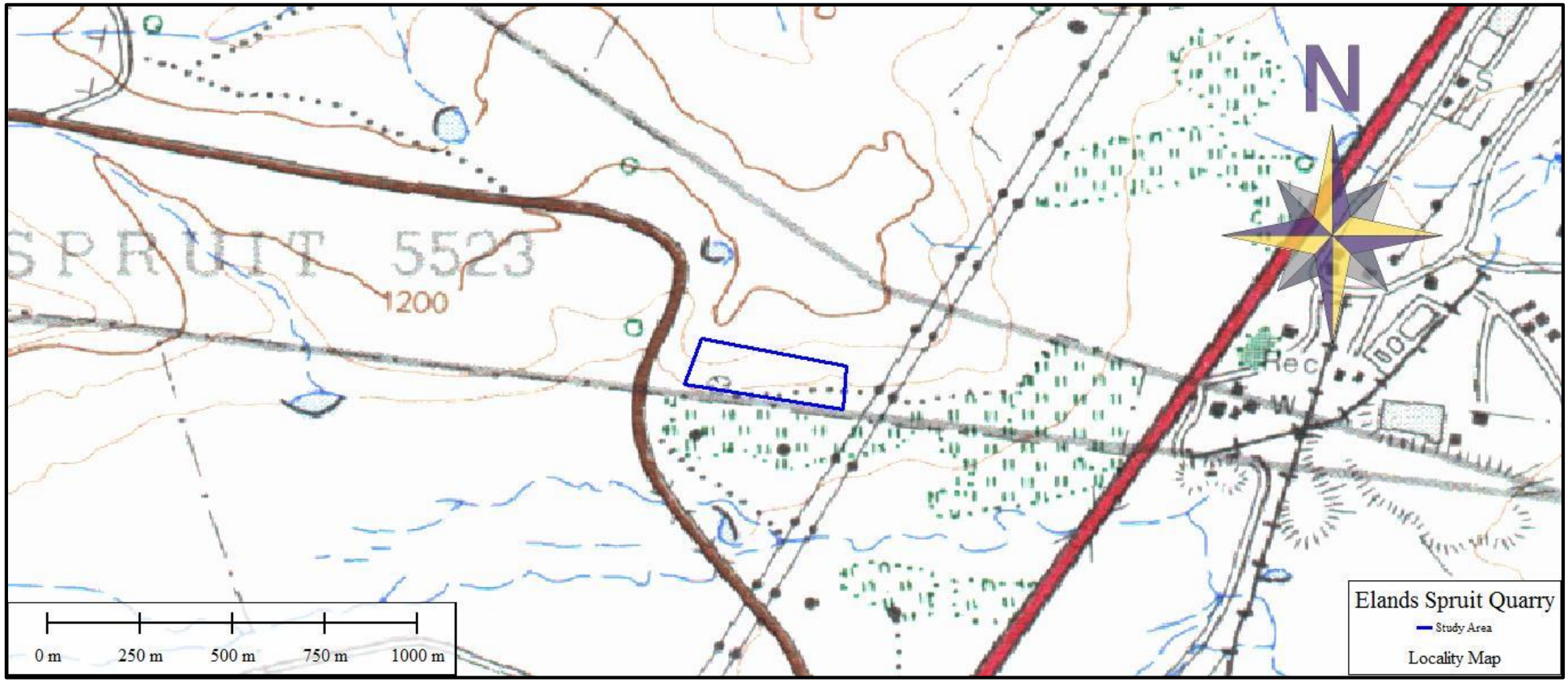

Figure 2: Regional locality map (1:50 000 topographical map).

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)
- Kwazulu-Natal Heritage Act, No. 4 of 2008
- 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 professional evaluation of Phase 1 AIA reports upon which review comments will be issued. 'Best practice' requires Phase 1 AIA reports and additional development information, as per the impact assessment report and/or EMPr, to be submitted in duplicate to SAHRA after completion of the study. SAHRA accepts Phase 1 AIA reports authored by professional archaeologists, accredited with ASAPA or with a proven ability to do archaeological work.

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

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

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

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

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

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

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

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

3 Methodology

3.1 Literature Review

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

3.2 Genealogical Society and Google Earth Monuments

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

3.3 Public Consultation and Stakeholder Engagement:

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

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

Please refer to section 6 for more detail.

3.4 Site Investigation

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

Table 4: Site Investigation Details

	Site Investigation
Date	22 September 2017
Season	Spring –vegetation in the study area is low with good archaeological visibility. The impact area was sufficiently covered (Figure 4) to adequately record the presence of heritage resources.

Figure 3: Track logs of the survey in black.

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3.5 Site Significance and Field Rating

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

- Its importance in/to the community, or pattern of South Africa's history;
- Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- Its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- Its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
- Sites of significance relating to the history of slavery in South Africa.

The presence and distribution of heritage resources define a 'heritage landscape'. In this landscape, every site is relevant. In addition, because heritage resources are non-renewable, heritage surveys need to investigate an entire project area, or a representative sample, depending on the nature of the project. In the case of the proposed project the local extent of its impact necessitates a representative sample and only the footprint of the areas demarcated for development were surveyed. In all initial investigations, however, the specialists are responsible only for the identification of resources visible on the surface. This section describes the evaluation criteria used for determining the significance of archaeological and heritage sites. The following criteria were used to establish site significance with cognisance of Section 3 of the NHRA:

- The unique nature of a site;
- The integrity of the archaeological/cultural heritage deposits;
- The wider historic, archaeological and geographic context of the site;
- The location of the site in relation to other similar sites or features;
- The depth of the archaeological deposit (when it can be determined/is known);
- The preservation condition of the sites; and
- Potential to answer present research questions.

In addition to this criteria field ratings prescribed by SAHRA (2006), and acknowledged by ASAPA for the SADC region, were used for the purpose of this report. The recommendations for each site should be read in conjunction with section 10 of this report.

