

**A PHASE 1 ARCHAEOLOGICAL AND HERITAGE IMPACT  
ASSESSMENT REPORT FOR THE PROPOSED UPGRADE OF  
CUBHU WATER TREATMENT PLANT (WTP) AND 9KM RISING  
MAIN LINE FROM CUBHU WTP TO EXISTING FOREST  
RESERVOIR IN UMHLATHUZE LOCAL MUNICIPALITY,  
KWAZULU NATAL PROVINCE**



**15 OCTOBER 2021**

**SATIVA**

**Travel and Environmental Consultants**

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## DOCUMENT INFORMATION

Item	Description
Proposed development and location	Installation of pipelines for bulk water and water reticulation in Umhlathuze Local Municipality, KwaZulu Natal Province.
Title	The proposed installation of pipelines for bulk water reticulation in Umhlathuze Local Municipality, KwaZulu Natal Province.
Purpose of the study	The purpose of this document is an Archaeological and Heritage Impact Assessment report that describes the cultural values and heritage factors that may be impacted on by the proposed development site
1:50 000 Topographic Map	3030CB
Coordinates	See Figures 1-5
Municipalities	Umhlathuze Local Municipality
Predominant land use of surrounding area	Vacant, agricultural, and Residential (See land use map)
Developer/Applicant	Umhlathuze Local Municipality
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## **NATIONAL LEGISLATION AND REGULATIONS GOVERNING THIS REPORT**

This is a specialist report and is compiled in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2014.

## **DECLARATION OF INDEPENDENCE**

In terms of Chapter 5 of the National Environmental Management Act of 1998 specialists involved in Impact Assessment processes must declare their independence.

I, **Trust Mlilo**, do hereby declare that I am financially and otherwise independent of the client and their consultants, and that all opinions expressed in this document are substantially my own, notwithstanding the fact that I have received fair remuneration from the client for preparation of this report.

### **Expertise:**

Trust Mlilo, PhD (Cand), MA. (Archaeology), BA Hons, PDGE and BA & (Univ. of Pretoria) ASAPA (Professional member) with more than 15 years of experience in archaeological and heritage impact assessment and management. Mlilo is an accredited member of the Association for Southern African Professional Archaeologists (ASAPA), KwaZulu Natal Amafa and Research Institute and Eastern Cape Heritage Resources Agency (ECPHRA). He has conducted more than hundred AIA/HIA Studies, heritage mitigation work and heritage development projects over the past 15 years of service. The completed projects vary from Phase 1 and Phase 2 as well as heritage management work for government, parastatals (Eskom) and several private companies such as BHP Billiton, Rhino Minerals.

### **Independence**

The views expressed in this document are the objective, independent views of Mr Trust Mlilo and the survey was carried out under AMAP Limited. Sativa Travel and Environmental Consultants (Pty) Ltd has no business, personal, financial or other interest in the proposed development apart from fair remuneration for the work performed.

### **Conditions relating to this report**

The content of this report is based on the author's best scientific and professional knowledge as well as available information. Sativa Travel and Environmental Consultants (Pty) Ltd reserves the right to modify the report in any way deemed fit should new, relevant or previously unavailable or undisclosed

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information become known to the author from on-going research or further work in this field, or pertaining to this investigation.

This report must not be altered or added to without the prior written consent of the author and AMAP Limited. This also refers to electronic copies of the report which are supplied for the purposes of inclusion as part of other reports, including main reports. Similarly, any recommendations, statements or conclusions drawn from or based on this report must make reference to this report. If these form part of a main report relating to this investigation or report, this report must be included in its entirety as an appendix or separate section to the main report.

**Authorship:** This AIA/HIA Report has been prepared by Mr Trust Mlilo (Professional Archaeologist). The report is for the review of the Heritage Resources Agency (PHRA) and KwaZulu-Natal **Amafa** and Research Institute (The Institute).

**Geographic Co-ordinate Information:** Geographic co-ordinates in this report were obtained using a hand-held Garmin Global Positioning System device. The manufacturer states that these devices are accurate to within +/- 5 m.

**Maps:** Maps included in this report use data extracted from the NTS Map and Google Earth Pro.

**Disclaimer:** The Authors are not responsible for omissions and inconsistencies that may result from information not available at the time this report was prepared.

The Archaeological and Heritage Impact Assessment Study was carried out within the context of tangible and intangible cultural heritage resources as defined by the SAHRA Regulations and Guidelines as to the authorisation of proposed developments being proposed by Dube Trade Port Corporation.

Signed by



15/ 10/ 2021

## ACKNOWLEDGEMENTS

The authors acknowledge AMAP Limited and Umhlathuze Local Municipality for their assistance with project information, and the associated project Background Information Document (BID) as well as responding to technical queries related to the project.

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## EXECUTIVE SUMMARY

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This Archaeological and Heritage Impact Assessment (AIA/HIA) Report has been prepared to address requirements of KwaZulu Natal Amafa and Research Institute Act No. 05 of 2018 and Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999). Sativa Travel and Environmental Consultants (Pty) Ltd (STEC) was appointed by AMAP Limited on behalf of uMhlatuze Local Municipality to conduct this Archaeological and Heritage Impact Assessment (AIA/HIA) Study. This HIA was undertaken for the study area which includes the pipeline and the existing Cubhu Water Treatment Plant (WTP). The HIA study was undertaken to identify heritage resources along the proposed pipeline route and WTP area (see **Figure 1**). This report includes an impact study on potential archaeological and cultural heritage resources that may be associated with the proposed development. This study was conducted as part of the specialist input for the Basic Assessment Application process. Analysis of the archaeological, cultural heritage, environmental and historic contexts of the study area predicted that archaeological sites, cultural heritage sites, burial grounds or isolated artefacts were likely to be present on the affected landscape. The field survey was conducted to test this hypothesis and verify this prediction along the proposed pipeline route.

The report makes the following observations:

- The findings of this report have been informed by desktop data review, field survey and impact assessment reporting which include recommendations to guide heritage authorities in making decisions with regards to the proposed pipeline route and reservoir site.
- Some sections of the project area are very accessible, and the field survey was effective enough to cover most sections of the project receiving environs.
- Most sections of the proposed pipeline route are severely degraded from existing developments such as agriculture, bulk water pipelines, powerlines and access routes.
- Although the possibility of encountering archaeological or historical sites within the greater study area is high, no medium to high significance archaeological, heritage landmark or monument was recorded along the proposed pipeline route impact zone.

The report sets out the potential impacts of the proposed pipeline development on heritage resources and recommends appropriate safeguard and mitigation measures that are designed to minimize the impacts where appropriate. The Report makes the following recommendations:

- The proposed development may be approved by KwaZulu Natal Amafa and Research Institute to proceed as planned subject to heritage monitoring measures being incorporated into the project construction Environmental Management Programme report (EMPr).
- The construction teams should be inducted on the significance of the possible archaeological resources that may be encountered during subsurface construction work before they work on the area in order to ensure appropriate treatment and course of action is afforded to any chance finds.



- If archaeological materials are uncovered, work should cease immediately, and KwaZulu Natal Amafa and Research Institute be notified, and activity should not resume until appropriate management provisions are in place.
- The findings of this report, with approval may be classified as accessible to any interested and affected parties within the limits of the relevant legislation.

The conclusion of the HIA is that the impacts of the proposed pipeline development on the cultural environmental values are not likely to be significant if the EMP includes recommended safeguard and mitigation measures identified in this report.

## ABBREVIATIONS

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<b>AIA</b>	Archaeological Impact Assessment
<b>BID</b>	Background Information document
<b>CRM</b>	Cultural Resource Management
<b>ECO</b>	Environmental Control Officer
<b>EAP</b>	Environmental Assessment Practitioner
<b>EIA</b>	Environmental Impact Assessment
<b>EM</b>	Environmental Manager
<b>EMP</b>	Environmental Management Plan
<b>ESA</b>	Early Stone Age
<b>HIA</b>	Heritage Impact Assessment
<b>KM</b>	Kilometres
<b>KV</b>	Kilo Volts
<b>KZN</b>	KwaZulu Natal
<b>LIA</b>	Late Iron Age
<b>M</b>	Metres
<b>MSA</b>	Middle Stone Age
<b>NHRA</b>	Nation Heritage Resources Act, Act 25 of 1999
<b>PM</b>	Project Manager
<b>SM</b>	Site Manager
<b>SAHRA</b>	South African Heritage Resources Agency
<b>SAHRIS</b>	South African Heritage Resources Agency Data Base
<b>STEC</b>	Sativa Travel and Environmental Consultants (Pty) Ltd

## KEY CONCEPTS AND TERMS

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**Periodization** Archaeologists divide the different cultural epochs according to the dominant material finds for the different time periods. This periodization is usually region-specific, such that the same label can have different dates for different areas. This makes it important to clarify and declare the periodization of the area one is studying. These periods are nothing a little more than convenient time brackets because their terminal and commencement are not absolute and there are several instances of overlap. In the present study, relevant archaeological periods are given below;

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,)

Early Iron Age (~ AD 200 to 1000)

Late Iron Age (~ AD1100-1840)

Historic (~ AD 1840 to 1950, but a Historic building is classified as over 60 years old)

**Definitions** Just like periodization, it is also critical to define key terms employed in this study. Most of these terms derive from South African heritage legislation and its ancillary laws, as well as international regulations and norms of best practice. The following aspects have a direct bearing on the investigation and the resulting report:

**Cultural (heritage) resources** are all non-physical and physical human-made occurrences, and natural features that are associated with human activity. These can be singular or in groups and include significant sites, structures, features, ecofacts and artefacts of importance associated with the history, architecture or archaeology of human development.

**Cultural significance** is determined by means of aesthetic, historic, scientific, social or spiritual values for past, present or future generations.

**Value** is related to concepts such as worth, merit, attraction or appeal, concepts that are associated with the (current) usefulness and condition of a place or an object. Although significance and value are not mutually exclusive, in some cases the place may have a high level of significance but a lower level of value. Often, the evaluation of any feature is based on a combination or balance between the two.

**Isolated finds** are occurrences of artefacts or other remains that are not in-situ or are located apart from archaeological sites. Although these are noted and recorded, but do not usually constitute the core of an impact assessment, unless if they have intrinsic cultural significance and value.

***In-situ*** refers to material culture and surrounding deposits in their original location and context, for example an archaeological site that has not been disturbed by farming.

***Archaeological site/materials*** are remains or traces of human activity that are in a state of disuse and are in, or on, land and which are older than 100 years, including artefacts, human and hominid remains, and artificial features and structures. According to the National Heritage Resources Act (NHRA) (Act No. 25 of 1999), no archaeological artefact, assemblage or settlement (site) and no historical building or structure older than 60 years may be altered, moved or destroyed without the necessary authorisation from the South African Heritage Resources Agency (SAHRA) or a provincial heritage resources authority.

***Historic material*** are remains resulting from human activities, which are younger than 100 years, but no longer in use, including artefacts, human remains and artificial features and structures.

***Chance finds*** means archaeological artefacts, features, structures or historical remains accidentally found during development.

***A grave*** is a place of interment (variably referred to as burial) and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such place. A grave may occur in isolation or in association with others where upon it is referred to as being situated in a cemetery (contemporary) or burial ground (historic).

***A site*** is a distinct spatial cluster of artefacts, structures, organic and environmental remains, as residues of past human activity.

***Heritage Impact Assessment (HIA)*** refers to the process of identifying, predicting, and assessing the potential positive and negative cultural, social, economic and biophysical impacts of any proposed project, which requires authorisation of permission by law and which may significantly affect the cultural and natural heritage resources. Accordingly, an HIA must include recommendations for appropriate mitigation measures for minimising or circumventing negative impacts, measures enhancing the positive aspects of the proposal and heritage management and monitoring measures.

***Impact*** is the positive or negative effects on human well-being and / or on the environment.

***Mitigation*** is the implementation of practical measures to reduce and circumvent adverse impacts or enhance beneficial impacts of an action.

***Mining heritage sites*** refer to old, abandoned mining activities, underground or on the surface, which may date from the prehistorical, historical or the relatively recent past.

**Study area or 'project area'** refers to the area where the developer wants to focus its development activities (refer to plan).

**Phase I studies** refer to surveys using various sources of data and limited field walking in order to establish the presence of all possible types of heritage resources in any given area.