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

3.6 Impact Assessment Methodology

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

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

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

S=(E+D+M) P

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

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

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

3.7 Limitations and Constraints of the study

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

4 Description of Socio Economic Environment

The 2016/ 2017 IDP for the Alfred Duma Municipality indicates the following:

"Census (2011) indicates that the population for the former Emnamabithi/Ladysmith municipality has risen from a total of 225 459 people in 2001 to 237 437 in (2011) with an average growth of 0.52% which is much less than in 2001 where the growth rate was 4.67% while with former Indaka Municipality Census (2011) decreased from 113,644 people in 2001 to 103,116 people. This indicates a population decline of 10.2% over 10 years. The current population then for KZN 238 is 340 116 as per statistics obtained through Census 2011 for Indaka and Emanambithi/Ladysmith Municipalities. One of the reasons that has led to decrease in the population is that the youth migrates to other cities like Durban, Pietermaritzburg and Gauteng looking for jobs and tertiary institutions ….

KZN238 municipality will be anchored around Ladysmith Town which serves as a service centre and administrative centre for the whole of Uthukela District, and a commercial hub for the north-western part of KwaZulu-Natal.
The municipality is strategically located at the intersection of two major national development corridors and trade routes, that is: The N11 which runs in a north south direction linking KwaZulu-Natal with Mpumalanga Province; and the N3 which runs in an east west direction linking Durban and Johannesburg Metropolitan areas".

5 Description of the Physical Environment:

The Remaining Extent of the farm Elands Spruit 5523 is situated approximately 26 km northeast of Ladysmith, between the Collings Pass road and the N11 national road. The area earmarked for the proposed mining falls on a section of the farm currently used for grazing purposes. A section of the proposed mining area was also historically used for quarrying purposes.

The proposed site is situated next to and on the eastern side of the P263 tar road from the N11 to Matiwane township approximately 3km further to the west. It is situated on the southern and south-eastern slopes of an elongated ridge which runs east to west. The Ethulini River/stream is situated approximately 500m south of the proposed site and it runs parallel to the ridge.

The site is situated within a fenced off part of the property. A four feet fence is used to fence off the property. The proposed study area measures approximately 5ha in size and covers most parts of the southern and south-eastern slopes of the ridge.

The western part of the proposed site was previously quarried. A large and deep existing quarry is situated in this part of the proposed site. An access road was bulldozed around the quarry for trucks to move to and from the existing quarry. Large parts of the proposed site to the east of the existing quarry were also exposed to previous earth-moving activities. These earth-moving activities seemed to create more access routes as well as test excavations for the extension of the existing quarry. Overall, most of the proposed site is disturbed and damaged to a large extent by these previous earth-moving activities.

The proposed site and the rest of the property are currently being used as a grazing facility for cattle for the farm owner. No farm infrastructure such as fencing, power lines, farm roads or boreholes were identified within the proposed study area.

Figure 4. Existing quarry.

Figure 5. Existing quarry.

Figure 6. General site conditions.

Figure 7. General site conditions

Figure 8. General view of site.

Figure 9. General view of quarry.

6 Results of Public Consultation and Stakeholder Engagement:

6.1.1 Stakeholder Identification

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

7 Literature / Background Study:

7.1 Literature Review

61 sites are on record at the data base of the KwaZulu-Natal Museum. These include five Early Stone Age sites, five Middle Stone Age sites, six Later Stone Age sites, three rock art sites (two rock paintings and one rock engraving), and eleven Later Iron Age sites and twenty historical period Nguni homesteads. Stone walling and graves related to the Anglo-Boer War period of 1899-1901 also occur in the area.

The following CRM studies were consulted:

Author	Year	Project	Results
Prins, F & Hall, S.	2013	Cultural Heritage Impact Assessment Of The Proposed Driefontein Pipeline Development, Emnambithi/Ladysmith Local Municipality	5 sites were recorded including cemeteries and stone built structures.
Prins, F & Hall, S.	2015	First Phase Cultural Heritage Impact Assessment Of The Proposed Rehabilitation Of National Route 11 Section 2, Ladysmith, Emnambithi-Ladysmith Local Municipality, Kwazulu-Natal.	Twenty-one cultural heritage sites situated adjacent to the N11. Including Later Iron Age sites, Anglo-Boer War period sites, homesteads and farmsteads older than sixty years of age, public buildings over sixty years of age, one memorial, and two contemporary places of worship (mosques).
Seliane, M.	2008	Proposed Upgrading Of P263 And Bridge Construction In Matiwane, Ladysmith Local Municipality Phase I Cultural Heritage Impact Assessment	No Sites were recorded.

7.1.1 Genealogical Society and Google Earth Monuments

No known grave sites are indicated in the study area.

7.2 Background of the area

7.2.1 Archaeology of the area

7.2.1.1 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 human - . 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 LSA is well represented in KwaZulu-Natal with an abundance of rock art, like the rock paintings at Giants Castle and Kamberg in the Drakensburg Mountains (Vinnicombe, 1976). Rock art sites have been also been documented in the areas around Estcourt, Mooi River and Dundee. Several caves in KZN contain significant archaeological deposits like the well-known MSA site of Sibudu Cave on the coast of KwaZulu-Natal, which shows evidence for early forms of cognitive human behavioural patterns (Wadley, 2005). Another well-known cave called Border Cave at the Ingodini Border Cave Museum Complex was first investigated by Raymond Dart in 1934; here excavations exposed a thick deposit of archaeological material dating from the Iron Age overlaying MSA artefacts. Several sites dating to the Early, Middle and Later Stone Age are on record for the larger area in the data base of the KwaZulu-Natal Museum.

7.2.1.2 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. In terms of the Iron Age the earliest known type of stonewalling characterising the Central Cattle Pattern (CCP) settlement layout in the region is known as Moor Park, which dates from the 14th to 16th Centuries AD (Huffman 2007). This type of stonewalling can be found in defensive positions on hilltops in the Midlands of KZN (Huffman 2007). The function of these structures was to serve mainly as defensive purposes. In addition to these stone walled settlements several Iron Age sites dating to the Early and Late Iron Age are found in the study area and the ceramic *facies* represented date from AD 450 – AD1820 (Beater and Maud 1963; Whitelaw 1994; Huffman 2007).

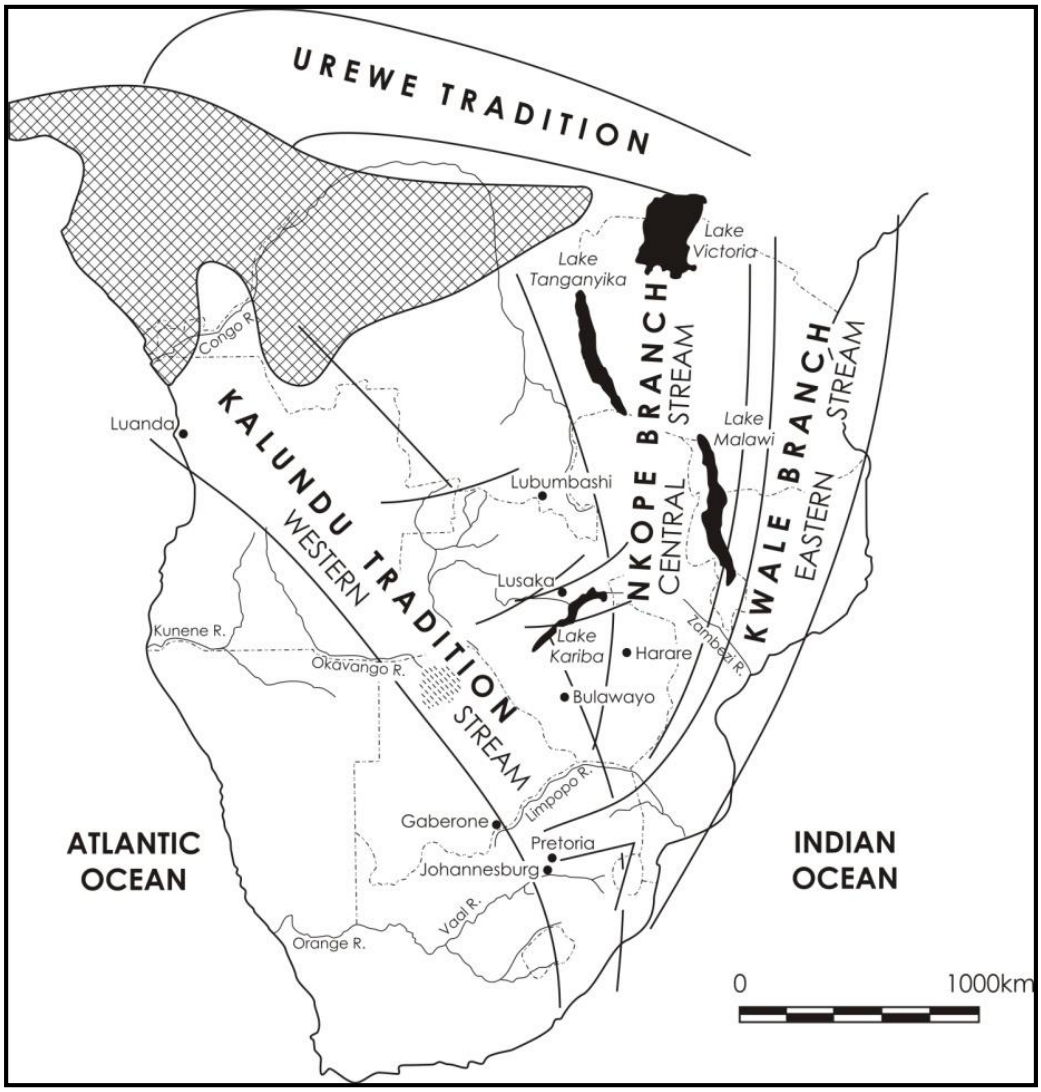


Figure 10. Movement of Bantu speaking farmers (Huffman 2007)

7.2.2 A Brief History Of Human Settlement And Interaction In The Study Area

The British Colony of Natal grew from a coastal settlement, Port Natal, which was already well established by 1824 with the permission of Shaka, Chief of the Zulu nation. In the mid-1830s Piet Retief arrived at Port Natal with his Voortrekker companions, and was murdered when he attempted to treat for a grant of land with the new Zulu chief, Dingane. This, and the consequent slaughter of many whites in the province, led to Port Natal being abandoned. (Evans 2000: p. 193)

After the Boers triumphed against the Zulu nation at the Battle of Blood River in December 1837, the Republic of Natalia came into being, and had its capital in Pietermaritzburg. Britain's interest in having an additional port en route to India moved the British to reoccupy Port Natal in 1843. Late in the 19th century, gold was discovered at Elandslaagte, Dundee and Newcastle, and this further increased Britain's economic and commercial interest in maintaining control of this area. Natal was therefore seen as a secure British base for operations against the Boers by the time that the Anglo-Boer War broke out. (Evans 2000: p. 193; Pretorius 2009: pp. 297-298)

7.2.3 Anglo-Boer War

The Anglo-Boer War (1899-1902) played an important part in shaping South Africa's history, and this was especially true for the Natal Colony. Events of importance in the vicinity of the area under investigation for this report include the Battle of Elandslaagte (1899) and the Battle of Nicholson's Nek (1899). These skirmishes will be discussed briefly.