## 1. INTRODUCTION

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### 1.1. Background

This Archaeological and Heritage Impact Assessment (AIA/HIA) Report has been prepared by Sativa Travel and Environmental Consultants (Pty) Ltd STEC (Heritage Division) for the purpose of a Basic Assessment process being conducted by AMAP Limited on behalf of uMhlathuze Local Municipality in KwaZulu Natal Province. uMhlathuze Local Municipality proposes to upgrade of Cubhu Water Treatment Plant (WTP) and to construct a 9km rising main line from Cubhu WTP to existing eSikhaleni Reservoir for bulk transportation of water and water reticulation in Empembeni and Gubhethuka communities, KwaZulu Natal Province. The purpose of this HIA is to identify heritage resources along the proposed pipeline route and within the existing reservoir site as well as WTP (see Figure 1). This report details the field study, results of the study as well as discussion on the anticipated impacts of the proposed development, as is required by Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) and KwaZulu Natal Amafa and Research Institute Act, 2018 (Act No.05 of 2018). It focuses on identifying and assessing potential impacts on archaeological resources as well as on other physical cultural properties including historical heritage resources in relation to any future developments. STEC heritage specialists undertook the assessments, research and consultations required for the preparation of the report comprising archaeological and heritage impacts for the purpose of ensuring that the cultural environmental values are taken into consideration and reported into the Environmental Application Process.

The study was designed to ensure that any significant archaeological or cultural physical property or sites are located and recorded, and site significance is evaluated to assess the nature and extent of anticipated impacts from any the proposed development. The assessment includes recommendations to manage the expected impacts of the proposed development. The report includes recommendations to guide heritage authorities in making appropriate decision with regards to approval process for the proposed pipeline development. The report concludes with detailed recommendations on heritage management associated with the proposed bulk pipeline development. STEC, an independent consulting firm, conducted the assessment; research and consultations required for the preparation of the HIA report. The report was prepared in accordance with obligations set out in the NHRA as well as the environmental management legislations.

In line with SAHRA guidelines, this report, not necessarily in that order, provides the following:

- 1) Executive summary
- 2) Methodology
- 3) Information with reference to the desktop study
- 4) Map and relevant images and data
- 5) GPS co-ordinates

- 6) Nature of proposed development and its location
- 7) Directions to the site
- 8) Site description and interpretation of the cultural area where the project will take place
- 9) Management details, description of affected cultural environment, photographic records of the project area
- 10) Recommendations regarding the significance of the site and recommendations regarding further monitoring of the site
- 10) Conclusions.

### **1.2. Location of the proposed development site**

The proposed pipeline development is located approximately 150km north of Durban CBD and starts from the east and end South West of the N2 highway in KZN. The study area is strategically located next to Qhubu Lake where the water abstraction occurs. The pipeline will connect and start running at the existing Cubhu Water treatment plant at GPs coordinates S28°50'43.95" E 31°57'18.05" and transverse between Vacant, agricultural, and residential until the existing eSikhaleni Reservoir at GPs coordinates S28°51'41.51" E 31°52'41.26".

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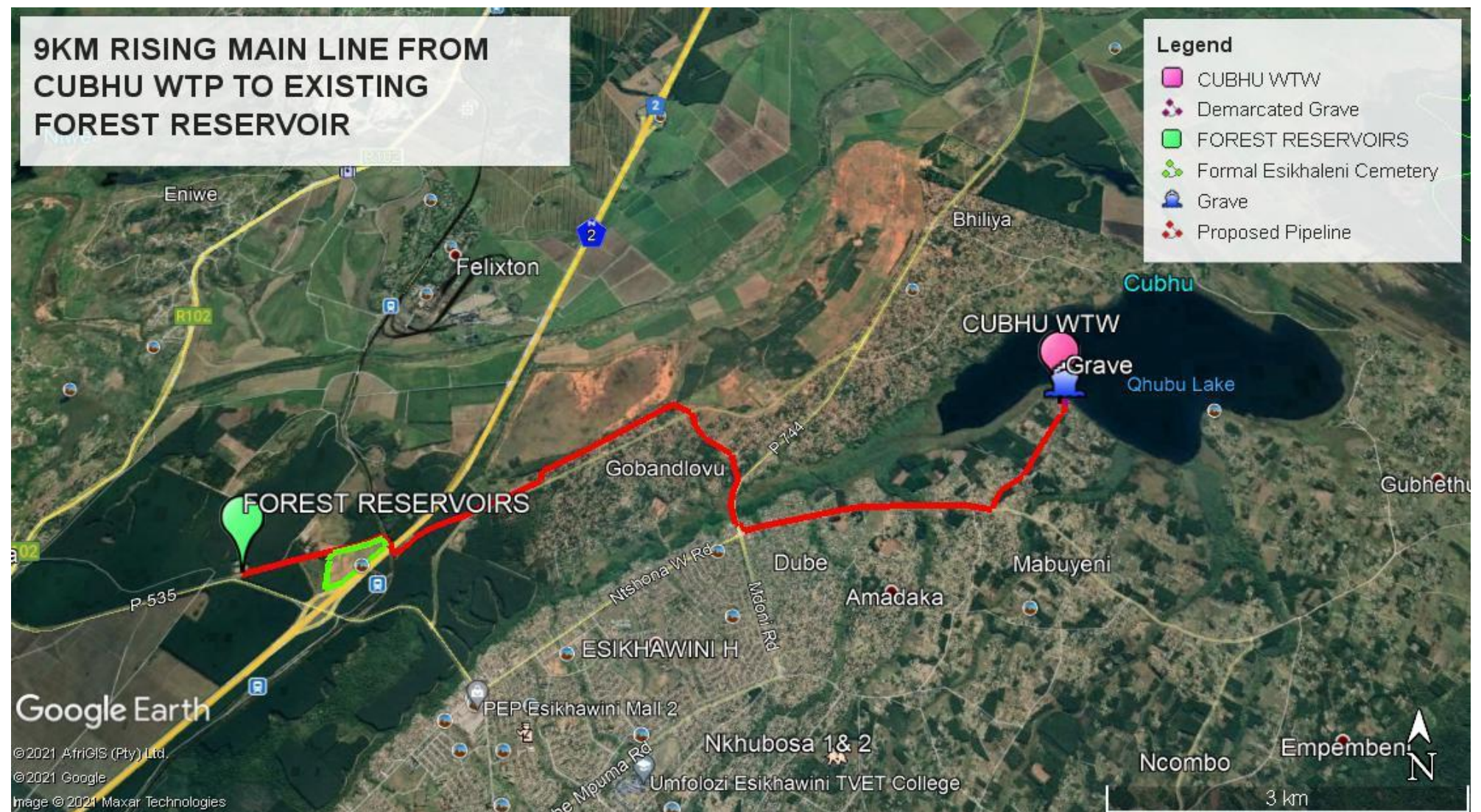


Figure 1: Locality Maps

### 1.3. Description of the proposed project

Umhlathuze Local Municipality proposes the installation of pipelines for bulk transportation of water and water reticulation in Empembeni and Gubhethuka communities, Kwa-Zulu Natal Province. The project will occur in two phases as described below:

- **Phase 1:** Proposed upgrade of the pump station at Cubhu WTW; and
- **Phase 2:** 9km rising main line from Cubhu WTP to existing eSikhaleni Reservoir for bulk transportation of water and water reticulation.

## 2. LEGAL REQUIREMENTS

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Three main pieces of legislations are relevant to the present study and there are presented here. Under KwaZulu Natal Amafa and Research Institute Act, 2018 (Act No.05 of 2018), the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) and the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended (NEMA), an AIA or HIA is required as a specialist sub-section of the Basic Assessment (BA) process. This report is also required in terms of Section 23(a), (b) and (c) of the Minerals and Petroleum Resources Development read together with regulations 11(1) (g) of the Mineral and Petroleum Resources Development Act 28 of 2002).

General protection for Structures,

37.(1)(a) No structure which is, or which may reasonably be expected to be, older than 60 years, may be demolished, altered or added to without the prior written approval of the Institute having been obtained on written application to the Institute.

(b) Where the Institute does not grant approval, the Institute must consider special protection in terms of sections 44, 45, 46, 47 and 49 of Chapter 9.

(2) The Institute may, by notice in the Gazette, exempt –

- (a) a defined geographical area; or
- (b) defined categories of sites within a defined geographical area,

from the provisions of subsection (1) where the Institute is satisfied that heritage resources falling in the defined geographical area or category have been identified and are adequately protected in terms of sections 44, 45, 46, 47 and 49 of Chapter 9.

(3) A notice referred to in subsection (2) may, by notice in the Gazette, be amended or withdrawn by the Institute.

General protection: Graves of victims of conflict

38. No person may damage, alter, exhume, or remove from its original position –

- (a) the grave of a victim of conflict.
- (b) a cemetery made up of such graves; or
- (c) any part of a cemetery containing such graves, without the prior written approval of the Institute having been obtained on written application to the Institute and in terms of the Regulations to this Act

General protection: Graves of victims of conflict

39. (1) No grave or burial ground older than 60 years, or deemed to be of heritage significance by a heritage authority –

- (a) not otherwise protected by this Act; and
- (b) not located in a formal cemetery managed or administered by a local authority,

may be damaged, altered, exhumed, inundated, removed from its original position, or otherwise disturbed without the prior written approval of the Institute having been obtained on written application to the Institute.

(2) The Institute may only issue written approval once it is satisfied that –

- (a) the applicant has provided evidence of efforts to consult with communities or descendants who may have an interest in the grave, using the guidelines and criteria for consultation set out in regulations; and
- (b) the applicant and the relevant communities or descendants have reached agreement regarding the grave

General protection: Battlefield sites, archaeological sites, rock art sites, palaeontological sites, historic fortifications, meteorite or meteorite impact sites

40.(1) No person may destroy, damage, excavate, alter, write or draw upon, or otherwise disturb any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site without the prior written approval of the Institute having been obtained on written application to the Institute.

(2) Upon discovery of archaeological or palaeontological material or a meteorite by any person, all activity or operations in the general vicinity of such material or meteorite must cease forthwith and a person who made the discovery must submit a written report to the Institute without delay.

(3) The Institute may, after consultation with an owner or controlling authority, by way of written notice served on the owner or controlling authority, prohibit any activity considered by the Institute to be inappropriate within 50 metres of a rock art site.



(4) No person may exhume, remove from its original position or otherwise disturb, damage, destroy, own or collect any object or material associated with any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site without the prior written approval of the Institute having been obtained on written application to the Institute

(5) No person may bring any equipment which assists in the detection of metals and archaeological and palaeontological objects and material, or excavation equipment onto any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, or meteorite impact site, or use similar detection or excavation equipment for the recovery of meteorites, without the prior written approval of the Institute having been obtained on written application to the Institute.

(6)(a) The ownership of any object or material associated with any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site, on discovery, vests in the Provincial Government and the Institute is regarded as the custodian on behalf of the Provincial Government.

(b) The Institute may establish and maintain a provincial repository or repositories for the safekeeping or display of –

- (i) archaeological objects;
- (ii) palaeontological material;
- (iii) ecofacts;
- (iv) objects related to battlefield sites;
- (v) material cultural artefacts; or
- (vi) meteorites.

(7) The Institute may, subject to such conditions as the Institute may determine, loan any object or material referred to in subsection (6) to a national or provincial museum or institution.

(8) No person may, without the prior written approval of the Institute having been obtained on written application to the Institute, trade in, export or attempt to export from the Province –

- (a) any category of archaeological object;
- (b) any palaeontological material;
- (c) any ecofact;

- (d) any object which may reasonably be regarded as having been recovered from a battlefield site;
- (e) any material cultural artefact; or
- (f) any meteorite.

(9)(a) A person or institution in possession of an object or material, referred to in paragraphs (a) - (f) of subsection (8), must submit full particulars of such object or material, including such information as may be prescribed, to the Institute.

(b) An object or material referred to in paragraph (a) must, subject to paragraph (c) and the directives of the Institute, remain under the control of the person or institution submitting the particulars thereof.

(c) The ownership of any object or material referred to in paragraph (a) vests in the Provincial Government and the Institute is regarded as the custodian on behalf of the Provincial Government.