Battle of Elandslaagte (21 October 1899)

Figure 11. Photograph of General Kock and his troops before the Battle of Elandslaagte. (NASA *TAB, Photographs: 14282*)

The site of the Elandslaagte battle is located about 7 km to the south east of the site under investigation. The Boers occupied the railway Station on the 20th October and early the following morning a British mounted patrol with artillery shelled them. The Boers withdrew, took up a position on high ground overlooking the railway line and their guns forced the British to withdraw. Reinforcements were dispatched from Ladysmith and the British subsequently executed a classic conventional attack that resulted in a staggering defeat of Gen. Jan Kock's Boer force (Battlefields Route Kwazulu Natal 2013).

Figure 12. Aftermath of the Battle of Elandslaagte. (NASA *TAB, Photographs: 14284*)

Battle of Nicholson's Nek (30 October 1899)

The site of the Nicholson's Nek battle is located about 17 km to the south west of the site under investigation.

The Battle of Nicholson's Nek was one of two British defeats around Ladysmith that came to be known as "Mournful Monday", or the battle of Ladysmith. The British army in Natal had concentrated in Ladysmith by 25 October. Lieutenant-general Sir George White, the British commander in Natal, decided to launch a pre-emptive strike on Boer columns that were converging on the town. He also dispatched a force to Nicholson's Nek, north of Ladysmith, either to prevent another Boer column from interfering in the main fight around Ladysmith, or to block one possible route a defeated Boer army might take from Ladysmith (Rickard 2007).

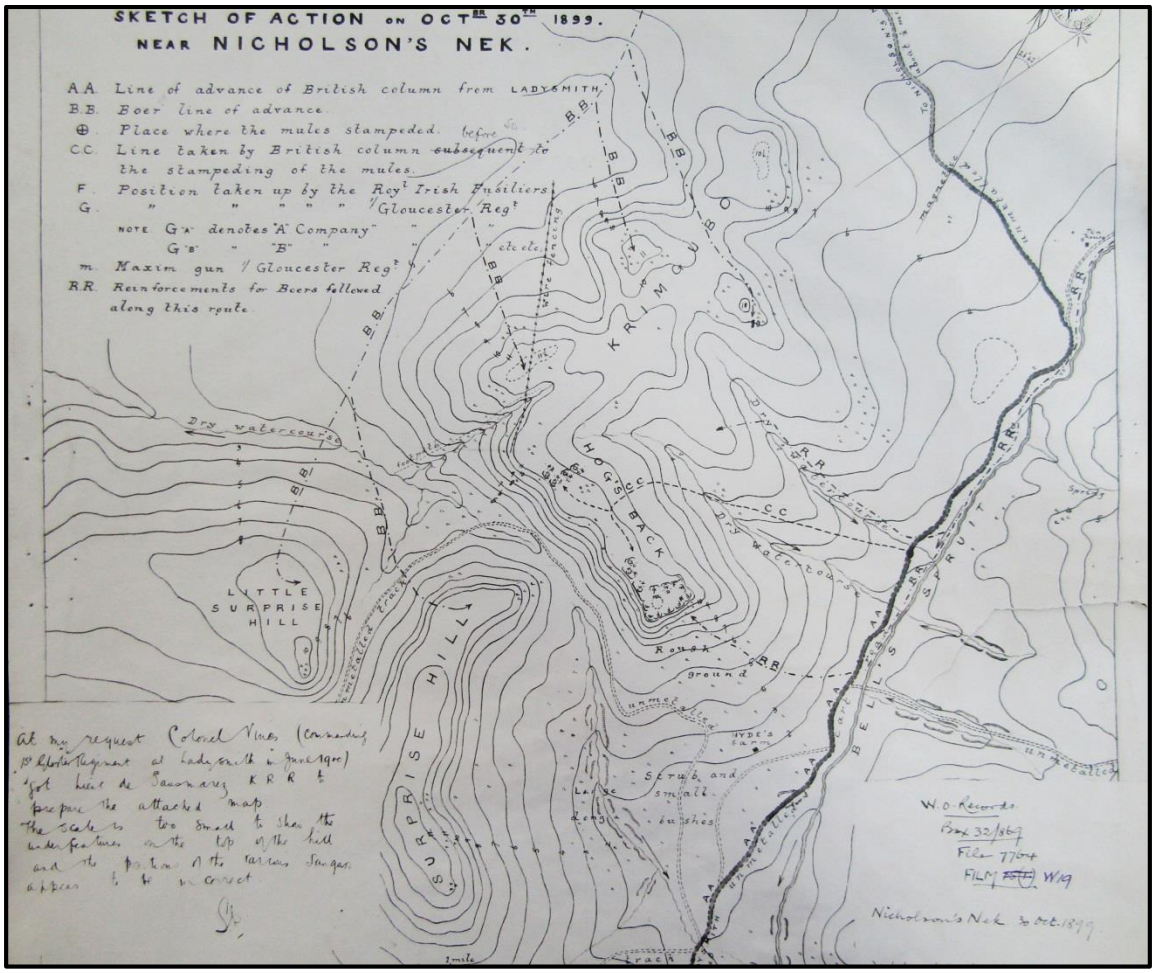


Figure 13. 1900 Sketch of the action near Nicholson's Nek on 30th October 1899. (NASA *Maps: 3/1057*)

The British Lieutenant Colonel Frank Carleton led the force to Nicholson's Nek, and camped at Tchrengula Hill on the way. The Boers became alerted to the British presence and at dawn 30th October 1899 opened fire on the British position. The British suffered heavy losses, with 38 dead and 105 wounded. The Boers reported only four deaths and five wounded. The British were forced to surrender. Close to one thousand British soldiers entered captivity after the battle. The defeat at Nicholson's Nek and the failure of White's main attack at Lombard's Kop ended any chance of avoiding a siege (Rickard 2007).

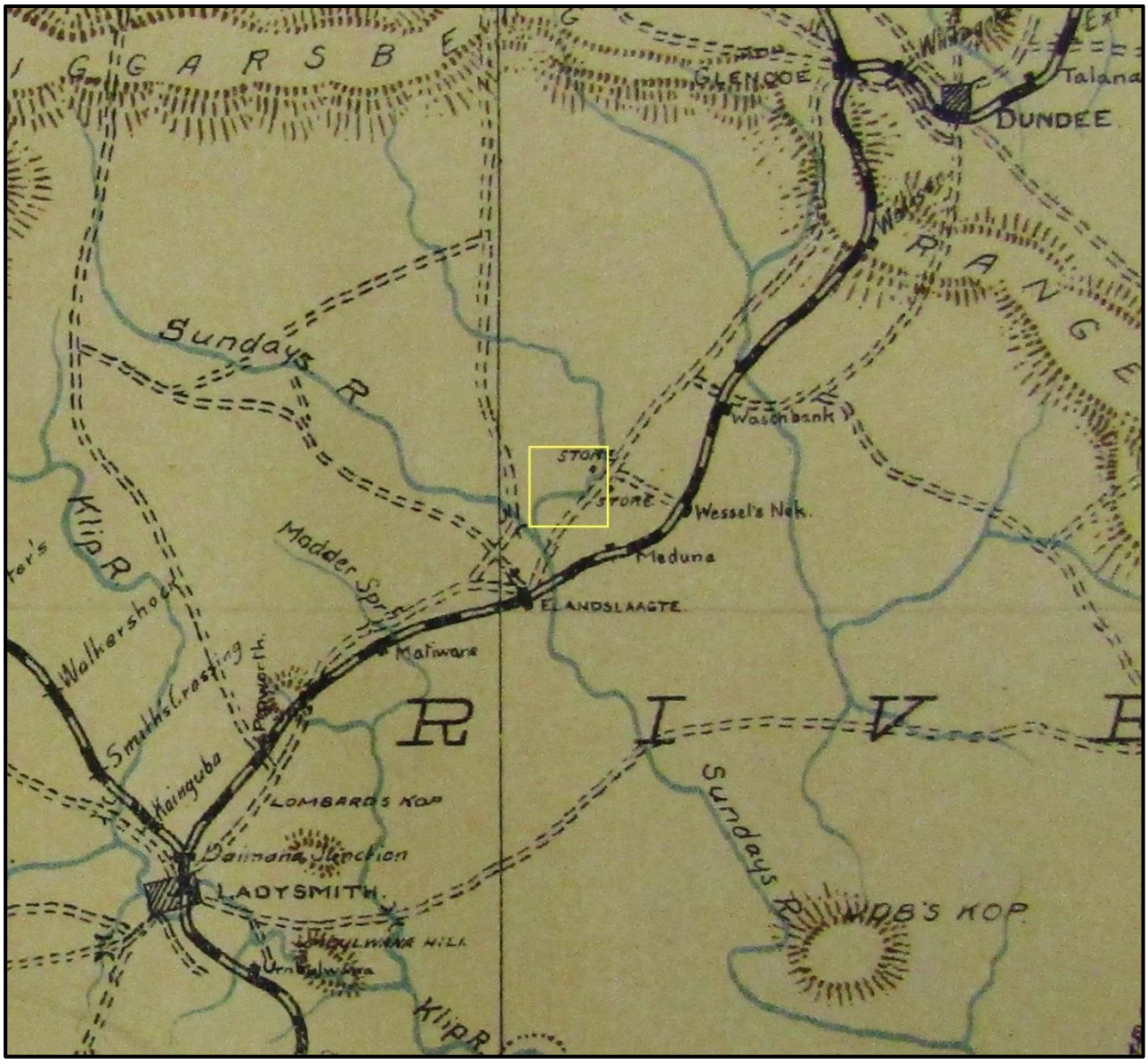
Figure 14. The site of the Battle of Nicholson's Nek, where 12000 were taken captive. (NASA *TAB, Photographs: 16467*)

7.2.4 Cultural Landscape

The cultural landscape is rural in character and the development footprint has been disturbed by an existing quarry and earthworks and the extension of the existing quarry will not impact further on the cultural landscape.

Figure 15. Map of Natal dating approximately to 1910-1930, showing the counties, territories and native reserves. The yellow square shows the approximate location of the site under investigation. Elands Spruit was located in the Klip River ward at the time. (NASA *Maps: 3/65*)

Figure 16. Map of Natal dating approximately to 1910-1930, showing the magisterial divisions. The yellow square shows the approximate location of the site under investigation. Elands Spruit was located in the magisterial division of Ladysmith at the time. (NASA *Maps: 3/65*)



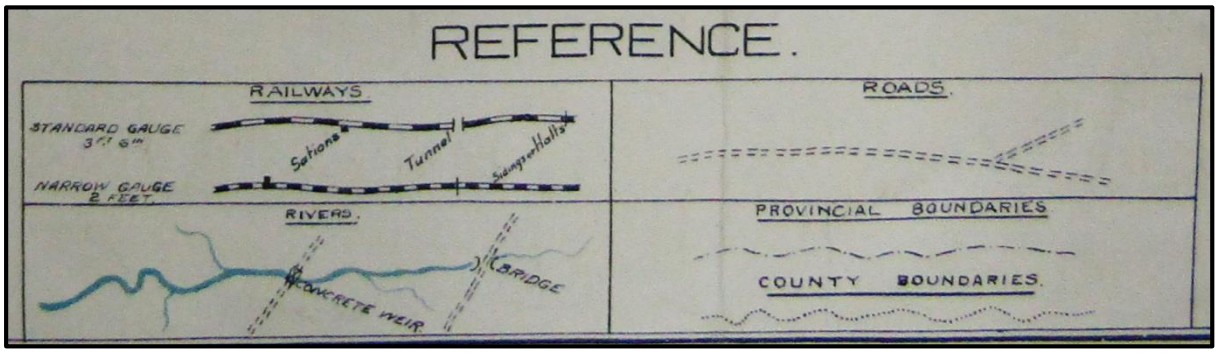


Figure 17. 1923 Map of Zululand and Natal. The yellow border shows the approximate location of the property under investigation. One can see a tributary of the Sundays River going through the area. A number of roads, as well as a railway line are also visible in the vicinity. Two stores can be seen alongside a road. To the east, Wessels Nek is visible, and to the south and south west one can see Meduna and Elandslaagte. Ladysmith is located about 26 km to the south west, and Dundee can be seen about the same distance to the north east. (NASA *Maps: 2/14*)