#### Heritage resources management

41.(1) Any person who intends to undertake a development categorised as –

- (a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;
- (b) the construction of a bridge or similar structure exceeding 50 m in length;
- (c) any development or other activity which will change the character of a site –
  - (i) exceeding 5 000 m<sup>2</sup> in extent;
  - (ii) involving three or more existing erven or subdivisions thereof;
  - (iii) involving three or more erven or divisions thereof, which have been consolidated within the past five years;
 or
- (iv) the costs of which will exceed a sum set in terms of regulations;
- (d) the rezoning of a site exceeding 10 000 m<sup>2</sup> in extent; or
- (e) any other category of development provided for in regulations,

must, at the very earliest stages of initiating such a development, notify the Institute and furnish it with details regarding the location, nature and extent of the proposed development.

(2) The Institute must, within 14 days of receipt of a notification in terms of subsection (1) –

- (a) if there is reason to believe that heritage resources will be affected by such development, notify the person who intends to undertake the development to submit an impact assessment report: Provided that such report must be compiled at the cost of the person proposing the development, by a person or persons approved by the Institute with relevant qualifications and experience and professional standing in heritage resources management; or
  - (b) notify the person concerned that this section does not apply.
- (3) The Institute must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included –
- (a) the identification and mapping of all heritage resources in the area affect;
  - (b) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in regulations;
  - (c) an assessment of the impact of the development on such heritage resources;
  - (d) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;
  - (e) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;
  - (f) the consideration of alternatives, if heritage resources will be adversely affected by the proposed development; and
  - (g) plans for mitigation of any adverse effects during and after the completion of the proposed development.
- (4) The report must be considered timeously by the Institute which must, after consultation with the person proposing the development, decide –
- (a) whether or not the development may proceed;
  - (b) any limitations or conditions to be applied to the development;
  - (c) what general protections in terms of this Act apply, and what formal protections may be applied, to such heritage resources;
  - (d) whether compensatory action is required in respect of any heritage resources damaged or destroyed as a result of the development; and
  - (e) whether the appointment of specialists is required as a condition of approval of the proposal.

- (5) The Institute must not make any decision under subsection (4), with respect to any development which impacts on a heritage resource protected at national level, unless it has consulted the heritage resources authority.
- (6) The applicant may appeal against the decision of the Institute to the responsible Member of the Executive Council, who –
- (a) must consider the views of both parties; and
  - (b) may, at his or her discretion –
    - (i) appoint a committee to undertake an independent review of the impact assessment report and the decision of the Institute; and
    - (ii) consult the National Heritage Resources Agency; and
  - (c) must uphold, amend or overturn such decision.
- (7) The provisions of this section do not apply to a development described in subsection (1) affecting any heritage resource formally protected by the National Heritage Resources Agency unless the Institute decides otherwise.
- (8) The provisions of this section do not apply to a development as described in subsection (1) if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act, 1989 (Act No. 73 of 1989), or the integrated environmental management guidelines issued by the Department of Environment Affairs and Tourism, or the Minerals Act, 1991 (Act No. 50 of 1991), or any other legislation: Provided that the consenting authority must ensure that –
- (a) the evaluation fulfils the requirements of the Institute in terms of subsection (3); and
  - (b) any comments and recommendations of the Institute with regard to such development have been taken into account prior to the granting of the consent.
- (9) The Institute, with the approval of the responsible Member of the Executive Council, may, by notice in the Provincial Gazette, exempt from the requirements of this section any place specified in the notice.
- (10) Any person who has complied with the decision of the Institute in subsection (4) or of the responsible Member of the Executive Council in terms of subsection (6) or other requirements referred to in subsection (8), is exempted from compliance with all other protections in terms of this Part, but any existing heritage agreements made in terms of section 42 continue to apply.



## **2.1. Other relevant legislations**

### **The Human Tissue Act**

Human Tissue Act of 1983 and Ordinance on the Removal of Graves and Dead Bodies of 1925 Graves 60 years or older are heritage resources and fall under the jurisdiction of both the National Heritage Resources Act and the Human Tissues Act, 1983. However, graves younger than 60 years are specifically protected by the Human Tissues Act, 1983 (Act No.65 of 1983) and the Ordinance on the Removal of Graves and Dead Bodies (Ordinance 7 of 1925) as well as any local and regional provisions, laws and by-laws. Such burial places also fall under the jurisdiction of the National Department of Health and the Provincial Health Departments. Approval for the exhumation and re-burial must be obtained from the relevant Provincial Member of the Executive Committee (MEC) as well as the relevant Local Authorities.

## **3. TERMS OF REFERENCE**

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The author was instructed to conduct an AIA/HIA study addressing the following issues:

- Archaeological and heritage potential of the proposed development sites including any known data on affected areas;
- Provide details on methods of study; potential and recommendations to guide the KwaZulu Natal Amafa and Research Institute to make an informed decision in respect of authorisation of the proposed development.
- Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located along the proposed pipeline route and reservoir site;
- Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value;
- Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions;
- Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources;
- Review applicable legislative requirements;
- Provide details on methods of study; potential and recommendations to guide KwaZulu Natal Amafa and Research Institute to make an informed decision with regards to authorization of the proposed development site.

## Photographic Presentation of the proposed pipeline route



Plate 1: Photo 1: View of the existing Cubhu WTP (Photograph © by Author 2021)



Plate 2: Photo 2: Isolated grave marked by cement bricks near Cubhu WTP (Photograph © by Author 2021)





Plate 3: Photo 3:View of a fenced off Grave near Cubhu WTP (Photograph © by Author 2021).



Plate 4: Photo 4: Pipeline route along road servitude after Esikhaleni Reservoir (Photograph © by Author 2021).





Plate 5: Photo 5: Esikhaleni Cemetery along the proposed pipeline route (Photograph © by Author 2021)



Plate 6: Photo 6: Esikhaleni Cemetery fence (Photograph © by Author 2021)





Plate 7: Photo 7 Old Bridge along the proposed pipeline route (Photograph © by Author 2021).



Plate 8: Photo 8: Proposed pipeline route running along main road servitude (Photograph © by Author 2021)





Plate 9: Photo 9: View of the proposed pipeline route running within the village street servitudes (Photograph © by Author 2021).



Plate 10: Photo 10: View of the proposed pipeline route running along Mdoni Road (Photograph © by Author 2021).





Plate 11: Photo 11: The proposed pipeline route from the eSikhaleni Reservoir (Photograph © by Author 2021)



Plate 12: Photo 12: Existing eSikhaleni Reservoir (Photograph © by Author 2021)



## **4. METHODOLOGY**

This document falls under the Basic assessment phase of the AIA/HIA and therefore aims at providing an informed heritage-related opinion about the proposed pipeline between Cubhu Water Treatment Plant and eSkhaleni Reservoir in KZN Province. This is usually achieved through a combination of a review of any existing literature and a basic site inspection. As part of the desktop study, published literature and cartographic data, as well as archival data on heritage legislation, the history and archaeology of the area were studied. The desktop study was followed by field surveys. The field assessment was conducted according to generally accepted AIA/HIA practices and aimed at locating all possible objects, sites and features of cultural significance on the development footprint. Initially a drive-through was undertaken along the proposed pipeline route and reservoir site as a way of acquiring the archaeological impression of the general area. This was then followed by a walk down survey in the study area, with a handheld Global Positioning System (GPS) for recording the location/position of each possible site. Detailed photographic recording was also undertaken where relevant. The findings were then analysed in view of the proposed development in order to suggest further action. The result of this investigation is a report indicating the presence/absence of heritage resources and how to manage them in the context of the proposed development.

### **The Fieldwork survey**

The fieldwork survey was undertaken on the 07<sup>th</sup> of October 2021. The main focus of the survey involved a pedestrian survey which was conducted along the proposed pipeline route and the reservoirs site. The pedestrian survey focused on parts of the project area where it seemed as if disturbances may have occurred in the past, for example bald spots in the grass veld; stands of grass which are taller than the surrounding grass veld; the presence of exotic trees; evidence for building rubble, existing buildings and ecological indicators such as invader weeds.

The literature survey suggests that prior to the 20th century modern residential and on-going infrastructure developments; the general area where the proposed development is located would have been a rewarding region to locate heritage resources related to Stone Age and particularly Iron Age and historical sites (Bergh 1999: 4). However, the situation today is completely different. The study area now lies on a clearly modified landscape that is dominated by agricultural infrastructure and smallholder residential developments.

### **4.1. Assumptions and Limitations**

The investigation has been influenced by the unpredictability of buried archaeological remains (absence of evidence does not mean evidence of absence) and the difficulty in establishing intangible heritage values. It should be remembered that archaeological deposits (including graves and traces of mining heritage) usually occur below the ground level. Should artefacts or skeletal material be revealed at the site during construction, such activities should be halted immediately, and a competent heritage practitioner, KwaZulu Natal Amafa and Research Institute or SAHRA must be notified in order for an investigation and evaluation of the find(s) to take place (see KwaZulu-Natal Heritage Act, 2008 (Act No.4 of 2008) or NHRA (Act No. 25 of 1999), Section 36 (6). Recommendations contained

in this document do not exempt the developer from complying with any national, provincial, and municipal legislation or other regulatory requirements, including any protection or management or general provision in terms of the NHRA. The author assumes no responsibility for compliance with conditions that may be required by SAHRA in terms of this report

The field survey did not include any form of subsurface inspection beyond the inspection of burrows, road cut sections, and the sections exposed by erosion or field ploughing. Some assumptions were made as part of the study and therefore some limitations, uncertainties and gaps in information would apply. It should, however, be noted that these do not invalidate the findings of this study in any significant way:

- The proposed development will be limited to specific right of way as detailed in the development layout (Figure 1).
- Given the heavily degraded nature on most affected project area and the level of high existing developments within the affected landscape, most sections of the project area have low potential to yield significant *in situ* archaeological or physical cultural properties.
- No excavations or sampling were undertaken, since a permit from heritage authorities is required to disturb a heritage resource. As such, the results herein discussed are based on indicators observed on the surface. However, these surface observations concentrated on exposed sections such as road cuts and clear cane fields.
- This study did not include any ethnographic and oral historical studies nor did it investigate the settlement history of the area.

#### **4.2. Consultation**

The study team consulted residents who shared information about location of graves along the proposed pipeline route. The study team also consulted individual homeowners with graves located within their homesteads. The EIA Public Participation Process invited comments from affected municipalities and other interested parties on any archaeological heritage matter related to the proposed development.

## **5. CULTURE HISTORY BACKGROUND OF THE PROJECT REGION**

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The KZN region is known for abundance of rock art sites recorded at the Giants Castle and Kamberg in the Deankensberg mountains (Vincombe 1976). Other rock art sites have been recorded around Estcourt, Mooi River and Dundee. Caves in KwaZulu Natal have also yielded well known MSA for example Sibudu Cave on the coast of KZN which shows evidence for early form of cognitive human behaviour patterns (Wardley 2005). Border Cave located near Ingodini. Raymond Dart (1934) exposed a thick deposit of archaeological material dating from the Iron Age overlaying MSA artifacts. Beaumont revealed a complex MSA sequence succeeded by Early & Later Iron Age deposits (Klein 1977). Cable in the early 1980's (Cable 1984) and later by various archaeologists attached to the Natal Museum (Mazel 1989; Mitchell 2005).

The project area is located in the Richards bay area, north of Durban, in KwaZulu-Natal Province of South Africa that boasts a rich traditional history of contemporary Zulu (Huffman 2007, Coetzee 2010). Archaeological and heritages studies in the KwaZulu-Natal region indicate that the area is of high pre-historic and heritage significance. It is in fact a cultural landscape where Stone Age, Iron Age and Historical period sites contribute the bulk of the cultural heritage of the region (also Bryant 1965, Maggs 1989, Huffman, 2007). However, the study area has never been systematically surveyed for archaeological sites in the past (Prins 2013, 2016).

Stone Age sites are general identifiable by stone artefacts found scattered on the ground surface, as deposits in caves and rock shelters as well as in eroded gully or river sections. Archaeological sites recorded in the project region confirms the existence of Stone Age sites that conform to the generic SA periodization split into the Early Stone Age (ESA) (2.5 million years ago to 250 000 years ago), the Middle Stone Age (MSA) (250 000 years ago to 22 000 years ago) and the Late Stone Age (LSA) (22 000 years ago to 300 years ago). Stone Age sites in the region are also associated with rock painting sites. Cave sites also exist on the landscape south west of the project area.