Figure 18. 2017 Google Earth image of the area under investigation. This site is located to the east of a provincial road. (Google Earth 2017)

Figure 19. Google Earth image showing the location of the study area in relation to Glencoe, Ladysmith, the N11 national road and other sites. (Google Earth 2017)

7.2.5 Historical Overview Of The Ownership And Development Of The Study Area

History of land ownership:

It was possible to come to some conclusions by studying the references to documents kept at the Natal Archives in Pietermaritzburg.

By 1886 one John Truscott of Ladysmith was in the process of purchasing the property Elands Spruit, and was unable to pay the fourth instalment. He requested an extension until January 1887. Truscott was still in the process of purchasing the farm by 1892, when he asked for another extension of time. (*NAB, SGO: III/1/56 SG743/1886*; *NAB, SGO: III/1/86 SG2862/1892*)

IN 1895 T. F. Carted applied for the title to the farm Elands Spruit, and it seems that the farm was granted to him in 1896. (*NAB, SGO: III/1/104 SG4060/1895; NAB, SGO: III/1/112 SG3120/1896*)

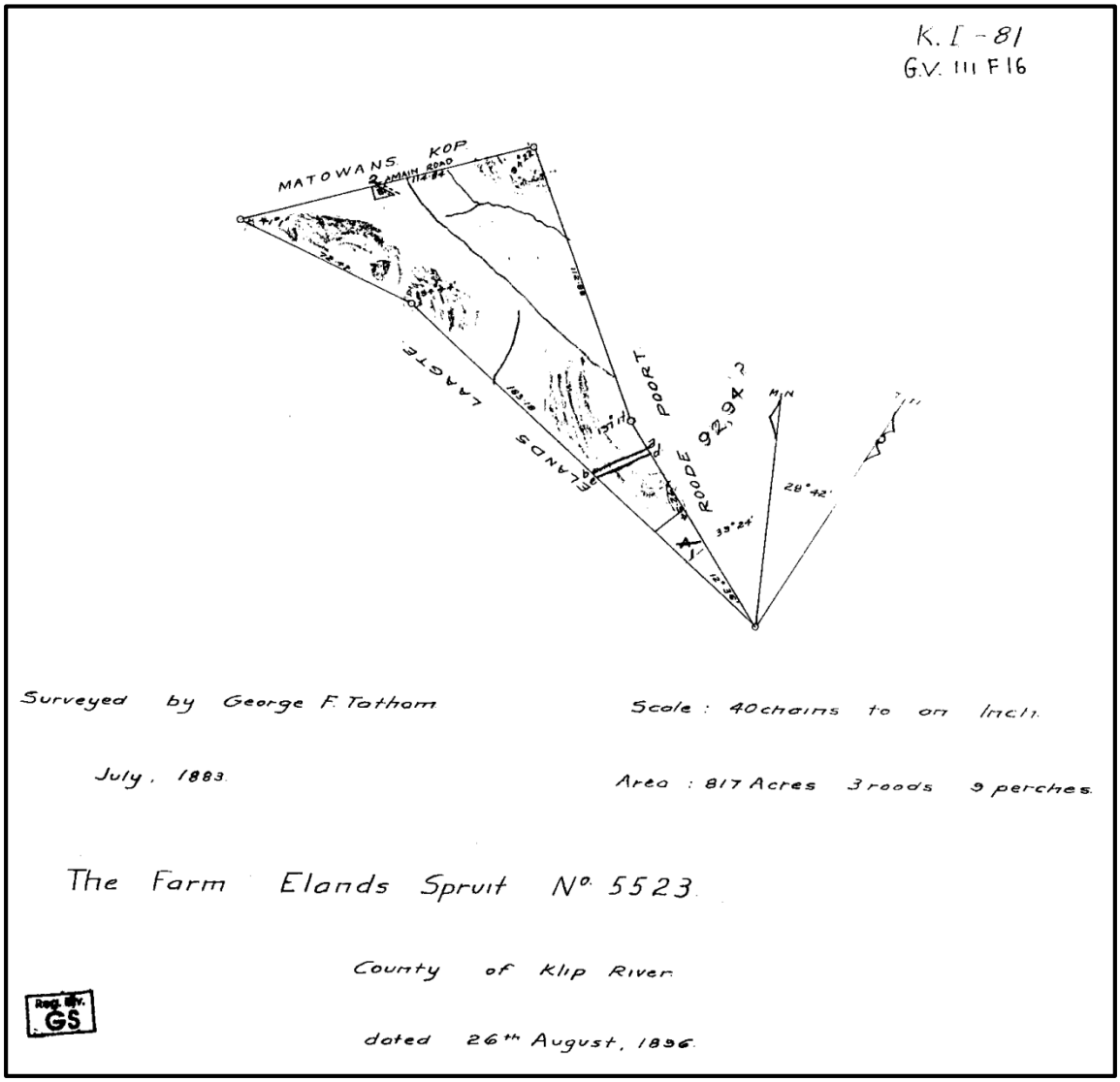


Figure 20. 1896 Surveyor General's diagram of the farm Elands Spruit No. 5523, in the County of Klip River. The farm measured 817 acres 3roods and 9 perches. (Surveyor General's Office 1896)

Unfortunately no information could be obtained regarding the land owners of Elands Spruit for the period 1897-1967.

The following details regarding historical landowners could be traced on the Windeed Search Engine:

Date	Portion	Transferred from	Transferred to	Purchase price
1967	RE (1/4)	-	Koch Jan Gysbert	Unknown
1967	RE (1/4)	-	Oosthuizen Willem Tobias	Unknown
1967	RE (1/4)	-	Rheeder Jacob Salomon	Unknown
1967	RE	-	Oosthuizen Pieter Francois	Unknown
1985	RE	-	Oosthuizen Pieter Francois	R45,000

(Windeed Search Engine 2017)

The RE of Elands Spruit 5523 is currently owned by Pieter Francois Oosthuizen, who acquired the property on 22 March 2007 for the sum of R280,000. (Windeed Search Engine 2017)

History of land use:

In 1909 it was reported by the District Veterinary surgeon Hutchinson of Dundee that one Malamba had moved four head of cattle from the farm Uitkop to the farm Elands Spruit in the Klip River division. (*NAB, SNA: I/1/453 4145/1909*)

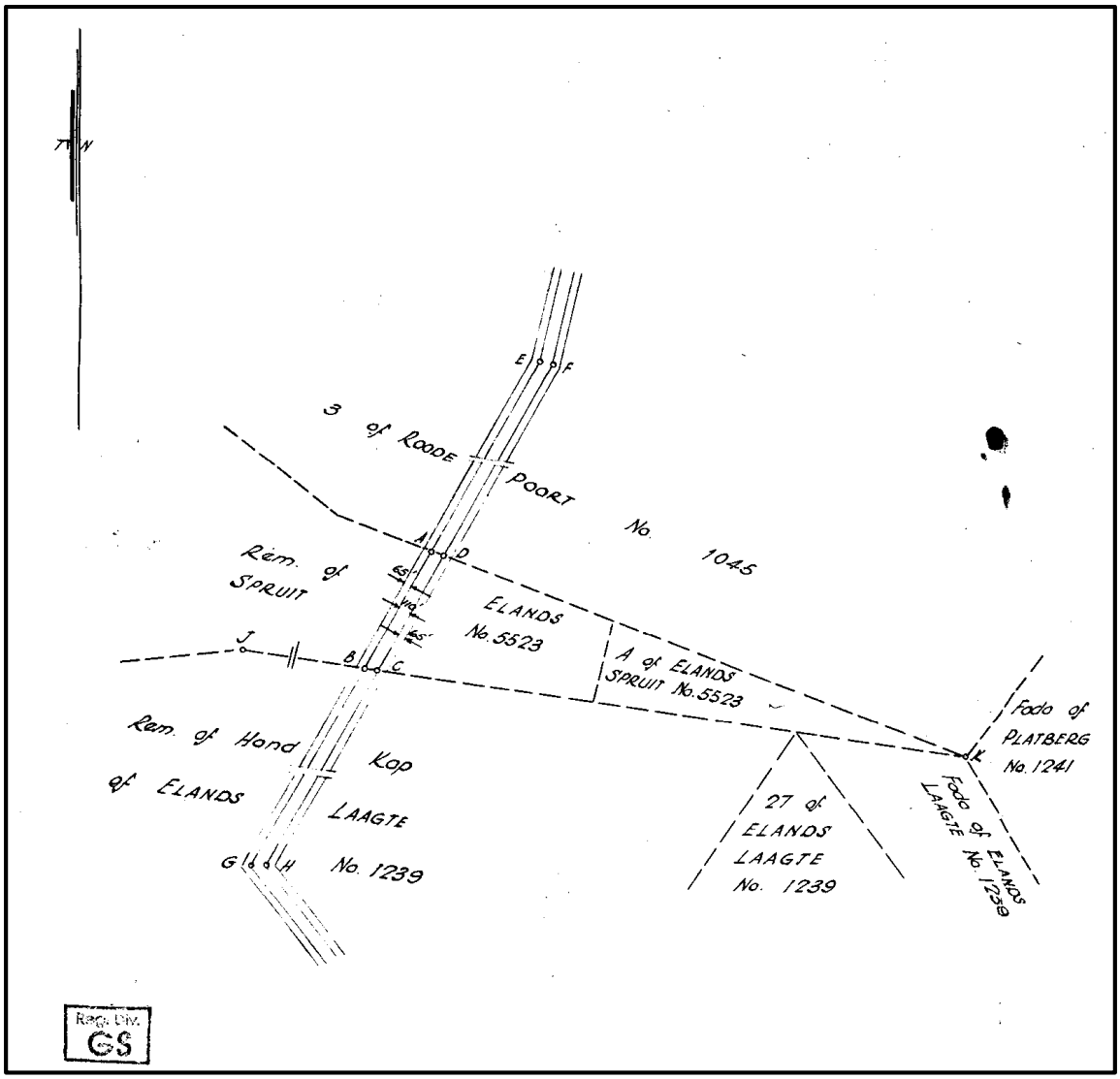


Figure 21. 1953 Surveyor General's diagram of the farm Elands Spruit No. 5523, in the County of Klip River. The lines A. B. and D. C. represent the centre lines of electric power transmission lines over the Remainder of the farm Elands Spruit NO. 5523. (Surveyor General's Office 1953)

8 Findings of the Survey (NHRA Section 34 -36 and Kwazulu-Natal Heritage Act, No. 4 of 2008)

It is important to note that only the development footprint of the project was surveyed and not the entire farm. The proposed mining site of 5 ha will be an extension of the existing quarry pit and the area has been previously disturbed by earth moving activities.

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

8.1 Built Environment (Section 34 of the NHRA)

No standing structures older than 60 years occur in the study area.

8.2 Archaeological and palaeontological resources (Section 35 of the NHRA)

No archaeological sites or material was recorded during the survey. No Stone walls attributed to the Iron Age were noted and no Stone Age artefacts of significance were noted.