Based on previous research conducted in the project area, the City of Mhlathuze, like most of KwaZulu Natal region has potential to yield Stone Age period sites (also see Deacon and Deacon, 1997). The project area has been surveyed by archaeologists from the then Natal Museum and Natal Parks Board in the 1970's and 1980's (Prins 2013). Literature in the KwaZulu-Natal Museum indicates that the City of Mhlathuze area is rich in archaeological sites covering diverse time-periods and cultural traditions. These include Early, Middle and later Stone Age sites, Early Iron Age sites, Later Iron Age sites, and some historical sites (Prins 2013). The specific affected project-receiving environment has low potential for Stone Age sites (Prins 2016).

Stone Age sites of all the main periods and cultural traditions occur along the coastal cordon in the immediate vicinity of Richards Bay closer towards the coast. Most of these occur in open air contexts as exposed by excessive erosion. The occurrence of Early Stone Age tools in the near vicinity of permanent water resources is typical of this tradition. These tools can be attributed to early hominins such as *Homo erectus*. Based on typological criteria they most probably date back to between 300 000 and 1.7 million years ago. A few MSA blades and flakes which date back to between 40 000 and 200 000 years ago are on record in the project area. The later Stone Age flakes and various rock painting sites associated with San are also on record in the general project area (Prins 2013a, 2013b, 2015). These most probably dates back to between 200 and 20 000 years ago.

The Iron Age of the KwaZulu Natal region dates back to the 5th Century AD when the Early Iron Age (EIA) proto-Bantu-speaking farming communities began arriving in this region, which was then occupied by hunter-gatherers. These EIA communities are archaeologically referred to as the Kwale branch of the Urewe EIA Tradition (Huffman, 2007: 127-9). The Iron Age communities occupied the foothills and valley lands introducing settled life, domesticated livestock, crop production and the use of iron (also see Maggs 1984a; 1984b; Huffman 2007). Alongside the Urewe

Tradition was the Kalundu Tradition whose EIA archaeological sites have been recorded along the KwaZulu Natal region. From about 15 00 AD the region was occupied by new coming groups of Late Iron Age farmers of the Kalundu Tradition (ibid). The region was the centre of immigration and migration of different African groups some of which are ancestors of the contemporary Zulu predominant in the region.

Throughout the middle of the 1800s the region witnessed the Mfecane migrations and displacements linked to Tshaka's expansionist policy. The Voortrekkers arrived in Natal regions in the shadow of the weakened African kingdoms and chiefdoms in the aftermath of the Mfecane. This effectively ushered in new era of colonial occupation by succeeding Afrikaans and British colonial administration authorities through the last half of the 1800s and into the last 1900s. By 1850s the region witnessed the influx of more settler communities which triggered settler wars between the African chiefdoms and the incoming Afrikaner settlers. Some of these colonial wars and battles lasted into Anglo-Boer wars of 1899-1902. The later effectively led to complete subjugation of African communities to settler administration starting as part of the Zuid-Afrikaansche Republiek (ZAR) of Transvaal. There after the region was subsequently annexed by the British and effectively placed the majority of African communities under the Union of South Africa in 1910, which eventually ended with the establishment of the new South Africa in 1994.

The City of uMhlatuze obtained its city status in 2001. The main centre is Richards bay and surrounding towns that include Empangeni, eSikhaleni, Port Durnford, Vulindlela, Felixton, eNseleni and Ngwelezane. The name of the city was derived from the UMhlatuze River which meanders through the city. Richards Bay was initially established as a makeshift harbour that was set up by the Commodore of the Cape Sir Frederick Richards. It was set up during the Anglo -Zulu war of 1879. The town was proclaimed in 1969 after the decision by the SA government to build a deep-sea harbour at Richards Bay. Construction began in 1972 and the harbour was officially opened in 1976. Since then the city has experienced massive infrastructure developments which also led to the establishment of new settlements.

### **5.1. Intangible Heritage**

As defined in terms of the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage (2003) intangible heritage includes oral traditions, knowledge and practices concerning nature, traditional craftsmanship and rituals and festive events, as well as the instruments, objects, artefacts, and cultural spaces associated with group(s) of people. Thus, intangible heritage is better defined and understood by the particular group of people that uphold it. In the present study area, very little intangible heritage remains because no historically known groups occupied the study area and most of the original settler descendants moved away from the area.

### **5.2. SAHRIS Database and Impact Assessment Reports in the Project Area**

Anderson and Anderson (2009, 2010a-b, 2015, 2004 – 2018, 2005 – 2014, 2017, 2019) have undertaken several surveys in the general area where a variety of sites have been recorded, sampled and excavated (fig. 5). These

cover the Early, Middle and Late Stone Ages, Early and Late Iron Ages, Historical Period and the 20<sup>th</sup> century. Anderson and Anderson conducted several Archaeological and heritage studies in around the City of uMhlatuze (see Anderson 2004, 2007, 2008, 2009, 2013, 2017). These studies recorded several archaeological sites ranging from low to moderate significance. Van Schalkwyk (2013), Wahl & van Schalkwyk (2013), Prins (2015), van der Walt (2017) and Tomose (2018), CTS Heritage (2019) also conducted archaeological and heritage studies which confirmed that the City of uMhlatuze and its surroundings are rich in archaeological and heritage sites including burial sites occurring within homesteads. According to SAHRIS Palaeontological sensitivity map, the project area is generally rated low sensitivity. The proposed pipeline does not affect any of the previously recorded sites.

## **6. RESULTS OF THE ARCHAEOLOGICAL/HERITAGE ASSESSMENT STUDY**

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The proposed bulk water pipeline development route has been established through consideration of biophysical, social, technical, and cultural aspects. The process aims at providing a final route selection based on biophysical, social, cultural, and technical considerations. The main cause of impacts to archaeological and heritage sites, is direct physical disturbance of the archaeological remains/heritage resources themselves and their contexts. It is important to note that the heritage and scientific potential of an archaeological site is highly dependent on its geological and spatial context. This means that even though, for example a deep excavation may expose buried archaeological sites and artefacts, the artefacts are relatively meaningless once removed from their original position. The severe impacts are likely to occur during construction period although indirect impacts may occur during movements in and out of the development site by construction equipment and vehicles. The construction will result in the relocation or destruction of all existing surface heritage material. Likewise, the clearing of additional access routes will impact material that lies buried in the surface sand. Since heritage sites, including archaeological sites, are non-renewable, it is important that they are identified, and their significance assessed prior to construction. It is important to note, that due to the localised nature of archaeological resources, that individual archaeological sites could be missed during the survey, although the probability of this is very low within the proposed development site. Further, archaeological sites and unmarked graves may be buried beneath the surface and may only be exposed during construction activities. The purpose of the AIA is to assess the sensitivity of the area in terms of archaeology and to avoid or reduce the potential impacts of the proposed pipeline development by means of mitigation measures (see appended Chance Find Procedure). The following section presents results of the field survey conducted for the proposed pipeline.

### **6.1. Archaeological and Heritage Sites**

The proposed pipeline route did not yield any confirmable archaeological sites or material. The proposed pipeline route will mainly run along road servitudes and other infrastructure such as powerlines and existing pipelines (see Plate 1-9). This limited the chances of encountering significant *in situ* archaeological sites. There are residential, grazing land, bulk water pipelines and minor reticulation pipelines, roads and other associated infrastructures across

the entire project area. As such the proposed bulk water supply pipeline development will be an additional development on the project area (Figure 1, also see Plates 1 to 9). The chances of recovering significant archaeological materials were seriously compromised and limited due to destructive land use patterns such as deep ploughing and infrastructure such as bulk water pipelines, road works and residential areas that already exist on the project area.

Based on the field study results and field observations, the author concluded that the receiving environment for the proposed development has low to medium potential to yield previously unidentified archaeological sites during subsurface excavations and construction work associated with the proposed bulk water supply pipeline development.

## **6.2. Historical Buildings and Structures**

The study identified an old disused bridge whose age could not be determined during the survey. Further investigation about the age of the bridge did not yield any positive results. In terms of Section 37 of the KwaZulu Natal Amafa and Research Institute Act of 2018, the proposed pipeline development may be approved subject to providing a 30m buffer zone from the bridge. In the event that the bridge will be directly impacted by the proposed bulk water supply pipeline, then the bridge must not be destroyed without further investigation to determine the age and the appropriate mitigation measures.

## **6.3. Burial grounds and graves**

Human remains and burials are commonly found close to archaeological sites; they may be found in abandoned and neglected burial sites or occur sporadically anywhere as a result of prehistoric activity, victims of conflict or crime. It is often difficult to detect the presence of archaeological human remains on the landscape as these burials, in most cases, are not marked at the surface. Archaeological and historical burials are usually identified when they are exposed through erosion and earth moving activities for infrastructure developments such as power lines and roads. In some instances, packed stones or stones may indicate the presence of informal pre-colonial burials. Burial grounds and gravesites are accorded the highest social significance threshold (see Appendix 3). They have both historical and social significance and are considered sacred. Wherever they exist or not, they may not be tampered with or interfered with during any development.

The field survey identified two (2) burial sites within 40 to 60m (see Figure 1) from the proposed pipeline route (Burial Site A and Burial Site B).

Burial site A is located at GPS Coordinates S28°50'43.86"E 31°57'19.85". approximately 40m from the pipe route (see Plate 2). The burial site has one grave marked by brick lining. There are no grave goods on the grave site. The grave seems to be neglected since there is overgrown vegetation on the grave. The grave can be avoided

since there is adequate buffer zone between the burial site and the pipeline route. The grave has also been fenced off as part of protection.

Burial site B is located at GPS Coordinates S28°51'38.16"E 31°53'16.81" approximately 40m from the proposed bulk water supply pipeline (see Plate 5). Burial site B is a formal municipal cemetery which clearly demarcated, and pipeline route was designed to avoid the cemetery. The site is well secured and properly managed. Known heritage sites do not create problems in development contexts because planners can avoid them from the onset. Construction near the sites must be carefully monitored by the ECO and if need be, a professional archaeologist may be required to monitor during earth moving activities. In terms of Sections 38 & 39 of the KwaZulu Natal Amafa and Research Institute Act of 2018, the project may proceed as planned subject to monitoring by an ECO /professional Archaeologist.

It is important to note that the possibility of encountering human remains during subsurface earth moving works anywhere on the landscape is ever present. Although the possibility of encountering previously unidentified burial sites is low on the proposed pipeline route and water treatment site, should such sites be identified during subsurface construction work, they are still protected by applicable legislations and they should be protected (also see Appendices for more details).

#### **6.4. Public Monuments and Memorials**

The study did not record any historical monument and memorial plaques along the proposed pipeline route and substation site. In terms of the KwaZulu Natal Amafa and Research Institute Act of 2018 and Section 37 of the National Heritage Resources Act (Act 25 of 1999), the project may be allowed to proceed without further investigation nor mitigation.

#### **6.5 Palaeontology**

The SAHRIS Palaeosensitivity map below (see Figure 3) indicates that the site falls within a low sensitivity region. As such a desktop study may suffice.