An independent paleontological study was conducted by Rossouw (2017) who found that "*The proposed development footprint is located within the outcrop area of palaeontologically significant Ecca Group sediments, and on palaeontologically insignificant dolerite intrusions in close proximity to a contact metamorphic zone with very low probability of fossil preservation. Given the position of the study area, the likelihood of impact on potential Quaternary fossil exposures is considered unlikely. The overall significance rating of the superficial component (Quaternary overburden) is regarded as low".*

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

In terms of Section 36 of the Act no burial sites were recorded.

8.4 Cultural Landscapes, Intangible and Living Heritage.

Long term impact on the cultural landscape is considered to be negligible as study area has previously been subjected to mining and earth moving activities. Visual impacts to scenic routes and sense of place are also considered to be low due to the existing developments in the area.

8.5 Battlefields and Concentration Camps

There are no battlefields or concentration camp sites in the development footprint. Known battlefield sites occur in the greater area, but will not be impacted on by this development.

8.6 Potential Impact

The chances of impacting unknown archaeological sites in the study area is considered to be negligible. Any direct impacts that might occur would be during the construction phase only and would be of very low significance. Cumulative impacts occur from the combination of effects of various impacts on heritage resources. The importance of identifying and assessing cumulative impacts is that the whole is greater than the sum of its parts. In the case of the development, it will, with the recommended mitigation measures and management actions, not impact any heritage resources directly. However, this and other projects in the area could have an indirect impact on the larger heritage landscape. The lack of any heritage resources in the immediate area and the extensive existing development surrounding the study area minimises additional impact on the landscape.

8.6.1 Pre-Construction phase:

It is assumed that the pre-construction phase involves the removal of topsoil and vegetation as well as the establishment of infrastructure needed for the construction phase. These activities can have a negative and irreversible impact on heritage sites. Impacts include destruction or partial destruction of non-renewable heritage resources. No sites of significance were identified and no significant impacts are expected during this phase.

8.6.2 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. No sites of significance were identified and no significant impacts are expected during this phase.

8.6.3 Operation Phase:

No impact is envisaged during this phase.

Table 5. Impact Assessment table.

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	Local (1)	Local (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Low (2)	Low (2)
Probability	Not probable (2)	Not probable (2)
Significance	**16 (Low)**	**16 (Low)**
Status (positive or negative)	Negative	Negative
Reversibility	Not reversible	Not reversible
Irreplaceable loss of resources?	No resources were recorded	No resources were recorded.
Can impacts be mitigated?	Yes, a chance find procedure should be implemented.	Yes
Mitigation: Due to the lack of apparent significant archaeological resources no further mitigation is required prior to construction. A Chance Find Procedure should be implemented for the project should any sites be identified during the construction process		

9 Conclusion and recommendations

HCAC was appointed to conduct a Heritage Impact Assessment for the Elands Spruit Quarry close to Ladysmith, Kwa Zulu Natal. The study area consists of an existing quarry that will be extended. The impact area measures approximately 5 hectares and most of the proposed site is disturbed and damaged to a large extent by previous earth-moving activities.

No archaeological sites or artefacts of significance were recorded during the survey. In terms of the palaeontology of the area an independent paleontological study by Rossouw (2017) did not identify any palaeontological reason to prejudice the development of the quarry provided that all excavation activities are restricted to within the boundaries of the development footprint. No further mitigation prior to construction is recommended in terms of Section 35 of the NHRA and Section 36 of the KZN Heritage Act for the proposed development to proceed.

In terms of the built environment of the area (Section 34 of the NHRA and Section 33 of the KZN Heritage Act) no standing structures older than 60 years occur within the study area. In terms of Section 36 of the NHRA and Section 34 and 35 of the KZN Heritage Act no burial sites were recorded. If any graves are located in future they should ideally be preserved *in-situ* or alternatively relocated according to existing legislation. No public monuments are located within or close to the study area.

During the public participation process conducted for the project no heritage concerns were raised. The study area is marked by an existing quarry, the surrounding area has been disturbed by earth moving activities and the proposed development will not impact negatively on significant cultural landscapes or viewscapes.

Due to the lack of significant heritage resources in the study area the impact of the proposed project on heritage resources is considered low and it is recommended that the proposed project can commence on the condition that the following chance find procedure are implemented as part of the EMPr and based on approval from SAHRA and AMAFA.

9.1. Chance Find Procedures

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

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

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

9.2 Reasoned Opinion

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

10. References

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MAPS

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11. Appendices:

Curriculum Vitae of Specialist

Jaco van der Walt
Archaeologist

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Education:

Particulars of degrees/diplomas and/or other qualifications:

Name of University or Institution:		University of Pretoria
Degree obtained	**:**	BA Heritage Tourism & Archaeology
Year of graduation	**:**	2001
Name of University or Institution:		University of the Witwatersrand
Degree obtained	**:**	BA Hons Archaeology
Year of graduation	**:**	2002
Name of University or Institution	**:**	University of the Witwatersrand
Degree Obtained	**:**	MA (Archaeology)
Year of Graduation	:	2012
Name of University or Institution	**:**	University of Johannesburg
Degree	**:**	PhD
Year	:	Currently Enrolled

EMPLOYMENT HISTORY:

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

Countries of work experience include:

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

SELECTED PROJECTS INCLUDE:

Archaeological Impact Assessments (Phase 1)

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

Archaeological Impact Assessment Mmamethlake Landfill

Archaeological Impact Assessment Libangeni Landfill

Linear Developments

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

Archaeological Impact Assessment Medupi – Spitskop Power Line,

Archaeological Impact Assessment Nelspruit Road Development

Renewable Energy developments

Archaeological Impact Assessment Karoshoek Solar Project

Grave Relocation Projects

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

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

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

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

Phase 2 Mitigation Projects

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

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

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

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

Heritage management projects

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

MEMBERSHIP OF PROFESSIONAL ASSOCIATIONS:

- Association of Southern African Professional Archaeologists. Member number 159

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

PUBLICATIONS AND PRESENTATIONS

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

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

REFERENCES:

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