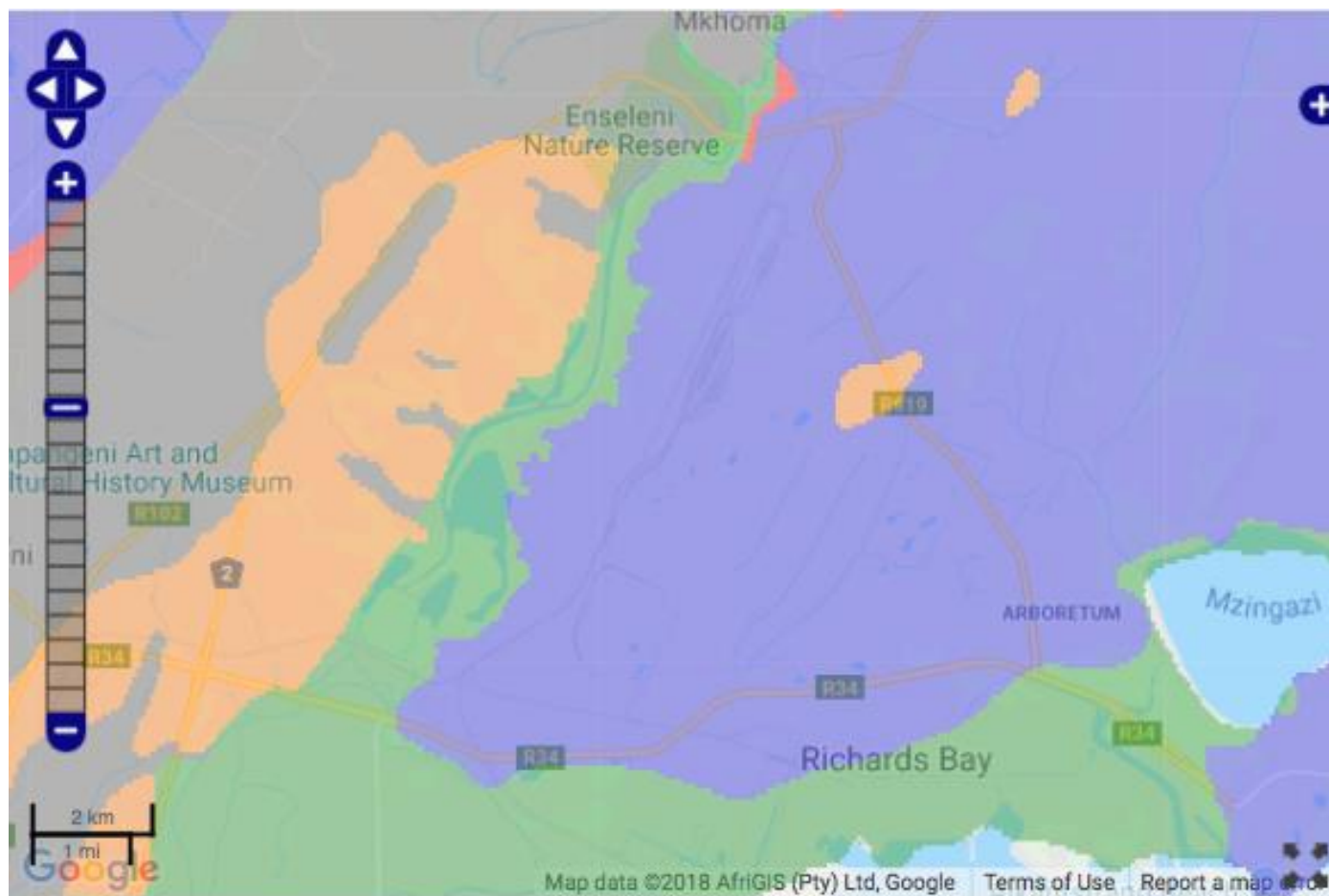


Figure 3: Map showing palaeontological sensitivity area (it should be read in conjunction with Figure 1 above to show the study areas).

**Table 1: Summary of Findings**

Heritage resource	Status/Findings
Buildings, structures, places and equipment of cultural significance	A disused bridge was recorded along the proposed development site
Areas to which oral traditions are attached or which are associated with intangible heritage	None exists
Historical settlements and townscapes	None survives in the proposed area
Landscapes and natural features of cultural significance	None
Archaeological and palaeontological sites	None recorded during the survey

Graves and burial grounds	Two burial sites were recorded within 40 to 60m from the proposed pipeline route.
Movable objects	None recorded along the site
Overall comment	The recorded burial sites must be mapped to ensure that they are not disturbed during construction. Construction workers must be informed about the positions of graves along the proposed pipeline route.

### Assessment of construction impacts

An impact can be defined as any change in the physical-chemical, biological, cultural and/or socio-economic environmental system that can be attributed to human activities related to the pipeline route under study for meeting a project need. The significance of the impacts of the process will be rated by using a matrix derived from Plomp (2004) and adapted to some extent to fit this process. These matrixes use the consequence and the likelihood of the different aspects and associated impacts to determine the significance of the impacts.

The significance of the impacts will be determined through a synthesis of the criteria below:

#### **Probability: This describes the likelihood of the impact actually occurring**

**Improbable:** The possibility of the impact occurring is very low, due to the circumstances, design or experience.

**Probable:** There is a probability that the impact will occur to the extent that provision must be made, therefore.

**Highly Probable:** It is most likely that the impact will occur at some stage of the development.

**Definite:** The impact will take place regardless of any prevention plans and there can only be relied on mitigatory measures or contingency plans to contain the effect.

#### **Duration: The lifetime of the impact**

**Short Term:** The impact will either disappear with mitigation or will be mitigated through natural processes in a time span shorter than any of the phases.

**Medium Term:** The impact will last up to the end of the phases, where after it will be negated.

**Long Term:** The impact will last for the entire operational phase of the pipeline but will be mitigated by direct human action or by natural processes thereafter.

**Permanent:** The impact is non-transitory. Mitigation either by man or natural processes will not occur in such a way or in such a time span that the impact can be considered transient.

**Scale: The physical and spatial size of the impact**

**Local:** The impacted area extends only as far as the activity, e.g. footprint

**Site:** The impact could affect the whole, or a measurable portion of the above-mentioned properties.

**Regional:** The impact could affect the area including the neighboring residential areas.

**Magnitude/ Severity: Does the impact destroy the environment, or alter its function**

**Low:** The impact alters the affected environment in such a way that natural processes are not affected.

**Medium:** The affected environment is altered, but functions and processes continue in a modified way.

**High:** Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.

**Significance: This is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required.**

**Negligible:** The impact is non-existent or unsubstantial and is of no or little importance to any stakeholder and can be ignored.

**Low:** The impact is limited in extent, has low to medium intensity; whatever its probability of occurrence is, the impact will not have a material effect on the decision and is likely to require management intervention with increased costs.

**Moderate:** The impact is of importance to one or more stakeholders, and its intensity will be medium or high; therefore, the impact may materially affect the decision, and management intervention will be required.

**High:** The impact could render development options controversial or the project unacceptable if it cannot be reduced to acceptable levels; and/or the cost of management intervention will be a significant factor in mitigation.

**Table 2: The following weights were assigned to each attribute:**

Aspect	Description	Weight
Probability	Improbable	1
	Probable	2
	Highly Probable	4
	Definite	5
Duration	Short term	1
	Medium term	3
	Long term	4
	Permanent	5
Scale	Local	1
	Site	2
	Regional	3
Magnitude/Severity	Low	2
	Medium	6
	High	8
Significance	Sum (Duration, Scale, Magnitude) x Probability	
	Negligible	≤20
	Low	>20 ≤40
	Moderate	>40 ≤60
	High	>60

The significance of each activity should be rated without mitigation measures (WOM) and with mitigation (WM) measures for both construction, operational and closure phases of the proposed development.

**Table 3: Impact Assessment Matrix**

<b><u>Sewer pipeline</u></b>								
<b><u>Nature of Impact</u></b>	<b><u>Management Measures</u></b>	<b><u>Duration</u></b>	<b><u>Scale</u></b>	<b><u>Magnitude/Severity</u></b>	<b><u>Probability</u></b>	<b><u>Calculations</u></b> <b><u>Sum (Duration, Scale, Magnitude) x Probability</u></b>	<b><u>Proposed Management Measures</u></b>	<b><u>Significance</u></b>
Archaeological Remains	Without management	3	3	6	2	$(3+3+6) \times 2=24$	No archaeological remains were recorded along the proposed pipeline route, no measures are required.	Low to medium
	With management	3	2	2	2	$(3+2+2) \times 2=14$	No archaeological remains were recorded along the proposed pipeline route. However, the chance find procedure applies.	Low to medium
Graves and Burial Grounds	Without management	3	3	1	4	$(3+3+1) \times 4=28$	Two burial sites were identified along the proposed pipeline route. The burial sites are located within 40 to 60m from the proposed pipeline route	Low
	With management	3	3	1	2	$(3+3+1) \times 2=14$	Mitigation is required to avoid unintended impacts to the burial sites	Negligible
Historical buildings and structures	Without management	3	3	6	3	$(3+3+6) \times 3=36$	A disused bridge was recorded along the pipeline route. The age of the bridge could not be identified.	Negligible

	With management	3	3	2	2	$(3+3+2) \times 2=16$	Mitigation is required to avoid an unintended impact on the site.	Low
Mining Heritage	Without management	3	3	1	4	$(3+3+1) \times 4=28$	No traces of historical mining along the pipeline route. Mitigation not required	Negligible
	With management	3	2	1	2	$(3+2+1) \times 2=12$	No traces of historical mining along the proposed pipeline route. Mitigation not required	Negligible
Public Monuments and memorials	Without management	3	3	1	1	$(3+3+1) \times 1=7$	None recorded within the sewer pipeline route. Mitigation not required	Negligible
	With management	1	3	1	1	$(1+3+1) \times 1=5$	Induct construction workers and mark any memorials and plaques	Negligible
Natural Heritage	Without management	3	3	6	2	$(3+3+6) \times 2=36$	None recorded within the site. Mitigation not required	Low
	Without management	3	2	2	2	$(3+2+2) \times 2=14$	Mitigation not required	Negligible

Based on the impact rating, the main impact will be on heritage resources buried beneath the surface. Although the potential of encountering significant heritage resources during construction, these are covered by the appended Chance Find Procedure.

## 1.6 Cumulative Impacts

Cumulative impacts are Impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project. Therefore, the assessment of cumulative impacts for the proposed development is considered the total impact associated with the proposed development when combined with other past, present, and reasonably foreseeable future developments projects. An examination of the potential for other projects to contribute cumulatively to the impacts on heritage resources from this proposed development was undertaken during the preparation of this report. The total impact arising from the proposed project (under the control of the applicant), other activities (that may be under the control of others, including other developers, local communities, government) and other background pressures and trends which may be unregulated. The project's impact is therefore one part of the total cumulative impact on the environment. The analysis of a project's incremental impacts combined with the effects of other projects can often give a more accurate understanding of the likely results of the project's presence than just considering its impacts in isolation. The impacts of the proposed bulk water supply pipeline development were assessed by comparing the post-project situation to a pre-existing baseline. Where projects can be considered in isolation, this provides a good method of assessing a project's impact. However, in this case there are several infrastructure developments, including agricultural activities where baselines have already been affected, the proposed pipeline development will continue to add to the impacts in the region, it was deemed appropriate to consider the cumulative effects of proposed pipeline development.

This section considers the cumulative impacts that would result from the combination of the proposed pipeline development. There are existing infrastructure developments along the proposed pipeline route. As such increased development in the project area will have a number of cumulative impacts on heritage resource whether known or covered in the ground. For example, during the construction phase there will be an increase in human activity and movement of heavy construction equipment and vehicles that could change, alter or destroy heritage resources within and outside the development sites, given that archaeological remains occur on the surface. Cumulative impacts that could result from a combination of the proposed development and other actual or proposed future developments in the broader study area include site clearance and the removal of topsoil could result in damage to or the destruction of heritage resources that have not previously been recorded for example abandoned and unmarked graves.

Heritage resources often occur beneath the surface and are accidentally exposed during infrastructure developments. In addition, increased human activity during the construction phase allows increased access to heritage resources that may be located in the vicinity of the project site. Furthermore, heritage resources in the greater study area may still be hidden beneath the ground or concealed by vegetation cover and may not be visible, particularly during the wet season when grass cover is dense. As such, construction workers may not see these resources, which results in increased risk of resource damage and/or loss. Vibrations and earth moving activities



associated with drilling and excavation have the potential to crack/damage rock art covered surfaces, which are known to occur in the general project area. In addition, vibration from traffic has the potential to impact buildings and features of architectural and cultural significance. A potential interaction between archaeology, architectural and cultural heritage and landscape and visual during both the construction and operational phase of the proposed project is identified. Construction works associated with the provision of material assets such as gravel, in particular underground works have the potential to interact with archaeology, architectural and cultural heritage.

No specific paleontological resources were found in the project area during the time of this study; however, this does not preclude the fact that paleontological resources may exist within the surrounding areas. As such, the proposed development has the potential to impact on possible paleontological resources in the area. Sites of archaeological, paleontological, or architectural significance were not specifically identified, and cumulative effects are not applicable. The nature and severity of the possible cumulative effects may differ from site to site depending on the characteristics of the sites and variables.

Cumulative impacts that need attention are related to the impacts to buried heritage resources. Allowing the impact of the proposed pipeline development to go beyond the surveyed area would result in a significant negative cumulative impact on sites outside the surveyed area. A significant cumulative impact that needs attention is related to stamping by especially construction vehicles during clearance and excavation within the development sites. Movement of heavy construction vehicles must be monitored to ensure they do not drive beyond the approved route. No significant cumulative impacts, over and above those already considered in the impact assessment, are foreseen at this stage of the assessment process. Cumulative impacts can be significant, if construction vehicles are not monitored to avoid driving through undetected heritage resources.

### **1.7 Mitigation Measures**

Mitigation is required to protect recorded burial sites from accidental damage during construction and movement of heavy construction equipment. All recorded burial sites must be clearly marked to ensure that they are visible during construction. Affected families must be informed about the potential impacts of the proposed project to their family graves and must be involved in any mitigation work as a result of the proposed pipeline development. It should be noted that further mitigation procedures are outline in the appended chance find procedure.

## **7. DISCUSSIONS**

Several Heritage specialist studies were conducted in the study area since 2002. The studies were conducted for various infrastructure developments such as powerlines and substations, pipelines, harbour development and residential developments. These studies recorded several archaeological sites ranging from low to moderate significance (see Anderson (2005, 2008, 2009, 2017, 2019), Prins (2017, 2018), Tomose (2018) and Van Schcalwyk and Wahl (2013). Therefore, the current study should be read in conjunction with previous Phase 1 Impact Studies conducted in the proposed project area.

No archaeological sites were recorded along the proposed pipeline route and within the proposed reservoir site. The lack of confirmable archaeological sites recorded during the current survey is thought to be a result of three primary interrelated factors:

1. That proposed development site is situated within a heavily degraded area, and have reduced sensitivity for the presence of high significance physical cultural site remains, be they archaeological or historical sites due to previous earth moving disturbances resulting from developments and other land uses in the project area.
2. That the survey mainly focused on sample sections that had high potential to yield possible archaeological sites. Due to the size of the site, it was impractical to cover every inch of the project area. As such, there is a possibility that low to medium archaeological sites exist in the project area whereas the sampled sections fell outside sections with potential distinct archaeological sites.
3. Limited ground surface visibility on sections of all the proposed development may have impeded the detection of other physical cultural heritage site remains or archaeological signatures immediately associated with the proposed reservoir site. This factor is exacerbated by the fact that the study was limited to general survey without necessarily conducting any detailed inspection of specific locations that will be affected by any proposed development.

The absence of confirmable and significant archaeological cultural heritage site is not evidence in itself that such sites did not exist in the project area. It may be that, given the dense development in most sections of the route, if such sites existed before, changing earth-moving activities may have destroyed their evidence on the surface. Furthermore, some sections were not accessible due to sugar cane cover and thick vegetation cover. Significance of the Sites of Interest is not limited to presence or absence of physical archaeological sites. These discovery of historical building testifies to the significance of the project area as a cultural landscape of note, which has discernible links to local oral history and folk stories, environmental and ethnobotanical aesthetics, popular memories etc. associated with significance emanating from intangible heritage of the region.

## **8. CULTURAL HERITAGE SITE ASSESSMENT OF SIGNIFICANCE**

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The appropriate management of cultural heritage resources is usually determined on the basis of their assessed significance as well as the likely impacts of any proposed developments. Cultural significance is defined in the Burra Charter as meaning aesthetic, historic, scientific, or social value for past, present, or future generations (Article 1.2). Social, religious, cultural, and public significance are currently identified as baseline elements of this assessment, and it is through the combination of these elements that the overall cultural heritage values of the site of interest, associated place or area are resolved.

Not all sites are equally significant and not all are worthy of equal consideration and management. The significance of a place is not fixed for all time, and what is considered of significance at the time of assessment may change as similar items are located, more research is undertaken, and community values change. This does not lessen the value of the heritage approach but enriches both the process and the long-term outcomes for future generations as the nature of what is conserved and why, also changes over time (Pearson and Sullivan 1995:7).

African indigenous cultural heritage significance is not limited to items, places or landscapes associated with pre-European contact. Indigenous cultural heritage significance is understood to encompass more than ancient archaeological sites and deposits, broad landscapes, and environments. It also refers to sacred places and story sites, as well as historic sites, including mission sites, memorials, and contact sites. This can also refer to modern sites with resonance to the indigenous community. The site of interest considered in this project falls within this realm of broad significance.

## **9. STATEMENT OF SIGNIFICANCE**

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### **9.1. Aesthetic Value**

The aesthetic values of the proposed development site and the overall project area are contained in the valley bushveld environment and landscape typical of this part of the KZN Province. The visual and physical relationship between study area and the surrounding historical Cultural Landscape demonstrates the connection of place to the local and oral historical stories of the African communities who populated this region going back into prehistory.

The proposed development will be situated within an environment and associated cultural landscape, which, although developed by existing settlements, remains representative of the original historical environment and cultural landscape of this part of KZN area. The local communities consider the project area a cultural landscape linked to their ancestors and history. However, the proposed developments will not alter this aesthetic value in any radical way since it will add to the constantly changing and developing settlements.

## **9.2. Historic Value**

The Indigenous historic values of the Sites of Interest and overall study area are contained in the claim of possible historic homesteads being located on the affected area. The history of generations of the Zulu clans is tied to this geographical region. Such history goes back to the pre-colonial period, through the colonial era, the colonial wars and subsequent colonial rule up to modern day KZN Province. However, no confirmation of any prehistoric settlements was recorded within the proposed reservoir site and pipeline route.

## **9.3. Scientific value**

Past settlements and associated roads, mines and other auxiliary infrastructure developments and disturbance within the HIA Study Area associated with the proposed development has resulted in limited intact landscape with the potential to retain intact large scale or highly significant open archaeological site deposits.

## **9.4. Social Value**

The project sites fall within a larger and an extensive KZN cultural landscape that is integrated with the wider inland south west KZN. The overall area has social value for the local community, as is the case with any populated landscape. Literature review suggests that social value of the overall project area is also demonstrated through local history which associates the area with the rise of Shaka's Zulu Kingdom in the early 1800s from the east coast, the subsequent Mfecane, the African struggle against settler colonialism in the second half of the 1800s and at the end of the 1800s, the colonial wars of resistance, the century long struggle for democracy that followed colonial subjugation. Several generations of communities originate from the project area and continue to call it home. As such, they have ancestral ties to the area. The land also provides the canvas upon which daily socio-cultural activities are painted. All these factors put together confirms the social significance of the project area. However, this social significance is unlikely to be negatively impacted by the proposed development especially given the fact that the development will add value to the human settlements and activities already taking place.

Sections of the proposed development site are covered in thick bush and vegetation retain social value as sources of important herbs and traditional medicines. As such, they must be considered as significant social value sites.

## 10. RECOMMENDATIONS

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The study did not record any archaeological remains along the proposed pipeline route and reservoir site. As such, the study, did not find any permanent barrier to the proposed developments. The following recommendations are based on the results of the A/HIA research, cultural heritage background review, site inspection and assessment of significance. Based on the findings of this study, the proposed pipeline development is feasible from an archaeological and heritage perspective. The project may be approved subject to the following recommendations:

- From a heritage point of view, the proposed pipeline route and reservoir site are viable. The foot print impact of the proposed development should be kept to minimal to limit the possibility of encountering chance finds within servitude.
- The recorded burial sites must be clearly marked to ensure their visibility during construction.
- Construction workers must be informed of the existence of graves along the proposed pipeline route.
- Affected families must be informed about the proposed project and its potential impacts on their graves.
- Affected families and grave custodians must be involved in any mitigation work on their family graves.
- Overall, impacts to heritage resources are not considered to be significant for the project receiving environment. It is thus concluded that the project may be cleared to proceed as planned subject to the Heritage Authority ensuring that a detailed heritage monitoring procedures are included in the project EMP for the construction phase, include chance archaeological finds mitigation procedure in the project EMP.
- The chance finds procedure will be implemented when necessary especially when archaeological materials and burials are encountered during subsurface construction activities.
- If archaeological materials are uncovered, work should cease immediately and the KwaZulu Natal Amafa and Research Institute be notified, and activity should not resume until appropriate management provisions are in place.
- If during the construction or operations phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artifacts of cultural significance, work must cease at the site of the find and this person must report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- The site manager must then make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area before informing KwaZulu Natal Amafa and Research Institute
- If a human grave/burial is encountered, the remains must be left as undisturbed as possible before the local police and KwaZulu Natal Amafa and Research Institute are informed. If the burial is deemed to be over 60 years old and no foul play is suspected, an emergency rescue permit may be issued by KwaZulu Natal Amafa and Research Institute for an archaeologist to exhume the remains.

- The Project Public Participation Process should ensure that any cultural heritage related matters for this project are given due attention whenever they arise and are communicated KwaZulu Natal Amafa and Research Institute throughout the proposed project development. This form of extended community involvement would pre-empt any potential disruptions that may arise from previously unknown cultural heritage matter that may have escaped the attention of this study.
- The findings of this report, with approval of the KwaZulu Natal Amafa and Research Institute, may be classified as accessible to any interested and affected parties within the limits of the laws.

## **11. CONCLUDING REMARKS**

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The literature review and field research confirmed that the project area is situated within a contemporary cultural landscape dotted with settlements with long local history. The field survey established that the affected project area is degraded by existing infrastructure developments. Although the area is degraded, there is a possibility of encountering archaeological remains during excavation for pipeline trenches (see appended chance find procedure). In terms of the archaeology and heritage, there are no obvious 'Fatal Flaws' or 'No-Go' areas. No confirmable archaeological sites were recorded along the proposed pipeline route. The recorded burial sites are located outside the proposed pipeline impact zone. It should be borne in mind that the possibility of encountering archaeological remains during excavation for pipeline trenches and reservoir foundations. This report concludes that the proposed pipeline route and reservoir site may be approved by KwaZulu Natal Amafa and Research Institute to proceed as planned subject to recommendations herein made.

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## **APPENDIX 1: CHANCE FIND PROCEDURE**

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**CHANCE FIND PROCEDURE FOR PROPOSED UPGRADE OF CUBHU WATER TREATMENT PLANT (WTP) AND 9KM RISING MAIN LINE FROM CUBHU WTP TO EXISTING FOREST RESERVOIR IN UMHLATHUZE LOCAL MUNICIPALITY, KWAZULU NATAL PROVINCE**

**15 OCTOBER 2021**

## ACRONYMS

<b>BGG</b>	Burial Grounds and Graves
<b>CFPs</b>	Chance Find Procedures
<b>ECO</b>	Environmental Control Officer
<b>HIA</b>	Heritage Impact Assessment
<b>ICOMOS</b>	International Council on Monuments and Sites
<b>ISS</b>	Integrated Specialist Services (Pty) Ltd
<b>NHRA</b>	National Heritage Resources Act (Act No. 25 of 1999)
<b>SAHRA</b>	South African Heritage Resources Authority
<b>SAPS</b>	South African Police Service
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organisation

## **CHANCE FIND PROCEDURE**

### **INTRODUCTION**

An Archaeological Chance Find Procedure (CFP) is a tool for the protection of previously unidentified cultural heritage resources during construction. The main purpose of a CFP is to raise awareness of all construction workers and management on site regarding the potential for accidental discovery or damage of graves and cultural heritage resources and establish a procedure for the protection of these resources. Chance Finds are defined as potential cultural heritage (or paleontological) objects, features, or sites that are identified outside of or after Heritage Impact studies, normally as a result of construction monitoring. Chance Finds may be made by any member of the project team who may not necessarily be an archaeologist or even visitors. Appropriate application of a CFP on development projects has led to discovery of cultural heritage resources that were not identified during archaeological and heritage impact assessments. As such, it is considered to be a valuable instrument when properly implemented. For the CFP to be effective, the site manager must ensure that all personnel on the proposed development site understand the CFP and the importance of adhering to it if cultural heritage resources are encountered. In addition, training or induction on cultural heritage resources that might potentially be found on site should be provided. In short, the Chance find procedure details the necessary steps to be taken if any culturally significant artefacts are found during construction.

### **DEFINITIONS**

In short the term 'heritage resource' includes structures, archaeology, meteors, and public monuments as defined in the South African National Heritage Resources Act (Act No. 25 of 1999) (NHRA) Sections 34, 35, and 37. Procedures specific to burial grounds and graves (BGG) as defined under NHRA Section 36 will be discussed separately as this require the implementation of separate criteria for CFPs.

### **BACKGROUND**

Proposed construction site subject to heritage survey and assessment at planning stage in accordance with the NHRA Act 25 of 1999. These surveys are based on surface indications alone and it is therefore possible that sites or significant archaeological remains can be missed during surveys because they occur beneath the surface. These are often accidentally exposed in the course of construction or any associated construction work and hence the need for a Chance Find Procedure to deal with accidental finds. In this case an extensive Archaeological Impact Assessments completed by Mlilo (2021) for this current project is adequate. The AIA/HIA conducted was very comprehensive covering the entire site. The studies confirmed the existence of two burial sites located within 40 to 60m from the proposed pipeline route.



## **PURPOSE**

The purpose of this Chance Find Procedure is to ensure the protection of previously unrecorded heritage resources along the proposed pipeline route and water treatment site. This Chance Find Procedure intends to provide the applicant and contractors with appropriate response in accordance with the NHRA and international best practice. The aim of this CFP is to avoid or reduce project risks that may occur as a result of accidental finds whilst considering international best practice. In addition, this document seeks to address the probability of archaeological remains finds and features becoming accidentally exposed during earth moving and ground altering activities during construction. The proposed construction activities have the potential to cause severe impacts on significant tangible and intangible cultural heritage resources buried beneath the surface. Sativatec developed this Chance Find Procedure to define the process which govern the management of Chance Finds during construction. This ensures that appropriate treatment of chance finds while also minimizing disruption of the construction schedule. It also enables compliance with the KwaZulu Natal Amafa and Research Institute Act of 2018 and the NHRA and all relevant regulations. Archaeological Chance Find Procedures are to promote preservation of archaeological remains while minimizing disruption of construction scheduling. It is recommended that due to the low to moderate archaeological potential of the project area, all site personnel and contractors be informed of the Archaeological Chance Find procedure and have access to a copy while on site. This document has been prepared to define the avoidance, minimization and mitigation measures necessary to ensure that negative impacts to known and unknown archaeological remains as a result of project activities and are prevented or where this is not possible, reduced to as low as reasonably practical during construction.

Thus, this Chance Finds Procedure covers the actions to be taken from the discovering of a heritage site or item to its investigation and assessment by a professional archaeologist or other appropriately qualified person to its rescue or salvage.

## **CHANCE FIND PROCEDURE**

### **General**

The following procedure is to be executed in the event that archaeological material is discovered:

- All construction activity in the vicinity of the accidental find/feature/site must cease immediately avoid further damage to the site.
- Briefly note the type of archaeological materials you think you've encountered, and their location, including, if possible, the depth below surface of the find
- Report your discovery to your supervisor or if they are unavailable, report to the project ECO who will provide further instructions.

- If the supervisor is not available, notify the Environmental Control Officer immediately. The Environmental Control Officer will then report the find to the Site Manager who will promptly notify the project archaeologist and SAHRA.
- Delineate the discovered find/ feature/ site and provide 25m buffer zone from all sides of the find.
- Record the find GPS location, if able.
- All remains are to be stabilised *in situ*.
- Secure the area to prevent any damage or loss of removable objects.
- Photograph the exposed materials, preferably with a scale (a yellow plastic field binder will suffice).
- The project archaeologist will undertake the inspection process in accordance with all project health and safety protocols under direction of the Health and Safety Officer.
- **Chance Finds rescue strategy:** All investigation of archaeological soils will be undertaken by hand, all finds, remains and samples will be kept and submitted to a Museum as required. In the event that any artefacts need to be conserved, the relevant permit will be sought from KwaZulu Natal Amafa and Research Institute.
- An on-site office and finds storage area will be provided, allowing storage of any artefacts or other archaeological material recovered during the monitoring process.
- In the case of human remains, in addition to the above, the SAHRA Burial Ground Unit will be contacted and the guidelines for the treatment of human remains will be adhered to. If skeletal remains are identified, an archaeological will be available to examine the remains.
- The project archaeologist will complete a report on the findings as part of the permit application process.
- Once authorisation has been given by KwaZulu Natal Amafa and Research Institute, the Applicant will be informed when construction activities can resume.

## MANAGEMENT OF CHANCE FINDS CHANCE FINDS

Should the Heritage specialist conclude that the find is a heritage resource protected in terms of the NRHA (1999) Sections 34, 36, 37 and NHRA (1999) Regulations (Regulation 38, 39, 40), ISS will notify KwaZulu Natal Amafa and Research Institute on behalf of the applicant. KwaZulu Natal Amafa and Research Institute may require that a search and rescue exercise be conducted in terms of the legislation, this may include rescue excavations, for which an archaeologist will submit a rescue permit application having fulfilled all requirements of the permit application process.

In the event that human remains are accidentally exposed, SAHRA Burial Ground Unit or Heritage Specialist must immediately be notified of the discovery in order to take the required further steps:

- a. Heritage Specialist to inspect, evaluate and document the exposed burial or skeletal remains and determine further action in consultation with the SAPS and Traditional authorities:
- b. Heritage specialist will investigate the age of the accidental exposure in order to determine whether the find is a burial older than 60 years under the jurisdiction of SAHRA or that the exposed burial is younger than 60 years under the jurisdiction of the Department of Health in terms of the Human Tissue Act.
- c. The local SAPS will be notified to inspect the accidental exposure in order to determine where the site is a scene of crime or not.
- d. Having inspected and evaluated the accidental exposure of human remains, the project Archaeologist will then track and consult the potential descendants or custodians of the affected burial.
- e. The project archaeologist will consult with the traditional authorities, local municipality and SAPS to seek endorsement for the rescue of the remains. Consultation must be done in terms of NHRA (1999) Regulations 39, 40, 42;
- f. Having obtained consent from affected families and stakeholders, the project archaeologist will then compile a Rescue Permit application and submit to SAHRA Burial Ground and Graves Unit.
- g. As soon as the project archaeologist receives the rescue permit from KwaZulu Natal Amafa and Research Institute, he or she will in collaboration with the company/contractor arrange for the relocation in terms of logistics and appointing of an experienced undertaker to conduct the relocation process.
- h. The rescue process will be done under the supervision of the archaeologist, the site representative and affected family members. Retrieval of the remains shall be undertaken in such a manner as to reveal the stratigraphic and spatial relationship of the human skeletal remains with other archaeological features in the excavation (e.g., grave goods, hearths, burial pits, etc.). A catalogue and bagging system shall be utilised that will allow ready reassembly and relational analysis of all elements in a laboratory. The remains will not be touched with the naked hands; all Contractor personnel working on the excavation must wear clean cotton or non-powdered latex gloves when handling remains in order to minimise contamination of the remains with modern human DNA. The project archaeologist will document the process from exhumation to reburial.
- i. Having fulfilled the requirements of the rescue/burial permit, the project archaeologist will compile a mitigation report which details the whole process from discovery to relocation. The report will be submitted to KwaZulu Natal Amafa and Research Institute and to the applicant.

Note that the relocation process will be informed by KwaZulu Natal Amafa and Research Institute Regulations and the wishes of the descendants of the affected burial.



### 13. APPENDIX 1: HERITAGE MANAGEMENT PLAN INPUT INTO THE PROPOSED PROJECT EMP

Objective	<ul style="list-style-type: none"><li>Protection of archaeological sites and land considered to be of cultural value;</li><li>Protection of known physical cultural property sites against vandalism, destruction, and theft; and</li><li>The preservation and appropriate management of new archaeological finds should these be discovered during construction.</li></ul>							
No.	Activity	Mitigation Measures	Duration	Frequency	Responsibility	Accountable	Contacted	Informed
Pre-Construction Phase								
1	Planning	Ensure all known sites of cultural, archaeological, and historical significance are demarcated on the site layout plan and marked as no-go areas.	Throughout Project	Weekly Inspection	Contractor [C] CECO	SM	ECO	EA EM PM
Construction Phase								
1	Emergency Response	Should any archaeological or physical cultural property heritage resources be exposed during excavation for the purpose of construction, construction in the vicinity of the finding must be stopped until heritage authority has cleared the development to continue.	N/A	Throughout	C CECO	SM	ECO	EA EM PM
		Should any archaeological, cultural property heritage resources be exposed during excavation or be found on development site, a registered heritage specialist or KwaZulu Natal Amafa and Research Institute official must be called to site for inspection.		Throughout	C CECO	SM	ECO	EA EM PM
		Under no circumstances may any archaeological, historical or any physical cultural property heritage material be destroyed or removed from site;		Throughout	C CECO	SM	ECO	EA EM PM
		Should remains and/or artefacts be discovered on the development site during earthworks, all work will cease in the area affected and the Contractor will immediately inform the Construction Manager who in turn will inform KwaZulu Natal Amafa and Research Institute		When necessary	C CECO	SM	ECO	EA EM PM
		Should any remains be found on site that is potentially human remains, the KwaZulu Natal Amafa and Research Institute and South African Police Service should be contacted.		When necessary	C CECO	SM	ECO	EA EM PM
Rehabilitation Phase								
		Same as construction phase.						
Operational Phase								
		Same as construction phase.						

## 1. APPENDIX 2: LEGAL BACKGROUND AND PRINCIPLES OF HERITAGE RESOURCES MANAGEMENT IN SOUTH AFRICA

Extracts relevant to this report from the National Heritage Resources Act No. 25 of 1999, (Sections 5, 36 and 47):

General principles for heritage resources management

5. (1) All authorities, bodies and persons performing functions and exercising powers in terms of this Act for the management of heritage resources must recognise the following principles:

(a) Heritage resources have lasting value in their own right and provide evidence of the origins of South African society and as they are valuable, finite, non-renewable and irreplaceable they must be carefully managed to ensure their survival;

(b) every generation has a moral responsibility to act as trustee of the national heritage for succeeding generations and the State has an obligation to manage heritage resources in the interests of all South Africans;

(c) Heritage resources have the capacity to promote reconciliation, understanding and respect, and contribute to the development of a unifying South African identity; and

(d) Heritage resources management must guard against the use of heritage for sectarian purposes or political gain.

(2) To ensure that heritage resources are effectively managed—

(a) The skills and capacities of persons and communities involved in heritage resources management must be developed; and

(b) Provision must be made for the ongoing education and training of existing and new heritage resources management workers.

(3) Laws, procedures and administrative practices must—

(a) Be clear and generally available to those affected thereby;

(b) In addition to serving as regulatory measures, also provide guidance and information to those affected thereby; and

(c) Give further content to the fundamental rights set out in the Constitution.

(4) Heritage resources form an important part of the history and beliefs of communities and must be managed in a way that acknowledges the right of affected communities to be consulted and to participate in their management.

(5) Heritage resources contribute significantly to research, education and tourism and they must be developed and presented for these purposes in a way that ensures dignity and respect for cultural values.

(6) Policy, administrative practice and legislation must promote the integration of heritage resources conservation in urban and rural planning and social and economic development.

(7) The identification, assessment and management of the heritage resources of South Africa must—

(a) Take account of all relevant cultural values and indigenous knowledge systems;

(b) Take account of material or cultural heritage value and involve the least possible alteration or loss of it;

(c) Promote the use and enjoyment of and access to heritage resources, in a way consistent with their cultural

significance and conservation needs;

(d) Contribute to social and economic development;

(e) Safeguard the options of present and future generations; and

(f) Be fully researched, documented and recorded.

#### Burial grounds and graves

36. (1) where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.

(2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1), and must maintain such memorials.

(3) (a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—

(a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;

(b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or

(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

(4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

(5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection (3)(b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority—

(a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and

(b) reached agreements with such communities and individuals regarding the future of such grave or burial ground.

(6) Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority

(a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in

terms of this Act or is of significance to any community; and

(b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.

(7) (a) SAHRA must, over a period of five years from the commencement of this Act, submit to the Minister for his or her approval lists of graves and burial grounds of persons connected with the liberation struggle and who died in exile or as a result of the action of State security forces or agents provocateur and which, after a process of public consultation, it believes should be included among those protected under this section.

(b) The Minister must publish such lists as he or she approves in the Gazette.

(8) Subject to section 56(2), SAHRA has the power, with respect to the graves of victims of conflict outside the Republic, to perform any function of a provincial heritage resources authority in terms of this section.

(9) SAHRA must assist other State Departments in identifying graves in a foreign country of victims of conflict connected with the liberation struggle and, following negotiations with the next of kin, or relevant authorities, it may re-inter the remains of that person in a prominent place in the capital of the Republic.

#### General policy

47. (1) SAHRA and a provincial heritage resources authority—

(a) must, within three years after the commencement of this Act, adopt statements of general policy for the management of all heritage resources owned or controlled by it or vested in it; and

(b) may from time to time amend such statements so that they are adapted to changing circumstances or in accordance with increased knowledge; and

(c) must review any such statement within 10 years after its adoption.

(2) Each heritage resources authority must adopt for any place which is protected in terms of this Act and is owned or controlled by it or vested in it, a plan for the management of such place in accordance with the best environmental, heritage conservation, scientific and educational principles that can reasonably be applied taking into account the location, size and nature of the place and the resources of the authority concerned, and may from time to time review any such plan.

(3) A conservation management plan may at the discretion of the heritage resources authority concerned and for a period not exceeding 10 years, be operated either solely by the heritage resources authority or in conjunction with an environmental or tourism authority or under contractual arrangements, on such terms and conditions as the heritage resources authority may determine.

(4) Regulations by the heritage resources authority concerned must provide for a process whereby, prior to the adoption or amendment of any statement of general policy or any conservation management plan, the public and interested organisations are notified of the availability of a draft statement or plan for inspection, and comment is invited and considered by the heritage resources authority concerned.



- (5) A heritage resources authority may not act in any manner inconsistent with any statement of general policy or conservation management plan.
- (6) All current statements of general policy and conservation management plans adopted by a heritage resources authority must be available for public inspection on request.

## APPENDIX 3: BRIEF PROFILE

### Mr Trust Mlilo

Mr Trust Mlilo is an Archaeology and Heritage practitioner who works with Integrated Sativa Travel and Environmental Consultants (Pty) Ltd a private Heritage Consulting firm. Trust Mlilo served as an Archaeologist and Heritage Manager at Nzumbululo Holdings (RSA Ltd.) [www.nzumbululo.com] from 2008 to 2015. He has also collaborated in a number of archaeological and Heritage projects with Siyathembana 293Trading (Pty) Ltd, Finishing Touch (Pty) Ltd and Vhubvo Archeo-Heritage Consultants (Pty) Ltd. He is a professional heritage research consultant with more than 11 years of practice and experience in archaeology, heritage management and educational management. He has vast experience in Heritage Impact Assessments, Heritage induction, monitoring and mitigation. He has been working as a research assistant in Heritage development and nomination of heritage sites such as Nelson Mandela Legacy sites. He has attended and participated in several academic and professional symposiums and conferences.

Mr Mlilo has undertaken and assisted research teams in several projects in Sustainability, Energy & Environment (SEE); Environmental Health and Safety Solutions; Cultural Heritage Development (CHD) and Applied Socio-Economic Research and Enterprise Development [RED]. His willingness to learn has seen him participate as a research assistant and coordinator in research teams responsible, for example, in developing a Heritage Management Plan for sustainable mining for Venetia Diamond Mine for De Beers Consolidated Mines (2012 -2013); development of the Gauteng Provincial Human Settlement Strategy (2012), Integrated Development Planning (IDP) Environmental Toolkit (Mpumalanga Province [2011]), the Tourism Development Toolkit (Department of Environment and Tourism [2009]), etc. He is also effective in public engagements and consultations and has facilitated in several mining and infrastructure developments such as BHP Billiton 2013-2015 and Rhino Minerals 2009-2014. He has conducted hundreds of Heritage Impact Assessment projects for Eskom minor reticulation projects in Limpopo Province, Mpumalanga, North West, Gauteng and the Free State Province. Trust Mlilo has sound knowledge of heritage permit application processes and heritage mitigation processes. He is also effective in resource mobilization, team building and coordination. In addition, he has vast experience in project presentation and consultation.

### EDUCATION

Institution	Degree(s) or Diploma(s) obtained:
University of Pretoria	MA in Archaeology

University of Pretoria	BA Honours in Archaeology
University of Zimbabwe	Post Graduate Diploma in Education (History)
University of Zimbabwe	BA Gen. (Archaeology, African Languages & Linguistics)

#### LANGUAGE PROFICIENCY (Good, Fair, Poor)

Language	Reading	Speaking	Writing
English	Good	Good	Good
Shona	Good	Good	Good
Ndebele	Good	Good	Fair
Zulu	Fair	Good	Fair
Tsonga	Good	Good	Good
Tshivenda	Poor	Fair	Poor
Sesotho	Poor	Fair	Poor
Setswana	Poor	Fair	Poor
Xhosa	Poor	Fair	Poor
Afrikaans	Beginner's stage		

## SKILLS MATRIX

Current Skills levels:

- |                                 |                                |                              |                                     |                                |
|---------------------------------|--------------------------------|------------------------------|-------------------------------------|--------------------------------|
| 1 Had appropriate training only | 2 Limited practical experience | 3 Solid practical experience | 4 Well versed, extensive experience | 5 Expert, extensive experience |
|---------------------------------|--------------------------------|------------------------------|-------------------------------------|--------------------------------|

Type of Experience	Experience In months	Date Last used	Skill level
Communication and Marketing	+120	Current	4
Inter-personal and inter-governmental liaison	+120	Current	3
Organizational skills	+120	Current	4
Coordination	+120	Current	5
Facilitation	+120	Current	5
Planning	+120	Current	4
People Management	+120	Current	4
Time Management	+120	Current	5
Computer literacy (MS Office, Project management software, MAC OS)	+120	Current	3
Project management	+120	Current	4

### COMPUTER SKILLS:

- MS Operating System
  - Professional Level Competencies in: MS Word, MS Excel, MS Power-point, PMS Publisher, and Internet.
- Mac Operating System
- Photoshop

## ACADEMIC WORKS

- Mlilo T. is currently working on a paper entitled -The challenges of cultural heritage management in South Africa: A focus on the Klasies River main site.
- The Role of Modern Human Origins Research and its Role in post colonial discourse in South Africa (Pending)

### Title of Post-Graduate University Theses & Dissertations:

- **Master in Archaeology** (2013-2015, University of Pretoria) Management of the Klasies River main site along the Tsitsikamma Coast in the Eastern Cape Province.
- **BA Honours in Archaeology.** (2010, University of Pretoria): Comparison of conservation of archaeological sites under the jurisdiction of museums and sites in rural locations, the case BaKoni Malapa and Mahumane Late Iron Age Site in the Limpopo Province.
- **Post Graduate Diploma in Education.** (2000, University of Zimbabwe): An assessment of attitudes towards use of media in the teaching of History in Secondary schools in Gweru, Zimbabwe

### Selected Seminars, Lectures & Conference Papers

**July 2014: Pan Africanist Archaeologist Conference.** Johannesburg, South Africa Paper to be presented:

- *The challenges of heritage management in South Africa: A focus on the Klasies River main site.*

## WORK & PROFESSIONAL EXPERIENCE

**PERIOD:** 2015 to Present: Archaeologist and Heritage Manager at Sativa Travel and Environmental Consultants (Pty) Ltd an emerging consultancy with highly experienced Environmental and Heritage Specialists. Sativa Travel and Environmental Consultants (Pty) Ltd 's main focus is to provide quality specialist services in Heritage, Ecology, Palaeontology, Biodiversity, Geotech and Environmental Management. Sativa Travel and Environmental Consultants (Pty) Ltd team has successfully completed a significant number of projects and is looking forward to building its profile in both Environmental and Heritage fields.

**PERIOD: 2008 to 2015: Archaeologist and Heritage Manager** – Nzumbululo Holdings Limited [www.nzumbululo.com] (dynamic and market-leading consultancy providing innovative solutions in Applied Social-Economic Research and Enterprise Development services, Cultural Heritage Development, Sustainability, and Energy & Environment, Environmental Health and Safety).

**Specialist Responsibilities:** Project Management, fieldwork, community consultation, report compilation and any archaeology and heritage research projects.

- Conduct research for heritage and cultural landscape management projects that involve cultural resources management, heritage conservation management planning, heritage and environmental impact assessment, basic

assessment, project management, public participation coordination, predevelopment planning specialists input coordination and liaison with compliant agencies such as government departments.

## **SPECIALIST POSITIONS AND PROFESSIONAL CONSULTANCY EXPERIENCE**

### **2007 - 2014 Archeological and Heritage Impact Assessment Studies**

Have participated in Phase 1 (scoping studies) to Phase 2 and 3 heritage and archeological impact assessment studies (mitigation excavations, rescue or salvage excavation and monitoring studies) for infrastructural developments including, powerlines, roads and other developments. The Heritage Impact Assessment and Archaeological Impact Assessment portfolio during this period amounts to more than 400 projects across all nine provinces of South Africa and neighboring countries with an estimated value in excess of Million Rands in professional specialist fees and billions in associated project budgets.

### **January 2008 – 2014: Environmental and Heritage Impact Assessment Study for Eskom SOC Limited (Distribution and Transmission projects including hundreds of minor reticulation projects in Limpopo, Mpumalanga, North West and Gauteng Province.**

**Field Archaeologist and Heritage Manager:** Environmental Authorisation (EIA) and Heritage Impact Assessment (HIA) studies for Eskom SOC Transmission and Distribution projects. The Field archaeologist and heritage manager responsibilities involved coordinating a team of 4 (Archaeology, Palaeontology, Visual and Cultural Landscapes and Built Environment). This power transmission project is one of the largest and strategic transmission projects Eskom has ever embarked on in the past two decades.

### **July 2011 – March 2012: Research, Design and Development of the Delmas Treason Trials Commemorative Monument Project at Delmas Magistrate's Court, Mpumalanga Province.**

**Project Heritage Manager** and Research Assistant for archival, oral and historical research on the 1985-1989 Delmas 22 and 1989 Delmas 4 Treason Trials (the last of the infamous apartheid treason trials). The project entails detailed legal history on treason trials, conceptualise, design and develop and commission a public commemorative monument in honour of the treason Trialists. Hundreds of hours of digital recordings of interviews with legal struggle icons such as George Bizos, the late Justice Arthur Chaskalson, Advocate Gcina Malindi, Justice Yacob, former Premier Popo Molefe and all surviving Delmas trialists and their families were collected, project report was generated and South Africa's first monument dedicated to commemoration of treason trials was developed and unveiled in March 2012 at Delmas Court in Delmas Town, Mpumalanga.

### **2009 – October 2010: eThekweni Metropolitan Shembe Baptist Nazareth Church Cultural Landscape Project**

Commissioned by the eThekweni Metro Council as **Assistant Heritage Manager and Research Assistant** for the eThekweni Metropolitan Shembe Baptist Nazareth Church Cultural Landscape Project. The project involved conducting historical research into the evolution of Shembe Church, one of Africa's older and continuous independent churches that were founded by Isaiah Shembe in 1910. The second object was to propose, nominate the Shembe Cultural Landscape as Provincial Heritage Site under the protection of provincial and national heritage laws. The project closed with development of the cultural heritage Conservation Management Plan and nomination of Shembe cultural Landscape as Provincial Heritage Site (Nomination Approved by the KwaZulu Natal Provincial Heritage Council (Amafa Council) on Oct. 18 2010).



## **2008- 2009: Mpumalanga Province Greening, Heritage and Greening Mpumalanga Flagship Program Management Unit [PMU]**

**Research Assistant (Heritage)** for the Mpumalanga Provincial Government commissioned Mpumalanga Province Greening, Heritage and Greening Mpumalanga Flagship Program Management Unit [PMU]. Mr Mlilo assisted in archaeological and heritage components of the project.

### **AUXILLIARY SPECIALIST SKILLS**

#### **Key Management skills**

- Applied Environment & Heritage Management Research
- Sustainable development programmes assessment.
- Project Management
- Adult Education

#### **Other skills**

- Performance management
- Public Finance Management
- School administration and teaching
- Professional Archaeologist.

### **PROFESSIONAL AFFILIATIONS**

- Member: **Association of Southern African Professional Archaeologists (ASAPA).**

## REFEREES

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